# MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
# HIGHWAY DIVISION

PLAN AND PROFILE OF

## CORRIDOR IMPROVEMENTS ON WASHINGTON STREET (ROUTE 138) FROM CANTON T.L. TO CHARLES AVENUE, PHASE 2

IN THE TOWN OF

## STOUGHTON

## NORFOLK COUNTY

FEDERAL AID PROJECT NO. NHP(NHS)-003S(829)

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

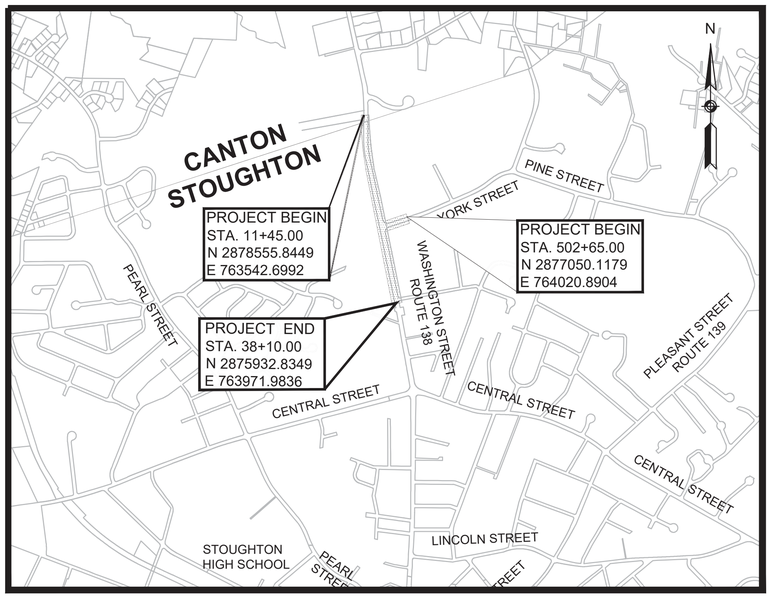
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 1 | 131 |
| | PROJECT FILE NO. 613358 | | |

**TITLE SHEET & INDEX**

THESE PLANS ARE SUPPLEMENTED BY THE LATEST EDITIONS OF THE FOLLOWING PUBLICATIONS, AS IDENTIFIED IN THE CONTRACT SPECIAL PROVISIONS: THE MASSDOT CONSTRUCTION STANDARD DETAILS, THE MASSDOT STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE MASSDOT STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, THE MASSDOT OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, THE MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, AND THE ANSI AMERICAN STANDARD FOR NURSERY STOCK.

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0 1,000 2,000 3,000 4,000

SCALE: 1" = 1,000'

LENGTH OF PROJECT = 2,665.00 FEET = 0.505 MILES

### DESIGN DESIGNATION (WASHINGTON STREET (ROUTE 138))

| | |
|---|---|
| DESIGN SPEED | 50 MPH (STA 11+00 TO 39+00) |
| ADT (2017) | 23,394 |
| ADT (2027) | 25,842 |
| K | 7.5% |
| D | 52% NB |
| T (PEAK HOUR) | 4.6% |
| T (AVERAGE DAY) | 3.8% |
| DHV | 1,940 |
| DDHV | 1,331 |
| FUNCTIONAL CLASSIFICATION | URBAN PRINCIPAL ARTERIAL |

### DESIGN DESIGNATION (YORK STREET)

| | |
|---|---|
| DESIGN SPEED | 30 MPH |
| ADT (2017) | 5,229 |
| ADT (2027) | 5,776 |
| K | 8.8% |
| D | 50% WB |
| T (PEAK HOUR) | 4.7% |
| T (AVERAGE DAY) | 3.0% |
| DHV | 506 |
| DDHV | 324 |
| FUNCTIONAL CLASSIFICATION | URBAN COLLECTOR |

COMMONWEALTH OF MASSACHUSETTS
MATTHEW J. SOLTYS
CIVIL
No. 53326
REGISTERED PROFESSIONAL ENGINEER

Matthew J. Soltys Digitally signed by Matthew J. Soltys Date: 2025.03.19 10:14:14 -04'00'


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| DATE | DESCRIPTION | REV # |
|---|---|---|
| | | |
| | | |
| | | |

massDOT
Massachusetts Department of Transportation
Highway Division

**APPROVED**

Carrie Lavallee, P.E. — Carrie Lavallee, P.E. 2025.03.19 11:17:54 -04'00' — 03/19/2025

CHIEF ENGINEER — DATE


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613358_HD(CURB TIE).DWG Plotted on 8-Dec-2023 11:38 AM

## GENERAL SYMBOLS

| EXISTING | PROPOSED | DESCRIPTION |
|---|---|---|
| JB | JB | JERSEY BARRIER |
| CB | CB | CATCH BASIN |
| | | CATCH BASIN WITH CURB INLET |
| | | SPECIAL (SP) CATCH BASIN |
| | FES | FIXED END SECTION |
| FP | FP | FLAG POLE |
| GP | GP | GAS PUMP |
| MB | MB | MAIL BOX |
| | | POST SQUARE |
| | | POST CIRCULAR |
| WELL | WELL | WELL |
| EHH | EHH | ELECTRIC HANDHOLE |
| | | FENCE GATE POST |
| GG | GG | GAS GATE |
| BHL # | BHL # | BORING HOLE |
| MW # | MW # | MONITORING WELL |
| TP # | TP # | TEST PIT |
| | | HYDRANT |
| | | LIGHT POLE |
| CO.BD. | | COUNTY BOUND |
| | | GPS POINT |
| Ⓒ | Ⓒ | CABLE MANHOLE |
| Ⓓ | Ⓓ | DRAINAGE MANHOLE |
| Ⓔ | Ⓔ | ELECTRIC MANHOLE |
| Ⓖ | Ⓖ | GAS MANHOLE |
| Ⓜ | Ⓜ | MISC MANHOLE |
| Ⓢ | Ⓢ | SEWER MANHOLE |
| Ⓣ | Ⓣ | TELEPHONE MANHOLE |
| Ⓦ | Ⓦ | WATER MANHOLE |
| MHB | MHB | MASSACHUSETTS HIGHWAY BOUND |
| MON | | MONUMENT |
| SB | | STONE BOUND |
| TB | | TOWN OR CITY BOUND |
| | | TRAVERSE OR TRIANGULATION STATION |
| TPL or GUY | TPL or GUY | TROLLEY POLE OR GUY POLE |
| HTP | | TRANSMISSION POLE |
| UFB | UFB | UTILITY POLE W/ FIREBOX |
| UPDL | UPDL | UTILITY POLE WITH DOUBLE LIGHT |
| ULT | ULT | UTILITY POLE W / 1 LIGHT |
| UPL | UPL | UTILITY POLE |
| | | BUSH |
| SIZE & TYPE | | TREE |
| | | STUMP |
| | | SWAMP / MARSH |
| WG | WG | WATER GATE |
| PM | PM | PARKING METER |
| | | OVERHEAD CABLE/WIRE |
| | | CURBING |
| 100 99 | | CONTOURS (ON-THE-GROUND SURVEY DATA) |
| 100 99 | | CONTOURS (PHOTOGRAMMETRIC DATA) |
| | | UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER) |
| | | UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER) |
| | | UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER) |
| | | UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER) |
| | | UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER) |
| | | UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER) |
| | | BALANCED STONE WALL |
| | | GUARD RAIL - STEEL POSTS |
| | | GUARD RAIL - WOOD POSTS |
| x | x | CHAIN LINK OR METAL FENCE |
| | | WOOD FENCE |
| | | COMPOST MULCH FILTER TUBES FOR EROSION CONTROL |
| | | TREE LINE |
| | | SAWCUT LINE |
| | | TOP OR BOTTOM OF SLOPE |
| | | EDGE OF PAVEMENT |
| | | LIMIT OF MICROMILLING AND OVERLAY |
| | | BANK OF RIVER OR STREAM |
| | | BORDER OF WETLAND |
| | | 100 FT WETLAND BUFFER |
| | | 200 FT RIVERFRONT BUFFER |
| | | STATE HIGHWAY LAYOUT |
| | | TOWN OR CITY LAYOUT |
| | | COUNTY LAYOUT |
| | | RAILROAD SIDELINE |
| | | TOWN OR CITY BOUNDARY LINE |
| | | PROPERTY LINE OR APPROXIMATE PROPERTY LINE |
| | | EASEMENT |

## TRAFFIC SYMBOLS

| EXISTING | PROPOSED | DESCRIPTION |
|---|---|---|
| 1 | 1 | CONTROLLER PHASE ACTUATED |
| | | TRAFFIC SIGNAL HEAD (SIZE AS NOTED) |
| | | WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED) |
| | | VIDEO DETECTION CAMERA |
| | | MICROWAVE DETECTOR |
| | | PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE |
| | * | EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT |
| | | VEHICULAR SIGNAL HEAD |
| | | VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED |
| | | FLASHING BEACON |
| | | PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED) |
| RRSG | RRSG | RAILROAD SIGNAL |
| OR | | SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED) |
| | 20' | MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED) |
| | | HIGH MAST POLE OR TOWER |
| | | SIGN AND POST |
| | | SIGN AND POST (2 POSTS) |
| | 20' | MAST ARM WITH LUMINAIRE |
| | | OPTICAL PRE-EMPTION DETECTOR |
| | | CONTROL CABINET, GROUND MOUNTED |
| | | CONTROL CABINET, POLE MOUNTED |
| | | FLASHING BEACON CONTROL AND METER PEDESTAL |
| | | LOAD CENTER ASSEMBLY |
| | | PULL BOX 12"x12" (OR AS NOTED) |
| | | ELECTRIC HANDHOLE 12"x24" (OR AS NOTED) |
| | | TRAFFIC SIGNAL CONDUIT |

## PAVEMENT MARKINGS SYMBOLS

| EXISTING | PROPOSED | DESCRIPTION |
|---|---|---|
| | | PAVEMENT ARROW - WHITE |
| ONLY | ONLY | LEGEND "ONLY" - WHITE |
| | SL | STOP LINE - 12 WIDE |
| | CW | CROSSWALK -12" WIDE |
| | SWL | SOLID WHITE LINE - 6" WIDE |
| | SYL | SOLID YELLOW LINE - 6" WIDE |
| | BWL | BROKEN WHITE LINE - 6" WIDE - 10' LINE AND 30' GAP |
| | BYL | BROKEN YELLOW LINE - 6" WIDE - 10' LINE AND 30' GAP |
| | DWL | DOTTED WHITE LINE - 6" WIDE - 3' LINE AND 9' GAP |
| | DYL | DOTTED YELLOW LINE - 6" WIDE - 3' LINE AND 9' GAP |
| | DWLEx | DOTTED WHITE LINE EXTENSION - 6" WIDE - 2' LINE AND 6' GAP |
| | DYLEx | DOTTED YELLOW LINE EXTENSION - 6" WIDE - 2' LINE AND 6' GAP |
| | DBWL | DOUBLE WHITE LINE - 6" WIDE |
| | DBYL | DOUBLE YELLOW LINE - 6" WIDE |
| | DDBYLEx | DOTTED DOUBLE YELLOW LINE EXTENSION - 6" WIDE - 2' LINE AND 6' GAP |
| | GFS | GREEN FRICTION SURFACE |

## ABBREVIATIONS

### GENERAL

| | |
|---|---|
| AADT | ANNUAL AVERAGE DAILY TRAFFIC |
| ABAN | ABANDON |
| ADJ | ADJUST |
| APPROX. | APPROXIMATE |
| A.C. | ASPHALT CONCRETE |
| ACCM PIPE | ASPHALT COATED CORRUGATED METAL PIPE |
| BIT. | BITUMINOUS |
| BC | BOTTOM OF CURB |
| BD. | BOUND |
| BL | BASELINE |
| BLDG | BUILDING |
| BM | BENCHMARK |
| BO | BY OTHERS |
| BOS | BOTTOM OF SLOPE |
| BR. | BRIDGE |
| CB | CATCH BASIN |
| CBCI | CATCH BASIN WITH CURB INLET |
| CC | CEMENT CONCRETE |
| CCM | CEMENT CONCRETE MASONRY |
| CEM | CEMENT |
| CI | CURB INLET |
| CIP | CAST IRON PIPE |
| CLF | CHAIN LINK FENCE |
| CL | CENTERLINE |
| CMP | CORRUGATED METAL PIPE |
| CSP | CORRUGATED STEEL PIPE |
| CO. | COUNTY |
| CONC | CONCRETE |
| CONT | CONTINUOUS |
| CONST | CONSTRUCTION |
| CR GR | CROWN GRADE |
| DHV | DESIGN HOURLY VOLUME |
| DI | DROP INLET |
| DIA | DIAMETER |
| DIP | DUCTILE IRON PIPE |
| DW | STEADY DON'T WALK - PORTLAND ORANGE |
| DWY | DRIVEWAY |
| ELEV (or EL.) | ELEVATION |
| EMB | EMBANKMENT |
| EOP | EDGE OF PAVEMENT |
| EXIST (or EX) | EXISTING |
| EXC | EXCAVATION |
| F&C | FRAME AND COVER |
| F&G | FRAME AND GRATE |
| FDN. | FOUNDATION |
| FDP | FULL DEPTH PAVEMENT |
| FLDSTN | FIELDSTONE |
| GAR | GARAGE |
| GD | GROUND |
| GFS | GREEN FRICTION SURFACE |
| GG | GAS GATE |
| GI | GUTTER INLET |
| GIP | GALVANIZED IRON PIPE |
| GRAN | GRANITE |
| GRAV | GRAVEL |
| GRD | GUARD |
| HDW | HEADWALL |
| HMA | HOT MIX ASPHALT |
| HOR | HORIZONTAL |
| HYD | HYDRANT |
| INV | INVERT |
| JCT | JUNCTION |
| L | LENGTH OF CURVE |
| LB | LEACH BASIN |
| LP | LIGHT POLE |
| LSA | LANDSCAPE AREA |
| LT | LEFT |
| MAX | MAXIMUM |
| MB | MAILBOX |
| MH | MANHOLE |
| MHB | MASSACHUSETTS HIGHWAY BOUND |
| MIN | MINIMUM |
| NIC | NOT IN CONTRACT |
| NO. | NUMBER |
| PC | POINT OF CURVATURE |
| PCC | POINT OF COMPOUND CURVATURE |
| PCR | PEDESTRIAN CURB RAMP |
| P.G.L. | PROFILE GRADE LINE |
| PI | POINT OF INTERSECTION |
| POC | POINT ON CURVE |
| POT | POINT ON TANGENT |
| PRC | POINT OF REVERSE CURVATURE |
| PROJ | PROJECT |
| PROP | PROPOSED |
| PSB | PLANTABLE SOIL BORROW |
| <PT | ANGLE POINT |
| PT | POINT OF TANGENCY |

## ABBREVIATIONS (cont.)

### GENERAL

| | |
|---|---|
| PUE | PERMANENT UTILITY EASEMENT |
| PVC | POINT OF VERTICAL CURVATURE |
| PVI | POINT OF VERTICAL INTERSECTION |
| PVT | POINT OF VERTICAL TANGENCY |
| PVMT | PAVEMENT |
| PWW | PAVED WATERWAY |
| R | RADIUS OF CURVATURE |
| R&D | REMOVE AND DISPOSE |
| RCP | REINFORCED CONCRETE PIPE |
| RD | ROAD |
| RDWY | ROADWAY |
| REM | REMOVE |
| RET | RETAIN |
| RET WALL | RETAINING WALL |
| ROW | RIGHT OF WAY |
| RR | RAILROAD |
| R&R | REMOVE AND RESET |
| R&S | REMOVE AND STACK |
| RT | RIGHT |
| SB | STONE BOUND |
| SHLD | SHOULDER |
| SHALT | STATE HIGHWAY ALTERATION |
| SMH | SEWER MANHOLE |
| ST | STREET |
| STA | STATION |
| SSD | STOPPING SIGHT DISTANCE |
| SHLO | STATE HIGHWAY LAYOUT LINE |
| SHALT | STATE HIGHWAY LAYOUT ALTERATION |
| SW | SIDEWALK |
| T | TANGENT DISTANCE OF CURVE/TRUCK % |
| TAN | TANGENT |
| TEMP | TEMPORARY |
| TC | TOP OF CURB |
| TOS | TOP OF SLOPE |
| TYP | TYPICAL |
| UP | UTILITY POLE |
| VAR | VARIES |
| VERT | VERTICAL |
| VC | VERTICAL CURVE |
| WG | WATER GATE |
| WIP | WROUGHT IRON PIPE |
| WM | WATER METER/WATER MAIN |
| WGL | WHITE GORE LINE |
| YGL | YELLOW GORE LINE |

### TRAFFIC SIGNAL ABBREVIATIONS

| | |
|---|---|
| B | BICYCLE |
| CAB | CABINET |
| CCVE | CLOSED CIRCUIT VIDEO EQUIPMENT |
| DW | STEADY UPRAISED HAND |
| FDW | FLASHING UPRAISED HAND |
| FR | FLASHING CIRCULAR RED |
| FRB | FLASHING RED BIKE INDICATION |
| FRL | FLASHING RED LEFT ARROW |
| FRR | FLASHING RED RIGHT ARROW |
| FY | FLASHING CIRCULAR YELLOW |
| FYL | FLASHING YELLOW LEFT ARROW |
| FYR | FLASHING YELLOW RIGHT ARROW |
| FYB | FLASHING YELLOW BIKE INDICATION |
| G | STEADY CIRCULAR GREEN |
| GL | STEADY GREEN LEFT ARROW |
| GR | STEADY GREEN RIGHT ARROW |
| GSL | STEADY GREEN SLASH LEFT ARROW |
| GSR | STEADY GREEN SLASH RIGHT ARROW |
| GV | STEADY GREEN VERTICAL ARROW |
| OL | OVERLAP |
| PED | PEDESTRIAN |
| PTZ | PAN, TILT, ZOOM |
| R | STEADY CIRCULAR RED |
| RL | STEADY RED LEFT ARROW |
| RR | STEADY RED RIGHT ARROW |
| TR SIG | TRAFFIC SIGNAL |
| TSC | TRAFFIC SIGNAL CONDUIT |
| W | STEADY WALKING PERSON |
| Y | STEADY CIRCULAR YELLOW |
| YL | STEADY YELLOW LEFT ARROW |

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 2 | 131 |
| PROJECT FILE NO. | 613358 | | |

**LEGEND AND ABBREVIATIONS**

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 3 | 131 |
| PROJECT FILE NO. | 613358 | | |

## GENERAL NOTES

GENERAL NOTES

1. THE EXISTING CONDITIONS SHOWN ON THESE PLANS ARE THE OF AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY BAY COLONY GROUP, INC.IN JANUARY OF 2014 AND WERE SUPPLEMENTED BY ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY NITSCH ENGINEERING FROM SEPTEMBER TO OCTOBER OF 2017, AND IN FEBRUARY 2020 .

2. THE LOCATION OF STATE, COUNTY, MUNICIPAL AND PRIVATE RIGHT OF WAY LINES SHOWN HEREON ARE POSITIONED ON RECOVERED RECORD MONUMENTS LOCATED WITH ON-THE-GROUND INSTRUMENT SURVEY. DIVISIONS OF OWNERSHIPS ARE COMPILED FROM AVAILABLE RECORDS PLANS, DEEDS AND ASSESSOR'S MAPS.

3. COORDINATES SHOWN HEREON ARE RESULTANT FROM GPS OBSERVATIONS TO THE MaCORS NETWORK, CONVENTIONAL TOTAL STATION TRAVERSING AND DIFFERENTIAL LEVELING AND ARE RELATED TO THE NORTH AMERICAN DATUM OF 1983-NAD83(2011),SPC83- MASSACHUSETTS (MAINLAND ZONE), EPOCH 2010.00. SOURCE CONTROL POINTS' COORDINATES, ELEVATIONS AND COMBINED SCALE FACTOR WERE ESTABLISHED BY MASS DOT GEODETIC AND ARE LISTED BELOW:

| PNTS | NORTHING | EASTING | ELEV. | COMBINED SCALE FACTOR |
|---|---|---|---|---|
| 516 | 2875014.07 | 764111.09 | 237.50 | 0.99995774 |
| 517 | 2875356.36 | 764051.47 | 238.45 | 0.99995768 |
| 518 | 2875585.69 | 764010.05 | 236.32 | 0.99995777 |
| 533 | 2872368.48 | 764141.82 | 242.09 | 0.99995767 |

4. ELEVATION SHOWN HEREON ARE RESULTANT FROM GPS OBSERVATIONS TO MaCORS NETWORK AND DIFFERENTIAL LEVELING AND ARE RELATED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988(NAVD 88) AND RELATIVE TO POINTS 516, 517, 518, AND 533 AS SHOWN ABOVE.

5. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE HIS OWN DETERMINATION OF SUBSURFACE CONDITIONS INCLUDING THE LOCATION OF ROCK AND THE ACTUAL LOCATION OF UTILITIES OR OTHER FEATURES WHICH MAY AFFECT HIS WORK.

6. EXISTING UTILITIES SHOWN ON THESE PLANS WERE COMPILED FROM FIELD SURVEYS AND VARIOUS OTHER SOURCES. LOCATIONS ARE NOT GUARANTEED TO BE ACCURATE NOR IS IT GUARANTEED THAT ALL UTILITIES ARE SHOWN. NO SEPARATE OR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR DUE TO ANY VARIANCE BETWEEN THE DATA SHOWN ON THE PLANS AND ACTUAL FIELD CONDITIONS ENCOUNTERED. 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 THIS INFORMATION FURNISHED TO THE ENGINEER.

7. THE RELOCATION, INSTALLATION OR REMOVAL OF PRIVATE UTILITIES SHALL BE ACCOMPLISHED BY THEIR OWNERS, EXCEPT AS OTHERWISE NOTED. THE CONTRACTOR WILL BE REQUIRED TO COOPERATE WITH THE PRIVATE UTILITY COMPANIES AND ALLOW THEM ADEQUATE TIME TO COMPLETE THEIR WORK IN ADVANCE OF PERFORMING ANY PAVING OPERATIONS OR OTHER FINISHED WORK.

8. AREAS OUTSIDE OF THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE TO THEIR ORIGINAL CONDITION AND TO THE SATISFACTION OF THE ENGINEER.

9. THE CONTRACTOR SHALL CONTACT "DIG SAFE" AT 1-888-DIG-SAFE AT LEAST 72 HOURS PRIOR TO COMMENCING WORK ON THE PROJECT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND FOR MAINTAINING SEDIMENT CONTROL BARRIER, SILT FENCE(S), AND OTHER EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF THE CONTRACT AS SHOWN ON THE PLANS AND AS REQUIRED BY THE ENGINEER.

11. NO EXISTING DRAINAGE SYSTEMS SHALL BE ABANDONED, PLUGGED OR REMOVED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

12. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL SAFETY CODES AND LEGAL REQUIREMENTS, IN THE CONSTRUCTION OF IMPROVEMENTS.

13. ALL EXISTING PIPING AND STRUCTURES EXPOSED DURING EXCAVATION SHALL BE ADEQUATELY SUPPORTED, BRACED OR OTHERWISE PROTECTED DURING CONSTRUCTION ACTIVITIES. EXCAVATIONS SHALL BE BACK FILLED DAILY AT THE COMPLETION OF WORK.

14. UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER, THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES IN SERVICE AT ALL TIMES. IF THE CONTRACTOR DAMAGES UTILITY SYSTEMS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE RESPECTIVE UTILITY COMPANY AND SHALL REPAIR/REPLACE THE AFFECTED SYSTEM AT HIS OWN EXPENSE.

15. ALL MATERIALS TO BE REMOVED AND DISCARDED SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

16. CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SHORING OF ALL EXCAVATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING CODES AND REGULATIONS.

17. THE TEMPORARY TRAFFIC CONTROL PLANS INDICATE THE GENERAL REQUIREMENTS FOR THE VARIOUS PHASES OF WORK. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC MANAGEMENT PLANS TO THE ENGINEER FOR APPROVAL.

18. ALL PROPOSED EXCAVATION SUPPORT SYSTEMS SHALL BE CONSIDERED INCIDENTAL TO THE APPLICABLE ITEMS.

19. THE FLOW OF TRAFFIC THROUGH THE SITE MUST BE MAINTAINED AS SHOWN ON THE TRAFFIC CONTROL PLANS AND SPECIFIED IN THE SPECIAL PROVISIONS. CONSTRUCTION EQUIPMENT AND MATERIALS SHALL NOT BE PARKED OR STOCKPILED SO AS TO OBSTRUCT THE FLOW OF VEHICLES.

20. ALL CATCH BASIN RIM ELEVATIONS ARE GIVEN AT THE CENTER OF THE BACK OF THE GRATE. THE CATCH BASIN RIM SHALL BE SET FLUSH WITH THE ROADWAY FINISHED GRADE.

21. ALL PROPOSED CATCH BASINS, UNLESS NOTED OTHERWISE, SHALL HAVE A 4' DEEP SUMP PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COMPENSATION.

22. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED SHALL BE MADE AS APPROVED OR REQUIRED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.

23. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IN SUITABLE CONDITION IDENTIFIED AS "REMOVE AND RESET" (R&R).

24. SURFACE JOINTS BETWEEN NEW HOT MIX ASPHALT ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALANT.

25. ALL LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

26. ALL EXISTING GRANITE CURB & EDGING IN SUITABLE CONDITION SHALL BE RE-USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.

27. IN AREAS OF FULL DEPTH PAVEMENT AND SIDEWALK RECONSTRUCTION WHERE PROPOSED MEETS EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE SAWCUT TO OBTAIN A CLEAN VERTICAL FACE.

28. THE LAYOUT OF ALL NEW PEDESTRIAN RAMPS SHALL CONFORM TO ADA/AAB STANDARDS AND CURRENT MASSDOT STANDARDS AND DIRECTIVES.

29. THE TOPMOST SURFACE OF ALL UTILITY AND DRAINAGE FRAMES, GRATES, AND COVERS SHALL BE INSTALLED FLUSH WITH SURROUNDING PAVEMENT.

30. THE CONTRACTOR SHALL PROVIDE INLET PROTECTION DURING CONSTRUCTION FOR ALL EXISTING AND PROPOSED CATCH BASINS/AREA DRAINS WITHIN THE LIMIT OF WORK. REFER TO THE DETAIL ENTITLED "INLET PROTECTION FOR CATCH BASIN WITH SILTATION SACK" ON THE CONSTRUCTION DETAIL SHEETS.

31. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF DRAINAGE STRUCTURE SEDIMENTS WITHIN THE STATE HIGHWAY LAYOUT AND LIMIT OF WORK AS REQUIRED BY THE ENGINEER AND IN ACCORDANCE WITH THE RELEVANT PROVISIONS OF SECTION 227 OF THE MASSDOT STANDARD SPECIFICATIONS, AS AMENDED.

32. ALL EXISTING/PROPOSED FRAMES AND COVERS/GRATES WITHIN THE PROJECT LIMITS SHALL COMPLY WITH MASSDOT ENGINEERING DIRECTIVE E-16-003. BOLT DOWN MANHOLE COVER ASSEMBLIES SHALL BE INSTALLED ON ALL MANHOLES FROM STA 12+70 TO 40+00. EXISTING COVERS THAT DO NOT COMPLY WITH E-16-003 SHALL BE REMOVED AND DISCARDED AND REPLACED WITH NEW FRAMES AND COVERS.

33. THE CONTRACTOR SHALL BE ADVISED THAT DURING SOIL BORING MA-1, FOR MAST ARM #4 AT THE INTERSECTION OF WASHINGTON STREET AND YORK STREET, BOULDERS WERE ENCOUNTERED. THE CONTRACTOR SHALL BE AWARE THAT BOULDERS MAY BE ENCOUNTERED FOR THE MAST ARM'S FOUNDATION AND ADDITIONAL CONCRETE MAY BE REQUIRED DUE TO THE SHAFT'S SOUL SIDES NOT BEING SMOOTH/NEAT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS ADDITIONAL CONCRETE.

34. SUBSURFACE UTILITY ENGINEERING (SUE) LEVEL A WAS PERFORMED ON THE EXISTING HIGH TRANSMISSION ELECTRIC DUCT BANK FROM STATION 11+45 TO 28+50. TEST PIT DATA AND SUE PLANS ARE INCLUDED IN SHEETS 47 TO 54. THE CONTRACTOR SHALL NOTIFY EVERSOURCE PRIOR TO WORKING NEAR THE DUCT BANK. ALL OTHER UTILITIES SHOWN WITHIN THE PLANS HAVE SUE LEVEL C.

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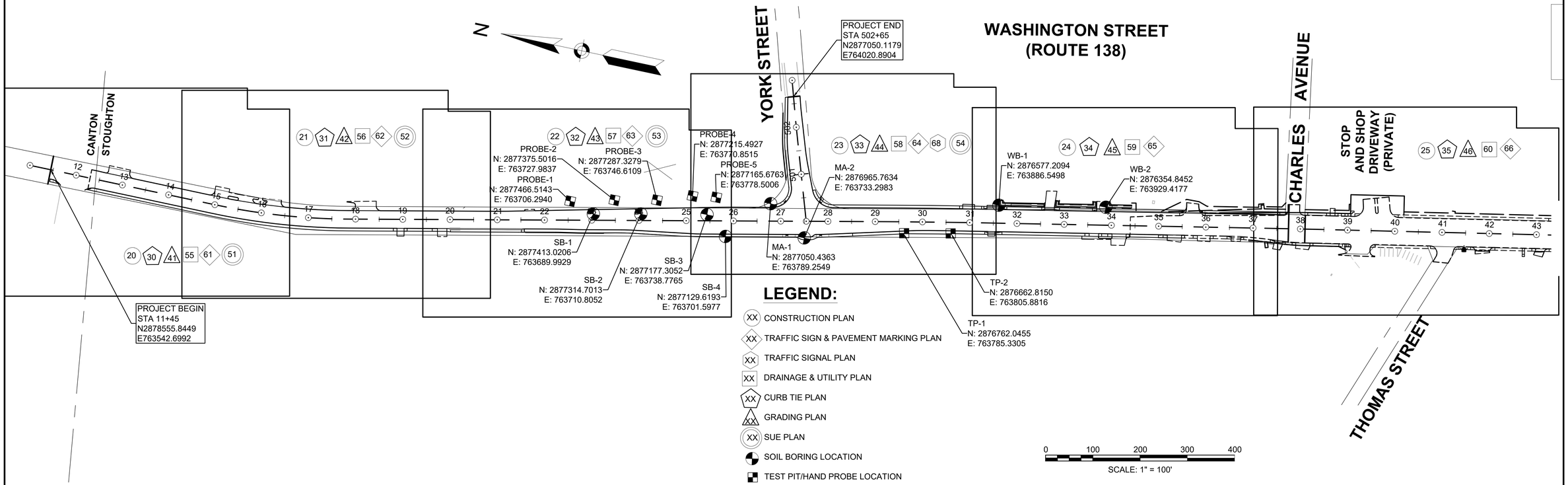
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 4 | 131 |
| | PROJECT FILE NO. 613358 | | |

**KEY PLAN & BORING LOCATION PLAN**




## LEGEND:

- XX CONSTRUCTION PLAN
- XX TRAFFIC SIGN & PAVEMENT MARKING PLAN
- XX TRAFFIC SIGNAL PLAN
- XX DRAINAGE & UTILITY PLAN
- XX CURB TIE PLAN
- XX GRADING PLAN
- XX SUE PLAN
- SOIL BORING LOCATION
- TEST PIT/HAND PROBE LOCATION

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BORING NOTES:
1. LOCATION OF BORINGS SHOWN ON THE KEY PLAN AND BORING LOCATION PLAN THUS:
2. LOCATION OF TEST PITS AND HAND PROBES SHOWN ON THE KEY PLAN AND BORING LOCATION PLAN THUS:
3. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
4. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
5. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 3/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
6. ALL BORINGS WERE MADE IN MARCH 2022.
7. BORINGS WERE MADE BY NORTHERN DRILL SERVICE INC., 130 E MAIN ST, NORTHBOROUGH, MA 01532
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.
9. BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 5 | 131 |
| PROJECT FILE NO. | 613358 | | |

**SOIL BORING & EXPLORATION LOGS**

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## BORING LOG — MA-1

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/4/22 **DATE COMPLETED:** 3/4/22
**BORING LOCATION:** Near Northern side of York St
**COORDINATES:** N: 2877050.4363 E: 763789.2549
**SURFACE El.:** 216 ft. (see note 1) **TOTAL DEPTH:** 21 ft.
**WEATHER:** 20's / Sunny
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 6.0 ft. / El. 210.0 ft. Based on sample moisture
**AT END OF DRILLING:** 17.0 ft. / El. 199.0 ft.
**OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Zac Nader
**DRILLING METHOD:** Drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Diedrich D-25 ATV
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** TG **CHECKED BY:** NP

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | 215.0 | 0 | S1 | 6-15-13-11 (28) | 24/14 | | Topsoil | 0.6 215.4 | S1 - Top 7": Topsoil |
| | | | | | | | Fill | | Bot. 7": Silty SAND with Gravel (SM), fine to coarse, ~15% fines, 25-30% fine to coarse angular gravel, trace of organic soil, brown moist |
| | | 2 | S2 | 8-10-19-11 (29) | 24/9 | | | 2.0 214.0 | S2 - Poorly Graded SAND with Silt (SP-SM), fine to medium, 5-10% fines, light brown, moist |
| 5 | | 4 | S3 | 7-6-7-6 (13) | 24/3 | | | | S3 - Well Graded GRAVEL (GW), fine to coarse, subrounded, 0-5% fines, ~10% fine to coarse sand, brown, moist |
| | 210.0 | 6 | S4 | 5-5-6-4 (11) | 24/10 | | Sand and Gravel | | S4 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, ~5% fines, ~30% fine to coarse subrounded gravel, light brown, wet |
| | | 8 | | | | | | | |
| | | 9 | S5 | 40-60/1" | 7/0 | | | | S5 - No recovery |
| 10 | | 9.6 | | | | | | 9.6 206.4 | REMARK 1: Spun 3" casing at depth of 9.6'. Drilled through boulder from 9.6' to 13.5'. |
| | 205.0 | | | | | 1 | Boulder | | |
| | | | | | | | | 13.5 | |
| | | 14 | S6 | 100/1" | 1/0 | 2 | Sand and Gravel | 14.0 202.0 | REMARK 2: Drove casing to depth of 14.0' through what appears to be a thin sand seam about 6.0" thick. |
| 15 | | 14.1 | | | | | | | S6 - No recovery |
| | 200.0 | | | | | | Boulder | | |
| | | | | | | | | 17.5 | |
| | | | | | | 3 | | 198.5 | REMARK 3: Drilled through boulder. Used 5 tanks of water drilling 9.6' to 20.0'. Broke through boulder at depth of 17.5'. |
| 20 | | 19 | S7 | 23-29-33-29 (62) | 24/9 | | Sand and Gravel | | S7 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 30-35% fine to coarse angular gravel, trace of weathered rock, brown wet |
| | 195.0 | 21 | | | | | | 21.0 | |
| 25 | | | | | | | | | Bottom of borehole at 21.0 feet. Backfilled borehole with drill cutting and 7 bags of gravel. |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## BORING LOG — MA-2

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/23/22 **DATE COMPLETED:** 3/23/22
**BORING LOCATION:** Near west side of York St and Washington St
**COORDINATES:** N: 2876965.7634 E: 763733.2983
**SURFACE El.:** 219 ft. (see note 1) **TOTAL DEPTH:** 18.2 ft.
**WEATHER:** 40's / Sunny
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 14.0 ft. / El. 205.0 ft. Based on sample moisture
**AT END OF DRILLING:** 9.2 ft. / El. 209.8 ft.
**OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Zac Nader
**DRILLING METHOD:** Drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Diedrich D-25 ATV
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** TG **CHECKED BY:** HO

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 0 | S1 | 3-6-9-5 (15) | 24/11 | | Topsoil | 0.4 218.6 | S1 - S1 Top 4": Topsoil |
| | | | | | | | | | S1 Bot 7": Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 35-40% fine to coarse subangular gravel, trace of organic soil, brown, moist |
| | | 2 | S2 | 7-4-3-2 (7) | 24/2 | | Fill | | S2 - Buried Topsoil, trace of roots, dark brown, moist |
| | 215.0 | 4 | | | | | | 4.0 215.0 | |
| 5 | | | S3 | 5-3-3-3 (6) | 24/1 | | | | S3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, ~5% fines, 25-30% fine subrounded gravel, brown, moist |
| | | 6 | S4 | 4-8-11-7 (19) | 24/3 | 1 | Sand and Gravel | | S4 - Similar to S3, 5-10% fines, 20-25% fine to coarse subrounded gravel |
| | | | | | | | | | REMARK 1: Drove 3" spoon from 4.0' to 8.0'. |
| | | 8 | S5 | 9-6-9-7 (15) | 24/6 | | | | S5 - Similar to S3, 35-40% fine to coarse subrounded gravel |
| | 210.0 | 10 | | | | | | | |
| 10 | | | | | | | | | |
| | | | | | | | | | |
| | 205.0 | 14 | S6 | 5-5-9-30 (14) | 24/6 | | | | S6 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 25-30% fine to coarse subrounded to angular gravel, gray to brown, wet (rock in tip of spoon) |
| 15 | | 16 | | | | | | 16.0 203.0 | |
| | | | | | | 2 | Rock | | REMARK 2: Advanced button bit from 16.0' to 18.2' in possible rock. Used 1.5 tanks of water drilling from 16.0' to 18.2'. |
| | 200.0 | | | | | | | 18.2 | |
| 20 | | | | | | | | | Bottom of borehole at 18.2 feet. Backfilled borehole with drill cutting and 4 bags of gravel. |
| | 195.0 | | | | | | | | |
| 25 | | | | | | | | | |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 6 | 131 |
| PROJECT FILE NO. | 613358 | | |

**SOIL BORING & EXPLORATION LOGS**

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## BORING LOG — SB-1 PAGE 1 OF 2

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/22/22 **DATE COMPLETED:** 3/23/22
**BORING LOCATION:** ~60 ft. North of UP #11
**COORDINATES:** N: 2877413.0206 E: 763689.9929
**SURFACE EI.:** 202 ft. (see note 1) **TOTAL DEPTH:** 31 ft.
**WEATHER:** 50's / Sunny
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 6.0 ft. / El. 196.0 ft. Based on sample moisture
**AT END OF DRILLING:** 13.0 ft. / El. 189.0 ft.
**OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Carl Bierholm
**DRILLING METHOD:** Drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Mobile B-57 Truck Rig
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** OL / TG **CHECKED BY:** HO

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El. (ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Asphalt | 0.6 | 7" of Asphalt |
| | | | | | | 1 | Concrete | 1.2 / 200.8 | 7" of Concrete<br>REMARK 1: Advanced button bit through concrete below asphalt, first sample taken at 2.0'. |
| | 200.0 | 2 | S1 | 17-18-10-4 (28) | 24/9 | | | | S1 - S1 Top 4": Well Graded GRAVEL with Sand (GW), fine to coarse, angular, 0-5% fines, ~30% fine to coarse sand, mostly pink, wet (possible broken cobble)<br>S1 Bot 5": Silty SAND with Gravel (SM), fine, trace medium, sightly plastic, 20-25% fines, ~20% fine subrounded gravel, brown, moist |
| 5 | | 4 | S2 | 7-5-3-4 (8) | 24/4 | | | | S2 - Well Graded GRAVEL with Sand (GW), fine to coarse, angular, 0-5% fines, ~15% coarse sand, gray, wet (possible broken cobble) |
| | 195.0 | 6 | S3 | 7-8-3-5 (11) | 24/3 | | | | S3 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded to angular, 5-10% fines, ~15% fine to coarse sand, brown, wet |
| | | 8 | S4 | 3-4-3-6 (7) | 24/6 | 2 | | | REMARK 2: 2" spoon did not collect sample so redrove 3" spoon at depth of 8.0'.<br>S4 - S4 Top 3": Well Graded GRAVEL (GW), fine to coarse, subround to subangular, 0-5% fines, 0-5% coarse sand, brown, wet<br>S4 Bot 3": Silty SAND (SM), fine to medium, ~20% fines, 5-10% fine gravel, brown, wet |
| 10 | | 10 | S5 | 10-7-3-5 (10) | 24/7 | 3 | Fill | | REMARK 3: 2" spoon did not collect sample so redrove 3" spoon at depth of 10.0'.<br>S5 - S5 Top 3":Silty SAND with Gravel (SM), fine to medium, ~15% fines, 25-30% subround gravel, brown, wet |
| | 190.0 | 12 | S6 | 7-6-11-6 (17) | 24/7 | | | | S5 Bot 4": Poorly Graded GRAVEL with Sand (GP), fine, subangular, 0-5% fines, 30-35% medium to coarse sand, brown, wet<br>S6 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded to angular, 5-10% fines, 15-20% coarse sand, brown, wet |
| 15 | | 14 | S7 | 13-12-12-6 (24) | 24/5 | | | | S7 - Well Graded GRAVEL with Sand (GW), fine to coarse, 0-5% fines, 15-20% coarse sand, gray, moist |
| | 185.0 | 16 | S8 | 9-8-8-7 (16) | 24/8 | | | | S8 - Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 20-25% coarse subangular gravel, brown, wet |
| | | 18 | | | | | | 19.0 / 183.0 | |
| 20 | | 19 | S9 | 2-2-4-3 (6) | 24/24 | | Peat | | S9 - PEAT (PT), fibrous, trace leaves, trace roots, trace wood, black, wet |
| | 180.0 | 21 | S10 | 4-3-3-6 (6) | 24/15 | | | | S10 - S10 Top 12": Similar to S9<br>S10 Bot 3": PEAT (PT), nonfibrous, trace roots, 20-25% fine sand, black, wet |
| | | 23 | S11 | 4-5-5-11 (10) | 24/7 | | | 23.6 / 178.4 | S11 - Silty SAND with Gravel (SM), fine to medium, 15-20% fines, 20-25% fine subrounded gravel, trace organic soil, brown, light gray at bottom of sample, wet |
| 25 | | | | | | | Sand and Gravel | | |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## BORING LOG — SB-1 PAGE 2 OF 2

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El. (ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 25 | S12 | 15-16-17-19 (33) | 24/7 | | Sand and Gravel | 178.4 | S12 - Well Graded GRAVEL with Sand (GW), fine to coarse, subrounded to angular, 0-5% fines, 25-30% fine to medium sand, gray, wet |
| | 175.0 | 27 | | | | | | | |
| | | 29 | S13 | 12-8-10-11 (18) | 24/2 | | | | S13 - Poorly Graded GRAVEL (GP), coarse, subangular, 0-5% fines, brown wet<br>Drove 3" spoon, similar to S13, ~10% fine to coarse sand |
| 30 | | 31 | | | | | | 31.0 | |
| | 170.0 | | | | | | | | Bottom of borehole at 31.0 feet. Backfilled borehole with drill cutting and 6 bags of gravel. Ground surface was restored with cold patch asphalt. |
| 35 | | | | | | | | | |
| | 165.0 | | | | | | | | |
| 40 | | | | | | | | | |
| | 160.0 | | | | | | | | |
| 45 | | | | | | | | | |
| | 155.0 | | | | | | | | |
| 50 | | | | | | | | | |
| | 150.0 | | | | | | | | |
| 55 | | | | | | | | | |
| | 145.0 | | | | | | | | |
| 60 | | | | | | | | | |

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## BORING LOG

**SB-2**
PAGE 1 OF 2

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/21/22 **DATE COMPLETED:** 3/22/22
**BORING LOCATION:** ~40 ft. South of UP #11
**COORDINATES:** N: 2877314.7013 E: 763710.8052
**SURFACE EL.:** 204 ft. (see note 1) **TOTAL DEPTH:** 26 ft.
**WEATHER:** 50's / Sunny
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 8.0 ft. / El. 196.0 ft. Based on sample moisture
**AT END OF DRILLING:** 19.5 ft. / El. 184.5 ft.
**OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Carl Bierholm
**DRILLING METHOD:** Drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Mobile B-57 Truck Rig
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** AML **CHECKED BY:** HO

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Asphalt | 0.7 | 8" of Asphalt |
| | | | | | | 1 | | | REMARK 1: Advanced button bit through concrete below asphalt, first sample taken at 2.0'. |
| | 200.0 | 2 | S1 | 12-8-5-6 (13) | 24/10 | | | | S1 - Silty SAND with Gravel (SM), fine to coarse, ~20% fines, 25-30% fine to coarse subangular gravel, brown, moist |
| 5 | | 4 | S2 | 6-5-4-4 (9) | 24/2 | | | | S2 - Well Graded GRAVEL (GW), fine to coarse, subangular, 0-5% fines, 0-5% coarse sand, brown, moist |
| | | 6 | S3 | 4-4-5-4 (9) | 24/7 | | Fill | | S3 - Poorly Graded SAND with Silt (SP-SM), fine to medium, ~5% fines, light brown, moist |
| | 195.0 | 9 | S4 | 9-7-9-7 (16) | 24/7 | | | | S4 - Silty GRAVEL with Sand (GM), fine, subangular to subrounded, ~15% fines, 35-40% fine to coarse sand, brown, wet |
| 10 | | 11 | | | | | | | |
| | 190.0 | 14 | S5 | 5-4-4-6 (8) | 24/1 | 1 | Buried Topsoil | 14.0 | S5 - Silty SAND with Gravel (SM), fine to medium, trace coarse, 15-20% fines, ~30% fine to coarse subangular gravel, trace organic soil, brown, moist (possible buried subsoil) REMARK 1: Description of sample S5 based on soil at tip of spoon |
| 15 | | 16 | | | | | | 16.0 | |
| | | | | | | | Sand and Gravel | | |
| | 185.0 | 19 | S6 | 11-9-9-10 (18) | 24/10 | 2 | | 19.2 | S6 - S6 Top 2": Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~45% coarse subrounded gravel, pink, wet (possible weathered rock) |
| 20 | | 21 | | | | | | | S6 Bot 8": Well Graded SAND with Silt and Gravel (SW-SM), fine to medium, trace coarse, 10-15% fines, ~15% fine gravel, trace of , dark brown, wet REMARK 2: Drill rig chattering at 20.0'. |
| | | | | | | | Weathered Rock | | |
| | 180.0 | 24 | S7 | 32-28-43-35 | | | | | S7 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, angular to subangular, ~10% fines, 35-40% fine to coarse sand, pink to brown, |
| 25 | | | | | | | | | |

**GENERAL NOTES:**

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## BORING LOG

**SB-2**
PAGE 2 OF 2

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 24 | S7 | (71) | 24/10 | | Weathered Rock | 26.0 | moist (possible weathered granite) |
| | | 26 | | | | | | | Bottom of borehole at 26.0 feet. Backfilled borehole with drill cutting and 6 bags of gravel. Ground surface was restored with cold patch asphalt. |
| | 175.0 | | | | | | | | |
| 30 | | | | | | | | | |
| | 170.0 | | | | | | | | |
| 35 | | | | | | | | | |
| | 165.0 | | | | | | | | |
| 40 | | | | | | | | | |
| | 160.0 | | | | | | | | |
| 45 | | | | | | | | | |
| | 155.0 | | | | | | | | |
| 50 | | | | | | | | | |
| | 150.0 | | | | | | | | |
| 55 | | | | | | | | | |
| | 145.0 | | | | | | | | |
| 60 | | | | | | | | | |

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## BORING LOG

**SB-3**
PAGE 1 OF 2

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/21/22 **DATE COMPLETED:** 3/21/22
**BORING LOCATION:** North of York Street (NB Lane, Slope Boring)
**COORDINATES:** N: 2877177.3052 E: 763738.7765
**SURFACE El.:** 211 ft. (see note 1) **TOTAL DEPTH:** 28.6 ft.
**WEATHER:** 50's / Sunny
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 19.0 ft. / El. 192.0 ft. Based on sample moisture
**AT END OF DRILLING:** 23.0 ft. / El. 188.0 ft.
**OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Zac Nader
**DRILLING METHOD:** Drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Mobile B-57 Truck Rig
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** TG **CHECKED BY:** HO

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 210.0 | 0.5 | S1 | 100/2" | 2/0 | 1 | Asphalt | 0.7 | 8" of Asphalt<br>S1 - No Recovery<br>REMARK 1: Broke split spoon sampling S1. Drill chattering, advanced roller bit 12" in boulder. |
| | | 0.7 | | | | | Boulder | 2.0 | |
| | | 2 | S2 | 13-10-7-7 (17) | 24/10 | | | | S2 - Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 25-30% fine to coarse subangular gravel, brown, moist |
| 5 | 205.0 | 4 | S3 | 7-2-2-5 (4) | 24/0 | | | | S3 - No Recovery, Rock in tip of split spoon |
| | | 6 | S4 | 4-3-3-6 (6) | 24/8 | | | | S4 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, ~10% fines, 25-30% fine to coarse subrounded gravel, brown, moist |
| 10 | 200.0 | 8 | | | | | | | |
| | | 9 | S5 | 12-16-12-13 (28) | 24/6 | | | | S5 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded to subangular, 5-10% fines, 15-20% fine to coarse sand, brown, moist |
| | | 11 | | | | | | | |
| | | 14 | | | | | Sand and Gravel | | |
| 15 | 195.0 | 14 | S6 | 11-16-12-6 (28) | 24/2 | | | | S6 - Well Graded GRAVEL with Sand (GW), fine to coarse, subrounded to angular, 0-5% fines, 15-20% coarse sand, brown, moist |
| | | 16 | | | | | | | |
| | | 19 | S7 | 10-7-16-84/3" (23) | 21/8 | | | | S7 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 30-35% fine to coarse subrounded to angular gravel, brown, wet |
| 20 | 190.0 | 20.8 | | | | 2 | | | REMARK 2: Casing refusal at depth of 21.0'. Advanced roller bit through 8.0" cobble, no water returning |
| | | 24 | | 13-9-7-29 | | | | | S8 - Poorly Graded SAND with Gravel (SP), fine to medium, trace of coarse, 0-5% fines, 15-20% fine to coarse subangular gravel, brown, wet |
| 25 | | | | | | | | | |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## BORING LOG

**SB-3**
PAGE 2 OF 2

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 24 | S8 | (16) | 24/7 | | Sand and Gravel | 26.0 | |
| | 185.0 | 26 | | | | | | 185.0 | |
| 30 | | | | | | 3 | Boulder | | REMARK 3: Cobbles and boulders from 26.0' to 28.6'. |
| | | 28.6 28.6 | S9 | 100/1" | 1/0 | | | 28.6 | S9 - No Recovery<br>Bottom of borehole at 28.6 feet. Backfilled borehole with drill cutting and 6 bags of gravel. Ground surface was restored with cold patch asphalt. |
| | 180.0 | | | | | | | | |
| 35 | | | | | | | | | |
| | 175.0 | | | | | | | | |
| 40 | | | | | | | | | |
| | 170.0 | | | | | | | | |
| 45 | | | | | | | | | |
| | 165.0 | | | | | | | | |
| 50 | | | | | | | | | |
| | 160.0 | | | | | | | | |
| 55 | | | | | | | | | |
| | 155.0 | | | | | | | | |
| 60 | | | | | | | | | |

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## BORING LOG — SB-4

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/3/22 **DATE COMPLETED:** 3/3/22
**BORING LOCATION:** North of York street at bottom of slope
**COORDINATES:** N: 2877129.6193 E: 763701.5977
**SURFACE EI.:** 215 ft. (see note 1) **TOTAL DEPTH:** 12.5 ft.
**WEATHER:** 40's / Sunny
**GROUNDWATER LEVELS:**
▽ **DURING DRILLING:** 8.5 ft. / El. 206.5 ft. Based on sample moisture
▼ **AT END OF DRILLING:** 9.5 ft. / El. 205.5 ft.
▼ **OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Zac Nader
**DRILLING METHOD:** Drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Diedrich D-25 ATV
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** TG / LB **CHECKED BY:** NP

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 0 | | | | | Topsoil | 0.3 | S1 - Top 3": Topsoil |
| | | 2 | S1 | 5-7-7-5 (14) | 24/10 | | Fill | | Bot 7": Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 20-25% fine to coarse subangular gravel, trace of asphalt, gray to black, moist |
| | | | S2 | 5-5-7-10 (12) | 24/4 | 1 | | | S2 - Silty SAND with Gravel (SM), fine to coarse, ~15% fines, 15-20% fine to coarse subrounded gravel, trace of asphalt, brown, moist |
| 5 | 210.0 | 4 | | | | | | 4.0 | REMARK 1: Spun 4" casing at depth of 4.0'. |
| | | | S3 | 10-14-8-7 (22) | 24/7 | | | | S3 - Similar to S2, no asphalt |
| | | 6 | S4 | 3-3-5-16 (8) | 24/3 | | Sand and Gravel | | S4 - Poorly Graded GRAVEL with Silt (GP-GM), coarse, subangular, 5-10% fines, 10-15% fine to coarse sand, brown, moist |
| | | 8 | | | | 2 | | | REMARK 2: Advanced button bit through 8.0" cobble at depth of 7.8'. |
| | | 8.5 | S5 | 25-75/2" | 8/6 | | | | S5 - Poorly Graded SAND (SP), fine to medium, 0-5% fines, 10-15% coarse subrounded gravel, gray, wet |
| | | 9.2 | | | | 3 | | 9.2 | REMARK 3: Advance button bit from 9.2' to 12.5' into possible rock. Used 3 tanks of water drilling from 4.0' to 12.5'. |
| 10 | 205.0 | | | | | | Rock | | |
| 15 | 200.0 | | | | | | | 12.5 | Bottom of borehole at 12.5 feet. Backfilled borehole with drill cutting and 4 bags of gravel. |
| 20 | 195.0 | | | | | | | | |
| 25 | 190.0 | | | | | | | | |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

## BORING LOG — WB-1

PAGE 1 OF 2

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 9/22/22 **DATE COMPLETED:** 9/23/22
**BORING LOCATION:** Near northern side of prop. retaining wall
**COORDINATES:** N: 2876577.2094 E: 763886.5498
**SURFACE EI.:** 241 ft. (see note 1) **TOTAL DEPTH:** 36 ft.
**WEATHER:** 50's / Sunny
**GROUNDWATER LEVELS:**
▽ **DURING DRILLING:** 6.0 ft. / El. 235.0 ft. Based on sample moisture
▼ **AT END OF DRILLING:** 12.4 ft. / El. 228.6 ft.
▼ **OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Zac Nader
**DRILLING METHOD:** Vacuum then drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Diedrich D-25 ATV
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** HO **CHECKED BY:** NP

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | 240.0 | 0.5 | G1 | | | | Fill | | REMARK 1: Performed vacuum explorations for the top 6 feet to clear borehole for utilities. |
| | | 1.2 | G2 | | | | | 1.2 | G1 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 20-25% fine to coarse subrounded gravel, gray, moist |
| | | | G3 | | | | | 239.8 | G2 - Well Graded GRAVEL (GW), fine to coarse, subrounded, 0-5% fines, 5-10% fine to medium sand, brown, moist |
| 5 | | | | | | | | | G3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~25% fine to coarse subrounded gravel, 10-15% cobbles up to 8" in size, brown, moist |
| | 235.0 | 6 | S1 | 6-7-8-6 (15) | 24/4 | | | | S1 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~25% fine to coarse subrounded gravel, brown, wet |
| | | 8 | S2 | 6-7-6-8 (13) | 24/5 | 1 | | | S2 - Similar to S1 |
| 10 | | 10 | S3 | 36-55-55/2" | 14/6 | | | | REMARK 1: Drill rig chattering between depths of 9 feet and 10 feet on possible cobbles or boulder. |
| | 230.0 | 11.2 | | | | | | | S3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 40-45% fine to coarse subrounded to subangular gravel, brown, wet |
| | | | | | | 2 | Sand and Gravel | | REMARK 2: Drill rig chattering between depths of 11.5 feet and 13 feet on possible cobbles or boulder. |
| | | 14 | S4 | 12-11-14-14 (25) | 24/8 | | | | S4 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, trace coarse, ~10% fines, 30-35% fine to coarse subrounded to subangular gravel, brown, wet |
| 15 | 225.0 | 16 | | | | | | | |
| | | 19 | S5 | 11-15-17-18 (32) | 24/10 | | | | S5 - Poorly Graded SAND with Silt (SP-SM), fine, 5-10% fines, trace of fine subangular gravel, brown, wet |
| 20 | 220.0 | 21 | | | | | | | |
| | | 24 | S6 | 29-17-16-17 | | | | | S6 - No reovery, drove 3" spoon and obtained sample: Well Graded SAND with Silt (SW-SM), fine to coarse, 5-10% fines, 10-15% fine |
| 25 | | | | | | | | | |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

BOTTOM OF WALL
FOOTING ELEV: 235.85

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## BORING LOG — WB-1

PAGE 2 OF 2

LGCI Lahlaf Geotechnical Consulting, Inc.

**CLIENT:** Nitsch Engineering, Inc. **PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139 **PROJECT LOCATION:** Stoughton, MA

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 24 | S6 | (33) | 24/0 | | Sand and Gravel | 239.8 | subangular gravel, brown, wet |
| | 215.0 | 26 | | | | | | | |
| 30 | | 29 | S7 | 19-18-20-22 (38) | 24/7 | | | | S7 - Similar to S6 |
| | 210.0 | 31 | | | | | | | |
| 35 | | 34 | S8 | 18-12-12-12 (24) | 24/9 | | | | S8 - Poorly Graded SAND with Gravel (SP), coarse, 0-5% fines, 20-25% fine subangular gravel, brown, wet |
| | 205.0 | 36 | | | | | | 36.0 | |
| | | | | | | | | | Bottom of borehole at 36.0 feet. Backfilled borehole with drill cutting and 2 bags of gravel. |
| 40 | 200.0 | | | | | | | | |
| 45 | 195.0 | | | | | | | | |
| 50 | 190.0 | | | | | | | | |
| 55 | 185.0 | | | | | | | | |
| 60 | | | | | | | | | |

## BORING LOG — WB-2

PAGE 1 OF 2

LGCI Lahlaf Geotechnical Consulting, Inc.

**CLIENT:** Nitsch Engineering, Inc. **PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139 **PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 9/22/22 **DATE COMPLETED:** 9/22/22
**BORING LOCATION:** Near southern side of prop. retaining wall
**COORDINATES:** N: 2876354.8452 E: 763929.4177
**SURFACE El.:** 245 ft. (see note 1) **TOTAL DEPTH:** 36 ft.
**WEATHER:** 60's / Rain
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 14.0 ft. / El. 231.0 ft. Based on sample moisture
**AT END OF DRILLING:** 19.0 ft. / El. 226.0 ft.
**OTHER:** -

**DRILLING SUBCONTRACTOR:** Northern Drill Service, Inc.
**DRILLING FOREMAN:** Zac Nader
**DRILLING METHOD:** Vacuum then drive and wash with 4-inch casing
**DRILL RIG TYPE/MODEL:** Diedrich D-25 ATV
**HAMMER TYPE:** Automatic
**HAMMER WEIGHT:** 140 lb. **HAMMER DROP:** 30 in.
**SPLIT SPOON DIA.:** 1.375 in. I.D., 2 in. O.D.
**CORE BARREL SIZE:** NA
**LOGGED BY:** HO **CHECKED BY:** NP

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 0 | G1 | | | 1 | Topsoil | | REMARK 1: Performed vacuum explorations for the top 6 feet to clear borehole for utilities. |
| | | 1.2 | G2 | | | | | 1.2 | G1 - Topsoil |
| | | 3 | G3 | | | | Fill | | G2 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded, 10-15% fines, 20-25% fine to medium sand, 10-15% cobbles up to 6" in size, trace of roots, dark brown, moist |
| 5 | 240.0 | | | | | | | | G3 - Similar to G2, 25-30% fine to coarse sand |
| | | 6 | S1 | 3-2-3-3 (5) | 24/5 | | | 6.0 | S1 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 25-30% fine subrounded gravel, brown, moist |
| | | 8 | S2 | 6-4-5-4 (9) | 24/0 | | | | S2 - No recovery, drove 3" spoon and obtained sample: Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded, 10-15% fines, 20-25% fine to coarse sand, brown, moist |
| 10 | 235.0 | 10 | S3 | 3-3-3-7 (6) | 24/0 | | | | S3 - No recovery, drove 3" spoon and obtained sample: Similar to S2 |
| | | 12 | S4 | 11-12-13-13 (25) | 24/7 | | | | S4 - Well Graded GRAVEL with Sand (GW), fine to coarse, subrounded, 0-5% fines, ~15% medium to coarse sand, brown, moist |
| | | 14 | S5 | 4-8-10-13 (18) | 24/9 | | Sand and Gravel? | | S5 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 25-30% fine subrounded gravel, brown, wet |
| 15 | 230.0 | 16 | S6 | 25-50-50/3" | 15/8 | | | | S6 - Similar to S5 |
| | | 17.3 | | | | | | | |
| | | 19 | S7 | 22-29-25-19 (54) | 24/0 | | | | S7 - No recovery, drove 3" spoon and obtained sample: Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, trace coarse, 5-10% fines, 25-30% fine to coarse subrounded gravel, brown, wet |
| 20 | 225.0 | 21 | | | | | | | |
| | | 24 | S8 | 14-12-13-18 | | | | | S8 - Poorly Graded SAND with Silt (SP-SM), fine to medium, 5-10% fines, light brown, wet |
| 25 | 220.0 | | | | | | | | |

**GENERAL NOTES:**

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

BOTTOM OF WALL FOOTING ELEV: 237.99

## BORING LOG — WB-2

PAGE 2 OF 2

LGCI Lahlaf Geotechnical Consulting, Inc.

**CLIENT:** Nitsch Engineering, Inc. **PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139 **PROJECT LOCATION:** Stoughton, MA

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Blow Counts (N Value) | Pen./Rec. (in.) | Remark | Strata | Depth El. (ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|---|
| | | 24 | S8 | (25) | 24/7 | | | | |
| | | 26 | | | | | | | |
| 30 | 215.0 | 29 | S9 | 8-10-12-12 (22) | 24/12 | | Sand and Gravel | | S9 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, 5-10% fine subrounded gravel, light brown, wet |
| | | 31 | | | | | | | |
| 35 | 210.0 | 34 | S10 | 17-31-51-67 (82) | 24/24 | | | | S10 - Similar to S9, no gravel |
| | | 36 | | | | | | 36.0 | |
| 40 | 205.0 | | | | | | | | Bottom of borehole at 36.0 feet. Backfilled borehole with drill cutting and 2 bags of gravel. |
| 45 | 200.0 | | | | | | | | |
| 50 | 195.0 | | | | | | | | |
| 55 | 190.0 | | | | | | | | |
| 60 | 185.0 | | | | | | | | |

## PROBE LOG — HP-1

PAGE 1 OF 1

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**CLIENT:** Nitsch Engineering, Inc. **PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139 **PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/31/22 **DATE COMPLETED:** 3/31/22
**BORING LOCATION:** Eastern of Washington st at the bottom of the slope
**COORDINATES:** N: 2877466.5143 E: 763706.2940
**SURFACE EI.:** 195 ft. (see note 1) **TOTAL DEPTH:** 2.7 ft.
**WEATHER:** 40's / Partly cloudy
**GROUNDWATER LEVELS:**
**DURING DRILLING:** -
**AT END OF DRILLING:** Not Encountered
**OTHER:** -

**DRILLING SUBCONTRACTOR:** NA
**DRILLING FOREMAN:**
**DRILLING METHOD:**
**DRILL RIG TYPE/MODEL:** Hand Auger
**HAMMER TYPE:** NA
**HAMMER WEIGHT:** NA **HAMMER DROP:** NA
**GEOPROBE CASING DIA.:**
**GEOPROBE LINER DIA.:** NA
**LOGGED BY:** LB / HO **CHECKED BY:** TG

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Pen./Rec. (in.) | Remark | Strata | Depth El. (ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | 0.5 | G1 | | | Forest Mat | 0.5 | G1 - Forest Mat |
| | | 0.5 | G2 | | | | 194.5 | G2 - Silty SAND (SM), fine, ~35% fines, trace of roots, trace of organic soil, brown, moist (Swamp Deposit) |
| | | 1.5 | G3 | | | Swamp Deposits | | G3 - Poorly Graded SAND with Silt (SP-SM), fine to medium, 10-15% fines, 0-5% fine subrounded gravel, trace of roots, trace of organic soil, brown, moist |
| | | 1 | | | | | 2.7 | REMARK 1: Refusal at depth 2.7' on possible cobbles or boulder. |
| 5 | 190.0 | | | | | | | Bottom of borehole at 2.7 feet. |
| 10 | 185.0 | | | | | | | |
| 15 | 180.0 | | | | | | | |
| 20 | 175.0 | | | | | | | |
| 25 | 170.0 | | | | | | | |

**GENERAL NOTES:**

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## PROBE LOG — HP-2

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/31/22 **DATE COMPLETED:** 3/31/22
**BORING LOCATION:** Eastern of Washington st at the bottom of the slope
**COORDINATES:** N: 2877375.5016 E: 763727.9837
**SURFACE EI.:** 188 ft. (see note 1) **TOTAL DEPTH:** 3.5 ft.
**WEATHER:** 40's / Partly cloudy
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 0.0 ft. / El. 188.0 ft.
**AT END OF DRILLING:** -
**OTHER:** -

**DRILLING SUBCONTRACTOR:** NA
**DRILLING FOREMAN:**
**DRILLING METHOD:**
**DRILL RIG TYPE/MODEL:** Hand Auger
**HAMMER TYPE:** NA
**HAMMER WEIGHT:** NA **HAMMER DROP:** NA
**GEOPROBE CASING DIA.:**
**GEOPROBE LINER DIA.:** NA
**LOGGED BY:** LB / HO **CHECKED BY:** TG

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | 0 | G1 | | | Forest Mat | 1.5 | G1 - Forest Mat |
| | | 1.5 | G2 | | | Swamp Deposits | 186.5 | G2 - Poorly Graded GRAVEL (GP), coarse, subrounded, 0-5% fines, 0-5% fine sand, gray, wet |
| | | 2 | G3 | | | | | G3 - Well Graded GRAVEL with Silt and Sand GW-GM), 10-15% fines, 20-25% fine to coarse sand, brown to gray, wet |
| | 185.0 | 3 | G4 | | | | | G4 - Poorly Graded SAND with Gravel (SP), medium to coarse, 5-10% fines, 30-35% coarse subrounded gravel, gray, wet |
| 5 | | | | | | | | REMARK 1: Refusal at depth 3.5' on possible cobbles or boulder. |
| | 180.0 | | | | | | | REMARK 2: Performed two additional hand probes: HP-2A and HP-2B. Both encountered refusal at depths 2.0' and 2.5', respectively. |
| 10 | | | | | | | | Bottom of borehole at 3.5 feet. |
| | 175.0 | | | | | | | |
| 15 | | | | | | | | |
| | 170.0 | | | | | | | |
| 20 | | | | | | | | |
| | 165.0 | | | | | | | |
| 25 | | | | | | | | |

1 2 3.5

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## PROBE LOG — HP-3

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/31/22 **DATE COMPLETED:** 3/31/22
**BORING LOCATION:** Eastern of Washington st at the bottom of the slope
**COORDINATES:** N: 2877287.3279 E: 763746.6109
**SURFACE EI.:** 187 ft. (see note 1) **TOTAL DEPTH:** 3 ft.
**WEATHER:** 40's / Partly cloudy
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 1.5 ft. / El. 185.5 ft.
**AT END OF DRILLING:** -
**OTHER:** -

**DRILLING SUBCONTRACTOR:** NA
**DRILLING FOREMAN:**
**DRILLING METHOD:**
**DRILL RIG TYPE/MODEL:** Hand Auger
**HAMMER TYPE:** NA
**HAMMER WEIGHT:** NA **HAMMER DROP:** NA
**GEOPROBE CASING DIA.:**
**GEOPROBE LINER DIA.:** NA
**LOGGED BY:** LB / HO **CHECKED BY:** TG

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | 0 | G1 | | | Forest Mat | 1.0 | G1 - Forest Mat |
| | | 1 | G2 | | | Swamp Deposits | 2.0 | G2 - Silty SAND (SM), fine to medium, ~30% fines, 0-5% fine rounded gravel, trace of organic soil, trace of roots, black, wet |
| | 185.0 | 2 | G3 | | | Buried Organic Soil | 3.0 | G3 - Silty SAND with Gravel (SM), mostly fine, 30-35% fines, ~15% coarse subrounded gravel, trace of organic soil, organic odor, brown to black, wet |
| 5 | | | | | | | | REMARK 1: Refusal at depth 3.0' on possible cobbles or boulder. |
| | 180.0 | | | | | | | REMARK 2: Performed two additional hand probes: HP-3A and HP-3B. Both encountered refusal at depths 1.0' and 2.5', respectively. |
| 10 | | | | | | | | Bottom of borehole at 3.0 feet. |
| | 175.0 | | | | | | | |
| 15 | | | | | | | | |
| | 170.0 | | | | | | | |
| 20 | | | | | | | | |
| | 165.0 | | | | | | | |
| 25 | | | | | | | | |

1 2 3.0

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## PROBE LOG — HP-4

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/31/22 **DATE COMPLETED:** 3/31/22
**BORING LOCATION:** Eastern of Washington st at the bottom of the slope
**COORDINATES:** N: 2877215.4927 E: 763770.8515
**SURFACE El.:** 189 ft. (see note 1) **TOTAL DEPTH:** 2.5 ft.
**WEATHER:** 40's / Partly cloudy
**GROUNDWATER LEVELS:**
**DURING DRILLING:** 0.5 ft. / El. 188.5 ft.
**AT END OF DRILLING:** -
**OTHER:** -

**DRILLING SUBCONTRACTOR:** NA
**DRILLING FOREMAN:**
**DRILLING METHOD:**
**DRILL RIG TYPE/MODEL:** Hand Auger
**HAMMER TYPE:** NA
**HAMMER WEIGHT:** NA **HAMMER DROP:** NA
**GEOPROBE CASING DIA.:**
**GEOPROBE LINER DIA.:** NA
**LOGGED BY:** LB / HO **CHECKED BY:** TG

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | 0.5 | G1 | | | Forest Mat | 0.5 / 188.5 | G1 - Forest Mat |
| | | 1.5 | G2 | | 1 | Swamp Deposits | | G2 - Silty SAND with GRAVEL (SM), fine to medium, 25-30% fines, 25-30% fine to coarse rounded to subrounded gravel, brown to black, wet |
| | | | G3 | | 2 | | 2.5 | G3 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, rounded to subrounded, 5-10% fines, 30-35% medium to coarse sand, light brown, wet |
| | 185.0 | | | | 3 | | | REMARK 1: Refusal at depth 2.5' on possible cobbles or boulder. |
| 5 | | | | | | | | REMARK 2: Cobbles and boulders are observable at ground surface elevation. |
| | 180.0 | | | | | | | REMARK 3: Performed an additional hand probe: HP-4A. Encountered refusal at depth 1.0' on possible cobbles or boulder. |
| 10 | | | | | | | | Bottom of borehole at 2.5 feet. |
| | 175.0 | | | | | | | |
| 15 | | | | | | | | |
| | 170.0 | | | | | | | |
| 20 | | | | | | | | |
| | 165.0 | | | | | | | |
| 25 | | | | | | | | |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## PROBE LOG — HP-5

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**LGCI PROJECT NUMBER:** 2139
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/31/22 **DATE COMPLETED:** 3/31/22
**BORING LOCATION:** Eastern of Washington st at the bottom of the slope
**COORDINATES:** N: 2877165.6763 E: 763778.5006
**SURFACE El.:** 206 ft. (see note 1) **TOTAL DEPTH:** 3 ft.
**WEATHER:** 40's / Partly cloudy
**GROUNDWATER LEVELS:**
**DURING DRILLING:** -
**AT END OF DRILLING:** Not Encountered
**OTHER:** -

**DRILLING SUBCONTRACTOR:** NA
**DRILLING FOREMAN:**
**DRILLING METHOD:**
**DRILL RIG TYPE/MODEL:** Hand Auger
**HAMMER TYPE:** NA
**HAMMER WEIGHT:** NA **HAMMER DROP:** NA
**GEOPROBE CASING DIA.:**
**GEOPROBE LINER DIA.:** NA
**LOGGED BY:** LB / HO **CHECKED BY:** TG

| Depth (ft.) | El. (ft.) | Sample Interval (ft.) | Sample Number | Pen./Rec. (in.) | Remark | Strata | Depth El.(ft.) | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | | G1 | | | Forest Mat | 1.0 | G1 - Forest Mat |
| | 205.0 | 1 | G2 | | | | 205.0 | G2 - Silty SAND (SM), fine to medium, ~15% fines, 10-15% fine to coarse subrounded gravel, trace of roots, brown, moist |
| | | 2 | G3 | | 1 | Swamp Deposits | | G3 - Silty SAND Gravel (SM), fine to coarse, 15-20% fines, ~30% fine to coarse subrounded gravel, ~10% cobbles about 4" in diameter, trace of roots, brown, moist |
| | | | | | 2 | | 3.0 | REMARK 1: Refusal at depth 3.0' on possible cobbles or boulder. |
| 5 | 200.0 | | | | | | | REMARK 2: Performed an additional hand probe: HP-5A. Encountered refusal at depth 1.0' on possible cobbles or boulder. |
| | | | | | | | | Bottom of borehole at 3.0 feet. |
| 10 | 195.0 | | | | | | | |
| 15 | 190.0 | | | | | | | |
| 20 | 185.0 | | | | | | | |
| 25 | | | | | | | | |

**GENERAL NOTES:**
1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## TEST PIT LOG — TP-1

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**LGCI PROJECT NUMBER:** 2139
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/25/22 **DATE COMPLETED:** 3/25/22
**TEST PIT LOCATION:** Near retaining wall on SB side of Washington St
**COORDINATES:** N: 2876762.0455 E: 763785.3305
**SURFACE EL.:** 232 ft. (see note 1) **TOTAL DEPTH:** 6 ft.
**GROUNDWATER LEVELS:**
▽ **DURING EXCAVATION:** Not encountered
▼ **AT END OF EXCAVATION:** Not encountered

**EXCAVATION SUBCONTRACTOR:** Northern Drill Service, Inc.
**EXCAVATION FOREMAN:** Justin Steven
**EXCAVATOR TYPE/MODEL:** Kubota KX 080-4
**WEATHER:** 40's / Cloudy
**TEST PIT DIMENSIONS:** 9.0' x 5.0'
**LOGGED BY:** OL **CHECKED BY:** HO

| Depth (ft) | El. (ft) | Excavation Effort | Remark | Strata | Depth Et.(ft.) | Material Description |
|---|---|---|---|---|---|---|
| 2.5 | 230.0 | E | | Fill | 4.3 | 0 ft. - 4.3 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 15-20% coarse subangular gravel, trace of roots, trace of organic soil, brown, moist |
| 5.0 | 227.5 | M | 1 | Sand and Gravel | 6.0 | 4.3 ft. - 6 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 30-35% fine to coarse subrounded gravel, up to 15% cobbles up to 8", trace of roots, light brown, moist<br>REMARK 1: Excavator scraping on potential boulder. LGCI representative confirmed the presence of a boulder in the test pit.<br>REMARK 2: Test pit terminated due to side wall collapse. |
| | | | 2 | | | Bottom of test pit at 6.0 feet. Test pit backfilled with excavated material and tamped in 18-inch lifts with excavator bucket. |

**GENERAL COMMENTS:** **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

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## TEST PIT LOG — TP-2

PAGE 1 OF 1

**CLIENT:** Nitsch Engineering, Inc.
**LGCI PROJECT NUMBER:** 2139
**PROJECT NAME:** Prop. Mast Arms, Reinforced Slope, and Retaining Wall
**PROJECT LOCATION:** Stoughton, MA

**DATE STARTED:** 3/25/22 **DATE COMPLETED:** 3/25/22
**TEST PIT LOCATION:** Near retaining wall on SB side of Washington St
**COORDINATES:** N: 2876662.8150 E: 763805.8816
**SURFACE EL.:** 237 ft. (see note 1) **TOTAL DEPTH:** 5.5 ft.
**GROUNDWATER LEVELS:**
▽ **DURING EXCAVATION:** Not encountered
▼ **AT END OF EXCAVATION:** Not encountered

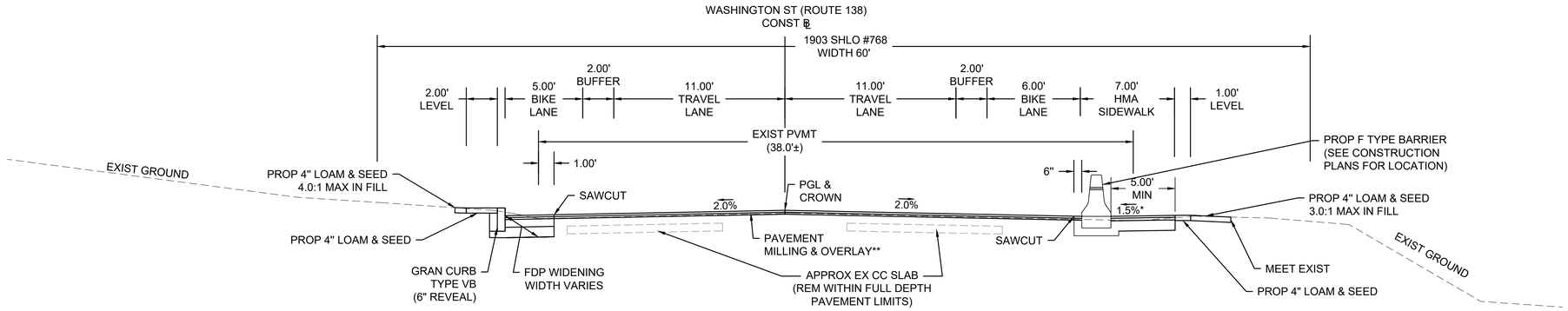
**EXCAVATION SUBCONTRACTOR:** Northern Drill Service, Inc.
**EXCAVATION FOREMAN:** Justin Steven
**EXCAVATOR TYPE/MODEL:** Kubota KX 080-4
**WEATHER:** 40's / Cloudy
**TEST PIT DIMENSIONS:** 10.0' x 4.0'
**LOGGED BY:** OL **CHECKED BY:** HO

| Depth (ft) | El. (ft) | Excavation Effort | Remark | Strata | Depth Et.(ft) | Material Description |
|---|---|---|---|---|---|---|
| | | E | | Topsoil | 1.0 | 0 ft. - 1 ft.: Topsoil |
| 2.5 | 235.0 | E | | Fill | 2.5 | 1 ft. - 2.5 ft.: Well Graded SAND (SW), fine to coarse, ~5% fines, 5-10% coarse subrounded gravel, brown, moist |
| 5.0 | 232.5 | E | | Sand and Gravel | 5.5 | 2.5 ft. - 5.5 ft.: Poorly Graded SAND with Gravel (SP), medium to coarse, ~5% fines, 25-30% fine to coarse subrounded gravel, trace of cobbles up to 8", brown, moist |
| | | | | | | Bottom of test pit at 5.5 feet. Test pit backfilled with excavated material and tamped in 18-inch lifts with excavator bucket. |

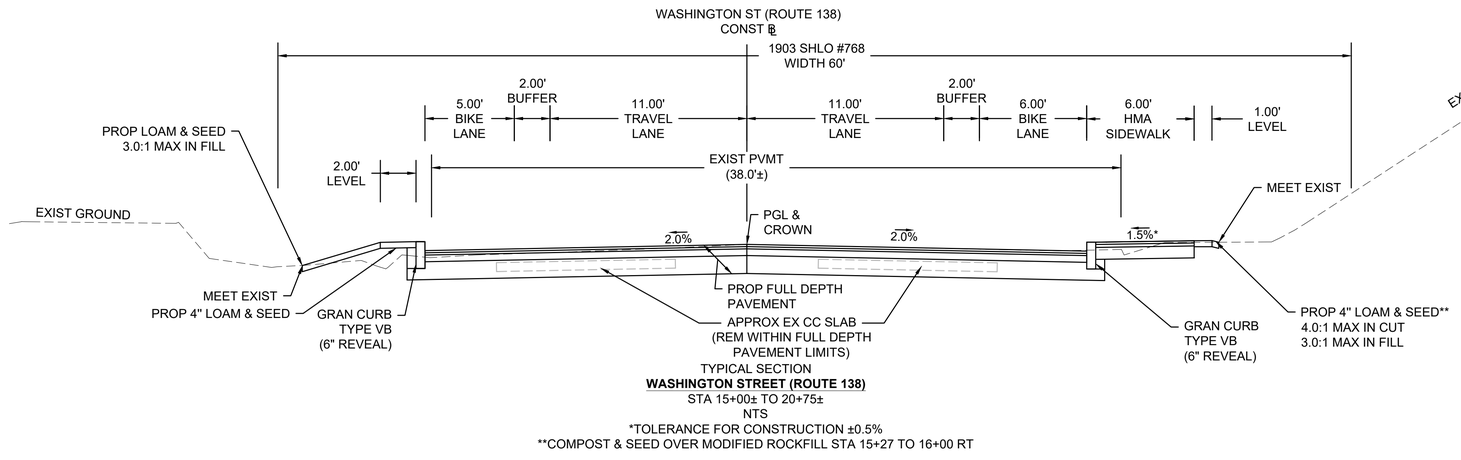
**GENERAL COMMENTS:** **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Stoughton, Washington Street (Route138), Soil Boring & Test Pit location Plan, Sheet No. 1 to 5," prepared by Nitsch Engineering, Inc., plotted on February 22, 2022, and provided to LGCI by Nitsch Engineering, Inc. via e-mail on February 23, 2022.

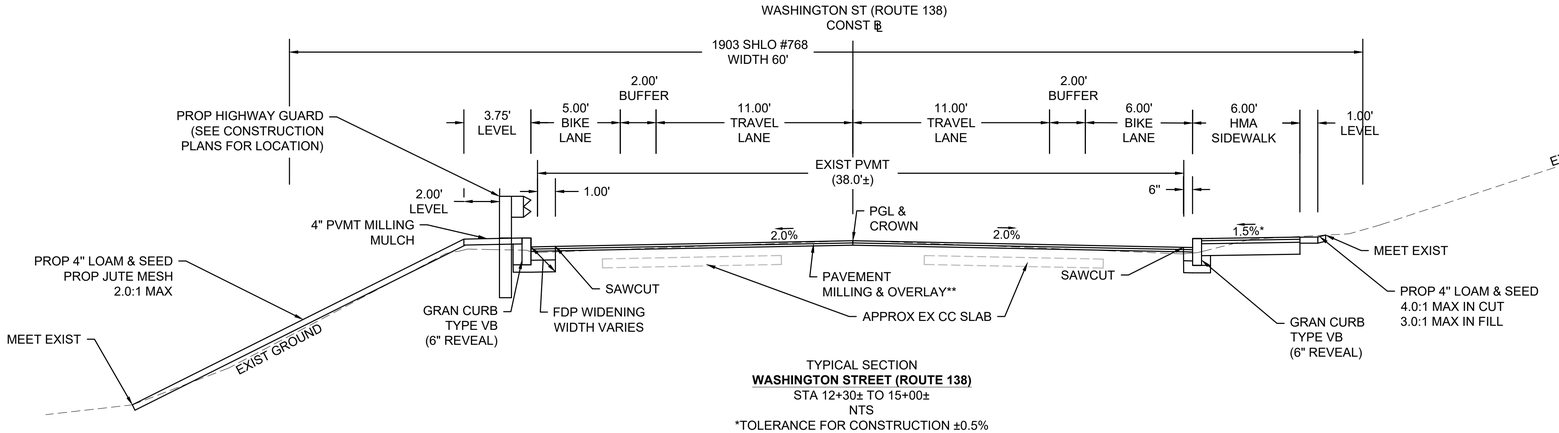
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TYPICAL SECTION
**WASHINGTON STREET (ROUTE 138)**
STA 20+06± TO 21+46±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%
**FULL DEPTH PAVEMENT STA 20+06± TO 20+75±




TYPICAL SECTION
**WASHINGTON STREET (ROUTE 138)**
STA 15+00± TO 20+75±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%
**COMPOST & SEED OVER MODIFIED ROCKFILL STA 15+27 TO 16+00 RT




TYPICAL SECTION
**WASHINGTON STREET (ROUTE 138)**
STA 12+30± TO 15+00±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 15 | 131 |
| | PROJECT FILE NO. 613358 | | |

**TYPICAL SECTIONS & PAVEMENT NOTES**

# PAVEMENT NOTES:

PROPOSED PAVEMENT STANDARD MILLING & OVERLAY

SURFACE: 1.5" ASPHALT RUBBER GAP GRADED - 12.5 (ARGG - 12.5) OVER

INTERMEDIATE: 1.5" ASPHALT RUBBER GAP GRADED - 12.5 (ARGG - 12.5) OVER

(SUPERPAVE LEVELING COURSE - 9.5 (SLC-9.5) SHALL BE USED WHERE REQUIRED IN FILL LOCATIONS)

STANDARD MILLING: 3.00" TYPICAL MILLING DEPTH (VARIABLE DEPTH PAVEMENT TO OBTAIN 2% CROSS SLOPE 4" MAX DEPTH)

PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1.5" ASPHALT RUBBER GAP GRADED - 12.5 (ARGG - 12.5) OVER

INTERMEDIATE: 1.5" ASPHALT RUBBER GAP GRADED - 12.5 (ARGG - 12.5) OVER

BASE: 4.5" SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) OVER

SUBBASE: 4" DENSE GRADED CRUSHED STONE FOR SUBBASE OVER 8" GRAVEL BORROW, TYPE b*

PROPOSED FULL DEPTH PAVEMENT WIDENING LESS THAN 4 FEET

SURFACE: 1.5" ASPHALT RUBBER GAP GRADED - 12.5 (ARGG - 12.5) OVER

INTERMEDIATE: 1.5" ASPHALT RUBBER GAP GRADED - 12.5 (ARGG - 12.5) OVER

BASE: 6" HIGH EARLY STRENGTH CEMENT CONCRETE OVER

SUBBASE: 8" GRAVEL BORROW, TYPE b*

PROPOSED CEMENT CONCRETE SIDEWALK/PCR/ISLAND

SURFACE: 4" CEMENT CONCRETE SIDEWALK (4000 PSI, $\frac{3}{4}$", 610)

SUBBASE: 8" GRAVEL BORROW, TYPE b*

PROPOSED CEMENT CONCRETE SIDEWALK AT DRIVEWAY

SURFACE: 6" CEMENT CONCRETE SIDEWALK (4000 PSI, $\frac{3}{4}$", 610)

SUBBASE: 8" GRAVEL BORROW, TYPE b*

PROPOSED HOT MIX ASPHALT SIDEWALK

SURFACE: 3.0" HOT MIX ASPHALT PLACED IN TWO LIFTS:
(1.25" SUPERPAVE SURFACE COURSE – 9.5 (SSC – 9.5) OVER
1.75" SUPERPAVE SURFACE COURSE - 12.5 (SIC-12.5)) OVER

SUBBASE: 8" GRAVEL BORROW, TYPE b*

PROPOSED HOT MIX ASPHALT DRIVEWAY

SURFACE: 4.0" HOT MIX ASPHALT PLACED IN TWO LIFTS:
(1.5" SUPERPAVE SURFACE COURSE – 9.5 (SSC – 9.5) OVER
2.50" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5)) OVER

SUBBASE: 8" GRAVEL BORROW, TYPE b*

*EXISTING GRAVEL BORROW SHALL BE RE-USED IF DETERMINED SUITABLE BY THE ENGINEER.

**NOTES:**

1. ALL STEEL FRAMES, GATES, COVERS ,AND SERVICE BOXES SHALL BE ADJUSTED TWICE TO THE INTERMEDIATE COURSE AND TO LEVEL TO THE FINAL SURFACE COURSE.
2. EMBANKMENT AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
3. PAVEMENT STANDARD MILLING SHALL ESTABLISH THE PROPOSED GRADING AND A PROPOSED 2.00% CROSS SLOPE, UNLESS OTHERWISE NOTED.
4. ALL PAVING SHALL BE IN ACCORDANCE WITH SECTION 450 HOT MIX ASPHALT PAVEMENT AND SECTION M3 ASPHALTIC MATERIALS.
5. INTERMEDIATE COURSE SHALL BE PLACED WITHIN 7 DAYS OF THE COMPLETION OF THE PAVEMENT MILLING TO PROTECT THE MILLED SURFACE.
6. DRAINAGE INLETS AT ROADWAY LOW POINTS SHALL BE ADJUSTED TO INTERMEDIATE COURSE GRADE IMMEDIATELY FOLLOWING MILLING.
8. THE ENTIRE PROPOSED SURFACE COURSE SHALL BE PLACED IN ONE CONTINUOUS OPERATION.

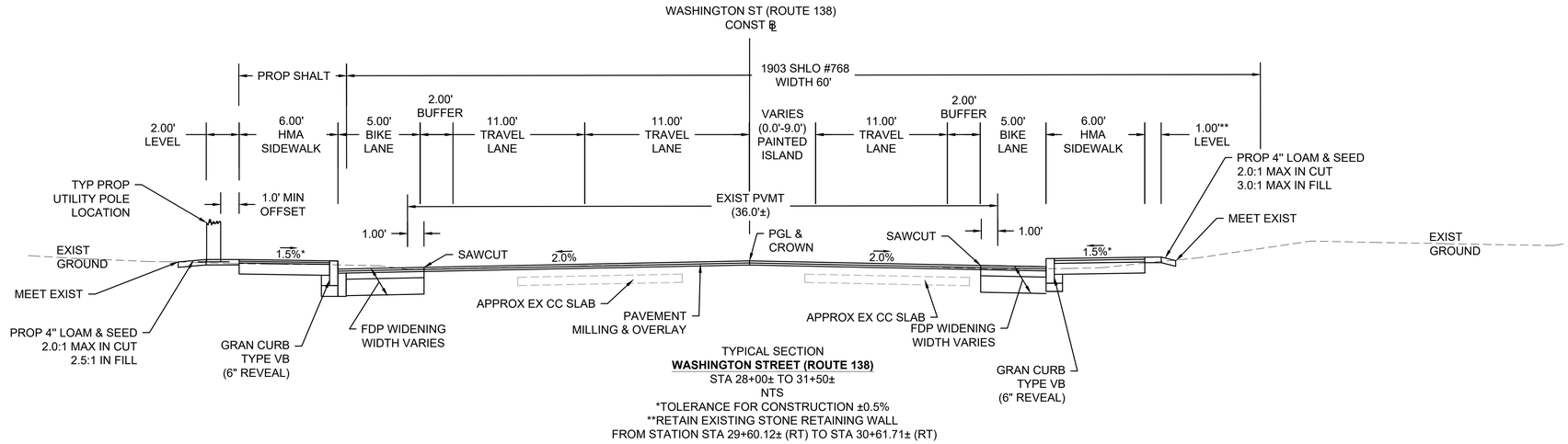
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613358_HD(TYP).DWG Plotted on 29-Jan-2025 10:21 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

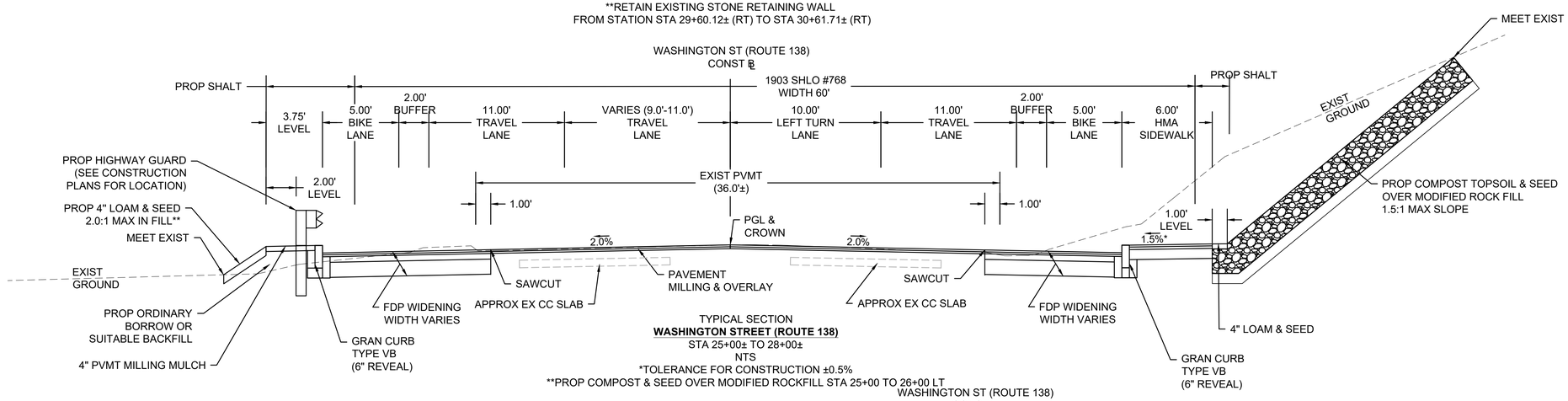
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 16 | 131 |
| PROJECT FILE NO. | 613358 | | |

## TYPICAL SECTIONS & PAVEMENT NOTES

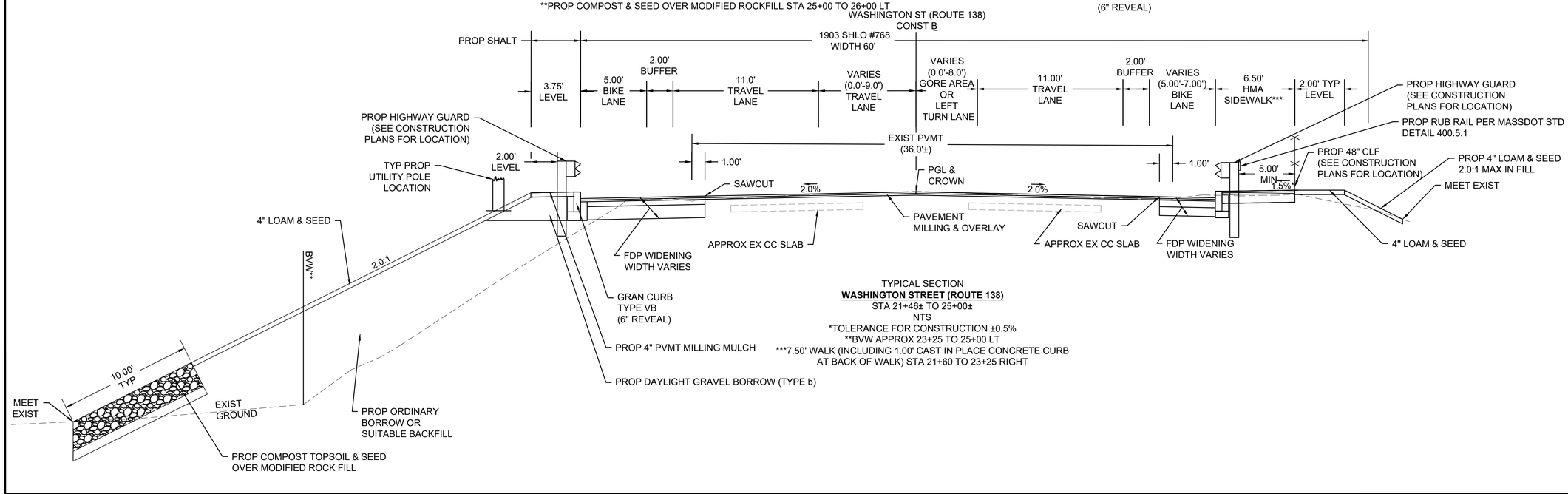
SEE SHEET 15 FOR PAVEMENT NOTES:




TYPICAL SECTION
**WASHINGTON STREET (ROUTE 138)**
STA 28+00± TO 31+50±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%
**RETAIN EXISTING STONE RETAINING WALL
FROM STATION STA 29+60.12± (RT) TO STA 30+61.71± (RT)




TYPICAL SECTION
**WASHINGTON STREET (ROUTE 138)**
STA 25+00± TO 28+00±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%
**PROP COMPOST & SEED OVER MODIFIED ROCKFILL STA 25+00 TO 26+00 LT




TYPICAL SECTION
**WASHINGTON STREET (ROUTE 138)**
STA 21+46± TO 25+00±
NTS
*TOLERANCE FOR CONSTRUCTION ±0.5%
**BVW APPROX 23+25 TO 25+00 LT
***7.50' WALK (INCLUDING 1.00' CAST IN PLACE CONCRETE CURB
AT BACK OF WALK) STA 21+60 TO 23+25 RIGHT

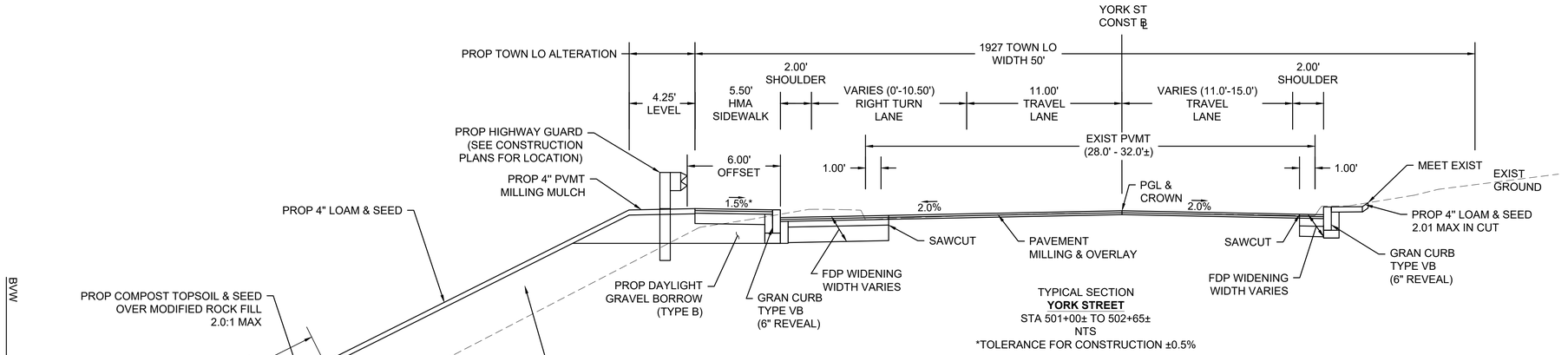
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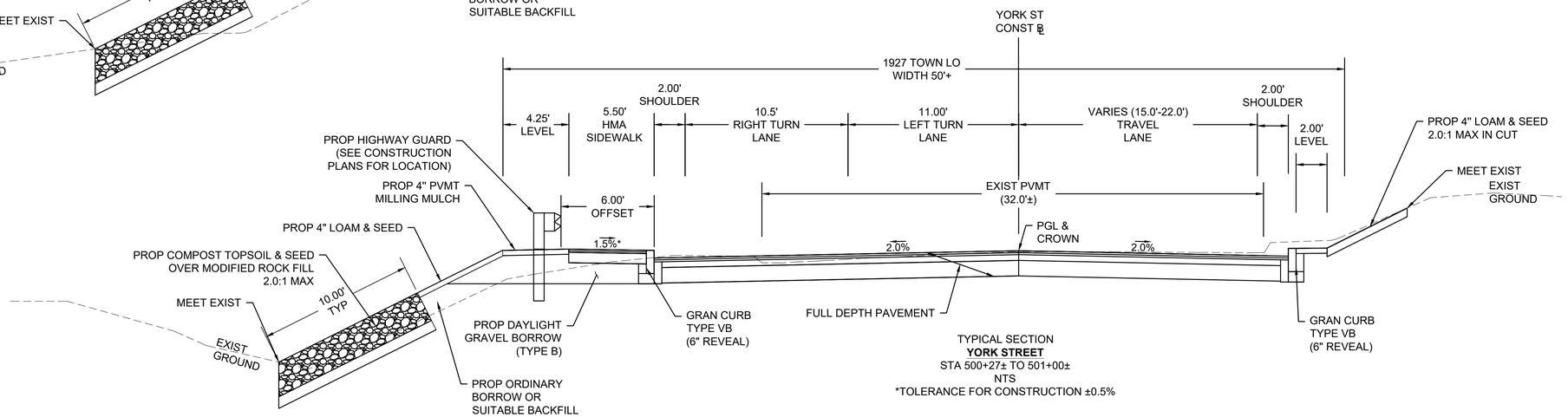
613358_HD(TYP).DWG Plotted on 29-Jan-2025 10:22 AM

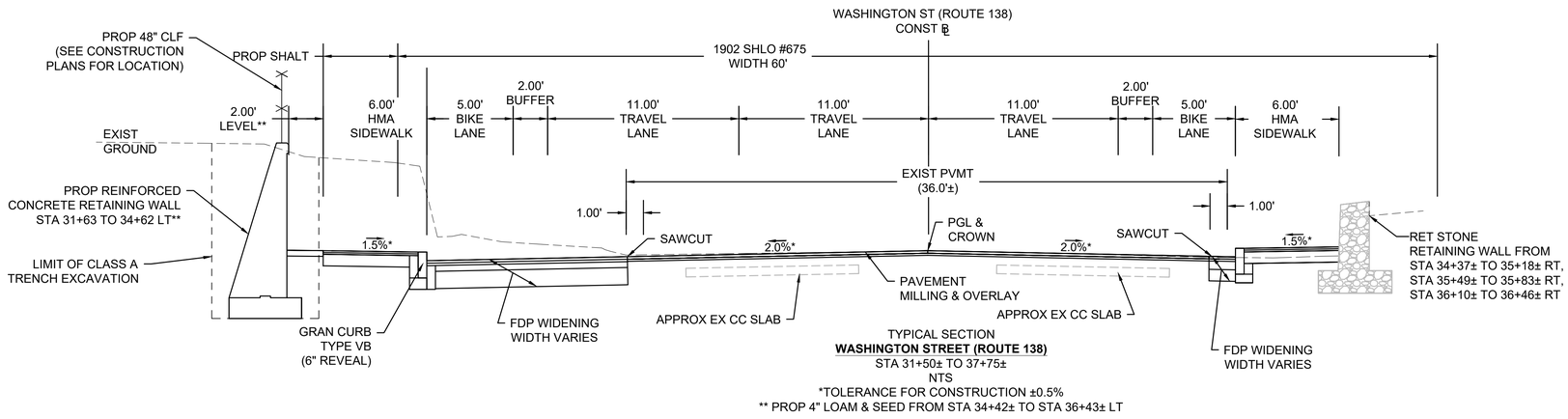
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 17 | 131 |
| | PROJECT FILE NO. 613358 | | |

## TYPICAL SECTIONS & PAVEMENT NOTES

SEE SHEET 15 FOR PAVEMENT NOTES:




Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(TYP).dwg 10:22 AM

613358_HD(TYP).DWG Plotted on 29-Jan-2025 10:22 AM

# STOUGHTON
# WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 18 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CONSTRUCTION BASELINE TIE PLAN

LEGEND & ABBREVIATION

| | | |
|---|---|---|
| △ | - | SURVEY CONTROL POINT |
| PK | - | PK NAIL |
| MAG | - | MAG NAIL |
| STN | - | STAKE & NAIL |
| DHL | - | DRILL HOLE |
| RB | - | REBAR CAP |

CANTON
STOUGHTON

N

PROJECT BEGIN
STA 11+45
N2878555.8449
E763542.6992

BEGIN MICROMILLING & OVERLAY
12+30.00
N 2878470.8411
E 763542.6702

SHLO NO. 768 OF 1903 - MAIN BASELINE ℄

11+00 12 13 L1 1 14 2 L13 15 3 16 C1 4 17 5 18 6 19 7 20 8 21 9 22 10 23 11 L2 24 12 25 13 26 14 27

PC +98.64

PT +85.64

N87°30'51"E
20.92'

SURVEY TRAVERSE LINE
N14°08'15"W
345.29'

7
N: 2877823.105'
E: 763608.973'
EL: 210.585'
MAG

WASHINGTON STREET
(ROUTE 138)

6
N: 2877396.227'
E: 763698.222'
EL: 202.314'
MAG

S46°38'28"E
489.35'

C10

N22°21'13"E
46.39'

8
N: 2878157.935'
E: 763524.635'
EL: 200.614'
MAG

MHB
GRN TOP CTR 0.5

ROUTE 138 CONST ℄

SURVEY TRAVERSE LINE
N11°48'33"W
436.11'

N40°56'06"W
40.14'

SURVEY TRAVERSE LINE
S6°41'39"E
431.79'

CONTINUED BELOW

0 60 100 200 300
SCALE: 1" = 60'

CONTINUED ABOVE

PROJECT END
STA 502+65
N2877050.1179
E764020.8904

1927 COUNTY LO

LIMIT OF MICROMILLING & OVERLAY
502+65.00
N 2877050.1179
S 764020.8904

502+99.64

L12

YORK ST CONST ℄

1927 COUNTY LO

C10

PT +16.21

PC +98.47

502

L11

501

YORK STREET

1927 COUNTY LO

STA 21+35.25 SHLO NO. 768 OF 1903 = MAIN BASELINE =
STA 21+35.86 WASHINGTON STREET MAIN BASELINE
N 2876359.0652 E 763892.1492

N

WASHINGTON STREET
(ROUTE 138)

1939 TOWN LO

CHARLES AVENUE

1939 TOWN LO

STOP AND SHOP DRIVEWAY

S33°24'23"E
61.17'

LIMIT OF MILLING & OVERLAY
STA 37+75

PT +21.68

PC +99.06

PC +31.77

1903 SHLO
NO. 768

PC +45.24

PT +87.97

PC +45.47

500+00

PC +89.94

PT +72.19

PT +16.66

PT +36.05

C2 C3

SURVEY TRAVERSE LINE
S11°21'21"E
393.30'

N67°25'24"E
19.86'

S31°34'06"E
58.62'

N72°04'14"E
23.93'

1903 SHLO
NO. 768

END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675

1902 SHLO
NO. 675

27+67.63 ROUTE 138 CONST ℄ =
500+00.00 YORK ST CONST ℄

N85°27'04"E
19.76'

5
N: 2876967.383'
E: 763748.556'
EL: 220.500'
MAG

4
N: 2876581.780'
E: 763825.998'
EL: 240.277'
STN

3
N: 2876290.024'
E: 763880.909'
EL: 241.468'
MAG

2
N: 2875993.784'
E: 763936.430'
EL: 236.319'
MAG

PROJECT END
STA 38+10
N2875932.8349
E763971.9836

1
N: 2875662.741'
E: 763996.636'
EL: 235.169'
DHL 5.390/5.510

1939 TOWN LO

1939 TOWN LO

THOMAS
STREET

0 60 100 200 300
SCALE: 1" = 60'

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613358_HD(BASELINE TIES).DWG Plotted on 29-Jan-2025 10:28 AM

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 19 | 131 |
| PROJECT FILE NO. | 613358 | | |

# CONSTRUCTION BASELINE TIE PLAN

| WASHINGTON STREET (ROUTE 138) CONSTRUCTION BASELINE DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
| L1 | 11+00.00 | 2878600.8400 | 763542.7145 | | S0°01'10"W 398.64' | 14+98.64 | 2878202.2047 | 763542.5786 |
| C1 | 14+98.64 | 2878202.2047 | 763542.5786 | R=1400.00' Δ=11°44'45" L=287.00' T=144.01' | | 17+85.64 | 2877917.1984 | 763571.7965 |
| L2 | 17+85.64 | 2877917.1984 | 763571.7965 | | S11°43'34"E 1159.83' | 29+45.47 | 2876781.5711 | 763807.5150 |
| C2 | 29+45.47 | 2876781.5711 | 763807.5150 | R=10000.00' Δ=0°48'59" L=142.50' T=71.25' | | 30+87.97 | 2876641.8455 | 763835.4805 |
| L3 | 30+87.97 | 2876641.8455 | 763835.4805 | | S10°54'35"E 643.80' | 37+31.77 | 2876009.6762 | 763957.3285 |
| C3 | 37+31.77 | 2876009.6762 | 763957.3285 | R=20000.00' Δ=0°17'55" L=104.28' T=52.14' | | 38+36.05 | 2875907.2333 | 763976.7971 |
| L4 | 38+36.05 | 2875907.2333 | 763976.7971 | | S10°36'40"E 1141.92' | 49+77.97 | 2874784.8376 | 764187.0709 |

| YORK ST CONST CL CONSTRUCTION BASELINE DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NUMBER | STARTING STATION | NORTHING | EASTING | CURVE DATA | LINE DATA | ENDING STATION | NORTHING | EASTING |
| L11 | 500+00.00 | 2876969.0618 | 763768.5981 | | N71°58'04"E 198.47' | 501+98.47 | 2877030.4998 | 763957.3239 |
| C10 | 501+98.47 | 2877030.4998 | 763957.3239 | R=1000.00' Δ=1°00'58" L=17.73' T=8.87' | | 502+16.21 | 2877035.8398 | 763974.2355 |
| L12 | 502+16.21 | 2877035.8398 | 763974.2355 | | N72°59'02"E 83.43' | 502+99.64 | 2877060.2550 | 764054.0140 |

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613358_HD(BASELINE TIES).DWG Plotted on 29-Jan-2025 10:28 AM

## HIGHWAY GUARD DETAILS

GUARDRAIL TANGENT END TREATMENT, TL-3 STA 13+20.07 LT TO STA 13+70.07 LT
GUARDRAIL, TL-3 (SINGLE FACED) STA 13+70.07 LT TO STA 14+34.20 LT
GUARDRAIL TANGENT END TREATMENT, TL-3 STA 14+34.20 LT TO STA 14+84.20 LT

## TRAFFIC SIGNAL CONDUIT

NONE

## WATER SUPPLY ALTERATIONS

SEE SHEET 55

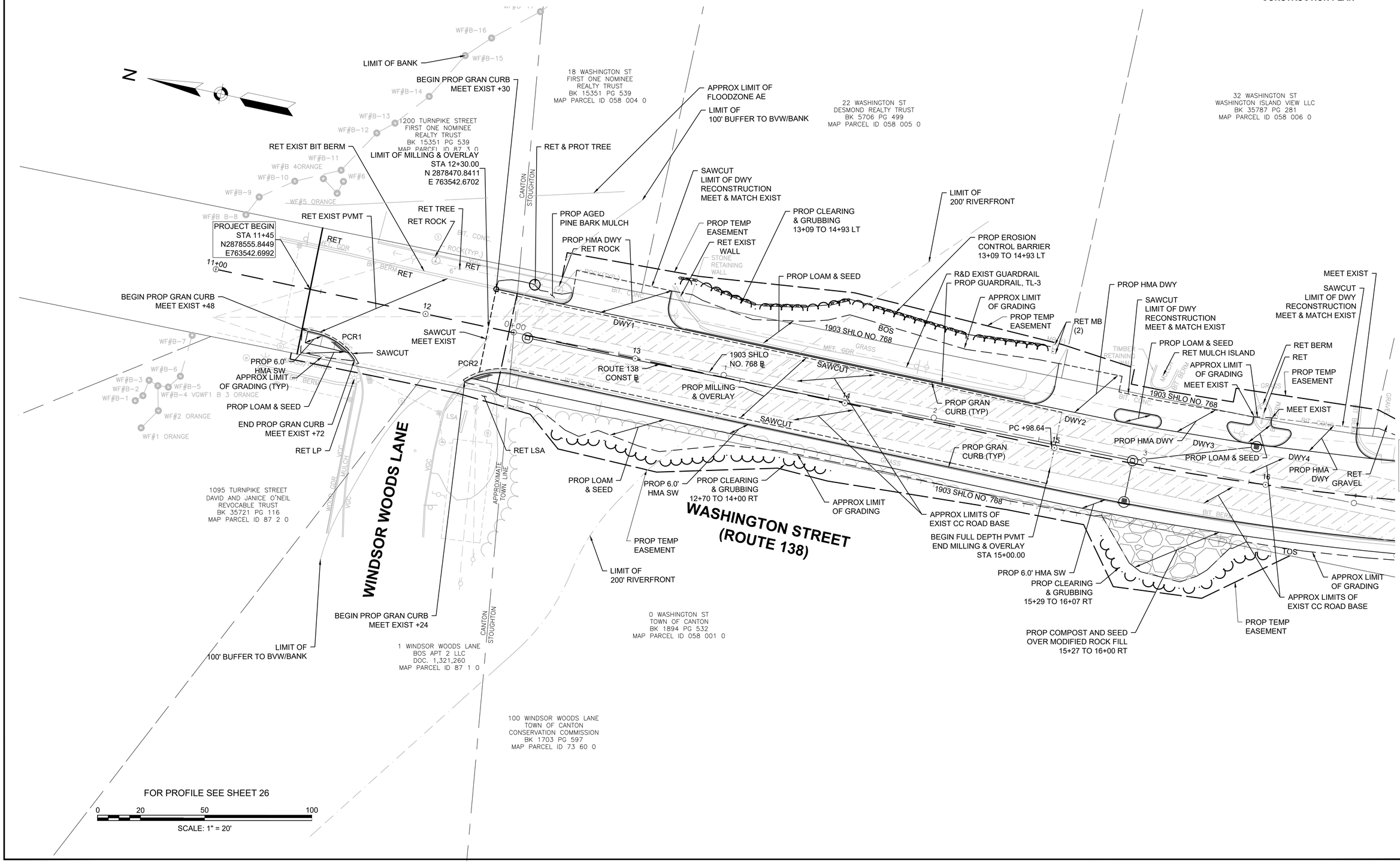
## DRAINAGE DETAILS

SEE SHEET 55

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 20 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CONSTRUCTION PLAN**




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613358_HD(CONST).DWG Plotted on 29-Jan-2025 10:34 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 21 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CONSTRUCTION PLAN**

## HIGHWAY GUARD DETAILS

GUARDRAIL, TL-3 (SINGLE FACED) STA 13+70.07 LT TO STA 14+34.20 LT
GUARDRAIL TANGENT END TREATMENT, TL-3 STA 14+34.20 LT TO STA 14+84.20 LT

PERMANENT IMPACT ATTENUATOR, REDIRECTIVE, TL-3 20+01.22 RT TO 20+31.22 RT
PERMANENT CONCRETE BARRIER - SINGLE FACED (F TYPE) 20+31.22 RT TO 21+51.22 RT
TRANSITION TO RIGID BARRIER (SINGLE FACED) 21+51.22 RT TO 21+63.72 RT
GUARDRAIL, TL-3 (SINGLE FACED) STA 21+63.72 RT TO STA 24+81.67 RT
TRAILING ANCHORAGE STA 24+81.67 RT STA 24+91.00 RT

## TRAFFIC SIGNAL CONDUIT

NONE

## WATER SUPPLY ALTERATIONS

SEE SHEET 56

## DRAINAGE DETAILS

SEE SHEET 56

32 WASHINGTON ST
WASHINGTON ISLAND VIEW LLC
BK 35787 PG 281
MAP PARCEL ID 058 006 0

N

# WASHINGTON STREET (ROUTE 138)

LIMIT OF 200' RIVERFRONT
PROP EROSION CONTROL BARRIER 13+09 TO 14+93 LT
R&D EXIST GUARDRAIL
PROP GUARDRAIL, TL-3
APPROX LIMIT OF GRADING
PROP TEMP EASEMENT
RET MB (2)
PROP HMA DWY
SAWCUT LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
MEET EXIST
PROP LOAM & SEED
RET MULCH ISLAND
APPROX LIMIT OF GRADING
MEET EXIST
RET BERM
RET
PROP TEMP EASEMENT
RET FENCE
RET
PROP LOAM & SEED
APPROX LIMIT OF GRADING
R&S STONE WALL
RET MAILBOX & TIMBER
RET PAD
RET TIMBER
RET GRAVEL
RET POST
PROP HMA DWY
MEET EXIST
RET
SAWCUT LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
PROP TEMP EASEMENT
MEET EXIST
APPROX LIMIT OF GRADING
RET FENCE
REMOVE EXIST CC ROAD BASE FOR FULL DEPTH PAVEMENT CONSTRUCTION STA 15+00 TO 20+75
50 WASHINGTON ST
SALT ISLAND REALTY LLC
BK 32527 PG 325
MAP PARCEL ID 058 008 0
RET FENCE
PUE
TOWN OF STOUGHTON
MAP PARCEL ID 058 009 0
PROP LOAM & SEED
1903 SHLO NO. 768
BOS
END FULL DEPTH PVMT
BEGIN MILLING & OVERLAY
STA 20+75.00
CONTINUED ON SHEET NO. 20
PROP GRAN CURB (TYP)
PC +98.64
DWY2
DWY3
DWY4
PROP HMA DWY
PROP LOAM & SEED
PROP HMA DWY
RET GRAVEL
PROP FULL DEPTH PVMT
DWY5
1903 SHLO NO. 768 ℄
PT +85.64
PROP GRAN CURB (TYP)
ROUTE 138 CONST ℄
PROP 6.0' HMA SW
PROP LOAM & SEED
ROUTE 138 CONST ℄
END PROP GRAN CURB +74
DWY7
1903 SHLO NO. 768 ℄
PROP HMA SW (5' MIN CLEAR)
PROP GRAN CURB (TYP)
1903 SHLO NO. 768
APPROX LIMITS OF EXIST CC ROAD BASE
BEGIN FULL DEPTH PVMT
END MILLING & OVERLAY
STA 15+00.00
TOS
APPROX LIMIT OF GRADING
1903 SHLO NO. 768
PROP 6.0' HMA SW
PROP HMA DWY
TOS
1903 SHLO NO. 768
PROP CLEARING & GRUBBING 15+29 TO 16+07 RT
APPROX LIMITS OF EXIST CC ROAD BASE
R&D
PROP 6.0' HMA SW
APPROX LIMIT OF GRADING
PROP LOAM & SEED
LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
PROP TEMP EASEMENT
PROP TEMP EASEMENT
PROP CLEARING & GRUBBING 20+32 TO 29+71 RT
APPROX LIMIT OF GRADING
PROP F TYPE BARRIER
PROP COMPOST AND SEED OVER MODIFIED ROCK FILL 15+27 TO 16+00 RT
PROP TEMP EASEMENT
PROP HMA DWY
LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
PROP REINFORCED CC SLAB FOR IMPACT ATTENUATOR W/O ANCHOR BLOCK (ITEM 628.313)
LIMIT OF 100' BUFFER TO BVW
0 WASHINGTON ST
TOWN OF CANTON
BK 1894 PG 532
MAP PARCEL ID 058 001 0
CONTINUED ON SHEET NO. 22

FOR PROFILE SEE SHEET 26

0 20 50 100
SCALE: 1" = 20'

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613358_HD(CONST).DWG Plotted on 29-Jan-2025 10:35 AM

## HIGHWAY GUARD DETAILS

PERMANENT IMPACT ATTENUATOR, REDIRECTIVE, TL-3 20+01.22 RT TO 20+31.22 RT
PERMANENT CONCRETE BARRIER - SINGLE FACED (F TYPE) 20+31.22 RT TO 21+51.22 RT
TRANSITION TO RIGID BARRIER (SINGLE FACED W/ RUB RAIL) 21+51.22 RT TO 21+63.72 RT
GUARDRAIL, TL-3 (SINGLE FACED W/ RUB RAIL) STA 21+63.72 RT TO STA 24+81.67 RT
TRAILING ANCHORAGE STA 24+81.67 RT STA 24+91.00 RT

TRAILING ANCHORAGE STA 21+80.42 LT TO STA 21+89.80 LT
GUARDRAIL, TL-3 (SINGLE FACED) STA 21+89.80 LT TO STA 26+32.47 LT
GUARDRAIL TANGENT END TREATMENT, TL-3 STA 26+32.47 TO 26+82.47 LT

## TRAFFIC SIGNAL CONDUIT

NONE

## WATER SUPPLY ALTERATIONS

SEE SHEET 57

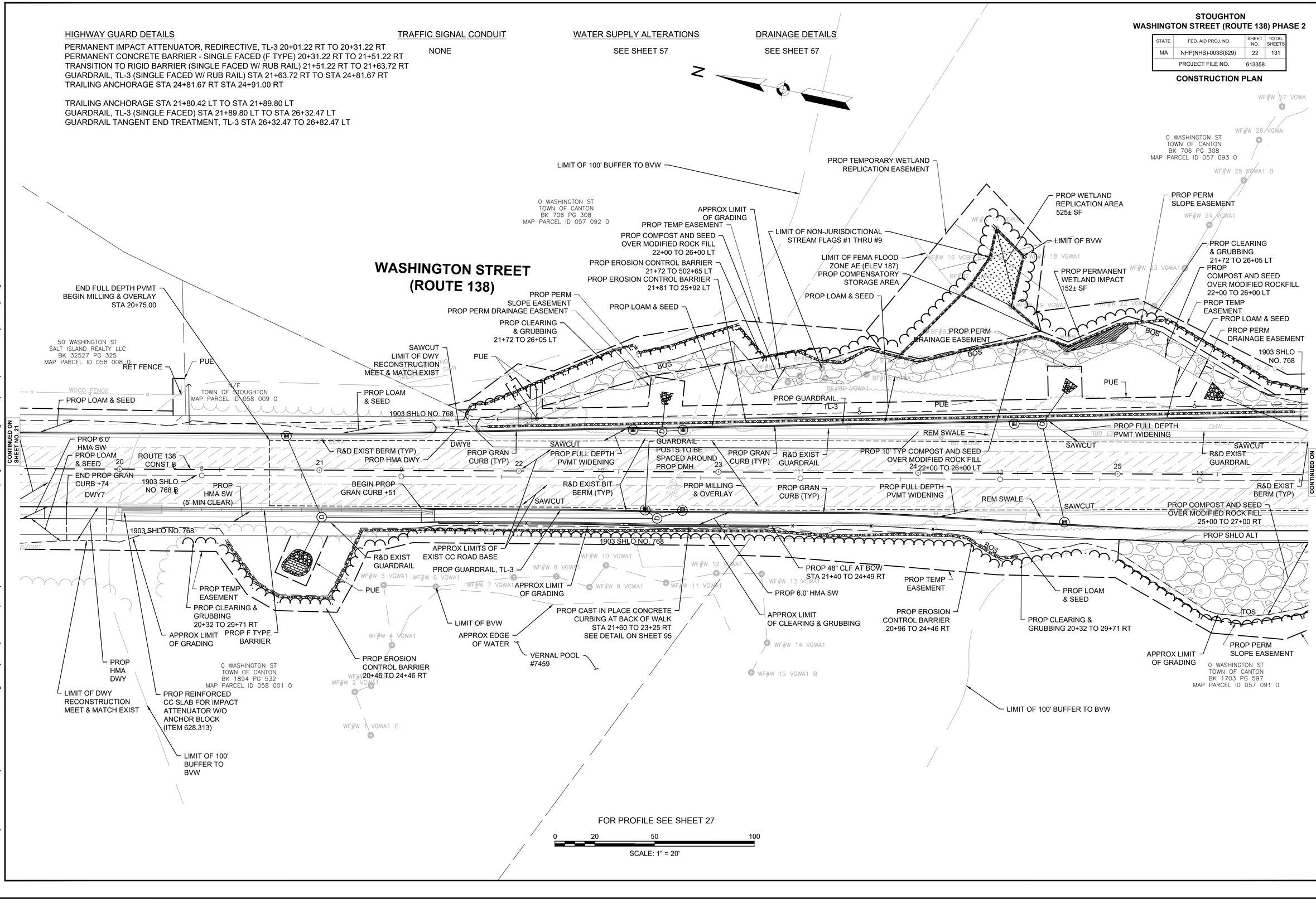
## DRAINAGE DETAILS

SEE SHEET 57

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 22 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CONSTRUCTION PLAN**




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613358_HD(CONST).DWG Plotted on 29-Jan-2025 10:35 AM

TRAFFIC SIGNAL CONDUIT

SEE SHEET 68

WATER SUPPLY ALTERATIONS

SEE SHEET 58

DRAINAGE DETAILS

SEE SHEET 58

HIGHWAY GUARD DETAILS

TRAILING ANCHORAGE STA 21+80.42 LT TO STA 21+89.80 LT
GUARDRAIL, TL-3 (SINGLE FACED) STA 21+89.80 LT TO STA 26+32.47 LT
GUARDRAIL TANGENT END TREATMENT, TL-3 STA 26+32.47 TO 26+82.47 LT

GUARDRAIL TANGENT END TREATMENT, TL-2 STA 502+65.00 LT TO STA 502+40.00 LT
GUARDRAIL TL-2 (SINGLE FACED) STA 502+40.00 LT TO STA 500+85.85 LT
TRAILING ANCHORAGE STA 500+85.85 LT TO 500+76.35 LT

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 23 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CONSTRUCTION PLAN**

168 WASHINGTON ST
NSTAR ELECTRIC COMPANY
BK 22202 PG 466
MAP PARCEL ID 057 110 0

0 WASHINGTON ST
TOWN OF CANTON
BK 706 PG 308
MAP PARCEL ID 057 093 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

# WASHINGTON STREET (ROUTE 138)

YORK STREET

27+53.98 WASHINGTON STREET (ROUTE 138)=
500+00.00 YORK ST CONST CL

FOR PROFILE SEE SHEET 27, 27 & 29

0 20 50 100
SCALE: 1" = 20'

CONTINUED ON SHEET NO. 83

CONTINUED ON SHEET NO. 24

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(CONST).dwg 10:36 AM

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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 24 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CONSTRUCTION PLAN**

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 59

DRAINAGE DETAILS

SEE SHEET 59

# WASHINGTON STREET (ROUTE 138)

168 WASHINGTON ST
NSTAR ELECTRIC COMPANY
BK 22202 PG 466
MAP PARCEL ID 057 110 0

198 WASHINGTON ST
FRANCIS WILL
aka FRANCIS A. WILL
TRUSTEE OF AREA REALTY TRUST II
BK 7563 PG 306
MAP PARCEL ID 057 111 0

214 WASHINGTON ST
PETER H. P. & ANGELA F LEE,
TRUSTEES OF YUNG-LAU REALTY TRUST
BK 7110 PG 583
MAP PARCEL ID 057 112 0

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

217 WASHINGTON ST
ALLIOS LLC
BK 31856 PG 458
MAP PARCEL ID 057 089 0

247 WASHINGTON ST
V AND D ASSOCIATES LLC
BK 34715 PG 31
MAP PARCEL ID 057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

R&S STONE WALL
RET EXIST WALL
PROP MULCH
RET SIGN
R&D FOUNTAIN
PROP WALL W/ METAL PIPE RAIL 31+63± LT TO 32+52± LT
SAWCUT LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
REM STONE SWALE WITHIN GRADING LIMITS
APPROX LIMIT OF GRADING
PROP TEMP EARTH SUPPORT 31+63 TO 32+62 LT
PROP LOAM & SEED
PROP LIMIT OF WALL FOOTING
R&S PAVERS
REM CONC WALL
RET STEPS
PROP HMA DWY
PROP LOAM & SEED
PROP 6.0' HMA SW
TOS
REM
DWY9
DWY11
PROP MULCH
PROP 6.0' HMA SW
SAWCUT LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
REM WALL WITHIN PROP WALK MEET EXIST WALL
PROP TEMP EASEMENT
RET TREE
PROP WALL W/ 48" CLF 32+81± LT TO 33+66± LT
APPROX LIMIT OF GRADING
PROP LOAM & SEED
1903 SHLO NO. 768
RET TREE
R&D TREE
END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675
PROP WALL W/ 48" CLF 33+90± LT TO 34+42± LT
PROP HMA DWY
R&D TREE
PROP 6.0' HMA SW
PROP LOAM & SEED
APPROX LIMIT OF GRADING
APPROX LIMITS OF EXIST CC ROAD BASE
R&D TREES
R&D TREE
R&D TREE
R&D
DWY12
DWY14
PROP HMA DWY
R&D ROCK
R&S WALL
SAWCUT
R&S
R&S EXIST WALL
PROP FULL DEPTH PVMT WIDENING
R&S WALL
1903 SHLO NO. 768
PROP GRAN CURB (TYP)
END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675
R&R GRAN CURB (TYP)
21+35.25
ROUTE 138 CONST
PROP FULL DEPTH PVMT WIDENING
PROP MILLING & OVERLAY
DWY13
DWY15
PROP HMA BERM MEET EXIST
PROP GRAN CURB (TYP)
R&D
PCR7
DWY17
R&R MB
SAWCUT
PROP GRAN CURB MEET EXIST
PROP HMA DWY
SAWCUT LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
PROP GRAN CURB MEET EXIST
RET
PROP TEMP EASEMENT
PROP LOAM & SEED
PROP WORK PHASE 1 (TYP)
PROP 6.0' HMA SW
1902 SHLO NO. 675
PUE
PHASE 1 PROJECT PROP GRAN CURB TO BE R&R FROM STA 35+40 LT TO STA 37+75 LT
PUE PHASE 1 PUE
PROP SHALT
TOS
PROP GRAN CURB (TYP)
PROP MILLING & OVERLAY
PROP FULL DEPTH PVMT WIDENING
1902 SHLO NO. 675 ℄
PC +31.77
PROP WORK PHASE 1 (TYP
PROP GRAN CURB MEET EXIST PHASE 1
DWY10
SAWCUT
PROP GRAN CURB (TYP)
R&R GRAN CURB (TYP)
PROP MILLING & OVERLAY
BOS
APPROX LIMIT OF GRADING
RET ROCKS
PROP HMA DWY
PROP TEMP EASEMENT SAWCUT
LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675
PROP 6.0' HMA SW
PROP LOAM & SEED
PROP HMA DWY
RET BERM
RET LIGHTS
PROP 6.0' HMA SW MEET EXIST WALL
RET EXIST STONEWALL
RET SIGN
PROP AGED PINE BARK MULCH
RET LSA
RET EXIST WALL
PROP HMA DWY PHASE 1
RET EXIST WALL
PROP AGED PINE BARK MULCH PHASE 1
RET EXIST WALL
1902 SHLO NO. 675
RET EXIST 6.0' HMA SW PHASE 1
RET EXIST HMA DWY PHASE 1
RET EXIST 6.0' HMA SW PHASE 1
RET EXIST WALL PHASE 1
PROP HMA DWY
RET
RET WOOD FENCE & GATE
SAWCUT
LIMIT OF DWY RECONSTRUCTION MEET & MATCH EXIST
1903 SHLO NO. 768
RET BINS
PROP 6.0' HMA SW
RET EOP
PROP LOAM & SEED
ADJ
PROP GRAN CURB 33+73± RT TO 34+02± RT
APPROXIMATE EASEMENT LOCATION
SEE PAGE 32
CONTINUED ON SHEET NO. 23
CONTINUED ON SHEET NO. 25
FOR PROFILE SEE SHEET 28

0 20 50 100
SCALE: 1" = 20'

613358_HD(CONST).DWG Plotted on 29-Jan-2025 10:37 AM

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HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 60

DRAINAGE DETAILS

SEE SHEET 60

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 25 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CONSTRUCTION PLAN**

N

**WASHINGTON STREET (ROUTE 138)**

**CHARLES AVENUE**

**STOP AND SHOP DRIVEWAY**

**THOMAS STREET**

234 WASHINGTON ST
UH STORAGE (DE) LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

270 WASHINGTON ST
FERNANDES JEFFREY B
BK 29882 PG 582
MAP PARCEL ID 057 146 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 147 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 148 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 056 108 0

N/F
FOO MEI REALTY TRUST
MAP 56, PARCEL 107
BK.8483, PG.511

247 WASHINGTON ST
V AND D ASSOCIATES LLC
BK 34715, PG 31
MAP PARCEL ID 057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

N/F
WESTWOOD PROPERTY MANAGEMENT, LLC
MAP 57, PARCEL 85
BK.35141, PG.430

N/F
LNT CAPITAL PARTNERS, LLC
MAP 56, PARCEL 105
BK.35386, PG.583

N/F
THE ROMAN CATHOLIC ARCHBISHOP OF BOSTON
BOOK 1076, PAGE 635
MAP 56, PARCEL 99

1939 TOWN LO

PRIVATE LO

REM EXIST GRAN CURB PHASE 1

APPROX LIMIT OF GRADING

PROP GRAN CURB MEET EXIST

PUE PHASE 1
PUE

PROP SHALT

PROP GRAN CURB (TYP)

1902 SHLO NO. 675 ℄

PC +31.77

PROP WORK PHASE 1 (TYP)

CONTINUED ON SHEET NO. 24

LIMIT OF MILLING & OVERLAY STA 37+75

RET EXIST 6.0' HMA SW PHASE 1

PROP SHALT PHASE 1

RET EXIST DWY PHASE 1

PROJECT END
STA 38+10
N2875932.8349
E763971.9836

PT +36.05

ROUTE 138 CONST ℄

RET EXIST PAVEMENT PHASE 1

RET EXIST HMA DWY PHASE 1

RET EXIST GRAN CURB (TYP) PHASE 1

RET EXIST 6.0' HMA SW PHASE 1

PROP WORK PHASE 1 (TYP)

1902 SHLO NO. 675

RET EXIST GRAN CURB (TYP) PHASE 1

RET EXIST 6.0' HMA SW PHASE 1

RET EXIST WALL PHASE 1

RET EXIST HMA DWY PHASE 1

RET EXIST GRAN CURB (TYP) PHASE 1

RET EXIST 6.0' HMA SW PHASE 1

RET EXIST HMA DWY PHASE 1

RET EXIST GRAN CURB (TYP) PHASE 1

RET EXIST 6.0' HMA SW PHASE 1

1902 SHLO NO. 675 ℄

1 STORY CONC BLOCK BUILDING

1 STORY BUILDING

1 STORY METAL OFFICE & WAREHOUSE FF=236.93

VACANT BIT PARKING LOT

BIT PARKING LOT

FOR PROFILE SEE SHEET 25 & 26

0 20 50 100

SCALE: 1" = 20'

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(CONST).dwg 10:37 AM

613358_HD(CONST).DWG Plotted on 29-Jan-2025 10:37 AM

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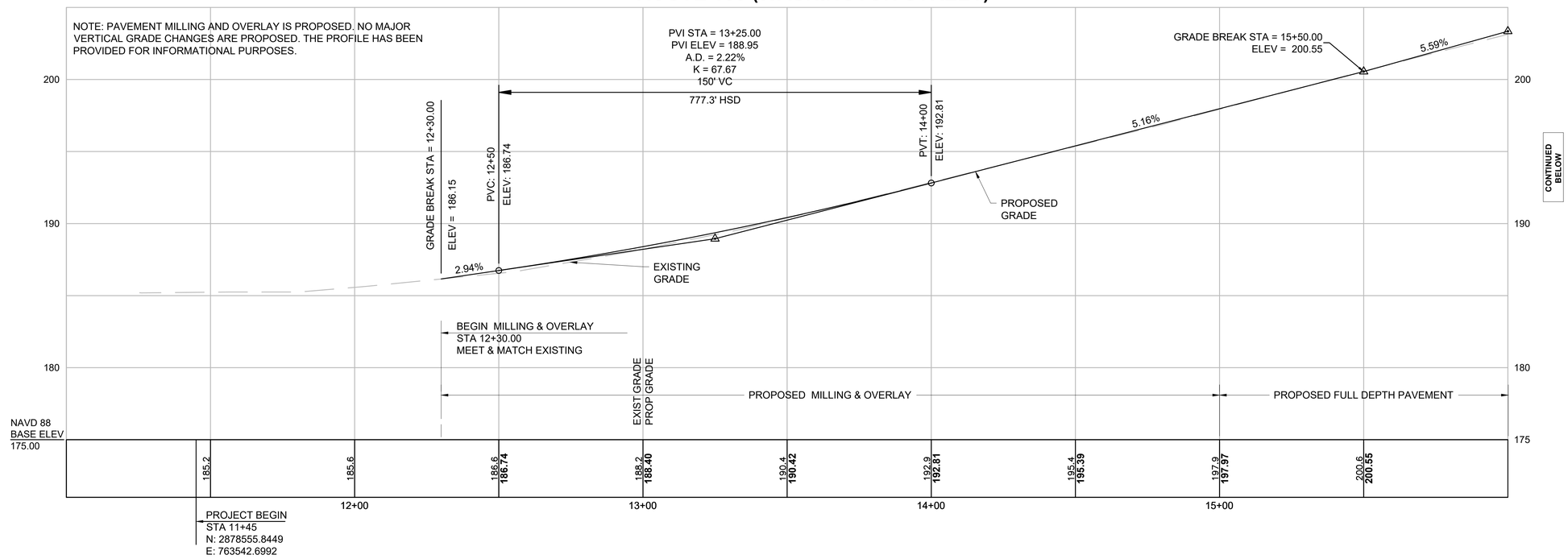
613358_HD(PROF).DWG Plotted on 29-Jan-2025 10:40 AM

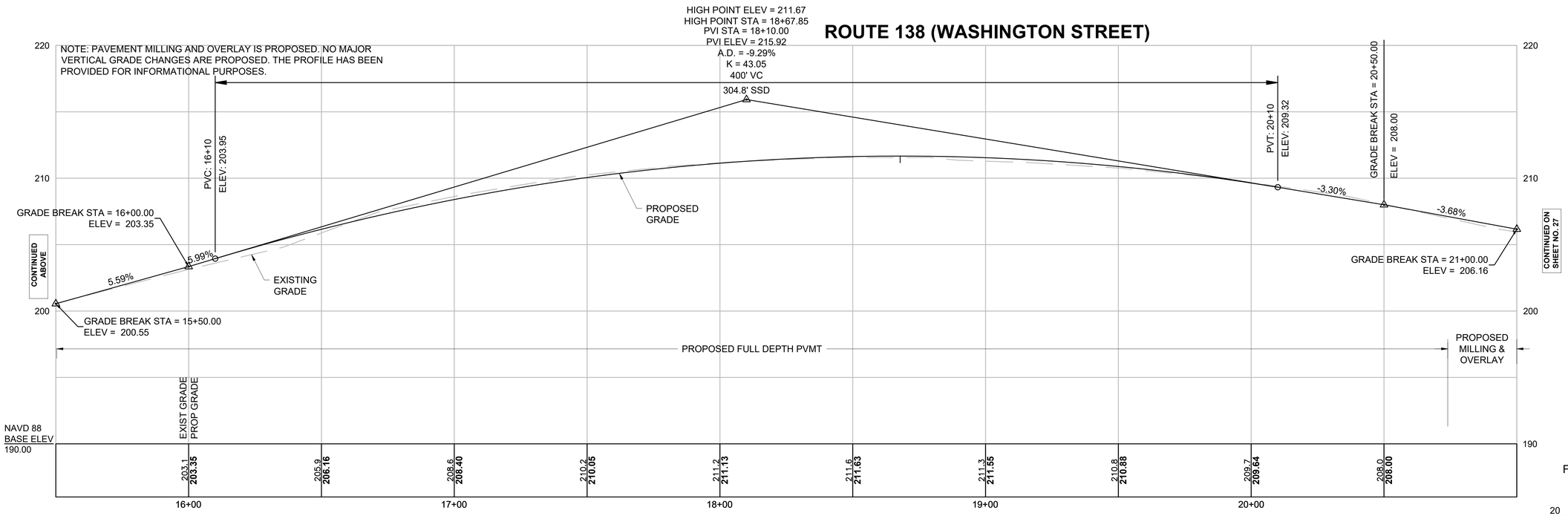
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 26 | 131 |
| PROJECT FILE NO. | 613358 | | |

**PROFILE - WASHINGTON STREET (ROUTE 138)**

# ROUTE 138 (WASHINGTON STREET)




FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 20 - 22

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(PROF).dwg 10:40 AM

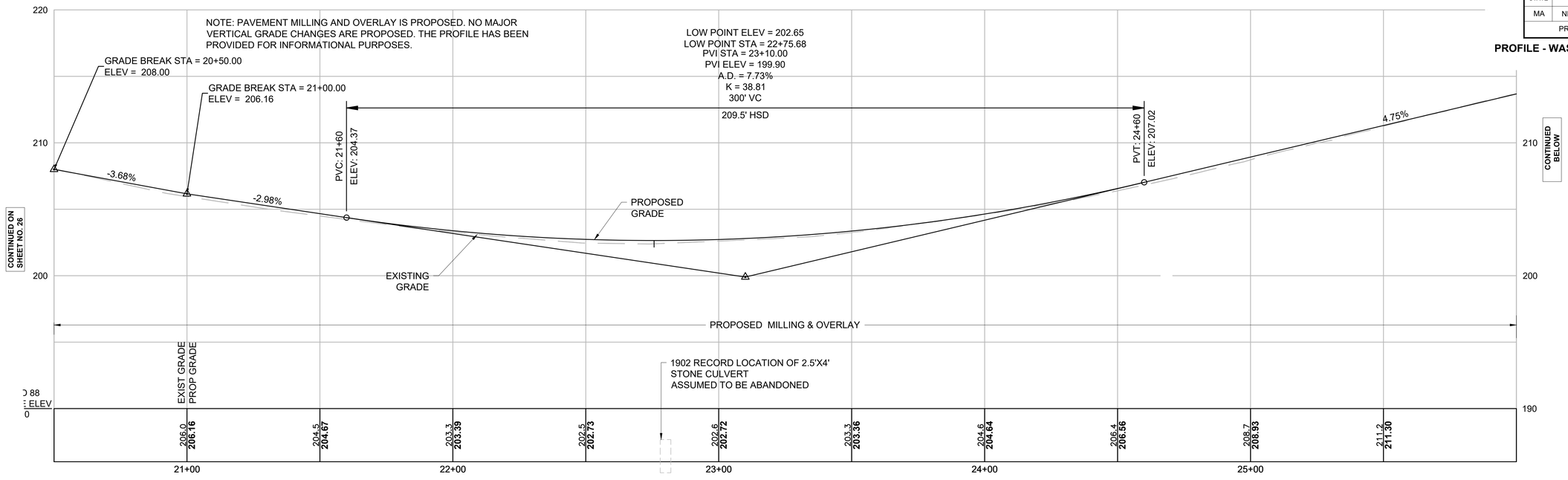
613358_HD(PROF).DWG Plotted on 29-Jan-2025 10:40 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

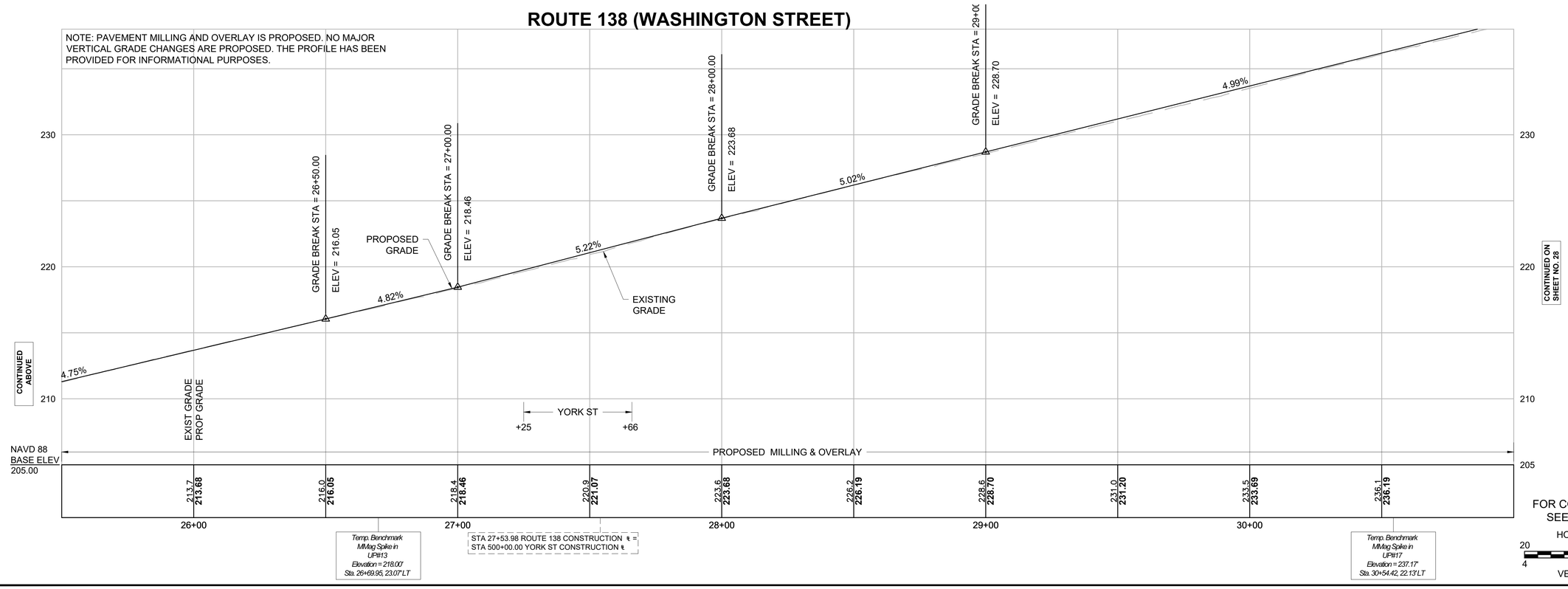
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 27 | 131 |
| PROJECT FILE NO. | 613358 | | |

**PROFILE - WASHINGTON STREET (ROUTE 138)**

## ROUTE 138 (WASHINGTON STREET)




## ROUTE 138 (WASHINGTON STREET)




FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 22 - 23

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(PROF).dwg 10:41 AM

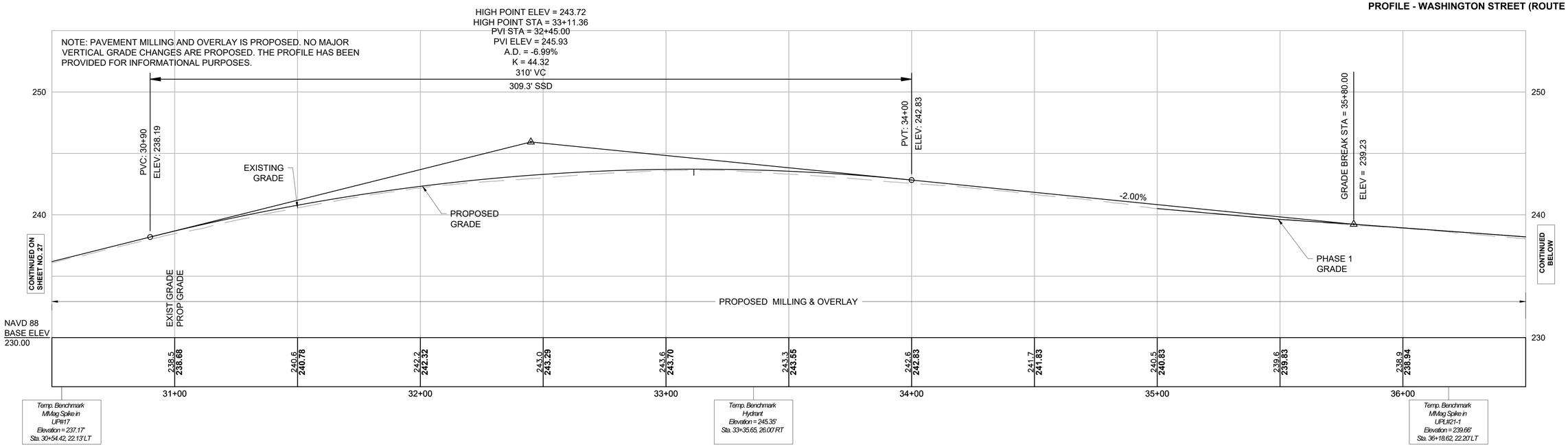
613358_HD(PROF).DWG Plotted on 29-Jan-2025 10:41 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

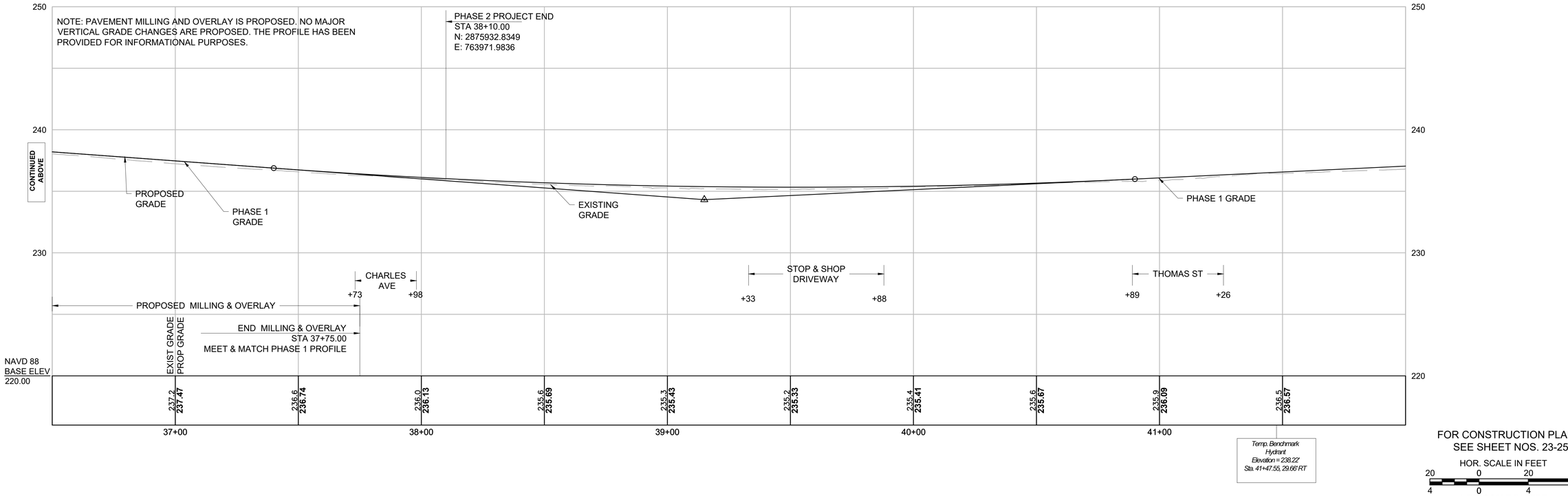
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 28 | 131 |
| PROJECT FILE NO. | 613358 | | |

**PROFILE - WASHINGTON STREET (ROUTE 138)**

## ROUTE 138 (WASHINGTON STREET)




## ROUTE 138 (WASHINGTON STREET)




FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 23-25

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(PROF).dwg 10:42 AM

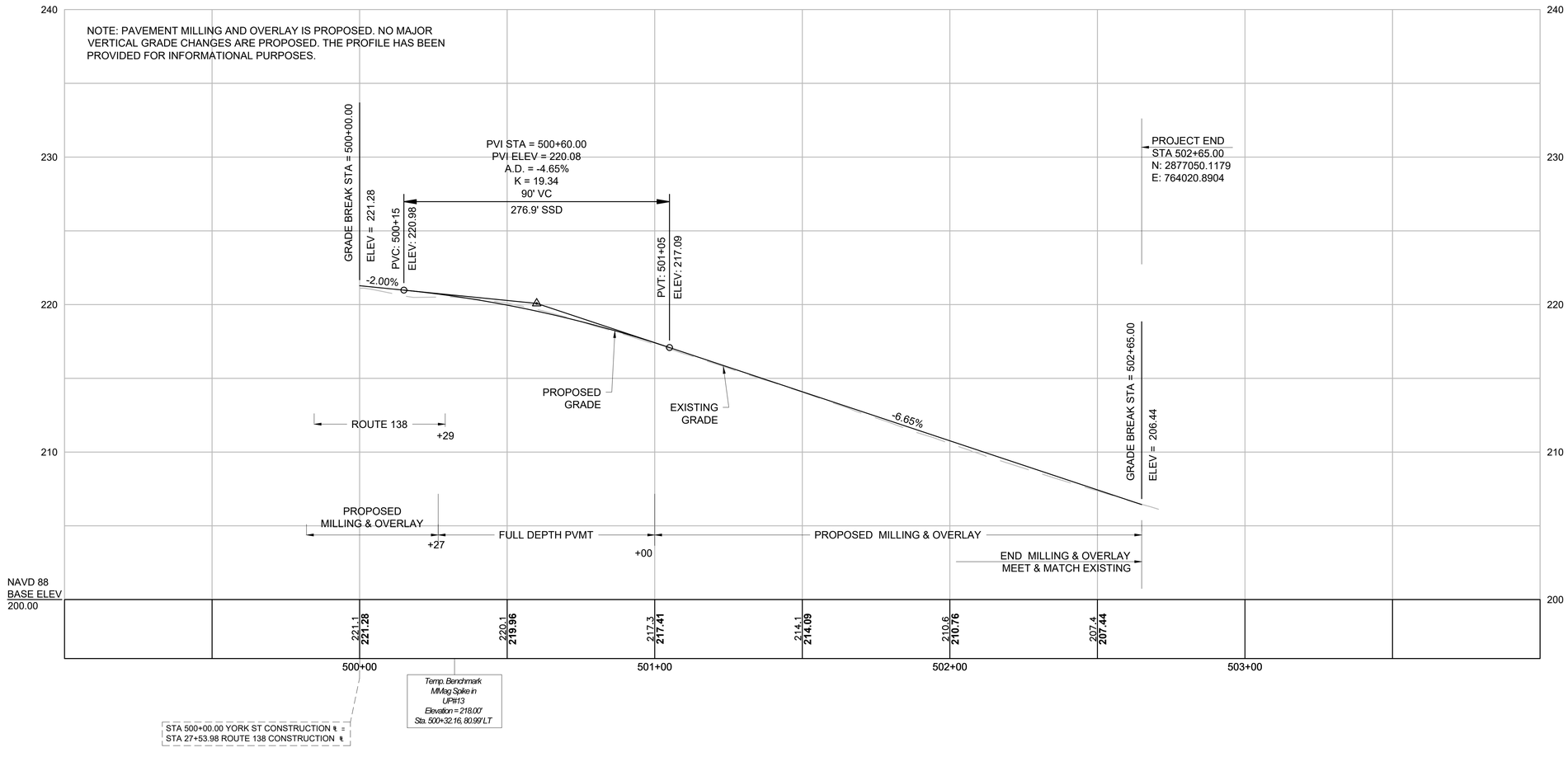
613358_HD(PROF).DWG Plotted on 29-Jan-2025 10:42 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 29 | 131 |
| PROJECT FILE NO. | 613358 | | |

**PROFILE - YORK STREET**

# YORK STREET




FOR CONSTRUCTION PLANS:
SEE SHEET NO. 23

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

# STOUGHTON
# WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 30 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CURB TIE PLANS

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(CURB TIE).dwg 10:46 AM

613358_HD(CURB TIE).DWG Plotted on 29-Jan-2025 10:46 AM

N

PROJECT BEGIN
STA 11+45
N2878555.8449
E763542.6992

LIMIT OF MILLING & OVERLAY
STA 12+30.00
N 2878470.8411
E 763542.6702

18 WASHINGTON ST
FIRST ONE NOMINEE REALTY TRUST
BK 15351 PG 539
MAP PARCEL ID 058 004 0

1200 TURNPIKE STREET
FIRST ONE NOMINEE REALTY TRUST
BK 15351 PG 539
MAP PARCEL ID 87 3 0

22 WASHINGTON ST
DESMOND REALTY TRUST
BK 5706 PG 499
MAP PARCEL ID 058 005 0

32 WASHINGTON ST
WASHINGTON ISLAND VIEW LLC
BK 35787 PG 281
MAP PARCEL ID 058 006 0

1095 TURNPIKE STREET
DAVID AND JANICE O'NEIL REVOCABLE TRUST
BK 35721 PG 116
MAP PARCEL ID 87 2 0

1 WINDSOR WOODS LANE
BOS APT 2 LLC
DOC. 1,321,260
MAP PARCEL ID 87 1 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1894 PG 532
MAP PARCEL ID 058 001 0

100 WINDSOR WOODS LANE
TOWN OF CANTON
CONSERVATION COMMISSION
BK 1703 PG 597
MAP PARCEL ID 73 60 0

WINDSOR WOODS LANE

WASHINGTON STREET (ROUTE 138)

ROUTE 138 CONST ℄

1903 SHLO NO. 768

CANTON
STOUGHTON

APPROXIMATE TOWN LINE

WF#B-19 ENV
WF#B-18
WF#B-17
WF#B-16
WF#B-15
WF#B-14
WF#B-13
WF#B-12
WF#B-11
WF#B 4ORANGE
WF#6 ORANGE
WF#5 ORANGE
WF#B B-8
WF#B-9
WF#B-7
WF#B-6
WF#B-2
WF#B-5
WF#B-4 VGWF1 B 3 ORANGE
WF#B-3
WF#B-1
WF#2 ORANGE
WF#1 ORANGE

11+00
12
13
14
1
2
3
4
5
6

+48.04
MEET EXIST
OFFSET: 19.34

PC +51.69
OFFSET: 19.41

+72.10
MEET EXIST
OFFSET: 28.00

+24.44
MEET EXIST
OFFSET: 27.11

PT +65.22
OFFSET: 22.65

PC +60.10

+65.25
MEET EXIST
OFFSET: 23.93

+87.43
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 34.51

PROP TEMP EASEMENT

+10.13
MEET EXIST
OFFSET: 34.43

PC +10.07
OFFSET: 28.00

PT +20.07

PT +44.96

S 0° 01' 10" W 398.64'

PC +84.20

PCC +27.56

PC +98.64

+94.20
MEET EXIST
OFFSET: 28.00

+00.00
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 39.02

+19.11
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 31.51

+50.00
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 31.03

+98.67
MEET EXIST
OFFSET: 31.20

+89.94
MEET EXIST
OFFSET: 30.49

SEE INSET "A"

PC +39.55
OFFSET: 28.04

C6
C7
PCC +44.00
PCC +98.68
PCC +87.78
PCC +49.76
C13

L=287.00' R=1400.00'
Δ=11° 44' 45"

CONTINUED ON SHEET NO. 32

| Curve Table | | | | |
|---|---|---|---|---|
| Curve # | Delta | Radius | Length | Tangent |
| C1 | 43°08'52" | 30.00' | 22.59' | 11.862' |
| C2 | 43°07'57" | 30.00' | 22.58' | 11.857' |
| C3 | 90°00'00" | 5.00' | 7.85' | 5.000' |
| C4 | 90°00'00" | 10.00' | 15.71' | 10.000' |
| C5 | 90°00'00" | 10.00' | 15.71' | 10.000' |
| C6 | 180°00'00" | 3.00' | 9.42' | INFINITY' |
| C7 | 180°00'00" | 3.00' | 9.42' | INFINITY' |
| C8 | 69°45'25" | 10.00' | 12.17' | 6.970' |
| C9 | 105°07'28" | 2.00' | 3.67' | 2.612' |
| C10 | 90°00'00" | 2.00' | 3.14' | 2.000' |
| C11 | 72°22'25" | 10.00' | 12.63' | 7.315' |
| C12 | 90°00'00" | 2.00' | 3.14' | 2.000' |
| C13 | 90°26'51" | 10.00' | 15.79' | 10.078' |
| C81 | 101°25'19" | 2.00' | 3.54' | 2.444' |

## INSET "A"
## SCALE 1"=10'

PC +87.80
OFFSET: 26.62
PT +80.14
OFFSET: 26.78
PT +89.89
OFFSET: 28.57
PC +98.63
OFFSET: 29.02
PT +00.64
OFFSET: 26.99
PC+06.77
OFFSET: 26.88
PCC +78.10
OFFSET: 24.32
PCC +08.75
OFFSET: 24.44
PCC +87.78
PCC +87.78
PCC +98.68

0 20 50 100
SCALE: 1" = 20'

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 31 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CURB TIE PLANS**

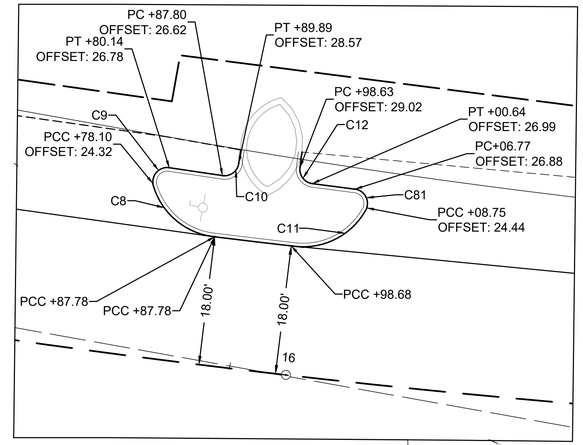
# WASHINGTON STREET (ROUTE 138)

N

32 WASHINGTON ST
WASHINGTON ISLAND VIEW LLC
BK 35787 PG 281
MAP PARCEL ID 058 006 0

| Curve Table | | | | |
|---|---|---|---|---|
| Curve # | Delta | Radius | Length | Tangent |
| C3 | 90°00'00" | 5.00' | 7.85' | 5.000' |
| C4 | 90°00'00" | 10.00' | 15.71' | 10.000' |
| C5 | 90°00'00" | 10.00' | 15.71' | 10.000' |
| C6 | 180°00'00" | 3.00' | 9.42' | INFINITY' |
| C7 | 180°00'00" | 3.00' | 9.42' | INFINITY' |
| C8 | 69°45'25" | 10.00' | 12.17' | 6.970' |
| C9 | 105°07'28" | 2.00' | 3.67' | 2.612' |
| C10 | 90°00'00" | 2.00' | 3.14' | 2.000' |
| C11 | 72°22'25" | 10.00' | 12.63' | 7.315' |
| C12 | 90°00'00" | 2.00' | 3.14' | 2.000' |
| C13 | 90°26'51" | 10.00' | 15.79' | 10.078' |
| C14 | 64°08'29" | 5.00' | 5.60' | 3.133' |
| C15 | 108°28'36" | 10.00' | 18.93' | 13.885' |
| C16 | 84°15'39" | 10.00' | 14.71' | 9.045' |
| C81 | 101°25'19" | 2.00' | 3.54' | 2.444' |

INSET "A"
SCALE 1"=10'




+94.20
MEET EXIST
OFFSET: 28.00

+00.00
LIMIT OF DRIVEWAY
RECONSTRUCTION
OFFSET: 39.02

+50.00
LIMIT OF DRIVEWAY
RECONSTRUCTION
OFFSET: 31.03

+19.11
LIMIT OF DRIVEWAY
RECONSTRUCTION
OFFSET: 31.51

PROP TEMP
EASEMENT

PROP TEMP
EASEMENT

+98.67
MEET EXIST
OFFSET: 31.20

+89.94
MEET EXIST
OFFSET: 30.49

SEE INSET "A"

PC +39.55
OFFSET: 28.04

+39.55
MEET EXIST
OFFSET: 31.53

PCC +99.18
OFFSET: 31.17

PT +95.08
OFFSET: 34.54

+81.61
MEET EXIST
OFFSET: 36.27

+12.83
LIMIT OF DRIVEWAY
RECONSTRUCTION
OFFSET: 37.71

PROP TEMP
EASEMENT

+43.78
MEET EXIST
OFFSET: 27.00

50 WASHINGTON ST
SALT ISLAND REALTY LLC
BK 32527 PG 325
MAP PARCEL ID 058 008 0

PUE

N/F
TOWN OF STOUGHTON
MAP PARCEL ID 058 009 0

CONTINUED ON SHEET NO. 30

CONTINUED ON SHEET NO. 32

TIMBER RETAINING WALL
MULCH
BIT BERM
BIT CONC.
GRASS
VINYL FENCE
CONC. PAD
VGC
TIMBER WALL
GRAVEL
STONE WALL
MB
BIT CONC.
WOOD FENCE
GRASS/DIRT

1903 SHLO NO. 768

PC +84.20
PCC +27.56
C6
C7
PCC +44.00
PC +98.64
PCC +98.68
PCC +87.78
PCC +49.76
C13
C14
C15
C16
PC +89.69
PT +53.73
PT +85.64
ROUTE 138
CONST ℄
+35.81
PI
L=287.00' R=1400.00'
Δ=11° 44' 45"
18.00'
19.00'
6.00'
16.00'
7.00'
5.12'
CLEAR

+87.82
+02.82
+73.50
+01.22
+95.32
LIMIT OF DRIVEWAY
RECONSTRUCTION
OFFSET: 35.45

PROP TEMP
EASEMENT

5' MIN ACCESSIBLE WALK
BEHIND BARRIER

+90.17
LIMIT OF DRIVEWAY
RECONSTRUCTION
OFFSET: 35.87

LIMIT OF 100' BUFFER TO BVW

0 WASHINGTON ST
TOWN OF CANTON
BK 1894 PG 532
MAP PARCEL ID 058 001

0 20 50 100
SCALE: 1" = 20'

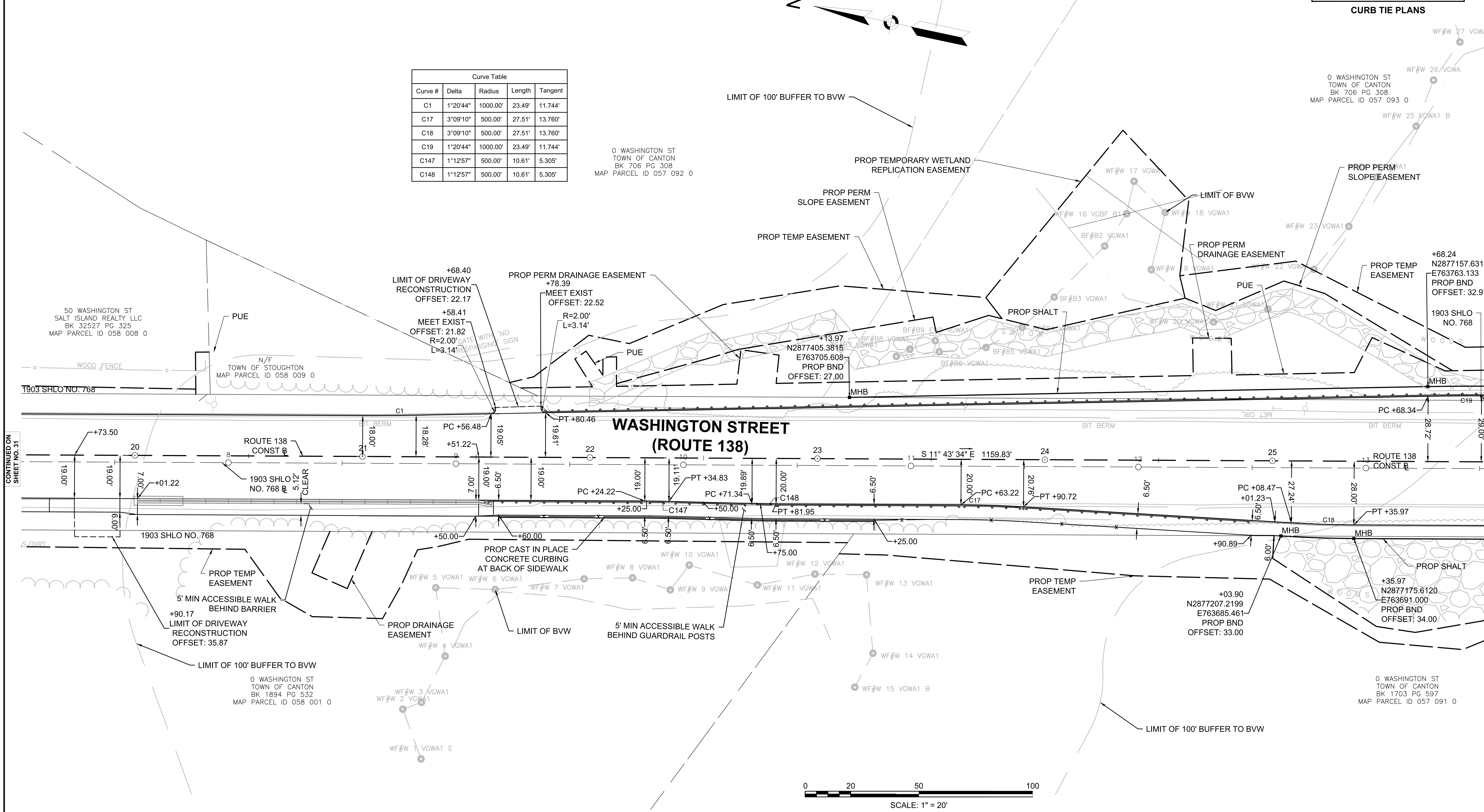
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 32 | 131 |
| PROJECT FILE NO. | 613358 | | |

# CURB TIE PLANS

Plotted on 29-Jan-2025 10:47 AM

613358_HD(CURB TIE).DWG

| Curve Table | | | | |
|---|---|---|---|---|
| Curve # | Delta | Radius | Length | Tangent |
| C1 | 1°20'44" | 1000.00' | 23.49' | 11.744' |
| C17 | 3°09'10" | 500.00' | 27.51' | 13.760' |
| C18 | 3°09'10" | 500.00' | 27.51' | 13.760' |
| C19 | 1°20'44" | 1000.00' | 23.49' | 11.744' |
| C147 | 1°12'57" | 500.00' | 10.61' | 5.305' |
| C148 | 1°12'57" | 500.00' | 10.61' | 5.305' |



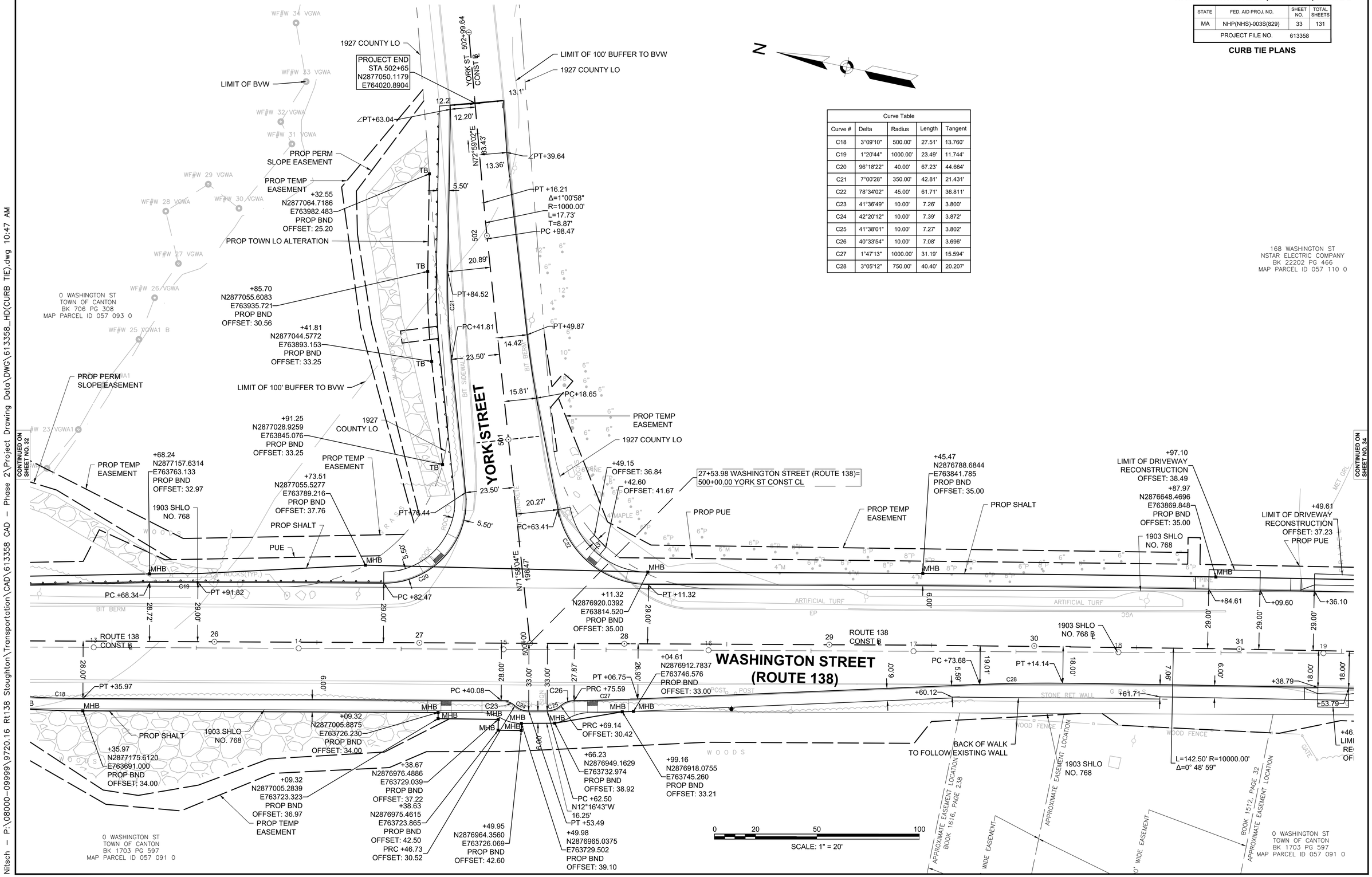

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# STOUGHTON
# WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 33 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CURB TIE PLANS

| Curve Table | | | | |
|---|---|---|---|---|
| Curve # | Delta | Radius | Length | Tangent |
| C18 | 3°09'10" | 500.00' | 27.51' | 13.760' |
| C19 | 1°20'44" | 1000.00' | 23.49' | 11.744' |
| C20 | 96°18'22" | 40.00' | 67.23' | 44.664' |
| C21 | 7°00'28" | 350.00' | 42.81' | 21.431' |
| C22 | 78°34'02" | 45.00' | 61.71' | 36.811' |
| C23 | 41°36'49" | 10.00' | 7.26' | 3.800' |
| C24 | 42°20'12" | 10.00' | 7.39' | 3.872' |
| C25 | 41°38'01" | 10.00' | 7.27' | 3.802' |
| C26 | 40°33'54" | 10.00' | 7.08' | 3.696' |
| C27 | 1°47'13" | 1000.00' | 31.19' | 15.594' |
| C28 | 3°05'12" | 750.00' | 40.40' | 20.207' |




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613358_HD(CURB TIE).DWG Plotted on 29-Jan-2025 10:47 AM

# STOUGHTON
# WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 34 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CURB TIE PLANS

| Curve Table | | | | |
|---|---|---|---|---|
| Curve # | Delta | Radius | Length | Tangent |
| C29 | 89°42'24" | 15.00' | 23.49' | 14.923' |
| C30 | 84°11'55" | 15.00' | 22.04' | 13.553' |

168 WASHINGTON ST
NSTAR ELECTRIC COMPANY
BK 22202 PG 466
MAP PARCEL ID 057 110 0

198 WASHINGTON ST
FRANCIS WILL
aka FRANCIS A. WILL
TRUSTEE OF AREA REALTY
TRUST II
BK 7563 PG 306
MAP PARCEL ID 057 111 0

214 WASHINGTON ST
PETER H. P. & ANGELA F LEE,
TRUSTEES OF YUNG-LAU
REALTY TRUST
BK 7110 PG 583
MAP PARCEL ID 057 112 0

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

SEE WALL PLAN AND PROFILE ON SHEET 36

PROP SHLO ALT

+49.61
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 37.23
PROP PUE

+74.72
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 70.00

PROP TEMP EASEMENT

+77.88
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 50.02

END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675

N79°05'25"E
10.98'

1903 SHLO NO. 768

+58.76
MEET EXIST
OFFSET: 51.05

PT +58.72
OFFSET: 43.92

+71.18
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 49.73

+83.61
MEET EXIST
OFFSET: 48.40

PC +84.21
OFFSET: 42.48

PROP TEMP EASEMENT

PUE

PROP SHALT

PUE PHASE 1

1902 SHLO NO. 675

PROP SHALT

+09.60 +36.10 +63.11 +58.55 +78.55 +68.32 +89.39 PC +43.72 PT +99.14

CONTINUED ON SHEET NO. 33

CONTINUED ON SHEET NO. 35

**WASHINGTON STREET (ROUTE 138)**

END 1903 SHLO NO. 768 ℄

BEGIN 1902 SHLO NO. 675 ℄

1903 SHLO NO. 768 ℄

S 10° 54' 35" E 643.80'

ROUTE 138 CONST ℄

1902 SHLO NO. 675 ℄

+38.79 +53.79 +53.35 +73.35 +01.67 +31.67 +18.83

+46.31
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 27.51

1903 SHLO NO. 768

+64.55
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 30.50

PROP TEMP EASEMENT

R=2.00'
L=3.14'

END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675

+14.18
LIMIT OF DRIVEWAY RECONSTRUCTION
OFFSET: 42.00

BACK OF WALK TO FOLLOW WALL

MEET AND MATCH PHASE 1
STA 35+18.83

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

217 WASHINGTON ST
ALLIOS LLC
BK 31856 PG 458
MAP PARCEL ID 057 089 0

247 WASHINGTON ST
V AND D
ASSOCIATES LLC
BK 34715 PG 31
MAP PARCEL ID
057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

0 20 50 100
SCALE: 1" = 20'

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613358_HD(CURB TIE).DWG Plotted on 29-Jan-2025 10:47 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 35 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CURB TIE PLANS**

| Curve Table | | | | |
|---|---|---|---|---|
| Curve # | Delta | Radius | Length | Tangent |
| C33 | 90°28'16" | 10.00' | 15.79' | 10.083' |
| C34 | 90°28'07" | 10.00' | 15.79' | 10.082' |

N

CHARLES AVENUE

STOP AND SHOP DRIVEWAY

WASHINGTON STREET (ROUTE 138)

THOMAS STREET

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

270 WASHINGTON ST
FERNANDES, JEFFREY B
BK 29882 PG 582
MAP PARCEL ID 057 146 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 147 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 148 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 056 108 0

247 WASHINGTON ST
V AND D
ASSOCIATES LLC
BK 34715 PG 31
MAP PARCEL ID
057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

N/F
WESTWOOD PROPERTY
MANAGEMENT, LLC
MAP 57, PARCEL 85
BK.35141, PG.430

1939 TOWN LO

+73.42
MEET EXIST
OFFSET: 50.96

PUE
PROP SHALT
PT +73.52
OFFSET: 39.08
PUE PHASE 1 +67.60
N2875981.0495
E763998.458
PROP BND
OFFSET: 35.00

+85.50
LIMIT OF STREET
RECONSTRUCTION
OFFSET: 51.10

+97.57
MEET EXIST
OFFSET: 51.26

PC +97.47
OFFSET: 39.08
+09.25
N2875940.0594
E764006.238
PROP BND
OFFSET: 35.00

PT +07.45
PC +63.54
Δ=0° 17' 55"
L=104.28' R=20000.00'

PROJECT END
STA 38+10
N2875932.8349
E763971.9837

29.00'

1902 SHLO
NO. 675 ℄

1902 SHLO
NO. 675

1902 SHLO
NO. 675 ℄

CONTINUED ON SHEET NO. 34

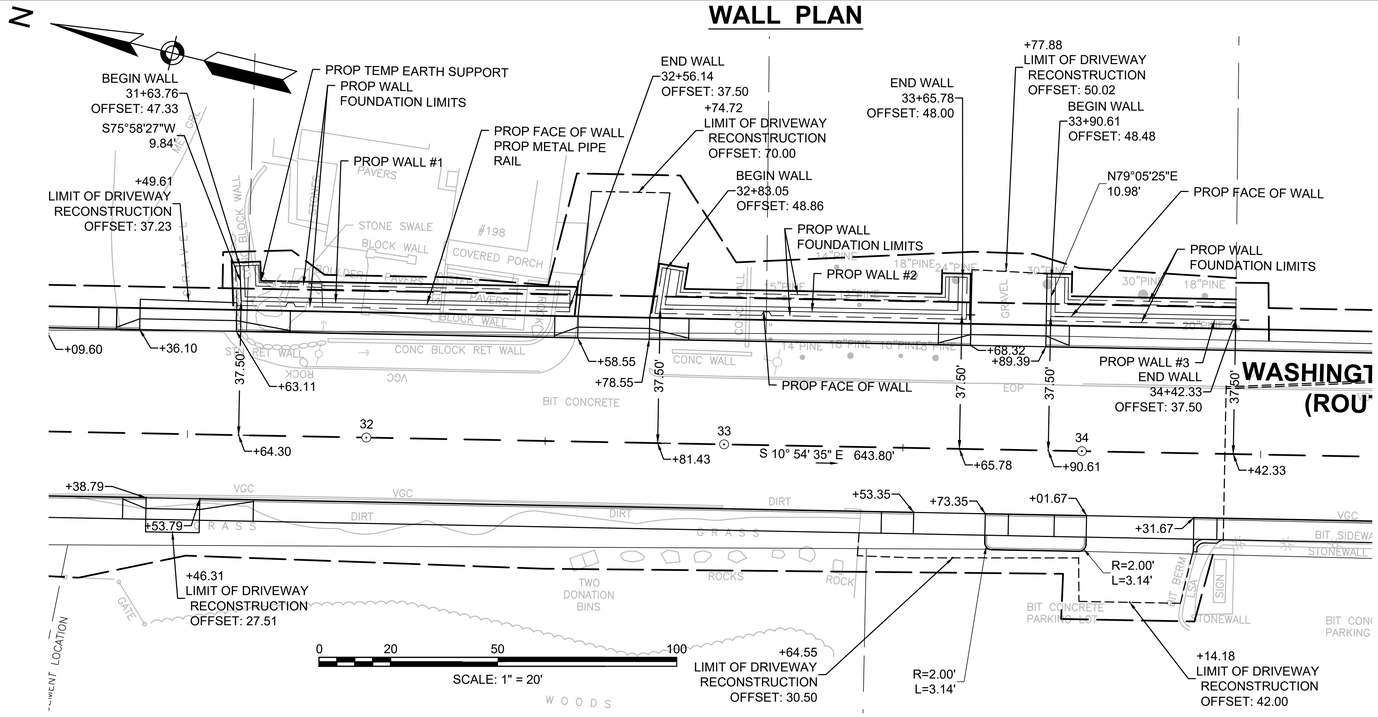
BIT CONCRETE
BIT SIDEWALK
CONC RET WALL
WOOD RET WALL
BRICK WALL
RET WALL
BIT CONC.
BIT BERM
LSA
VGC
CONC.
CONC. APRON
SIGN
BIT DRIVEWAY
BIT PARKING LOT
MULCH & BUSHES
GRASS AREA
BIT. WALK
CONC
CONCRETE
DECK
2 STORY VINYL BUILDING
2 STORY BRICK BUILDING
1 STORY BUILDING
1 STORY METAL OFFICE & WAREHOUSE FF=236.93
6" POST
P.O.C.
MHB
CO

0 20 50 100
SCALE: 1" = 20'

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613358_HD(CURB TIE).DWG Plotted on 29-Jan-2025 10:48 AM

# WALL PLAN

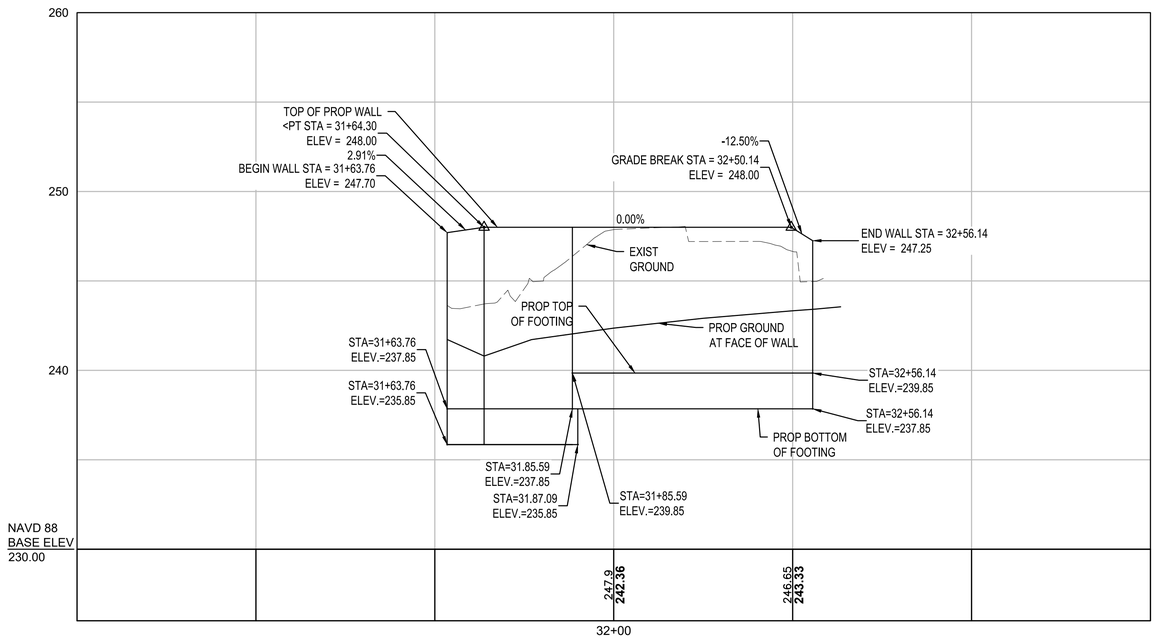


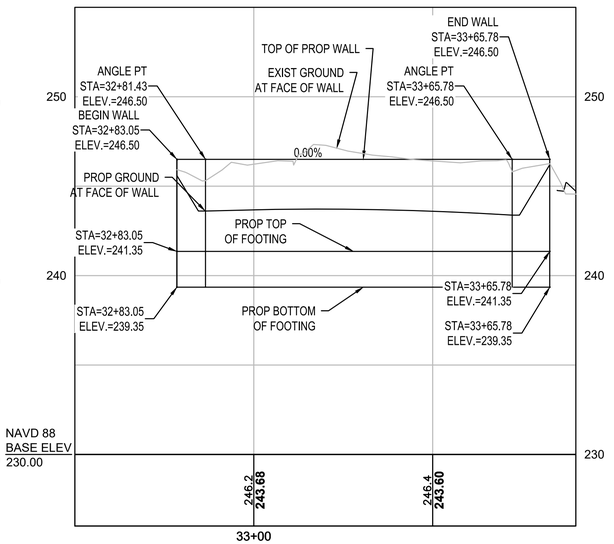

## WALL#1 PROFILE

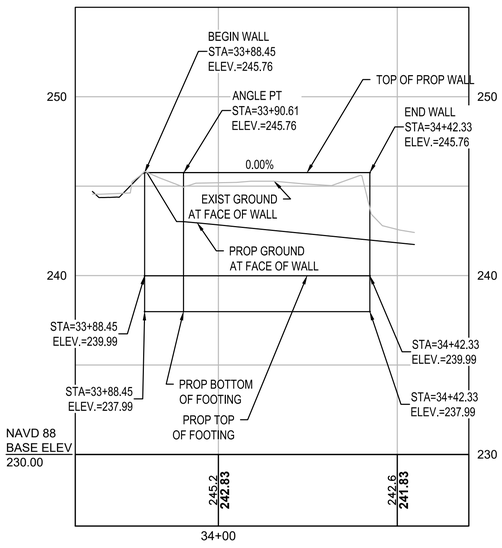
## WALL#2 PROFILE

## WALL#3 PROFILE

AA WILL PROP WALL




HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

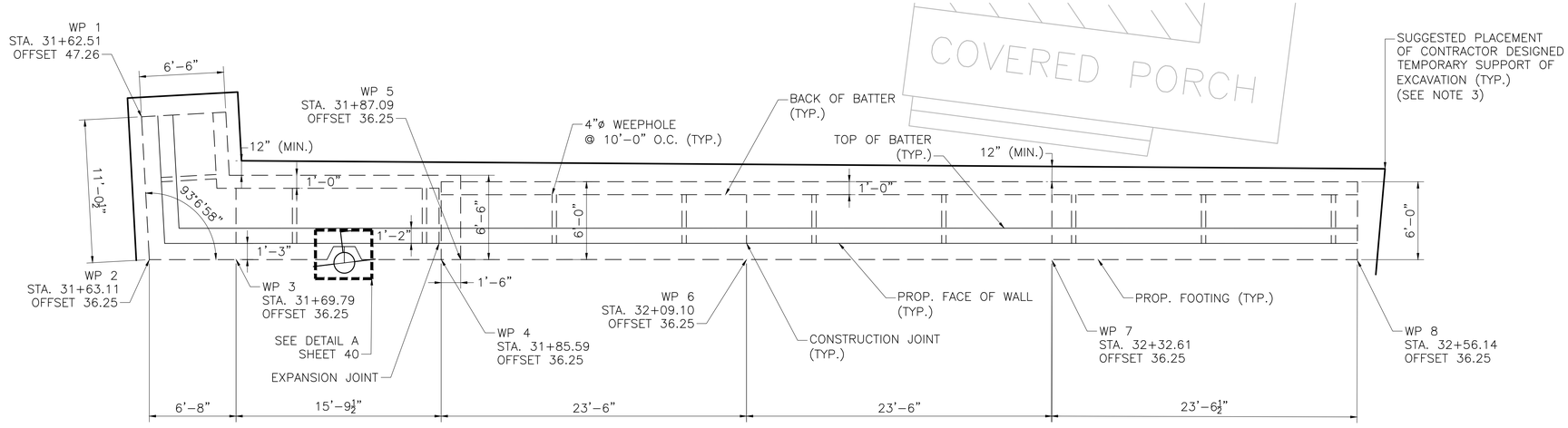
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 36 | 131 |
| PROJECT FILE NO. | 613358 | | |

**WALL PLAN & PROFILE**

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613358_HD(CURB TIE).DWG Plotted on 29-Jan-2025 10:48 AM

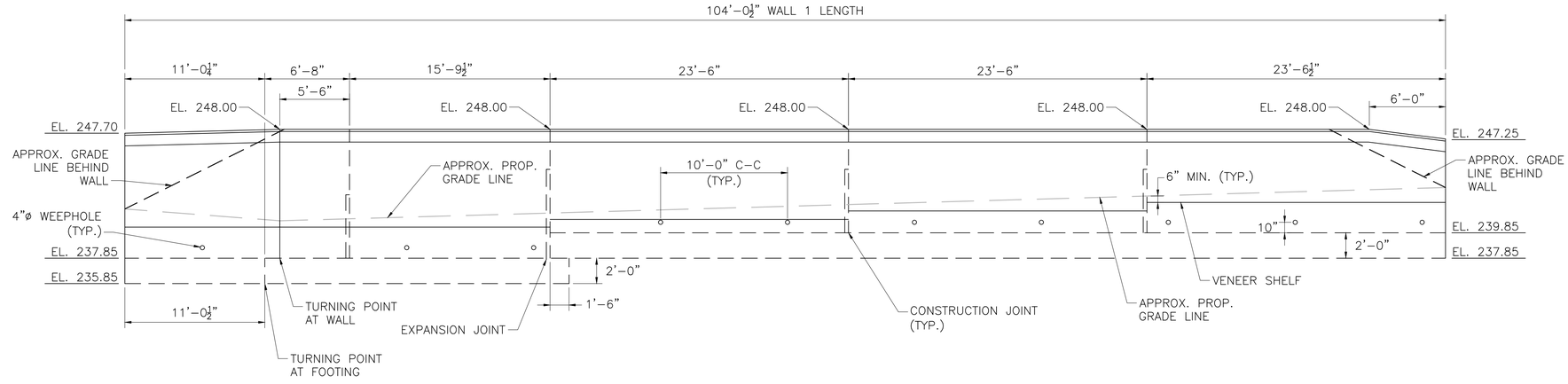
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 37 | 131 |
| PROJECT FILE NO. | 613358 | | |

**WALL 1 PLAN & ELEVATION**




## WALL 1 PLAN

SCALE: 1" = 5'




NOTE: METAL PIPE RAIL NOT SHOWN FOR CLARITY

## WALL 1 ELEVATION

SCALE: 1" = 5'

NOTE: WORKING POINT STATIONS AND OFFSETS REFER TO EDGE OF PROPOSED FOOTING, SEE SHEET 36 FOR FACE OF WALL

WALL 1 WORKING POINT TABLE

| WORKING POINT | DESCRIPTION | NORTHING | EASTING | STATION | OFFSET |
|---|---|---|---|---|---|
| 1 | BEGIN WALL FTG | 2876577.5939 | 763895.9958 | 31+62.51 | 47.26 |
| 2 | ANGLE POINT | 2876574.9276 | 763885.3221 | 31+63.11 | 36.25 |
| 3 | CONSTRUCTION JT | 2876568.3673 | 763886.5696 | 31+69.79 | 36.25 |
| 4 | EXPANSION JT | 2876552.8509 | 763889.5510 | 31+85.59 | 36.25 |
| 5 | FOOTING TRANSITION | 2876551.3792 | 763889.8347 | 31+87.09 | 36.25 |
| 6 | CONSTRUCTION JT | 2876529.7722 | 763894.0434 | 32+09.10 | 36.25 |
| 7 | CONSTRUCTION JT | 2876506.6747 | 763898.4442 | 32+32.61 | 36.25 |
| 8 | END WALL FTG | 2876483.5753 | 763902.8864 | 32+56.14 | 36.25 |

## NOTES:

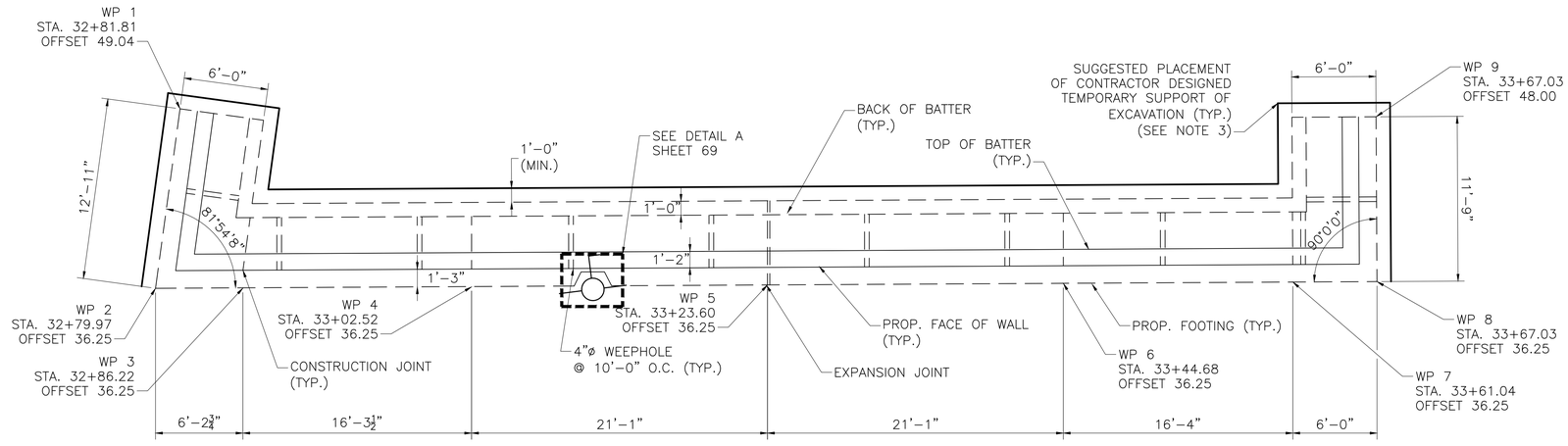
1. SEE TYPICAL RETAINING WALL SECTION DETAILS ON SHEET 40.
2. SEE GRADING PLAN SHEETS FOR PROPOSED SLOPE AND FILL INFORMATION BEHIND THE PROPOSED RETAINING WALLS.
3. TEMPORARY SUPPORT OF EXCAVATION (SOE) SHALL BE USED TO RETAIN EXISTING DRIVEWAYS, PATIOS, PORCHES AND OTHER STRUCTURES NEAR THE PROPOSED WALL EXCAVATIONS. THE SOE SHOWN ON THE PLANS IS SCHEMATIC ONLY, AND IS INTENDED TO SHOW A SUGGESTED SOE CONFIGURATION FOR ESTIMATING AND BIDDING PURPOSES. THE FINAL DESIGN OF THE SOE SHALL BE PERFORMED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. THE DESIGN SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF MASSACHUSETTS.
4. TEMPORARY SUPPORT OF EXCAVATION INSTALLED BELOW THE ELEVATION OF THE BOTTOM OF THE WALL FOOTINGS AND ADJACENT BUILDING FOOTINGS SHALL NOT BE REMOVED. TEMPORARY SUPPORT OF EXCAVATION SHALL BE CUT OFF AT OR ABOVE THE BOTTOM OF ADJACENT FOOTINGS WITH THE REMAINDER ABANDONED IN PLACE.
5. GROUND MONITORING SURVEY SHALL BE PERFORMED AT 198 WASHINGTON STREET TO ENSURE THE EXISTING GROUND AND STRUCTURES ARE NOT SUBJECT TO VERTICAL SETTLEMENT OR LATERAL MOVEMENT DURING SOE INSTALLATION OR EXCAVATION. GROUND MONITORING SHALL BE PERFORMED AS DIRECTED IN THE PROJECT SPECIAL PROVISIONS.
6. TWO DRIVEWAYS PROVIDING ACCESS TO THE BUSINESS AT 198 WASHINGTON STREET SHALL REMAIN OPEN AND UNOBSTRUCTED DURING CONSTRUCTION.
7. CONTRACTOR SHALL COORDINATE THE NEED TO TEMPORARILY RELOCATE OVERHEAD SERVICE WIRES TO ABUTTING PROPERTIES WITH NATIONAL GRID DIRECTLY.

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613358_BR(WALLS).DWG Plotted on 29-Jan-2025 10:50 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 38 | 131 |
| PROJECT FILE NO. | 613358 | | |

**WALL 2 PLAN & ELEVATION**

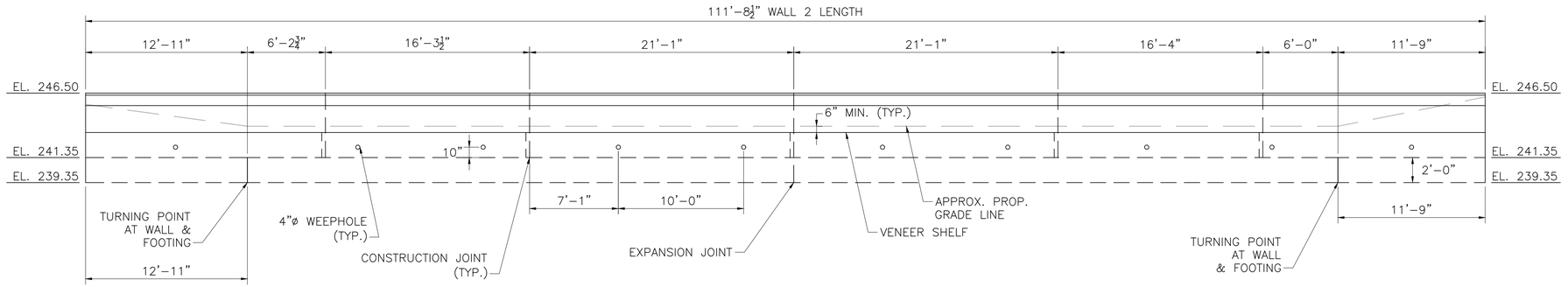



WALL 2 PLAN

SCALE: 1" = 5'

NOTES:

1. SEE TYPICAL RETAINING WALL SECTION DETAILS ON SHEET 40.
2. SEE GRADING PLAN SHEETS FOR PROPOSED SLOPE AND FILL INFORMATION BEHIND THE PROPOSED RETAINING WALLS.
3. TEMPORARY SUPPORT OF EXCAVATION (SOE) SHALL BE USED TO RETAIN EXISTING DRIVEWAYS, PATIOS, PORCHES AND OTHER STRUCTURES NEAR THE PROPOSED WALL EXCAVATIONS. THE SOE SHOWN ON THE PLANS IS SCHEMATIC ONLY, AND IS INTENDED TO SHOW A SUGGESTED SOE CONFIGURATION FOR ESTIMATING AND BIDDING PURPOSES. THE FINAL DESIGN OF THE SOE SHALL BE PERFORMED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. THE DESIGN SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF MASSACHUSETTS.




NOTE: METAL PIPE RAIL NOT SHOWN FOR CLARITY

WALL 2 ELEVATION

SCALE: 1" = 5'

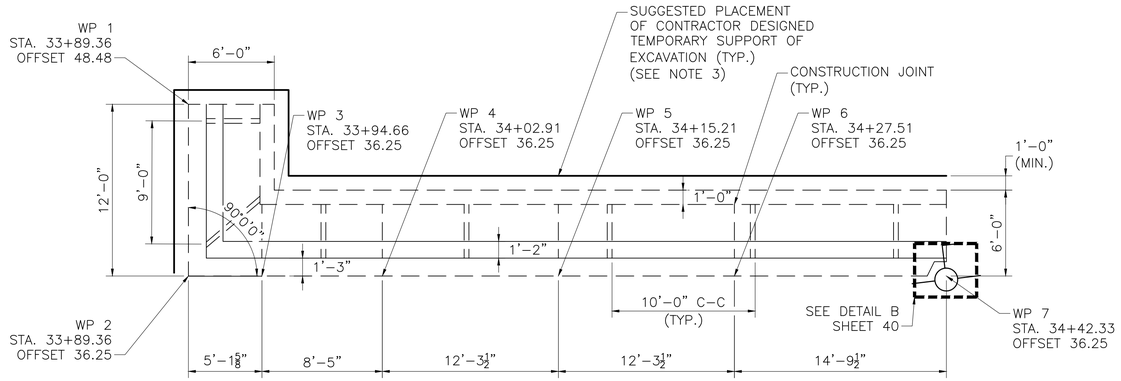
NOTE: WORKING POINT STATIONS AND OFFSETS REFER TO EDGE OF PROPOSED FOOTING, SEE SHEET 36 FOR FACE OF WALL

WALL 2 WORKING POINT TABLE

| WORKING POINT | DESCRIPTION | NORTHING | EASTING | STATION | OFFSET |
|---|---|---|---|---|---|
| 1 | BEGIN WALL FTG | 2876460.7852 | 763920.3170 | 32+81.81 | 49.04 |
| 2 | ANGLE POINT | 2876460.1767 | 763907.4434 | 32+79.97 | 36.25 |
| 3 | CONSTRUCTION JOINT | 2876454.0351 | 763908.5974 | 32+86.22 | 36.25 |
| 4 | CONSTRUCTION JOINT | 2876438.0363 | 763911.6811 | 33+02.52 | 36.25 |
| 5 | EXPANSION JOINT | 2876417.3340 | 763915.6714 | 33+23.60 | 36.25 |
| 6 | CONSTRUCTION JOINT | 2876396.6317 | 763919.6616 | 33+44.68 | 36.25 |
| 7 | CONSTRUCTION JOINT | 2876380.5748 | 763922.7565 | 33+61.04 | 36.25 |
| 8 | ANGLE POINT | 2876374.6884 | 763923.8911 | 33+67.03 | 36.25 |
| 9 | END WALL FTG | 2876376.9122 | 763935.4288 | 33+67.03 | 48.00 |

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613358_BR(WALLS).DWG Plotted on: 29-Jan-2025 10:51 AM




## WALL 3 PLAN

SCALE: 1" = 5'

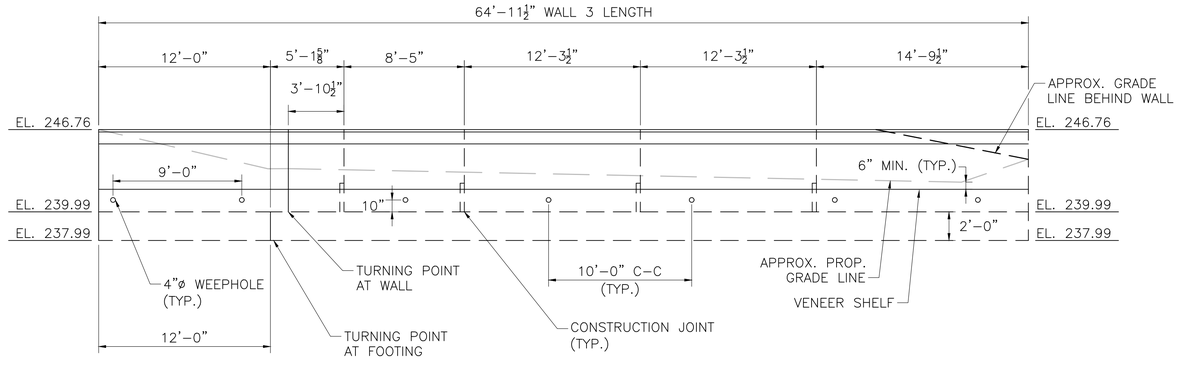
## NOTES:

1. SEE TYPICAL RETAINING WALL SECTION DETAILS ON SHEET 40.
2. SEE GRADING PLAN SHEETS FOR PROPOSED SLOPE AND FILL INFORMATION BEHIND THE PROPOSED RETAINING WALLS.
3. TEMPORARY SUPPORT OF EXCAVATION (SOE) SHALL BE USED TO RETAIN EXISTING DRIVEWAYS, PATIOS, PORCHES AND OTHER STRUCTURES NEAR THE PROPOSED WALL EXCAVATIONS. THE SOE SHOWN ON THE PLANS IS SCHEMATIC ONLY, AND IS INTENDED TO SHOW A SUGGESTED SOE CONFIGURATION FOR ESTIMATING AND BIDDING PURPOSES. THE FINAL DESIGN OF THE SOE SHALL BE PERFORMED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. THE DESIGN SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF MASSACHUSETTS.

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 39 | 131 |
| PROJECT FILE NO. | 613358 | | |

**WALL 3 PLAN & ELEVATION**




## WALL 3 ELEVATION

SCALE: 1" = 5'

NOTE: METAL PIPE RAIL NOT SHOWN FOR CLARITY

NOTE: WORKING POINT STATIONS AND OFFSETS REFER TO EDGE OF PROPOSED FOOTING, SEE SHEET 36 FOR FACE OF WALL

| WALL 3 WORKING POINT TABLE | | | | | |
|---|---|---|---|---|---|
| WORKING POINT | DESCRIPTION | NORTHING | EASTING | STATION | OFFSET |
| 1 | BEGIN WALL FTG | 2876355.0726 | 763940.1236 | 33+89.36 | 48.48 |
| 2 | ANGLE POINT | 2876352.7586 | 763928.1180 | 33+89.36 | 36.25 |
| 3 | CONSTRUCTION JOINT | 2876347.5610 | 763929.1198 | 33+94.66 | 36.25 |
| 4 | CONSTRUCTION JOINT | 2876339.4535 | 763930.6825 | 34+02.91 | 36.25 |
| 5 | CONSTRUCTION JOINT | 2876327.3758 | 763933.0104 | 34+15.21 | 36.25 |
| 6 | CONSTRUCTION JOINT | 2876315.2981 | 763935.3384 | 34+27.51 | 36.25 |
| 7 | END WALL FTG | 2876300.7542 | 763938.1416 | 34+42.33 | 36.25 |

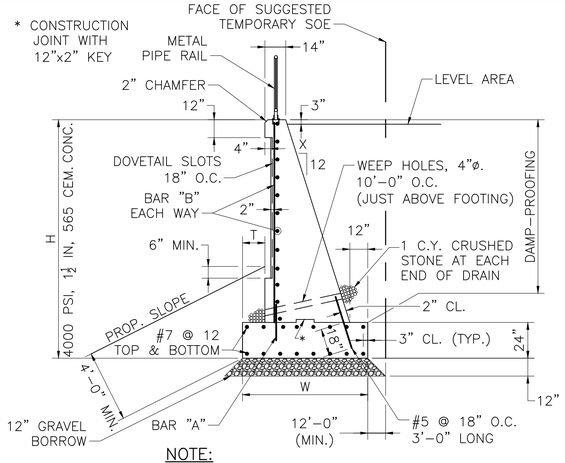
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613358_BR(WALLS).DWG Plotted on: 29-Jan-2025 10:52 AM

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 40 | 131 |
| PROJECT FILE NO. | 613358 | | |

**WALL SECTIONS & DETAILS**

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_BR(WALLS).dwg 10:53 AM
613358_BR(WALLS).DWG Plotted on 29-Jan-2025 10:53 AM



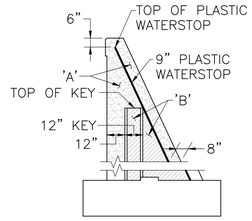

NOTE:
VENEER FINISH, INCLUDING ATTACHMENT ANCHORS, TO BE PROVIDED BY OTHERS.

## RETAINING WALL TYPICAL SECTION
SCALE: ¼" = 1'-0"

RETAINING WALL NOTES:

1. SEE RETAINING WALL TABLE FOR FACTORED BEARING PRESSURES AND FACTORED BEARING RESISTANCES FOR ALL THREE WALLS. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.55 FOR STRENGTH LIMIT STATE AND 0.8 FOR EXTREME LIMIT STATE.
2. SEE GRADING PLAN SHEETS FOR PROPOSED SLOPE AND FILL INFORMATION BEHIND THE PROPOSED RETAINING WALLS.

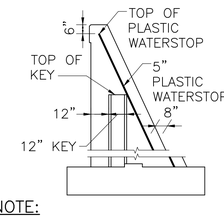
| RETAINING WALL TABLE | | | | | | | SUMMARY OF BEARING CAPACITIES | |
|---|---|---|---|---|---|---|---|---|
| WALL NO. | W | T | H | BAR "A" | BAR "B" | X | MAX. FACTORED BEARING PRESSURE (KSF) | FACTORED BEARING RESISTANCE (KSF) |
| WALL 1 STA 31+64 TO 31+87 | 6'-6" | 1'-3" | 12.15' | #7 @ 12" | #7 @ 12" | 3.65 | 3.11 | 4.65 |
| WALL 1 STA 31+87 TO 32+56 | 6'-0" | 1'-3" | 10.15' | #7 @ 12" | #7 @ 12" | 3.80 | 2.48 | 4.94 |
| WALL 2 | 6'-0" | 1'-3" | 7.15' | #7 @ 12" | #7 @ 12" | 6.02 | 1.50 | 4.94 |
| WALL 3 | 6'-0" | 1'-3" | 8.77' | #7 @ 12" | #7 @ 12" | 4.58 | 2.02 | 4.94 |




NOTES:

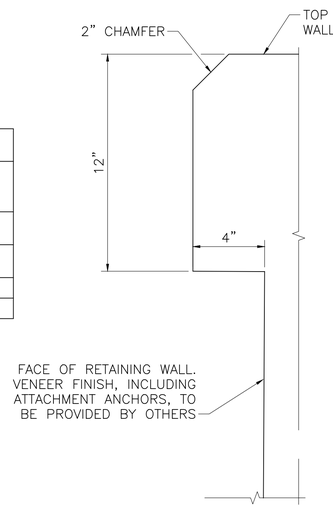
1. LONGITUDINAL REINFORCMENT SHALL END 2" CLEAR OF EXPANSION JOINT.
2. 'A' – PREFORMED FILLER (IN ACCORDANCE WITH M9.14.0).
   'B' – PREFORMED FILLER (IN ACCORDANCE WITH M3.05.3 BITUMINOUS JOINT FILLER).
3. FILLER MATERIAL SHALL BE FASTENED SECURELY TO ONE SIDE OF JOINT.

## VERTICAL SECTION THRU EXPANSION JOINT
NOT TO SCALE

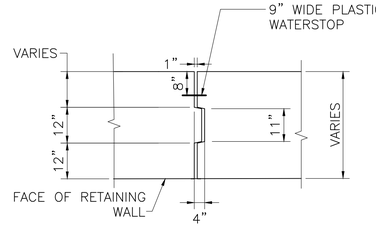



NOTE:
REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

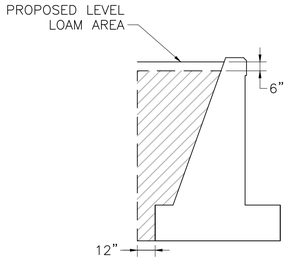
## VERTICAL SECTION THROUGH CONSTRUCTION JOINT
NOT TO SCALE




## DETAIL AT TOP OF WINGWALL
SCALE: 3" = 1'-0"

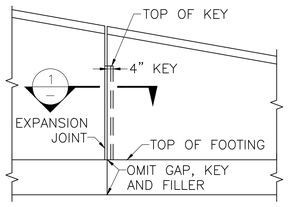



## SECTION 1
SCALE: ½" = 1'-0"

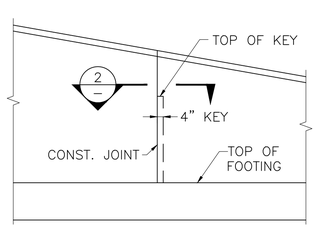



NOTE:
HATCHED AREA INDICATES LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES.

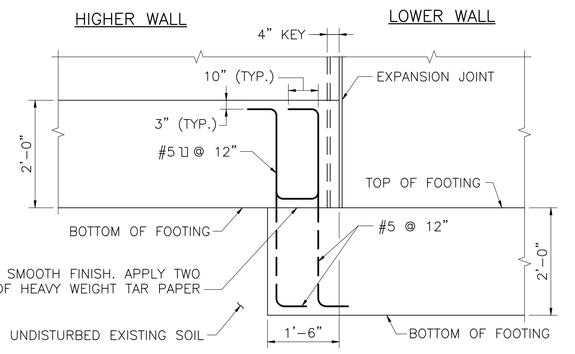
## LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES
SCALE: ¼" = 1'-0"



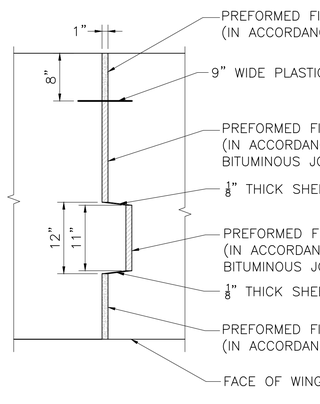

## RETAINING WALL ELEVATION WITH EXPANSION JOINT
NOT TO SCALE



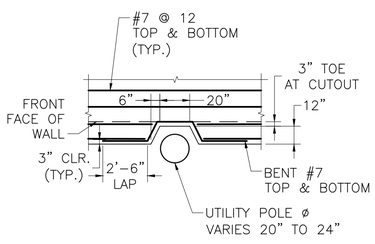

## RETAINING WALL ELEVATION WITH CONSTRUCTION JOINT
NOT TO SCALE



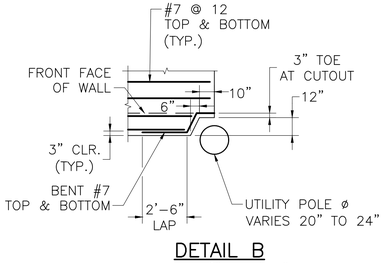

## STEPPED-UP FOOTING DETAIL
SCALE: ½" = 1'-0"



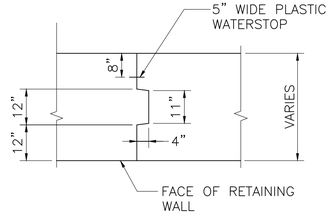

## LIMITS OF PREFORMED FILLER
SCALE: 1" = 1'-0"



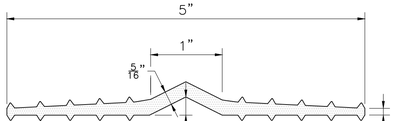

## DETAIL A
SCALE: ¼" = 1'-0"



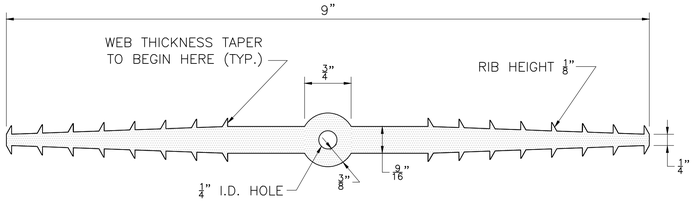

## DETAIL B
SCALE: ¼" = 1'-0"




## SECTION 2
SCALE: ½" = 1'-0"




## 5" WATERSTOP
NOT TO SCALE




## 9" WATERSTOP
NOT TO SCALE

# STOUGHTON
# WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 41 | 131 |
| PROJECT FILE NO. | 613358 | | |

## GRADING PLAN

N

PROJECT BEGIN
STA 11+45
N2878555.8449
E763542.6992

WF#B-19 ENV
WF#B-18
WF#B-17
WF#B-16
WF#B-15
WF#B-14
WF#B-13
WF#B-12
WF#B-11
WF#B 4ORANGE
WF#B-10
WF#6 ORANGE
WF#B-9
WE#5 ORANGE
WF#B B-8
WF#B-7
WF#B-6
WF#B-3
WF#B-2
WF#B-5
WF#B-1
WF#B-4 VGWF1 B 3 ORANGE
WF#2 ORANGE
WF#1 ORANGE

18 WASHINGTON ST
FIRST ONE NOMINEE
REALTY TRUST
BK 15351 PG 539
MAP PARCEL ID 058 004 0

1200 TURNPIKE STREET
FIRST ONE NOMINEE
REALTY TRUST
BK 15351 PG 539
MAP PARCEL ID 87 3 0

22 WASHINGTON ST
DESMOND REALTY TRUST
BK 5706 PG 499
MAP PARCEL ID 058 005 0

32 WASHINGTON ST
WASHINGTON ISLAND VIEW LLC
BK 35787 PG 281
MAP PARCEL ID 058 006 0

1095 TURNPIKE STREET
DAVID AND JANICE O'NEIL
REVOCABLE TRUST
BK 35721 PG 116
MAP PARCEL ID 87 2 0

1 WINDSOR WOODS LANE
BOS APT 2 LLC
DOC. 1,321,260
MAP PARCEL ID 87 1 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1894 PG 532
MAP PARCEL ID 058 001 0

100 WINDSOR WOODS LANE
TOWN OF CANTON
CONSERVATION COMMISSION
BK 1703 PG 597
MAP PARCEL ID 73 60 0

CANTON
STOUGHTON

APPROXIMATE
TOWN LINE

WINDSOR WOODS LANE

WASHINGTON STREET
(ROUTE 138)

ROUTE 138
CONST ℄

LIMIT OF
MILLING &
OVERLAY
STA 12+30.00
N 2878470.8411
E 763542.6702

PROP TEMP
EASEMENT

APPROX LIMIT
OF GRADING (TYP)

STONE
RETAINING
WALL

TIMBER
RETAINING
WALL

BOS
TOS

MET. GDR
BIT BERM
BIT. CONC.
GRASS
GRASS / GRAVEL
VGC
VGC MULCH
VGC GDR
LSA
MB(2)
SWALE
BIT. CONC. SWALE
BIT. CONC. BERM
GRAVEL

11+00
12
13
14
15
16

184.53
184.85
185.47
185.66
185.50
186.74
188.04
188.40
190.42
192.81
195.39
197.61
197.97
198.64
200.19
200.55
203.35
206.16

RIM = 186.69
RIM = 199.85
RIM = 202.63
RIM = 199.49

TC 187.38
BC 186.88
TC 186.86
BC 186.36
TC 188.52
BC 188.02
TC 190.54
BC 190.04
TC 190.56
BC 190.06
TC 192.95
BC 192.45
TC 192.94
BC 192.44
TC 195.53
BC 195.03
TC 195.52
BC 195.02
TC 198.09
BC 197.59
TC 200.67
BC 200.17
TC 203.49
BC 202.99
TC 206.30
BC 205.80
TC 203.47
BC 202.97
TC 206.28
BC 205.78

S 0° 01' 10" W
398.64'

L=287.00' R=1400.00'
Δ=11° 44' 45"

0 20 50 100
SCALE: 1" = 20'

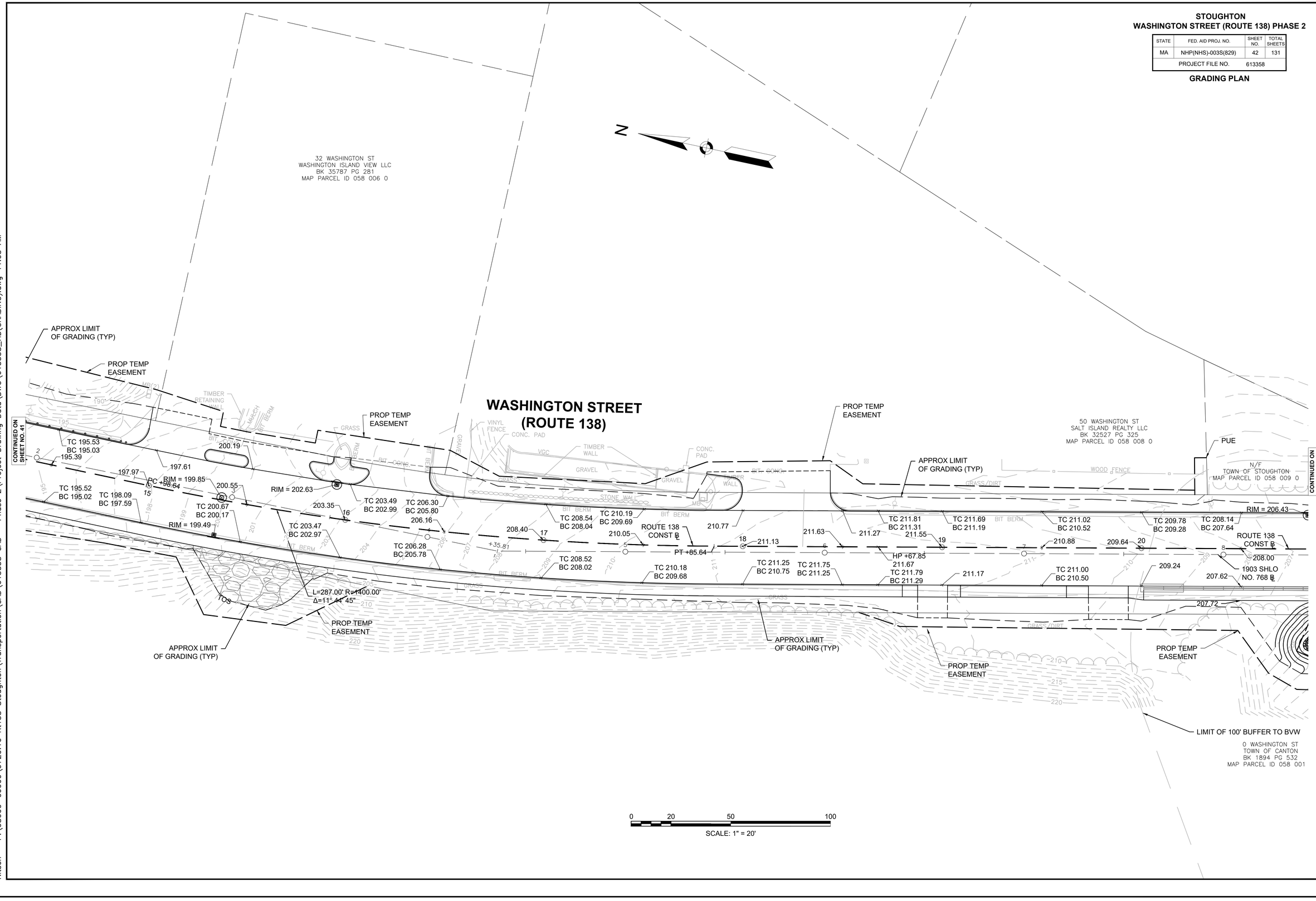
CONTINUED ON SHEET NO. 42

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(GRADING).dwg 11:04 AM
613358_HD(GRADING).DWG Plotted on 29-Jan-2025 11:04 AM

# STOUGHTON
# WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 42 | 131 |
| | PROJECT FILE NO. 613358 | | |

## GRADING PLAN



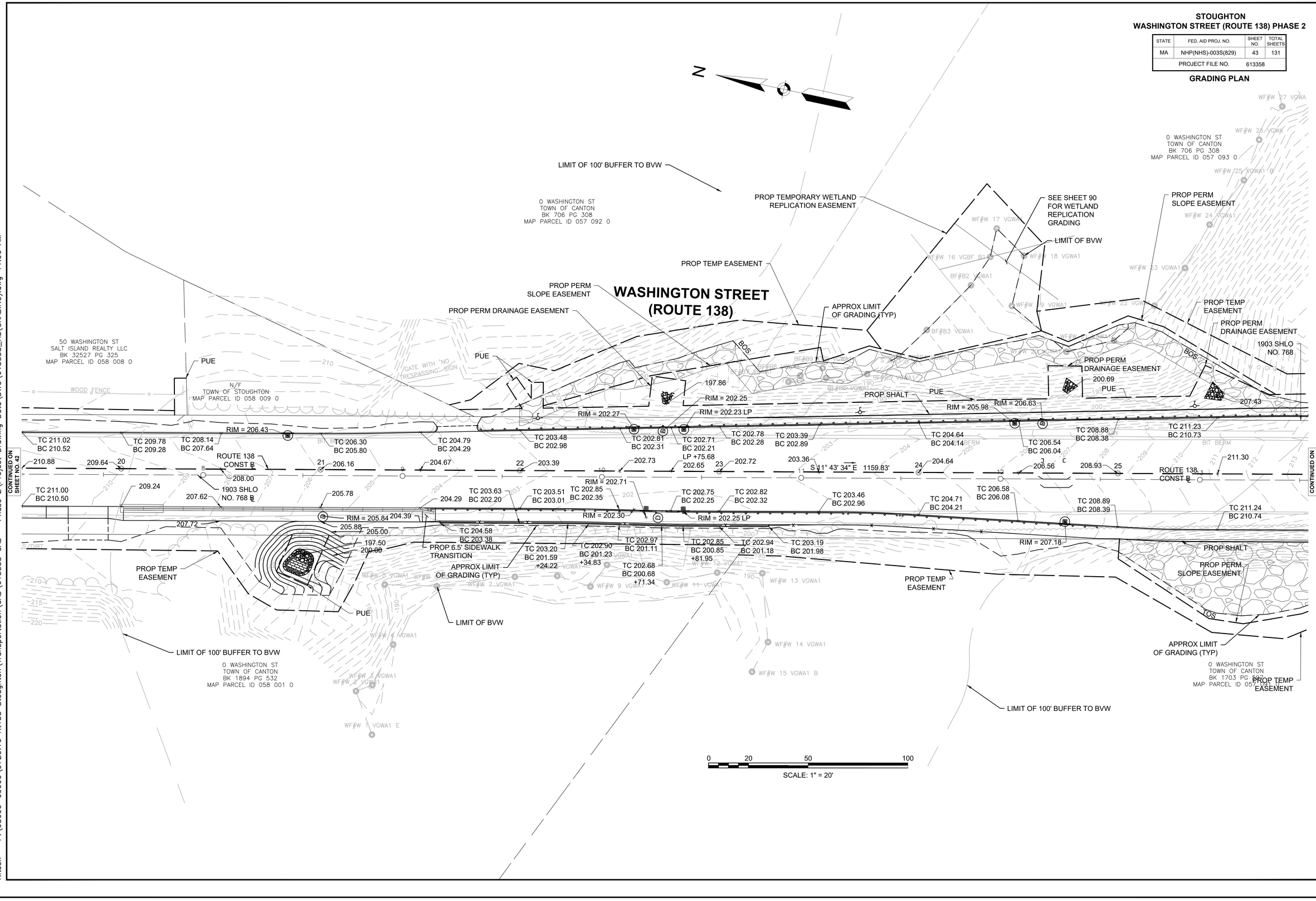

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613358_HD(GRADING).DWG Plotted on 29-Jan-2025 11:05 AM

# STOUGHTON
# WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 43 | 131 |
| PROJECT FILE NO. | 613358 | | |

## GRADING PLAN




Nitsch — P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD — Phase 2\Project Drawing Data\DWG\613358_HD(GRADING).dwg 11:06 AM

613358_HD(GRADING).DWG Plotted on 29-Jan-2025 11:06 AM

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 44 | 131 |
| PROJECT FILE NO. | 613358 | | |

**GRADING PLAN**

Nitsch – P:\08000–09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(GRADING).dwg 11:07 AM
613358_HD(GRADING).DWG Plotted on 29-Jan-2025 11:07 AM

N

1927 COUNTY LO
PROJECT END
STA 502+65
N2877050.1179
E764020.8904
LIMIT OF BVW
YORK ST 502+98.64 CONST ℄
206.23
LIMIT OF 100' BUFFER TO BVW
1927 COUNTY LO
206.16
207.44
TC 207.67
BC 207.17
TC 207.67
BC 207.17
PROP PERM
SLOPE EASEMENT
PROP TEMP
EASEMENT
N72°59'02"E
83.43'
PT +16.21
Δ=1°00'58"
R=1000.00'
L=17.73'
T=8.87'
YORK STREET
TC 210.88
BC 210.38
PROP COUNTY LO ALTERATION
210.76
TC 210.98
BC 210.48
PC +98.47
APPROX LIMIT OF
GRADING (TYP)
0 WASHINGTON ST
TOWN OF CANTON
BK 706 PG 308
MAP PARCEL ID 057 093 0
TC 214.12
BC 213.62
214.09
TC 214.30
BC 213.80
APPROX LIMIT
OF GRADING (TYP)
PROP PERM
SLOPE EASEMENT
PROP PUE
LIMIT OF 100' BUFFER TO BVW
1927
COUNTY LO
TC 217.44
BC 216.94
217.41
TC 217.56
BC 217.06
PROP TEMP
EASEMENT
TC 219.49
BC 218.99
1927 COUNTY LO
PROP PUE
TC 218.81
BC 218.31
N71°56'04"E
198.47
PROP TEMP
EASEMENT
PROP PERM
DRAINAGE EASEMENT
1903 SHLO
NO. 768
PROP TEMP
EASEMENT
PROP SHALT
PUE
207.43
TC 211.23
BC 210.73
TC 213.59
BC 213.09
RIM = 215.55
TC 215.97
BC 215.47
TC 217.53
BC 217.03
217.88
PROP
BREAKLINE
220.70
223.10
TC 224.17
BC 223.67
RIM = 224.64
TC 226.11
BC 225.61
TC 228.62
BC 228.12
TC 231.62
BC 231.12
TC 234.11
BC 233.61
TC 236.11
BC 235.61
RIM = 236.67
238.10
240.20
211.30
ROUTE 138
CONST ℄
216.05
RIM = 216.11
218.46
221.07
221.28
223.68
226.19
228.70
ROUTE 138
CONST ℄
PC +45.47
231.20
233.69
1903 SHLO
NO. 768 ℄
236.19
RIM = 237.40
PT +87.97
238.68
240.78
TC 211.24
BC 210.74
TC 213.61
BC 213.11
TC 215.99
BC 215.49
RIM = 215.60
TC 218.40
BC 217.90
TC 220.94
BC 220.44
TC 223.64
BC 223.14
RIM = 224.18
RIM = 223.92
TC 226.19
BC 225.69
TC 228.75
BC 228.25
TC 231.29
BC 230.79
TC 233.83
BC 233.33
TC 236.33
BC 235.83
TC 238.82
BC 238.32
RIM = 237.13
240.32
PROP SHALT
PROP PERM
SLOPE EASEMENT
1903 SHLO
NO. 768
PROP TEMP
EASEMENT
PROP SHALT
APPROX LIMIT
OF GRADING (TYP)
1903 SHLO
NO. 768
L=142.50' R=10000.00'
Δ=0° 48' 59"
PROP TEMP
EASEMENT
APPROX LIMIT
OF GRADING (TYP)
APPROX LIMIT
OF GRADING (TYP)
0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0
PROP TEMP
EASEMENT
0 20 50 100
SCALE: 1" = 20'

**WASHINGTON STREET
(ROUTE 138)**

168 WASHINGTON ST
NSTAR ELECTRIC COMPANY
BK 22202 PG 466
MAP PARCEL ID 057 110 0

CONTINUED ON SHEET NO. 43
CONTINUED ON SHEET NO. 45

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 45 | 131 |
| PROJECT FILE NO. | 613358 | | |

**GRADING PLAN**

613358_HD(GRADING).DWG Plotted on 29-Jan-2025 11:07 AM

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(GRADING).dwg 11:07 AM

CONTINUED ON SHEET NO. 44

CONTINUED ON SHEET NO. 46

N

168 WASHINGTON ST
NSTAR ELECTRIC COMPANY
BK 22202 PG 466
MAP PARCEL ID 057 110 0

198 WASHINGTON ST
FRANCIS WILL
aka FRANCIS A. WILL
TRUSTEE OF AREA REALTY
TRUST II
BK 7563 PG 306
MAP PARCEL ID 057 111 0

214 WASHINGTON ST
PETER H. P. & ANGELA F LEE,
TRUSTEES OF YUNG-LAU
REALTY TRUST
BK 7110 PG 583
MAP PARCEL ID 057 112 0

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

**WASHINGTON STREET (ROUTE 138)**

END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675

APPROX LIMIT OF GRADING (TYP)
1903 SHLO NO. 768
PROP TEMP EASEMENT
APPROX LIMIT OF GRADING (TYP)
APPROX LIMIT OF GRADING (TYP)
PROP TEMP EASEMENT
PUE
1902 SHLO NO. 675
APPROX LIMIT OF GRADING (TYP)
PUE PHASE 1
PUE
PROP SHALT

240.20
TC 242.24
BC 241.74
TC 243.21
BC 242.71
TC 243.62
BC 243.12
TC 243.47
BC 242.97
TC 242.75
BC 242.25
TC 241.75
BC 241.25
TC 240.75
BC 240.25
239.25
TC 238.86
BC 238.36
RIM = 237.84
RIM = 237.45
TC 237.39
BC 236.89
TC 238.12
BC 237.62
TC 236.68
BC 236.18

240.78
19
32 242.32
20
243.29
1903 SHLO NO. 768 ℄
33 243.70
21
243.55
21+35.85
END 1903 SHLO NO. 768 ℄
BEGIN 1902 SHLO NO. 675 ℄
21+35.86
34 242.83
S 10° 54' 35" E 643.80'
22 241.83
ROUTE 138 CONST ℄
35 240.83
23 239.83
36 238.94
24 238.20
37 237.47
PC +31.77

240.32
TC 242.46
BC 241.96
TC 243.43
BC 242.93
TC 243.84
BC 243.34
HP +11.36
243.72
TC 243.38
BC 243.19
TC 242.56
BC 242.47
TC 241.97
BC 241.47
TC 240.97
BC 240.47
TC 239.56
BC 239.47
238.58
TC 238.08
BC 237.84
RIM = 238.07
RIM = 237.94
RIM = 237.51
TC 237.57
BC 237.07
236.24
TW 239.91
BW 237.80
TW 240.05
BW 237.65

APPROX LIMIT OF GRADING (TYP)
1903 SHLO NO. 768
PROP TEMP EASEMENT
END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675
PROP TEMP EASEMENT
1902 SHLO NO. 675
PROP TEMP EASEMENT
PUE PHASE 1

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

217 WASHINGTON ST
ALLIOS LLC
BK 31856 PG 458
MAP PARCEL ID 057 089 0

247 WASHINGTON ST
V AND D
ASSOCIATES LLC
BK 34715, PG 31
MAP PARCEL ID
057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

0 20 50 100
SCALE: 1" = 20'

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 46 | 131 |
| PROJECT FILE NO. | 613358 | | |

# GRADING PLAN

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(GRADING).dwg 11:08 AM

613358_HD(GRADING).DWG Plotted on 29-Jan-2025 11:08 AM

CONTINUED ON SHEET NO. 45

N

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

CHARLES AVENUE

270 WASHINGTON ST
FERNANDES JEFFREY B
BK 29882 PG 582
MAP PARCEL ID 057 146 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 147 0

STOP AND SHOP DRIVEWAY

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 148 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 056 108 0

WASHINGTON STREET
(ROUTE 138)

N/F
FOO MEI REALTY TRUST
MAP 56, PARCEL 107
BK.8483, PG.511

1 STORY
CONC BLOCK BUILDING

PLANTER

OVERHANG

CONC. BLOCK RET. WALL

1902 SHLO
NO. 675

APPROX LIMIT OF GRADING (TYP)

APPROX LIMIT OF GRADING (TYP)

PUE PHASE 1

PUE

PROP SHALT

PROP SHALT PHASE 1

234.34

235.28

235.98

TC 236.68
BC 236.18

1902 SHLO
NO. 675 ℄

PROJECT END
STA 38+10
N2875932.8349
E763971.9836

MATCH PHASE 1 GRADE

PC +31.77

P℄ +36.05

1902 SHLO
NO. 675 ℄

236.24

ROUTE 138
CONST ℄

L=104.28' R=20000.00'
Δ=0° 17' 55"

LIMIT OF MILLING & OVERLAY
STA 37+75

PUE PHASE 1

247 WASHINGTON ST
V AND D
ASSOCIATES LLC
BK 34715 PG 31
MAP PARCEL ID
057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

N/F
WESTWOOD PROPERTY
MANAGEMENT, LLC
MAP 57, PARCEL 85
BK.35141, PG.430

1 STORY BUILDING

1 STORY METAL OFFICE & WAREHOUSE FF=236.93

BIT PARKING LOT

VACANT BIT PARKING LOT

THOMAS STREET

N/F
LNT CAPITAL PARTNERS, LLC
MAP 56, PARCEL 105
BK.35386, PG.583

N/F
THE ROMAN CATHOLIC
ARCHBISHOP OF BOSTON
BOOK 1076, PAGE 635
MAP 56, PARCEL 99

0 20 50 100
SCALE: 1" = 20'

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 47 | 131 |
| PROJECT FILE NO. | 613358 | | |

**SUE LEGEND**

## UTILITY ENGINEERING ABBREVIATIONS

| | | | |
|---|---|---|---|
| AATR | ABANDONED ACCORDING TO RECORD | LP | LOW PRESSURE |
| ACP | ASBESTOS CONCRETE PIPE | MAG | MAG NAIL |
| AUX | AUXILIARY | MH | MANHOLE |
| ABAND | ABANDONED | MTL | METAL |
| BIT | BITUMINOUS | OHW | OVERHEAD WIRE |
| BM | BENCH MARK | PED | PEDESTRIAN |
| CAB | CABINET | PK | PK NAIL |
| CB | CATCH BASIN | PTC | PIPE TYPE HIGH VOLTAGE POWER CONDUIT |
| CH | CHIMNEY | PVC | POLYVINYL CHLORIDE PIPE |
| CI | CAST IRON | PWW | PAVED WATERWAY |
| CIP | CAST IRON PIPE | PZ | PIEZOMETER |
| CMH | CABLE MANHOLE | RC | REINFORCED CONCRETE |
| CMP | CORRUGATED METAL PIPE | RCP | REINFORCED CONCRETE PIPE |
| CONC | CONCRETE | RR | RAILROAD |
| CPP | CORRUGATED PLASTIC PIPE | RRS | RAILROAD SPIKE |
| CSP | CORRUGATED STEEL PIPE | SB | STONE BOUND |
| CS | COMBINED SEWER | SD | STORM DRAIN |
| CTV | CABLE TV | SS | SANITARY SEWER |
| CULV | CULVERT | SMH | SEWER MANHOLE |
| DH | DRILL HOLE | SU | SUMP DEPTH |
| DI | DUCTILE IRON | T | TELECOMMUNICATIONS LINE |
| DIA | DIAMETER | TAN | TANGENT |
| DICL | DUCTILE IRON CEMENT LINED PIPE | TC | TERRA COTTA TILE CONDUIT |
| DMH | DRAIN MANHOLE | TEMP | TEMPORARY |
| DSK | DISK | TMH | TELEPHONE MANHOLE |
| E | ELECTRICAL POWER | TR | TRAFFIC SIGNAL CONDUIT |
| EL | ELEVATION | TRMH | TRAFFIC CONTROL MANHOLE |
| EMH | ELECTRIC MANHOLE | TYP | TYPICAL |
| EX | EXISTING | UNK | UKNOWN UTILITY TYPE |
| FA | FIRE ALARM | UMH | UKNOWN MANHOLE |
| FBR | FIBER CONDUIT | VCP | VITRIFIED CLAY PIPE |
| FL | FLOWLINE | VLT | VAULT |
| FO | FIBER OPTIC | W | WATER |
| G | GAS | WD | WOOD |
| GIP | GALVANIZED IRON PIPE | WIP | WROUGHT IRON PIPE |
| GMH | GAS MANHOLE | WMH | WATER MANHOLE |
| HDPE | HIGH DENSITY POLYETHYLENE | | |
| HYD | HYDRANT | | |
| INV | INVERT | | |
| IP | IRON PIPE | | |
| LB | LEACHING BASIN | | |

## UTILITY SYMBOL LEGEND

| | | | |
|---|---|---|---|
| CHH | CABLE HANDHOLE | T | TELEPHONE MANHOLE |
| C | CABLE MANHOLE | THH | TELEPHONE HANDHOLE |
| CB | CATCH BASIN - SQUARE | TP–# | TEST PIT |
| CB | CATCH BASIN - D-FRAME | TRHH | TRAFFIC HANDHOLE |
| CB | CATCH BASIN - ROUND | TR | TRMH TRAFFIC MANHOLE |
| DCO | DRAIN CLEAN OUT | TS | TRAFFIC SIGNAL |
| D | DRAIN MANHOLE | TCB | TRAFFIC SIGNAL CONTROL CABINET |
| EHH | ELECTRIC HANDHOLE | TS | TRAFFIC SIGNAL MAST ARM/SPAN |
| E | ELECTRIC MANHOLE | TFMR | TRANSFORMER |
| EM | ELECTRIC METER | TPL | TROLLEY POLE |
| HYD | FIRE HYDRANT | UG | UNKNOWN GATE |
| FB | FLASHING BEACON | UFB# | UTILITY POLE W/ FIRE PULL BOX |
| GF | GAS FILL | ULT# | UTILITY POLE W/ LIGHT |
| GG | GAS GATE | UPDL# | UTILITY POLE W/ DOUBLE LIGHT |
| GM | GAS METER | UPL# | UTILITY POLE |
| G | GAS MANHOLE | VP | VENT PIPE |
| GPL | GUY POLE | W | WATER MANHOLE |
| GP | GAS PUMP | WG | WATER GATE |
| GSO | GAS SERVICE SHUTOFF | WM | WATER METER |
| GTB | GAS TEST BOX | WSO | WATER SERVICE SHUTOFF |
| GVP | GAS VENT PIPE | WELL | WELL (POTABLE) |
| | GUY WIRE ANCHOR | | |
| HTP | HIGH TENSION POWER POLE | | |
| LPL | LIGHT POLE | | |
| DLPL | LIGHT POLE DOUBLE LIGHT | | |
| OIL | OIL FILL | | |
| UN | UNKNOWN MANHOLE | | |
| PED | PEDESTRIAN SIGNAL | | |
| PB | FIRE OR POLICE PULL BOX | | |
| RRSG | RAILROAD SIGNAL | | |
| RRSW | RAILROAD SWITCH | | |
| SCO | SEWER CLEAN OUT | | |
| S | SEWER MANHOLE | | |
| ST | STEAM MANHOLE | | |
| SVP | STEAM VENT PIPE | | |

## UTILITY LABELS LEGEND

UTILITY LINES ARE LABELED AS FOLLOWS:

"SIZE/# " - "MATERIAL TYPE" - "UTILITY TYPE" - "UTILITY OWNER" - "ASCE/CI 38-02 QUALITY LEVEL"

EXAMPLE: 12" RCP SD MADOT QL-C

NON-GRAVITY MANHOLES VAULTS ARE LABELED AS FOLLOWS:

"VAULT TYPE / ID No. (WHEN AVAILABLE)"
"INTERNAL VAULT DIMENSIONS" (L' X W' X D') (FT)
"CHIMNEY DEPTH FROM GRADE TO VAULT CEILING" (FT)

EXAMPLE:




UTILITY OVERHEAD LINES ARE LABELED AS FOLLOWS:

UTA "X" - UNDERGROUND TO ARIEL - CONNECTION BETWEEN UNDERGROUND SYSTEM AND AERIAL SYSTEM FOLLOWED BY "X" UTILITY TYPE.

E1 - SINGLE PHASE ELECTRICAL SYSTEM FOR SUPPLY AND DISTRIBUTION

E3 - THREE PHASE ELECTRICAL SYSTEM TYPICALLY FOR DISTRIBUTION

HV - HIGH VOLTAGE SYSTEM TYPICALLY FOR TRANSMISSION AND CONNECTED TO DISTRIBUTION SYSTEMS AT SUBSTATIONS

T - TELEPHONE / DATA / COMMUNICATIONS SYSTEMS. INCLUDES COPPER, FIBER OPTIC, COAX, OR COMBINATION THERE OF.

(2)E1
- OTHER THAN FOR SINGLE INSTANCES, A PRECEDING (#) NUMBER INDICATES NUMBER OF EACH SYSTEM
(3)T

EXAMPLE:




## LINE TYPES LEGEND

QUALITY LEVEL B
QUALITY LEVEL C
QUALITY LEVEL D
QL-D|QL-B
QUALITY LEVEL CHANGE
PIPE SIZE CHANGE
PIPE CAP/END
END OF INFORMATION

CABLE TV QL-B
ELECTRIC QL-B
GAS QL-B
STORM DRAIN QL-B
SANITARY SEWER QL-B
TELECOMMUNICATION QL-B
TRAFFIC CONTROL QL-B
UNKNOWN SIGNAL QL-B
WATER QL-B

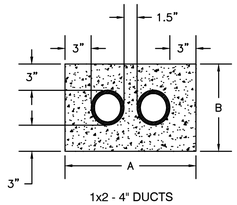
CABLE TV QL-C
ELECTRIC QL-C
GAS QL-C
STORM DRAIN QL-C
SANITARY SEWER QL-C
TELECOMMUNICATION QL-C
TRAFFIC CONTROL QL-C
UNKNOWN SIGNAL QL-C
WATER QL-C

CABLE TV QL-D
ELECTRIC QL-D
GAS QL-D
STORM DRAIN QL-D
SANITARY SEWER QL-D
TELECOMMUNICATION QL-D
TRAFFIC CONTROL QL-D
UNKNOWN SIGNAL QL-D
WATER QL-D

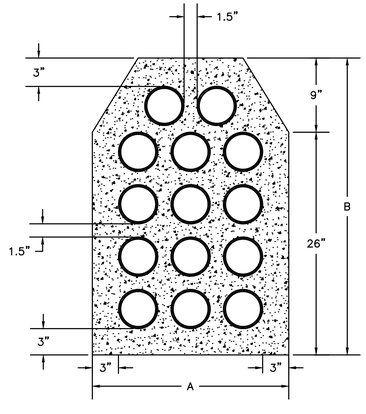
## SURVEY CONTROL LEGEND

| | |
|---|---|
| BM # | BENCHMARK |
| | BOUND (CONC, STONE, LAND COURT, ETC.) |
| DSK | DISK (CA/T, USC&GS, LAND COURT, ETC.) |
| DH | DRILL HOLE |
| EPLP | ESCUTCHEON PIN IN LEAD PLUG |
| IP | IRON PIPE |
| MAG | MAG NAIL |
| MHB | MASSACHUSETTS HIGHWAY BOUND |
| | PHOTO CONTROL - H & V |
| | PHOTO CONTROL - V ONLY |
| PK | PK NAIL |
| RB | REBAR/IRON PIN |
| RRS | RAILROAD SPIKE |
| SN | STAKE AND NAIL |
| | TRAVERSE POINT |
| X–CUT | X-CUT |

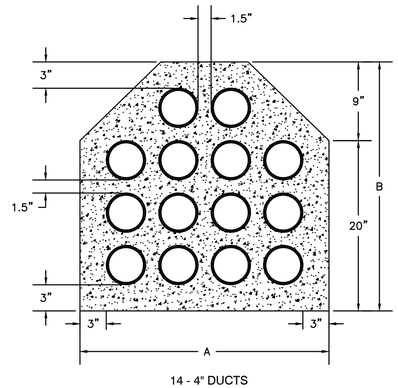
## PIPE AND DUCT BANK LEGEND:



1x2 - 4" DUCTS



14 - 4" DUCTS



14 - 4" DUCTS

| DUCTS | DIMENSIONS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3" DUCTS | | 3 1/2" DUCTS | | 4" DUCTS | | 4 1/2" DUCTS | | 5" DUCTS | |
| | A Inches | B Inches | A Inches | B Inches | A Inches | B Inches | A Inches | B Inches | A Inches | B Inches |
| 2 x 1 | 15 | 10 | 16 | 10 | 17 | 11 | 18 | 11 | 19 | 12 |
| 3 x 1 | 20 | 10 | 21 | 10 | 23 | 11 | 24 | 11 | 26 | 12 |
| 4 x 1 | 25 | 10 | 25 | 10 | 27 | 11 | 31 | 11 | 33 | 12 |
| 2 x 2 | 15 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 |
| 2 x 3 | 15 | 20 | 16 | 21 | 17 | 23 | 18 | 24 | 19 | 26 |
| 3 x 2 | 20 | 15 | 21 | 16 | 23 | 17 | 24 | 18 | 26 | 19 |
| 2 x 4 | 15 | 25 | 16 | 27 | 17 | 25 | 18 | 31 | 19 | 33 |
| 4 x 2 | 25 | 15 | 25 | 16 | 27 | 17 | 31 | 18 | 33 | 19 |
| 3 x 3 | 20 | 20 | 21 | 21 | 23 | 23 | 26 | 24 | 26 | 26 |
| 5 x 2 | 30 | 15 | 32 | 16 | 35 | 17 | 37 | 18 | 40 | 19 |
| 2 x 5 | 15 | 30 | 16 | 32 | 17 | 35 | 18 | 37 | 19 | 40 |
| 3 x 4 | 20 | 25 | 21 | 27 | 23 | 25 | 24 | 31 | 26 | 33 |
| 4 x 3 | 25 | 20 | 25 | 21 | 27 | 23 | 31 | 24 | 33 | 26 |
| 6 x 2 | 35 | 15 | 38 | 16 | 41 | 17 | 44 | 18 | 47 | 19 |
| 2 x 6 | 15 | 35 | 16 | 38 | 17 | 41 | 18 | 44 | 19 | 47 |
| 2 x 7 | 15 | 40 | 16 | 43 | 17 | 47 | 18 | 50 | 19 | 54 |
| 14 DUCTS | 20 | 30 | 21 | 32 | 23 | 35 | 24 | 37 | 26 | 39 |
| 14 DUCTS | 25 | 25 | 27 | 27 | 29 | 29 | 31 | 31 | 33 | 33 |
| 5 x 3 | 30 | 19 | 21 | 32 | 23 | 35 | 24 | 37 | 26 | 40 |
| 3 x 5 | 19 | 30 | 32 | 21 | 35 | 23 | 37 | 24 | 40 | 26 |
| 4 x 4 | 25 | 25 | 27 | 27 | 27 | 29 | 31 | 31 | 33 | 33 |
| 2 x 8 | 15 | 45 | 16 | 49 | 17 | 53 | 18 | 57 | 19 | 61 |

METHOD FOR CALCULATING SIZE OF LARGER DUCTS:

(SIZE OF DUCT) X (NUMBER OF DUCTS)
(A) (B)

[(A+1/2") X B] + [(B-1) X 1 1/2") + 6"

ROUND DIMENSIONS UP TO NEAREST INCH

Nitsch – P:\08000–09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(UTILITY) SUE.dwg 3:02 PM

613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 3:02 PM

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 48 | 131 |
| PROJECT FILE NO. | 613358 | | |

# SUE NOTES

## UTILITY ENGINEERING CONSULTANT:

D:\ONE DRIVE\OneDrive - BSI Engineering, Inc\Pictures\Overland Engineering Test Logo 2.jpg

OVERLAND ENGINEERING, LLC
100 HALLET STREET
BOSTON, MA 02124
PH: 617-265-4547
FAX: 770-565-3815

## PROJECT DESCRIPTION:

A SUBSURFACE UTILITY ENGINEERING INVESTIGATION (SUE) WAS PERFORMED BY OVERLAND ENGINEERING, LLC AND COMPLETED ON 9/23/2022 FOR THIS PROJECT. THE EXISTING UNDERGROUND FACILITIES FOR THE EVERSOURCE HIGH VOLTAGE TRANSMISSION DUCT RUN SHOWN HEREON WERE INCLUDED IN THIS SUE INVESTIGATION. THE PRESENCE OF THESE UTILITY FACILITIES HAS BEEN THOROUGHLY INVESTIGATED.

ALL OTHER EXISTING TOPOGRAPHIC AND SUBSURFACE UTILITY FEATURES DEPICTED HEREON HAVE BEEN REFERENCED FROM A TOPOGRAPHIC / MAPPING SURVEY AND CONTROL PACKAGE PROVIDED BY A GROUND INSTRUMENT SURVEY PREFORMED BY BAY COLONY GROUP INC. BETWEEN JUNE 26, 2013 AND JANUARY 16, 2014 AND BY NITSCH ENGINEERING BETWEEN FEBRUARY 11-13, 2020, FEBRUARY 17-21, 2020, AND FEBRUARY 24-25, 2020.

## UTILITY ENGINEERING NOTES:

1. UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVELS" AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEERING'S DOCUMENT ASCE 38-02 "STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
2. RELIANCE UPON THESE DATA FOR RISK MANAGEMENT PURPOSES DURING BIDDING DOES NOT RELIEVE THE EXCAVATOR OR UTILITY OWNER FROM FOLLOWING ALL APPLICABLE UTILITY DAMAGE PREVENTION STATUES, POLICIES, AND/OR PROCEDURES DURING CONSTRUCTION.
3. IT IS IMPORTANT THAT THE CONTRACTOR INVESTIGATES AND UNDERSTANDS THE SCOPE OF WORK BETWEEN THE PROJECT OWNER AND THEIR ENGINEER REGARDING THE SCOPE AND LIMITS OF THE UTILITY INVESTIGATIONS LEADING TO THESE DEPICTIONS.
4. THE SIZE/TYPE OF FIRE HYDRANT LINES IS ASSUMED TO BE 6" IN DIAMETER THROUGHOUT THE PROJECT LIMITS.
5. UTILITIES RANGING IN SIZE FROM 0.5" - 10" IN DIAMETER OR MINIMUM WIDTH, ARE DEPICTED HEREIN AS SINGLE WIDTH LINE TYPES. UTILITIES RANGING IN SIZE 12" AND ABOVE, ARE DEPICTED WITH MULTI-LINES, THE WIDTH OF WHICH IS BASED ON REVIEW OF RECORDS, PROFESSIONAL JUDGEMENT, OR OTHER INFORMATION. IN SOME INSTANCES, UTILITIES LARGER THAN 1 FOOT MAY BE SHOWN AS SINGLE LINES WITHOUT APPROXIMATE WIDTH AT THE ENGINEERS DISCRETION WHERE UTILITY DENSITY WOULD OTHERWISE PREVENT A CLEAR DEPICTION OF THE SUE INFORMATION.

## UTILITY QUALITY LEVEL INFORMATION INDEX (SEE ASCE/CI 38-02):

QUALITY LEVEL D: "QL D". UTILITY INFORMATION PLOTTED ON THE DRAWING BASED SOLELY ON RECORD INFORMATION, INDIVIDUAL RECOLLECTIONS OR THE EXISTENCE OF UTILITY SERVICE. IT SHALL BE NOTED THAT ALL INFORMATION SHOWN (OTHER THAN AT TEST HOLE LOCATIONS, SEE QL A BELOW), INCLUDING BUT NOT LIMITED TO A UTILITIES SIZE, CAPACITY, MATERIAL COMPOSITION, CONDITION OR SERVICE STATUS SHALL BE CONSIDERED QL D EVEN THOUGH THE UTILITY MAY BE PLOTTED AND LABELED AS QL C OR QL B.

QUALITY LEVEL C: "QL C". UTILITY INFORMATION OBTAINED AND CATEGORIZED AS QL D, PLOTTED TO CORRELATE WITH SURFACE UTILITY FEATURES WHICH HAVE BEEN FIELD VERIFIED, SURVEY LOCATED AND ACCURATELY TRANSPOSED ONTO THE DESIGN/CONSTRUCTION DOCUMENTS. INCLUDED IN THIS CATEGORY AERIAL UTILITY INFORMATION AND UTILITY DEPICTION'S, WHICH IN THE PROFESSIONAL OPINION OF THE SUBSURFACE UTILITY ENGINEER, REPRESENT THE MOST PROBABLE APPROXIMATE HORIZONTAL LOCATION, TYPE AND/OR EXISTENCE OF A UTILITY.

QUALITY LEVEL B: "QL B". UTILITY INFORMATION DERIVED BY ESTABLISHING THE APPROXIMATE SURFACE HORIZONTAL LOCATION OF A UTILITY USING ELECTRONIC METHODS. SAID INFORMATION IS SUBSEQUENTLY FIELD SURVEY LOCATED AND ACCURATELY REDUCED ONTO THE DESIGN/CONSTRUCTION DOCUMENTS.

QUALITY LEVEL A: "QL A". UTILITY INFORMATION WHICH HAS BEEN VISUALLY VERIFIED, SURVEY LOCATED (BOTH HORIZONTALLY AND VERTICALLY) AND ACCURATELY REDUCED ONTO THE DESIGN/CONSTRUCTION DOCUMENTS. THIS IS TYPICALLY SHOWN AS TEST HOLE OR OTHER DIMENSIONED INFORMATION.

## UTILITY SUMMARY:

ALL THE FOLLOWING UTILITY OWNERS WERE REPORTED TO HAVE FACILITIES WITHIN THE VICINITY OF THIS PROJECT AT THE TIME OF THE SUE INVESTIGATION. UTILITIES FOUND WITHIN THE PROJECT LIMITS AT THE TIME OF THE SUE INVESTIGATION ARE NOTED FOR EACH UTILITY OWNER LISTED AND ARE SHOWN ON THE PLANS HEREON.

| UTILITY OWNER | UTILITY TYPE | CONTACT | ADDRESS | EMAIL | PHONE | ABBREVIATION |
|---|---|---|---|---|---|---|
| Eversource Electrical Transmission | Electric | Mark Manganaro | 247 Station Drive, Westwood, MA 02090 | mark.manganaro@eversource.com | 800-688-6160 | EVR |

## SURVEY CONTROL:

1 THE SURVEY CONTROL SHOWN ON THIS BASEMAP ARE THE RESULT OF AN ON THE GROUND INSTRUMENT SURVEY PERFORMED BY MASSDOT GPS SURVEY CREW ON JUNE 28, 2013. HORIZONTAL CONTROL IS BASED ON NAD83 DATUM. VERTICAL CONTROL WAS ESTABLISHED FROM MASSDOT GEODETIC POINT 14747, STATION 7083. VERTICAL CONTROL IS BASED ON NAVD88 DATUM.

2 FIELD TOPOGRAPHIC SURVEY PREFORMED BY BAY COLONY GROUP INC. BETWEEN JUNE 26, 2013 AND JANUARY 16, 2014 AND BY NITSCH ENGINEERING BETWEEN FEBRUARY 11-13, 2020, FEBRUARY 17-21, 2020, AND FEBRUARY 24-25, 2020.

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613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 11:10 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

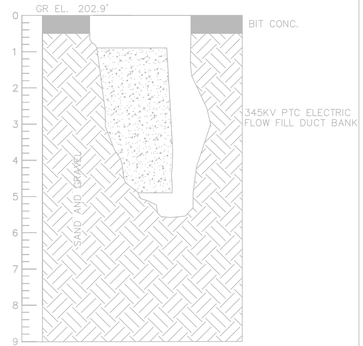
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 49 | 131 |
| | PROJECT FILE NO. 613358 | | |

## SUE TEST PIT DATA

QUALITY LEVEL A
VACUUM EXCAVATION

TP-1

| | |
|---|---|
| NORTHING | 2878112.5' |
| EASTING | 763528.9' |
| GROUND EL. | 202.9' |
| MEASURE DOWN TOP | −0.9' |
| MEASURE DOWN BTM. | −4.9' |
| UTILITY EL.TOP | 202.0' |
| UTILITY EL. BTM | 198.0' |

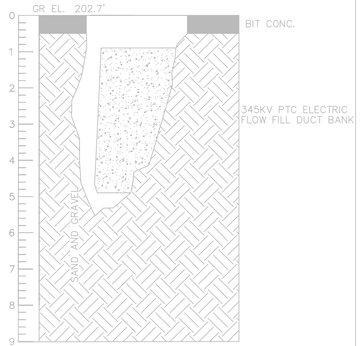



(NTS) SECTION FACING SOUTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-2

| | |
|---|---|
| NORTHING | 2878112.6' |
| EASTING | 763534.4' |
| GROUND EL. | 202.7' |
| MEASURE DOWN TOP | −0.9' |
| MEASURE DOWN BTM. | −4.9' |
| UTILITY EL.TOP | 201.8' |
| UTILITY EL. BTM | 197.8' |

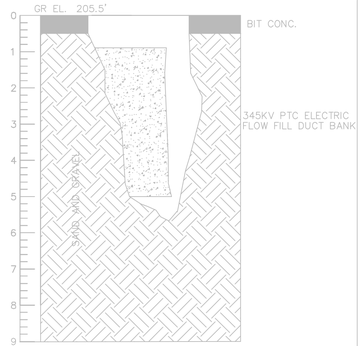



(NTS) SECTION FACING SOUTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-3

| | |
|---|---|
| NORTHING | 2877609.2' |
| EASTING | 763615.3' |
| GROUND EL. | 205.5' |
| MEASURE DOWN TOP | −0.9' |
| MEASURE DOWN BTM. | −5.0' |
| UTILITY EL.TOP | 204.6' |
| UTILITY EL. BTM | 200.5' |

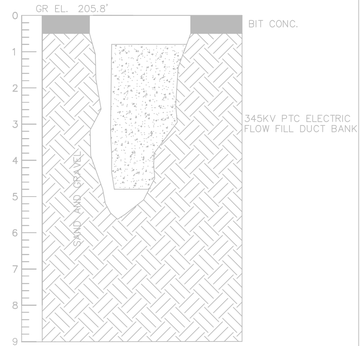



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-4

| | |
|---|---|
| NORTHING | 2877609.9' |
| EASTING | 763620.5' |
| GROUND EL. | 205.6' |
| MEASURE DOWN TOP | −0.8' |
| MEASURE DOWN BTM. | −4.8' |
| UTILITY EL.TOP | 204.8' |
| UTILITY EL. BTM | 200.8' |

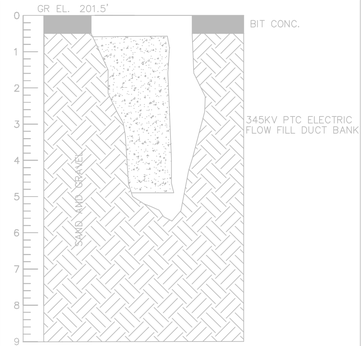



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-5

| | |
|---|---|
| NORTHING | 2877447.1' |
| EASTING | 763652.8' |
| GROUND EL. | 201.5' |
| MEASURE DOWN TOP | −0.6' |
| MEASURE DOWN BTM. | −4.9' |
| UTILITY EL.TOP | 200.9' |
| UTILITY EL. BTM | 196.6' |

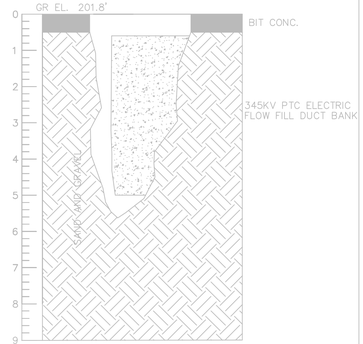



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-6

| | |
|---|---|
| NORTHING | 287744.3' |
| EASTING | 763657.9' |
| GROUND EL. | 201.8' |
| MEASURE DOWN TOP | −0.6' |
| MEASURE DOWN BTM. | −5.0' |
| UTILITY EL.TOP | 201.2' |
| UTILITY EL. BTM | 196.8' |

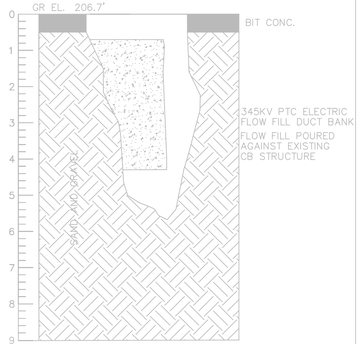



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-7

| | |
|---|---|
| NORTHING | 2877241.7' |
| EASTING | 763696.3' |
| GROUND EL. | 206.7' |
| MEASURE DOWN TOP | −0.7' |
| MEASURE DOWN BTM. | −4.3' |
| UTILITY EL.TOP | 206.0' |
| UTILITY EL. BTM | 202.4' |

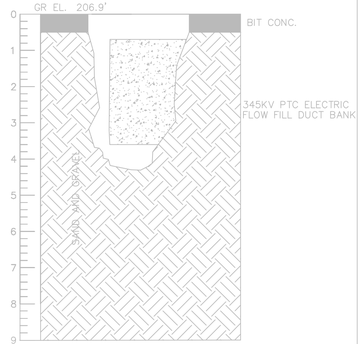



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-8

| | |
|---|---|
| NORTHING | 2877242.8' |
| EASTING | 763700.9' |
| GROUND EL. | 206.9' |
| MEASURE DOWN TOP | −0.7' |
| MEASURE DOWN BTM. | −3.6' |
| UTILITY EL.TOP | 206.2' |
| UTILITY EL. BTM | 203.3' |

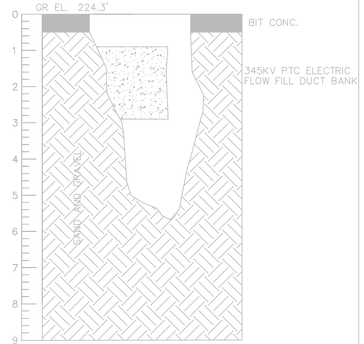



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

TP-9

| | |
|---|---|
| NORTHING | 2876910.7' |
| EASTING | 763780.9' |
| GROUND EL. | 224.3' |
| MEASURE DOWN TOP | −0.9' |
| MEASURE DOWN BTM. | −2.9' |
| UTILITY EL.TOP | 223.4' |
| UTILITY EL. BTM | 221.4' |

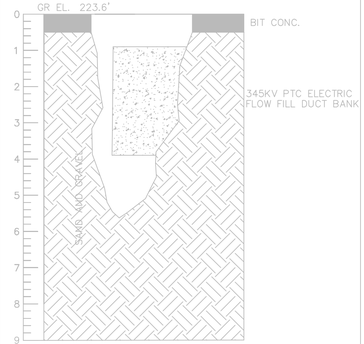



(NTS) SECTION FACING SOUTHEAST

QUALITY LEVEL A
VACUUM EXCAVATION

TP-10

| | |
|---|---|
| NORTHING | 2876922.2' |
| EASTING | 763778.6' |
| GROUND EL. | 223.6' |
| MEASURE DOWN TOP | −0.9' |
| MEASURE DOWN BTM. | −3.9' |
| UTILITY EL.TOP | 222.7' |
| UTILITY EL. BTM | 219.7' |




(NTS) SECTION FACING SOUTHEAST

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(UTILITY) SUE.dwg 3:04 PM

613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 3:04 PM

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(UTILITY) SUE.dwg 3:05 PM

613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 3:05 PM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

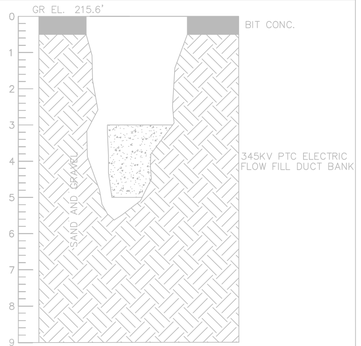
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 50 | 131 |
| PROJECT FILE NO. | 613358 | | |

## SUE TEST PIT DATA

QUALITY LEVEL A
VACUUM EXCAVATION

### TP-11

| | |
|---|---|
| NORTHING | 2877065.0' |
| EASTING | 763732.6' |
| GROUND EL. | 215.6' |
| MEASURE DOWN TOP | −3.0' |
| MEASURE DOWN BTM. | −5.0' |
| UTILITY EL.TOP | 212.6' |
| UTILITY EL. BTM | 210.6' |

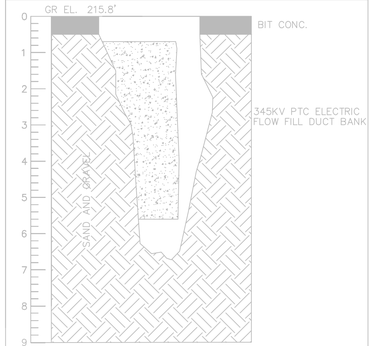



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

### TP-12

| | |
|---|---|
| NORTHING | 2877065.6' |
| EASTING | 763737.5' |
| GROUND EL. | 215.8' |
| MEASURE DOWN TOP | −0.7' |
| MEASURE DOWN BTM. | −5.6' |
| UTILITY EL.TOP | 215.1' |
| UTILITY EL. BTM | 210.2' |

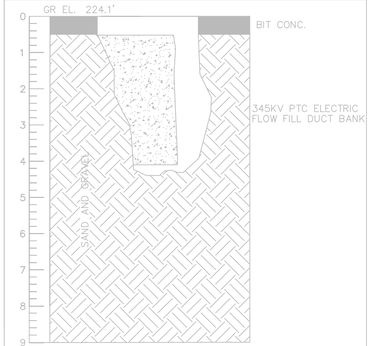



(NTS) SECTION FACING NORTH

QUALITY LEVEL A
VACUUM EXCAVATION

### TP-13

| | |
|---|---|
| NORTHING | 2876906.8' |
| EASTING | 763798.3' |
| GROUND EL. | 224.1' |
| MEASURE DOWN TOP | −0.5' |
| MEASURE DOWN BTM. | −4.1' |
| UTILITY EL.TOP | 223.6' |
| UTILITY EL. BTM | 220.0' |

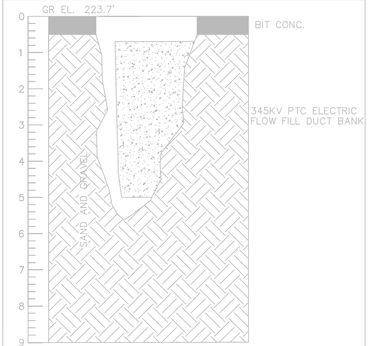



(NTS) SECTION FACING SOUTHEAST

QUALITY LEVEL A
VACUUM EXCAVATION

### TP-14

| | |
|---|---|
| NORTHING | 2876913.2' |
| EASTING | 763800.1' |
| GROUND EL. | 223.7' |
| MEASURE DOWN TOP | −0.7' |
| MEASURE DOWN BTM. | −5.0' |
| UTILITY EL.TOP | 223.0' |
| UTILITY EL. BTM | 218.7' |

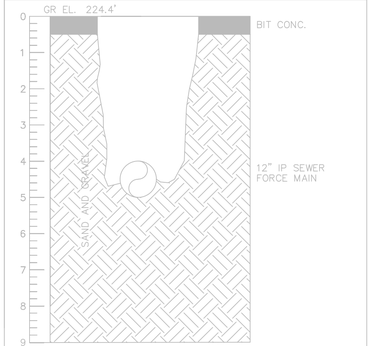



(NTS) SECTION FACING SOUTHEAST

QUALITY LEVEL A
VACUUM EXCAVATION

### TP-15

| | |
|---|---|
| NORTHING | 2876908.3' |
| EASTING | 763782.7' |
| GROUND EL. | 224.4' |
| MEASURE DOWN TOP | −4.0' |
| MEASURE DOWN BTM. | N/A |
| UTILITY EL.TOP | 220.4' |
| UTILITY EL. BTM | N/A |

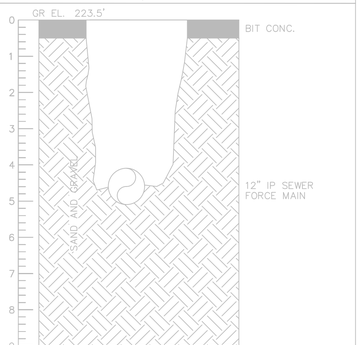



(NTS) SECTION FACING SOUTH

QUALITY LEVEL A
VACUUM EXCAVATION

### TP-16

| | |
|---|---|
| NORTHING | 2876925.1' |
| EASTING | 763779.7' |
| GROUND EL. | 223.5' |
| MEASURE DOWN TOP | −4.1' |
| MEASURE DOWN BTM. | N/A |
| UTILITY EL.TOP | 219.4' |
| UTILITY EL. BTM | N/A |

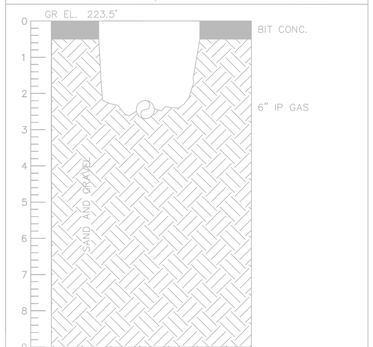



(NTS) SECTION FACING SOUTH

QUALITY LEVEL A
VACUUM EXCAVATION

### TP-17

| | |
|---|---|
| NORTHING | 2876916.6' |
| EASTING | 763800.5' |
| GROUND EL. | 223.5' |
| MEASURE DOWN TOP | −2.2' |
| MEASURE DOWN BTM. | N/A |
| UTILITY EL.TOP | 221.3' |
| UTILITY EL. BTM | N/A |

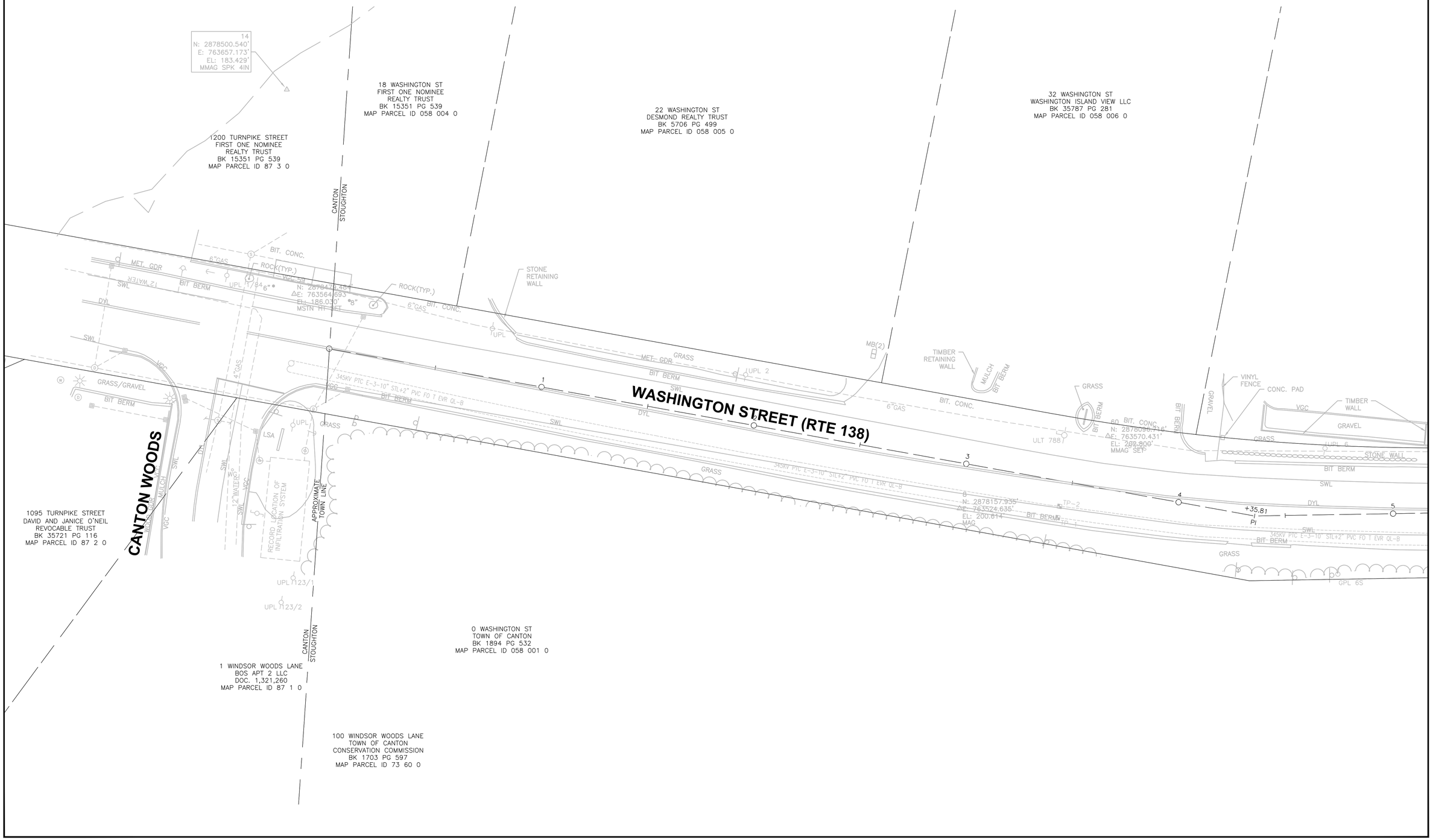



(NTS) SECTION FACING NORTHEAST

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 51 | 131 |
| PROJECT FILE NO. | 613358 | | |

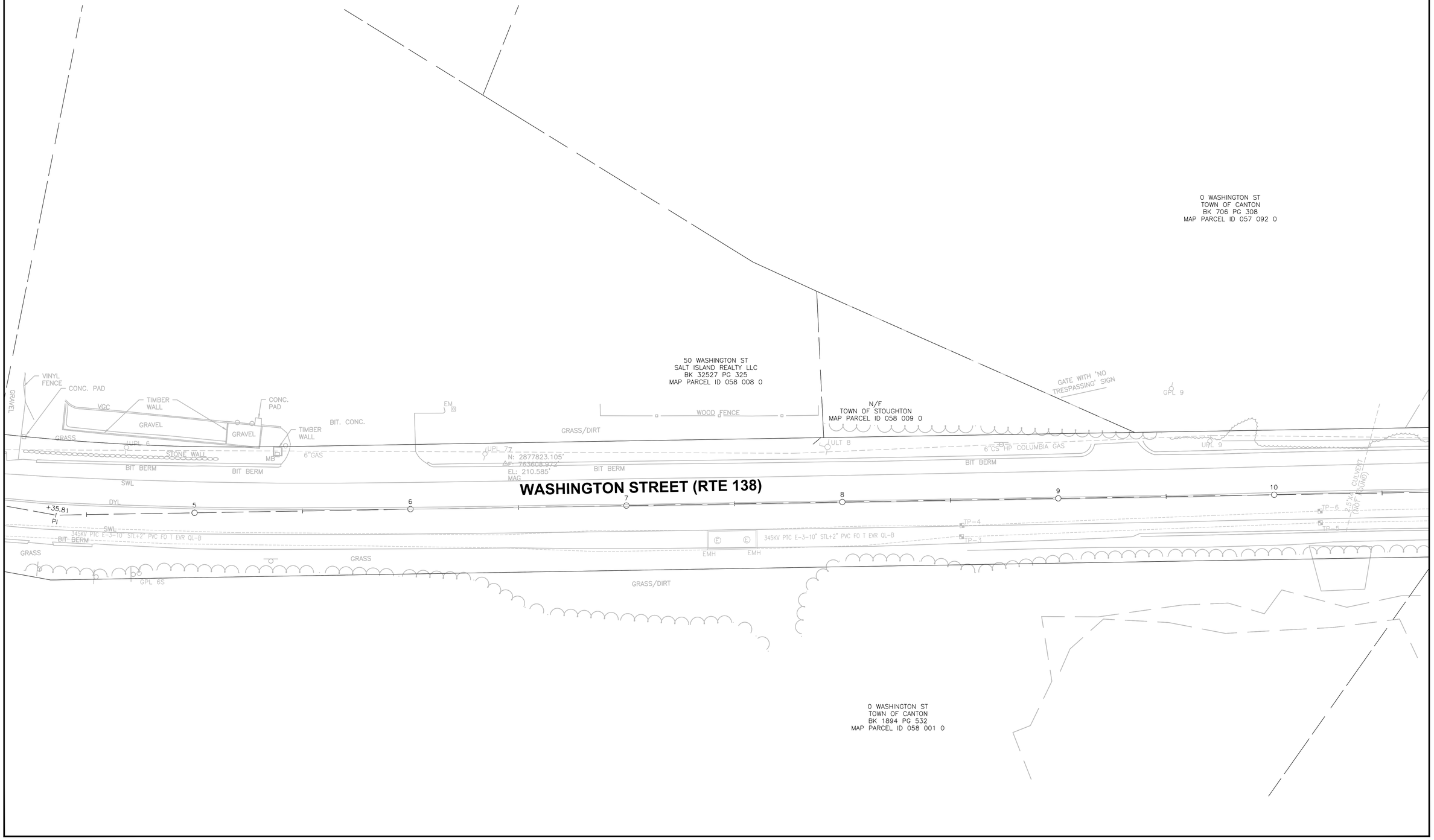
**SUE PLANS**




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613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 3:06 PM

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613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 3:07 PM



| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 53 | 131 |
| | PROJECT FILE NO. | 613358 | |

**SUE PLANS**

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(UTILITY) SUE.dwg 3:09 PM
613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 3:09 PM

0 WASHINGTON ST
TOWN OF CANTON
BK 706 PG 308
MAP PARCEL ID 057 092 0

0 WASHINGTON ST
TOWN OF CANTON
BK 706 PG 308
MAP PARCEL ID 057 093 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

**WASHINGTON STREET (RTE 138)**

**YORK STREET**

BENCHMARK: MMAG SPK 1 UP
EL=218.00'

6
N: 2877396.227'
E: 763698.222'
EL: 202.314'
MAG

90
N: 2877142.171'
E: 763756.844'
EL: 212.588'
MAG

5
N: 2876967.383'
E: 763748.556'
EL: 220.500'
MAG

FLOW FILL IS POURED AGAINST EXISTING CB STRUCTURE

WOODS
GRASS
ROCKS(TYP.)
BIT SIDEWALK
BIT BERM
BIT CONCRETE
6" C.I. WATER
6"CI WATER – ABAN.
12"DI WATER
6" C.I. WATER
6"CS HP COLUMBIA GAS
345KV PTC E-3-10" STL+2" PVC FO T EVR OL-B
ELECTRIC NGRID
OHW
SYL
SIGN
WG
0.5'x2' CULVERT (NOT FOUND)

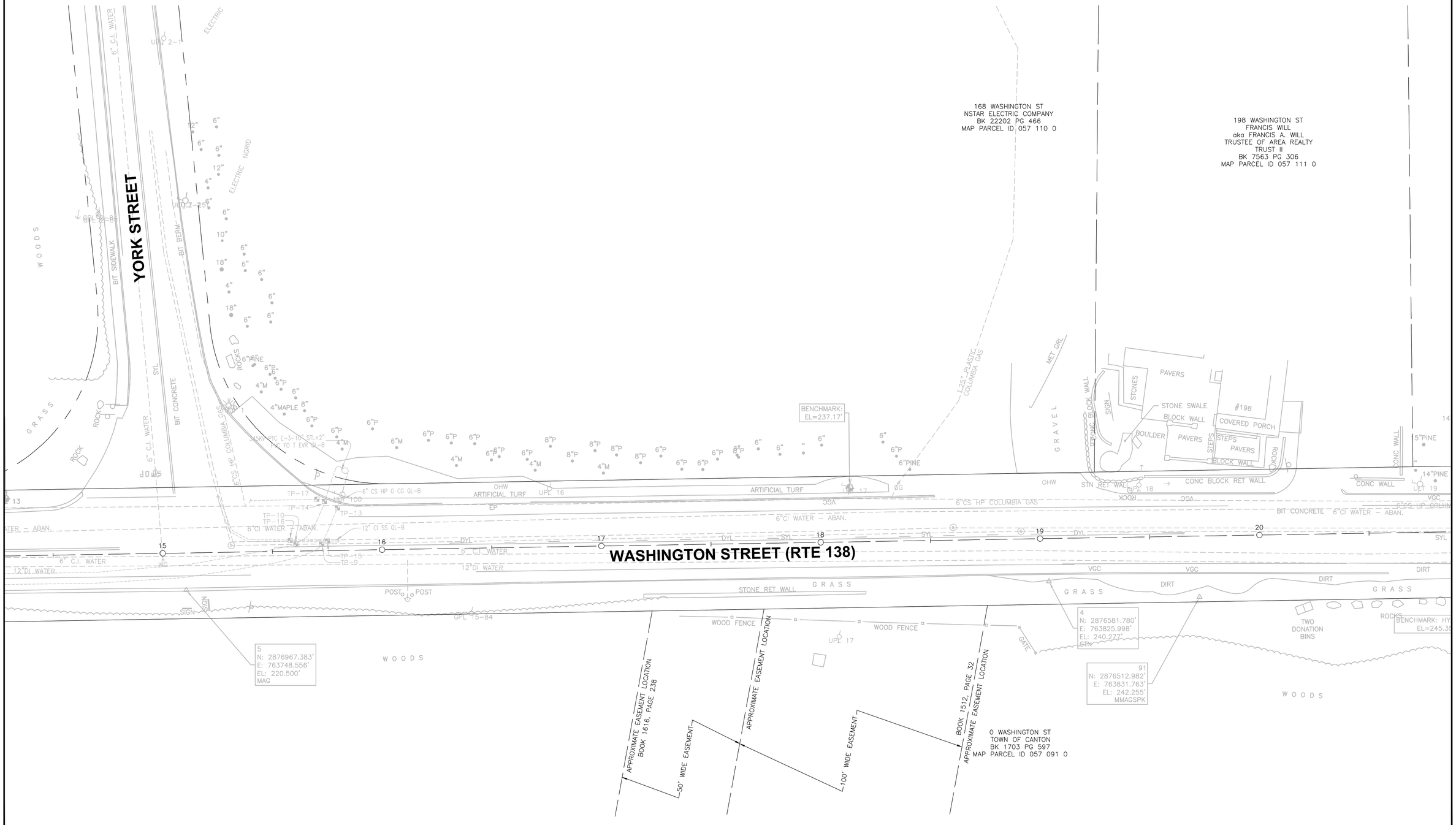
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 54 | 131 |
| PROJECT FILE NO. | 613358 | | |

**SUE PLANS**

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(UTILITY) SUE.dwg 3:10 PM

613358_HD(UTILITY) SUE.DWG Plotted on 29-Jan-2025 3:10 PM



**UTILITY NOTES:**

1. FOR ALL POLES THAT ARE IN OR ADJACENT TO SIDEWALKS, THE GRAVEL MUST BE PLACED AND COMPACTED WITHIN 5-FEET OF THE POLE WITHIN 2 HOURS OF EXCAVATION.
2. ALL POLES WITHIN SIDEWALKS MUST BE WRAPPED WITH AN APPROVED EXPANSION MATERIAL TO AVOID POLE MOVEMENT FROM CRACKING THE SIDEWALK.
3. ANY POLE HOLDS REQUIRED TO ACCOMODATE THE CONTRACTOR'S ACTIVITIES, SUCH AS BUT NOT LIMITED TO: WATER, SEWER AND DRAINAGE WORK, WILL NEED TO BE COORDINATED BY THE CONTRACTOR AND PAID FOR AT THEIR EXPENSE. THE CONTRACTOR WILL NEED TO COORDINATE WITH VERIZON ON ANY POLES HOLDS BY INITIATING AN ENGINEERING WORK ORDER BY CALLING 774-409-3160. THE CONTRACTOR IS REQUIRED TO SCHEDULE THE POLE HOLDS IN ADVANCE OF PERFORMING THE WORK NEAR THE POLES.
4. AT LOCATIONS WHERE AN EXISTING MANHOLE, HANDHOLE, OR OTHER SURFACE TYPE STRUCTURE THAT CANNOT BE REMOVED OR RESET WITHIN THE PROPOSED OR EXISTING ACCESSIBLE SURFACE, THE STRUCTURE SHALL BE ADJUSTED SUCH THAT THE TOPMOST SURFACE OF THE STRUCTURE COVER IS FLUSH WITH THE ACCESSIBLE SURFACE.

**DRAINAGE STRUCTURE DATA**

| NAME | TYPE | STATION | OFFSET | RIM ELEV. | INV. ELEV. IN | INV. ELEV. OUT | REMARKS |
|---|---|---|---|---|---|---|---|
| EX CB | EX CB | 12+54.80 | 17.00 LT' | 186.55 | | I=181.60' (1) | |
| 1 | DMH - 48" | 12+48.86 | 1.07 RT' | 186.69 | I=180.41' (2)<br>I=180.41' (EX CB) | I=180.31' (EX) | BUILD OVER EX |
| 2 | DMH - 48" | 15+36.96 | 1.24 LT' | 199.85 | I=195.00' (3)<br>I=192.25' (4) | I=192.00' (1) | |
| 3 | CBCI | 15+93.29 | 17.00 LT' | 202.63 | | I=197.90' (2) | |
| 4 | CBCI | 15+36.44 | 19.00 RT' | 199.49 | | I=192.50' (2) | OFFSET TOP |

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 55 | 131 |
| PROJECT FILE NO. | 613358 | | |

**DRAINAGE & UTILITY PLANS**

N

WF#B-19 ENV
WF#B-18
WF#B-17
WF#B-16
WF#B-15
WF#B-14
WF#B-13
WF#B-12
WF#B-11
WF#B 4ORANGE
WF#B-10
WF#B-9
WF#5 ORANGE
WF#B B-8
WF#B-7
WF#B-6
WF#B-3
WF#B-2
WF#B-1
WF#B-5
WF#B-4 VGWF1 B 3 ORANGE
WF#2 ORANGE
WF#1 ORANGE

18 WASHINGTON ST
FIRST ONE NOMINEE
REALTY TRUST
BK 15351 PG 539
MAP PARCEL ID 058 004 0

22 WASHINGTON ST
DESMOND REALTY TRUST
BK 5706 PG 499
MAP PARCEL ID 058 005 0

32 WASHINGTON ST
WASHINGTON ISLAND VIEW LLC
BK 35787 PG 281
MAP PARCEL ID 058 006 0

1200 TURNPIKE STREET
FIRST ONE NOMINEE
REALTY TRUST
BK 15351 PG 539
MAP PARCEL ID 87 3 0

1095 TURNPIKE STREET
DAVID AND JANICE O'NEIL
REVOCABLE TRUST
BK 35721 PG 116
MAP PARCEL ID 87 2 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1894 PG 532
MAP PARCEL ID 058 001 0

1 WINDSOR WOODS LANE
BOS APT 2 LLC
DOC 1 321 260

100 WINDSOR WOODS LANE
TOWN OF CANTON
CONSERVATION COMMISSION
BK 1703 PG 597
MAP PARCEL ID 73 60 0

LIMIT OF BANK
LIMIT OF BVW
LIMIT OF MICROMILLING & OVERLAY
STA 12+30
N2878470.8411
E763542.6702
PROJECT BEGIN
STA 11+45
N2878555.8449
E763542.6992
APPROX LIMIT OF FLOODZONE AE
LIMIT OF 100' BUFFER TO BVW/BANK
LIMIT OF 200' RIVERFRONT
CANTON
STOUGHTON
APPROXIMATE TOWN LINE
RECORD LOCATION OF INFILTRATION SYSTEM

**WASHINGTON STREET (ROUTE 138)**

**WINDSOR WOODS LANE**

RET UP
RET UP #1
RET UP#2
RET UP #5
RET LP
RET
ADJ
EX CB
PROP TEMP EASEMENT
1903 SHLO NO. 768
285'-12" RCP
55'-12" RCP
18'-12" DIP
PC +98.64
APPROX LIMITS OF EXIST CC ROAD BASE
LIMIT OF 100' BUFFER TO BVW/BANK
LIMIT OF 200' RIVERFRONT
PROP TEMP EASEMENT

CONTINUED ON SHEET NO. 42

**EVERSOURCE TRANSMISSION DUCT BANK:**

1. CONTRACTOR SHALL COORDINATE ALL WORK AT AND ADJACENT TO THE EVERSOURCE TRANSMISSION DUCT BANK WITH EVERSOURCE PRIOR TO THE START OF WORK. CONTRACTOR SHALL SUBMIT MEANS AND METHODS TO EVERSOURCE FOR REVIEW AND APPROVAL FOR WORK NEAR THE DUCT BANK. IT IS ASSUMED THAT EVERSOURCE WILL HAVE AN ON-SITE INSPECTOR FOR WORK NEAR THEIR DUCT BANK. THE CONTRACTOR IS REQUIRED TO COORDINATE WITH THE INSPECTOR AND MASSDOT ENGINEER FOR WORK NEAR THE DUCT BANK. SEE SPECIAL PROVISIONS FOR REQUIREMENTS FOR MEANS AND METHODS WORK PLAN SUBMITTAL REQUIRED BEFORE THAT START OF WORK NEAR THE EVERSOURCE DUCTBANK.
2. FLUIDIZED THERMAL BACKFILL (FTB) IS REQUIRED FOR BACKFILL FOR ALL DISTURBED SOILS WITHIN 3-FEET OF THE EVERSOURCE DUCT BANK, AND AS REQUIRED BY THE ENGINEER AND EVERSOURCE. FTB SHALL MEET THE REQUIREMENTS OF EVERSOURCE TRANSMISSION LINE STANDARDS UTRM 234, REFER TO ITEM 153.5 IN THE SPECIAL PROVISIONS. FTB WILL BE MEASURED AND PAID FOR UNDER ITEM 153.5.
3. VACUUM EXCAVATION IS REQUIRED FOR ALL EXCAVATIONS WITHIN 3-FEET (MINIMUM) OF THE EVERSOURCE DUCT BANK AND AS REQUIRED BY THE ENGINEER. NO ADDITIONAL MEASUREMENT AND PAYMENT WILL BE MADE VACUUM EXCAVATIONS AND SHALL BE CONSIDERED INCLUSIVE OF APPLICABLE CONTRACT UNIT BID PRICES.
4. PROPOSED PIPE/CONDUIT CROSSINGS UNDER THE EXISTING DUCT BANK SHALL BE A FULL LENGTH OF PIPE SUCH THAT NO JOINTS SHALL BE LOCATED UNDER THE DUCT BANK. PIPE WITHIN 3 FEET OF THE DUCT AND UNDER THE DUCT SHALL BE BACKFILLED WITH FTB.
5. A THIN LAYER OF FTB SHALL BE PLACED OVER THE EXISTING DUCT TO CREATE A LEVEL SURFACE PRIOR TO CONSTRUCTION OF CONCRETE BARRIER
6. PROPOSED SIGNAL CONDUIT CROSSING UNDER THE DUCT BANK SHALL HAVE A MINIMUM 18-INCH OFFSET FROM THE BOTTOM OF THE DUCT TO TOP OF CONDUIT.

0 20 50 100
SCALE: 1" = 20'

LEGEND:

| UTILITY | EXISTING | PROPOSED |
|---|---|---|
| ELECTRIC | | |
| ELECTRIC/COMM/CATV OHW | | |
| GAS-OIL-STEAM | | |
| COMMUNICATION / CATV | | |
| PORTABLE WATER | | |
| SEWER | | |
| DRAINAGE | | |
| TRAFFIC CONDUIT | | |
| UTILITY MANHOLE | | |
| UTILITY POLE | | |

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613358_HD(UTILITY).DWG Plotted on 29-Jan-2025 3:41 PM

Plotted on 29-Jan-2025 3:44 PM
613358_HD(UTILITY).DWG
Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(UTILITY).dwg 3:44 PM

| DRAINAGE STRUCTURE DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| NAME | TYPE | STATION | OFFSET | RIM ELEV. | INV. ELEV. IN | INV. ELEV. OUT | REMARKS |
| 2 | DMH - 48" | 15+36.96 | 1.24 LT' | 199.85 | I=195.00' (3)<br>I=192.25' (4) | I=192.00' (1) | |
| 3 | CBCI | 15+93.29 | 17.00 LT' | 202.63 | | I=197.90' (2) | |
| 4 | CBCI | 15+36.47 | 19.00 RT' | 199.49 | | I=192.50' (2) | OFFSET TOP |

32 WASHINGTON ST
WASHINGTON ISLAND VIEW LLC
BK 35787 PG 281
MAP PARCEL ID 058 006 0

# WASHINGTON STREET (ROUTE 138)

PROP TEMP EASEMENT
RET UP #5
PROP TEMP EASEMENT
1903 SHLO NO. 768
285'-12" RCP
PC +98.64
RET
18'-12" DIP
55'-12" RCP
RET UP #6
RET UP #7
PT +85.64
RET
APPROX LIMITS OF EXIST CC ROAD BASE
PROP TEMP EASEMENT
RET UP #6-84
50 WASHINGTON ST
SALT ISLAND REALTY LLC
BK 32527 PG 325
MAP PARCEL ID 058 008 0
RET UPL #8 W/ PROP 20' PUSH BRACE (BO)
PUE
N/F
TOWN OF STOUGHTON
MAP PARCEL ID 058 009 0
ADJ/REMOD EMH (2) FRAME & COVER TO FINISHED GRADE (BO)
INV 197.50
205
EDGE OF RIPRAP ELEV 199
PROP TEMP EASEMENT
200
0 WASHINGTON ST
TOWN OF CANTON
BK 1894 PG 532
MAP PARCEL ID 058 001 0

CONTINUED ON SHEET NO. 56
CONTINUED ON SHEET NO. 57

LEGEND:

| UTILITY | EXISTING | PROPOSED |
|---|---|---|
| ELECTRIC | | |
| ELECTRIC/COMM/CATV OHW | | |
| GAS-OIL-STEAM | | |
| COMMUNICATION / CATV | | |
| PORTABLE WATER | | |
| SEWER | | |
| DRAINAGE | | |
| TRAFFIC CONDUIT | | |
| UTILITY MANHOLE | | |
| UTILITY POLE | | |

0 20 50 100
SCALE: 1" = 20'

| DRAINAGE STRUCTURE DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| NAME | TYPE | STATION | OFFSET | RIM ELEV. | INV. ELEV. IN | INV. ELEV. OUT | REMARKS |
| 6 | CBCI | 20+83.45 | 17.00 LT' | 206.43 | | I=200.11' (7) | PROP HOOD |
| 7 | DMH | 21+01.29 | 23.58 RT' | 205.84 | I=197.61' (11)<br>I=198.45' (6) | I=197.61' (8) | |
| 8 | FES | 20+92.39 | 41.74 RT' | | I=197.50' (7) | | |
| 9 | CBCI | 22+57.11 | 21.00 LT' | 202.27 | | I=198.03' (12) | |
| 10 | CBCI-E | 22+63.33 | 19.23 RT' | 202.30 | | I=198.40' (11) | OFFSET TOP, PROP HOOD |
| 11 | DMH - 48" | 22+69.36 | 23.42 RT' | 202.70 | I=198.36' (10)<br>I=198.36' (13) | I=198.36' (7) | |
| 12 | DMH | 22+71.62 | 20.15 LT' | 202.25 | I=197.93' (9)<br>I=197.93' (14) | I=197.93' (15) | |
| 13 | CBCI-E | 22+82.19 | 19.00 RT' | 202.26 | | I=198.50' (11) | OFFSET TOP, PROP HOOD |
| 14 | CBCI | 22+82.10 | 21.00 LT' | 202.23 | | I=198.03' (12) | |
| 15 | FES | 22+72.95 | 33.74 LT' | | I=197.86' (12) | | |
| 16 | CBCI | 24+48.09 | 25.00 LT' | 205.98 | | I=201.53' (18) | |
| 17 | CBCI | 24+73.48 | 24.31 RT' | 207.18 | | I=201.03' (18) | |
| 18 | DMH | 24+62.08 | 24.78 LT' | 206.63 | I=200.78' (17)<br>I=201.28' (16) | I=200.78' (19) | |
| 19 | FES | 24+73.27 | 40.84 LT' | | I=200.69' (18) | | |

STOUGHTON
WASHINGTON STREET (ROUTE 138) PHASE 2

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 57 | 131 |
| PROJECT FILE NO. | 613358 | | |

DRAINAGE & UTILITY PLANS

# WASHINGTON STREET (ROUTE 138)

N

0 WASHINGTON ST
TOWN OF CANTON
BK 706 PG 308
MAP PARCEL ID 057 092 0

0 WASHINGTON ST
TOWN OF CANTON
BK 706 PG 308
MAP PARCEL ID 057 093 0

50 WASHINGTON ST
SALT ISLAND REALTY LLC
BK 32527 PG 325
MAP PARCEL ID 058 008 0

N/F
TOWN OF STOUGHTON
MAP PARCEL ID 058 009 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1894 PG 532
MAP PARCEL ID 058 001 0

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

PROP TEMPORARY WETLAND REPLICATION EASEMENT
LIMIT OF BVW
LIMIT OF NON-JURISDICTIONAL STREAM FLAGS #1 THRU #9
PROP PERM SLOPE EASEMENT
PROP STONE FOR PIPE ENDS
PROP PERM DRAINAGE EASEMENT
PROP TEMP EASEMENT
REM GPL (BO)
R&R 45' UP #9 W/15' GUY, 20' GUY & 20' PUSH BRACE (BO)
PUE
RET UPL #8 W/ PROP 20' PUSH BRACE (BO)
APPROX LIMITS OF EXIST CC ROAD BASE
1903 SHLO NO. 768
PROP OHW (BO) (TYP)
R&R 45' UP #11 (BO)
PROP SHALT
12'-12" RCP
19'-12" RCP
11'-12" RCP
9'-12" RCP
41'-12" DIP
RELOCATE 6" GAS MAIN (BO)
ADJ/REMOD EMH (2) FRAME & COVER TO FINISHED GRADE (BO)
RET
48'-12" DIP
CUT/CAP/REMOVE EXISTING 6" CI WATER MAIN
R&R 45' UP #12 (BO)
REM EX CB
10'-12" RCP
RELOCATE 12" WATER MAIN
RELOCATE 6" WATER MAIN
164'-12" RCP
4'-12" RCP
20'-15" RCP
INV 197.50
205
198
199
200
EDGE OF RIPRAP ELEV 199
PROP SEDIMENT FOREBAY BOTTOM ELEV 197.50 SEE DETAIL ON SHEET 82
PROP DRAINAGE EASEMENT
VERNAL POOL #7459
APPROX EDGE OF WATER
1902 RECORD LOCATION OF 2.5'X4' STONE CULVERT NOT FOUND - ASSUMED TO BE ABANDONED
10'-12" RCP
CONTINUED ON SHEET NO. 56
CONTINUED ON SHEET NO. 58

LEGEND:

| UTILITY | EXISTING | PROPOSED |
|---|---|---|
| ELECTRIC | | |
| ELECTRIC/COMM/CATV OHW | | |
| GAS-OIL-STEAM | | |
| COMMUNICATION / CATV | | |
| PORTABLE WATER | | |
| SEWER | | |
| DRAINAGE | | |
| TRAFFIC CONDUIT | | |
| UTILITY MANHOLE | | |
| UTILITY POLE | | |

0 20 50 100
SCALE: 1" = 20'

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 58 | 131 |
| PROJECT FILE NO. | 613358 | | |

# DRAINAGE & UTILITY PLANS

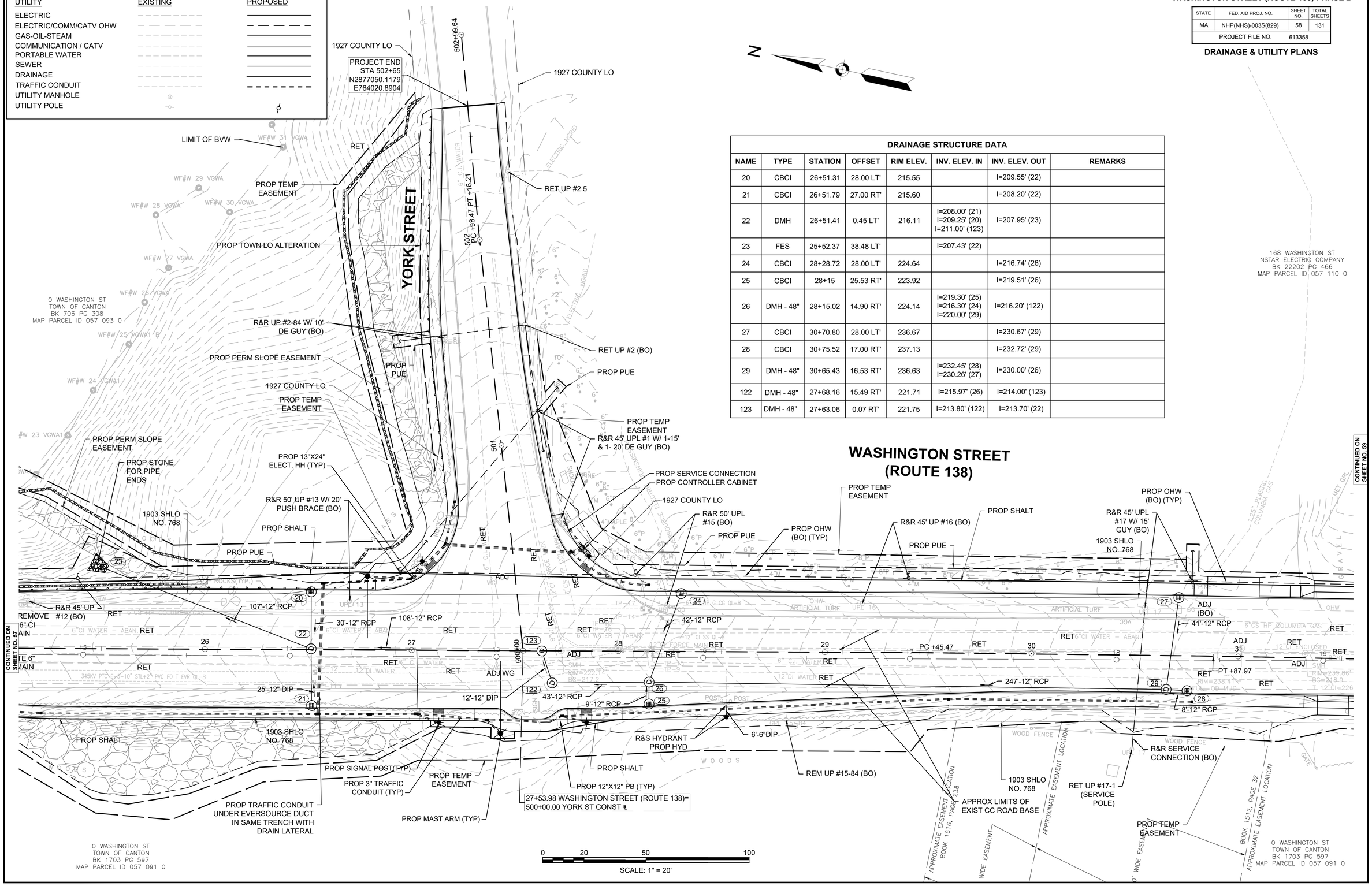
LEGEND:

| UTILITY | EXISTING | PROPOSED |
|---|---|---|
| ELECTRIC | | |
| ELECTRIC/COMM/CATV OHW | | |
| GAS-OIL-STEAM | | |
| COMMUNICATION / CATV | | |
| PORTABLE WATER | | |
| SEWER | | |
| DRAINAGE | | |
| TRAFFIC CONDUIT | | |
| UTILITY MANHOLE | | |
| UTILITY POLE | | |

N

## DRAINAGE STRUCTURE DATA

| NAME | TYPE | STATION | OFFSET | RIM ELEV. | INV. ELEV. IN | INV. ELEV. OUT | REMARKS |
|---|---|---|---|---|---|---|---|
| 20 | CBCI | 26+51.31 | 28.00 LT' | 215.55 | | I=209.55' (22) | |
| 21 | CBCI | 26+51.79 | 27.00 RT' | 215.60 | | I=208.20' (22) | |
| 22 | DMH | 26+51.41 | 0.45 LT' | 216.11 | I=208.00' (21)<br>I=209.25' (20)<br>I=211.00' (123) | I=207.95' (23) | |
| 23 | FES | 25+52.37 | 38.48 LT' | | I=207.43' (22) | | |
| 24 | CBCI | 28+28.72 | 28.00 LT' | 224.64 | | I=216.74' (26) | |
| 25 | CBCI | 28+15 | 25.53 RT' | 223.92 | | I=219.51' (26) | |
| 26 | DMH - 48" | 28+15.02 | 14.90 RT' | 224.14 | I=219.30' (25)<br>I=216.30' (24)<br>I=220.00' (29) | I=216.20' (122) | |
| 27 | CBCI | 30+70.80 | 28.00 LT' | 236.67 | | I=230.67' (29) | |
| 28 | CBCI | 30+75.52 | 17.00 RT' | 237.13 | | I=232.72' (29) | |
| 29 | DMH - 48" | 30+65.43 | 16.53 RT' | 236.63 | I=232.45' (28)<br>I=230.26' (27) | I=230.00' (26) | |
| 122 | DMH - 48" | 27+68.16 | 15.49 RT' | 221.71 | I=215.97' (26) | I=214.00' (123) | |
| 123 | DMH - 48" | 27+63.06 | 0.07 RT' | 221.75 | I=213.80' (122) | I=213.70' (22) | |




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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 59 | 131 |
| PROJECT FILE NO. | 613358 | | |

**DRAINAGE & UTILITY PLANS**

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| DRAINAGE STRUCTURE DATA | | | | | | | |
|---|---|---|---|---|---|---|---|
| NAME | TYPE | STATION | OFFSET | RIM ELEV. | INV. ELEV. IN | INV. ELEV. OUT | REMARKS |
| 30 | CBCI | 36+36.20 | 17.01' RT | 238.07 | | I= 233.63' (32) | ADJ |
| 31 | CBCI | 36+36.53 | 27.98 LT' | 237.84 | | I= 233.84' (32) | |
| 32 | DMH- 48" | 36+15.61 | 15.61' RT | 237.94 | I= 233.59' (31)<br>I= 233.59' (33) | I= 233.01' (34) | ADJ |
| 33 | CBCI | 36+63.33 | 27.98 LT' | 237.45 | | I= 233.45' (34) | |
| 34 | DMH- 48" | 36+75.72 | 16.10' RT | 237.51 | I= 233.18' (33)<br>I= 233.01' (32) | I= 232.91' | ADJ |

168 WASHINGTON ST
NSTAR ELECTRIC COMPANY
BK 22202 PG 466
MAP PARCEL ID 057 110 0

198 WASHINGTON ST
FRANCIS WILL
aka FRANCIS A. WILL
TRUSTEE OF AREA REALTY
TRUST II
BK 7563 PG 306
MAP PARCEL ID 057 111 0

214 WASHINGTON ST
PETER H. P. & ANGELA F LEE,
TRUSTEES OF YUNG–LAU
REALTY TRUST
BK 7110 PG 583
MAP PARCEL ID 057 112 0

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

# WASHINGTON STREET (ROUTE 138)

PROP TEMP EASEMENT
R&R SERVICE CONNECTION (BO)
PROP OHW (BO) (TYP)
R&R 45' UP #18 (BO)
PROP PUE
R&R 45' UPL #19 (BO)
PROP TEMP EASEMENT
END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675
R&R 45' PHASE 1 UP #20 (BO)
EXIST CONCRETE PAD
EXIST ELEC TRANSFORMER
PROP OHW (BO) (TYP)
R&R PHASE 1 45' UP #21 (BO)
PHASE 1 EXISTING UP
PROP TEMP EASEMENT
PROP PUE
R&R 45' UP #21-1 (BO) - PHASE 1
1902 SHLO NO. 675
PROP SHALT
REM EX CB
CONNECT PIPE TO NEW STRUCTURE
PUE PHASE 1
PUE
PROP SHALT
1903 SHLO NO. 768
PHASE 1 EXISTING UP
REM EX CB
CONNECT PIPE TO NEW STRUCTURE
RET UPL #22
R&R SERVICE (BO)
PC =31.77
APPROX LIMITS OF EXIST CC ROAD BASE
1903 SHLO NO. 768
PROP TEMP EASEMENT
END 1903 SHLO NO. 768
BEGIN 1902 SHLO NO. 675
ADJ EX STRUCTURES (TYP) PHASE 1
1902 SHLO NO. 675
PUE PHASE 1
ADJ HYD & WG

CONTINUED ON SHEET NO. 58

CONTINUED ON SHEET NO. 60

0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

217 WASHINGTON ST
ALLIOS LLC
BK 31856 PG 458
MAP PARCEL ID 057 089 0

247 WASHINGTON ST
V AND D ASSOCIATES LLC
BK 34715, PG 31
MAP PARCEL ID
057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

APPROXIMATE EASEMENT LOCATION
14; PAGE 32

LEGEND:

| UTILITY | EXISTING | PROPOSED |
|---|---|---|
| ELECTRIC | | |
| ELECTRIC/COMM/CATV OHW | | |
| GAS-OIL-STEAM | | |
| COMMUNICATION / CATV | | |
| PORTABLE WATER | | |
| SEWER | | |
| DRAINAGE | | |
| TRAFFIC CONDUIT | | |
| UTILITY MANHOLE | | |
| UTILITY POLE | | |

0 20 50 100
SCALE: 1" = 20'

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 60 | 131 |
| PROJECT FILE NO. | 613358 | | |

**DRAINAGE & UTILITY PLANS**

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CONTINUED ON SHEET NO. 59

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0

270 WASHINGTON ST
FERNANDES JEFFREY B
BK 29882 PG 582
MAP PARCEL ID 057 146 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 147 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 057 148 0

0 WASHINGTON ST
STOUGHTON MZL LLC
BK 29634 PG 451
CERT. 183805
MAP PARCEL ID 056 108 0

N/F
FOO MEI REALTY TRUST
MAP 56, PARCEL 107
BK.8483, PG.511

247 WASHINGTON ST
V AND D
ASSOCIATES LLC
BK 34715 PG 31
MAP PARCEL ID
057 090 0

N/F
LNT CAPITAL PARTNERS, LLC
MAP 56, PARCEL 105
BK.35386, PG.583

N/F
THE ROMAN CATHOLIC
ARCHBISHOP OF BOSTON
BOOK 1076, PAGE 635
MAP 56, PARCEL 99

CHARLES AVENUE
STOP AND SHOP DRIVEWAY
THOMAS STREET
WASHINGTON STREET (ROUTE 138)
WASHINGTON STREET (ROUTE 138)

1939 TOWN LO
RET UP
RET UP #2
LIMIT OF MILLING & OVERLAY STA 37+75
PROP SHALT PHASE 1
PROJECT END STA 38+10 N2875932.8349 E763971.9836
PUE PHASE 1
PUE
PROP SHALT
RET HYD
RET
R&R SERVICE (BO) PC +31.77
PT 36.05
ADJ
RET EXIST DRAINAGE STRUCTURES PHASE 1
1902 SHLO NO. 675
1 STORY VINYL BUILDING
1 STORY BUILDING
1 STORY METAL OFFICE & WAREHOUSE FF=236.93

LEGEND:

| UTILITY | EXISTING | PROPOSED |
|---|---|---|
| ELECTRIC | | |
| ELECTRIC/COMM/CATV OHW | | |
| GAS-OIL-STEAM | | |
| COMMUNICATION / CATV | | |
| PORTABLE WATER | | |
| SEWER | | |
| DRAINAGE | | |
| TRAFFIC CONDUIT | | |
| UTILITY MANHOLE | | |
| UTILITY POLE | | |

0 20 50 100
SCALE: 1" = 20'

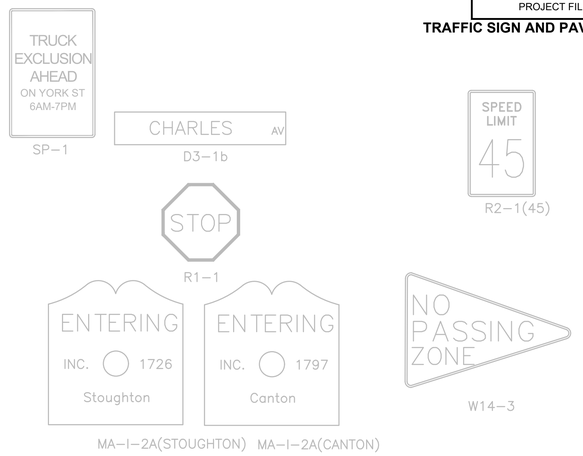
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 61 | 131 |
| PROJECT FILE NO. | 613358 | | |

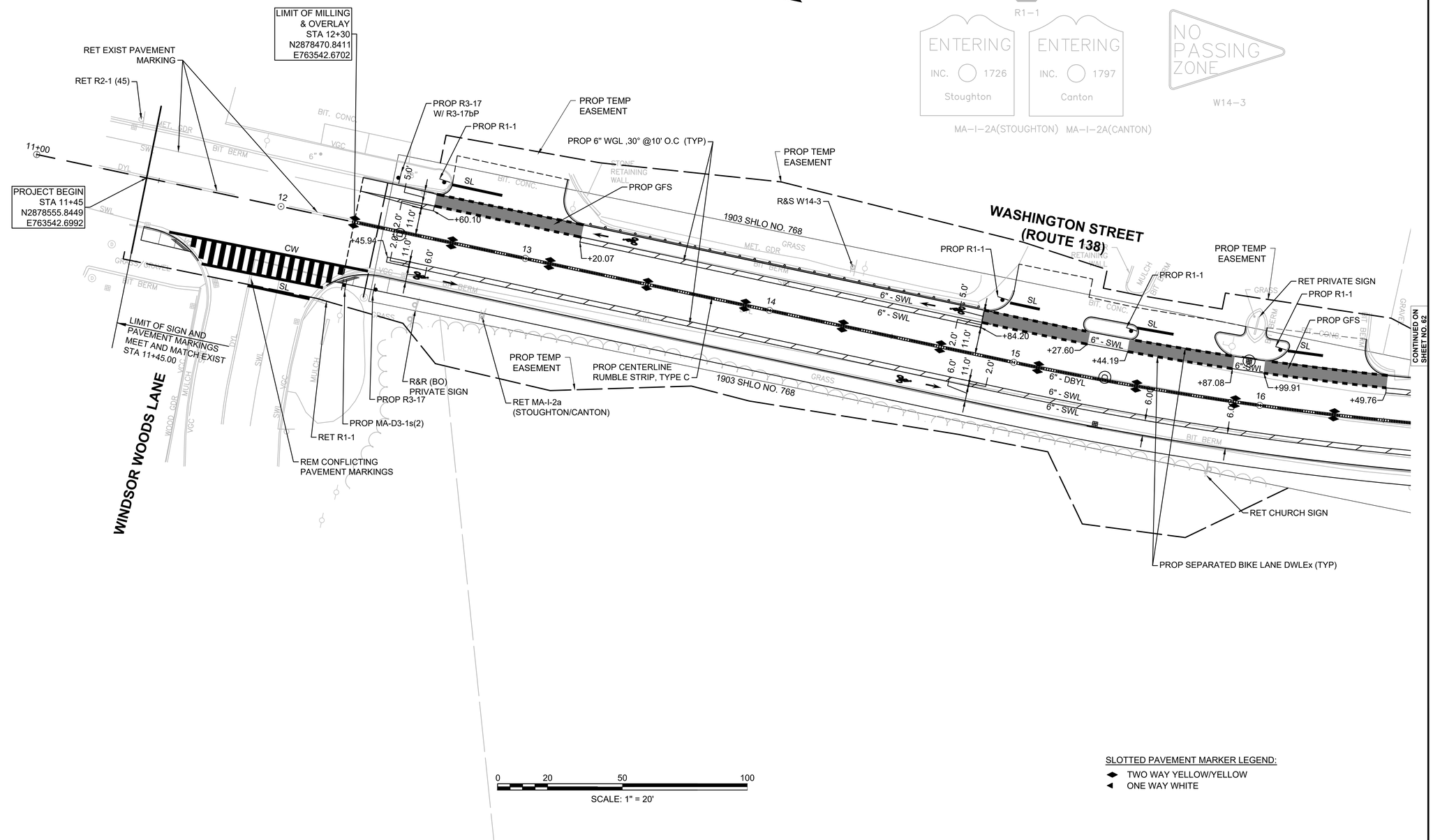
# TRAFFIC SIGN AND PAVEMENT MARKINGS PLAN

## TRAFFIC SIGN AND PAVEMENT MARKINGS NOTES

1. ALL EXISTING SIGNS AND SIGN POSTS WITHIN THE PROJECT LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED ON THE PLANS.
2. ALL PROPOSED PAVEMENT MARKINGS WITHIN THE LIMIT OF WORK SHALL BE THERMOPLASTIC. ALL EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS SHALL BE REMOVED BY MASSDOT APPROVED METHOD.
3. ALL PROPOSED SIGN POSTS SHALL BE P-5 TYPE (TELESCOPIC POST) UNLESS NOTED OTHERWISE.
4. PROPOSED PAVEMENT MARKINGS (LEGENDS & ARROWS) SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF MUTCD & MASSDOT STANDARD DRAWINGS.
5. ALL PROPOSED SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MUTCD AND MASSDOT STANDARDS.
6. EXACT LOCATIONS OF PROPOSED SIGNS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
7. ALL SIGN PANELS SHALL BE 90° TO THE CURB AND FACING THE FLOW OF TRAFFIC EXCEPT PARKING REGULATION SIGNS.
8. ALL SIGNS TO BE R&R SHALL BE MOUNTED ON NEW POSTS, UNLESS OTHERWISE NOTED.
9. SIGNS TO BE MOUNTED NEAR THE CURB LINE SHALL BE SET BACK 12" FROM THE EDGE OF THE SIGN PANEL TO THE CURB LINE. NO SIGN SHALL OVERHANG THE CURB LINE.
10. ALL SIGNS SHALL BE MOUNTED TO PROVIDE A 7.0' MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE SIGN AND FINISH GRADE EXCEPT OBJECT MARKER SIGNS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TREE TRIMMING WHERE NECESSARY TO IMPROVE VISIBILITY OF PROPOSED SIGNS.
12. SEE SHEET 67 FOR PROPOSED SIGN LEGENDS.
13. SEE SHEET 2-3 FOR LEGENDS, ABBREVIATIONS, AND GENERAL NOTES.

## EXISTING SIGN LEGEND




SLOTTED PAVEMENT MARKER LEGEND:
- ◆ TWO WAY YELLOW/YELLOW
- ◄ ONE WAY WHITE

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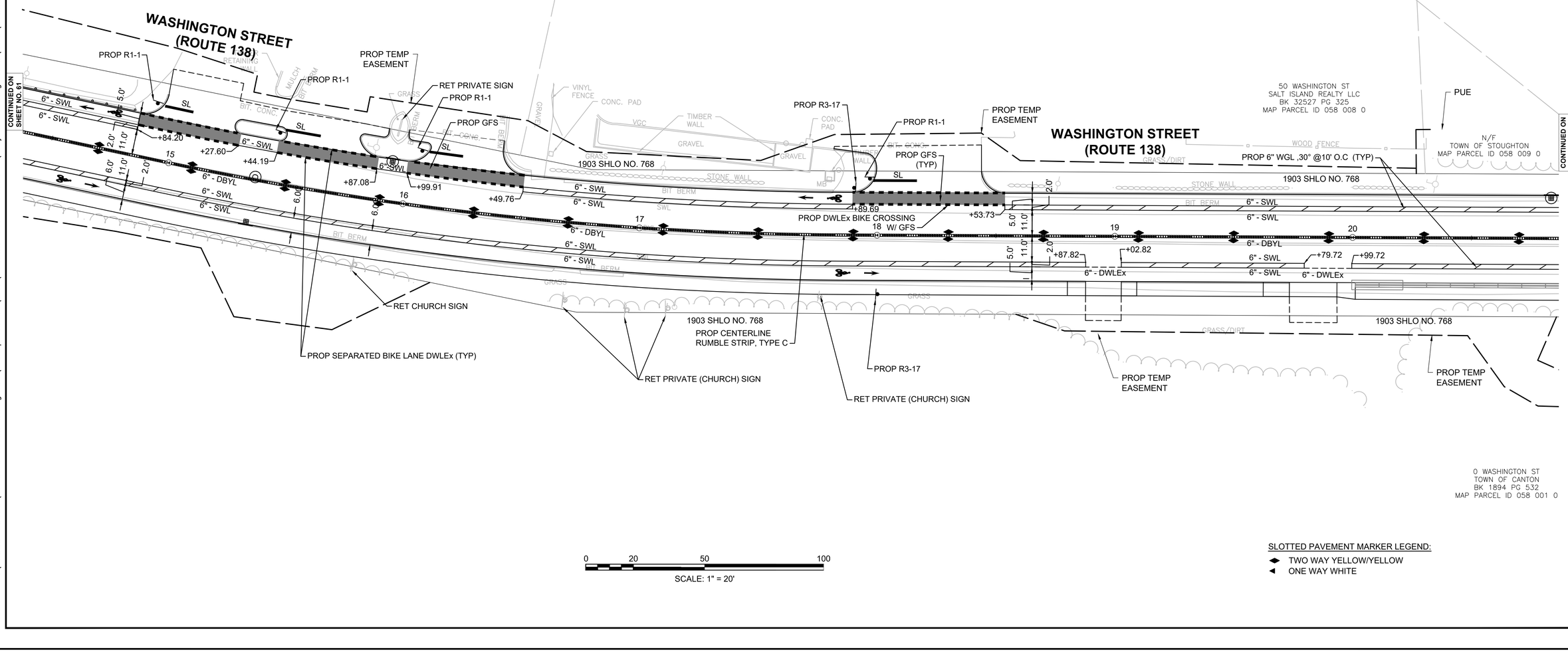
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 62 | 131 |
| PROJECT FILE NO. | 613358 | | |

# TRAFFIC SIGN AND PAVEMENT MARKINGS PLAN

NOTE

1. SEE SHEET 61 FOR SIN AND PAVEMENT MARKING NOTES.




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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 63 | 131 |
| PROJECT FILE NO. | 613358 | | |

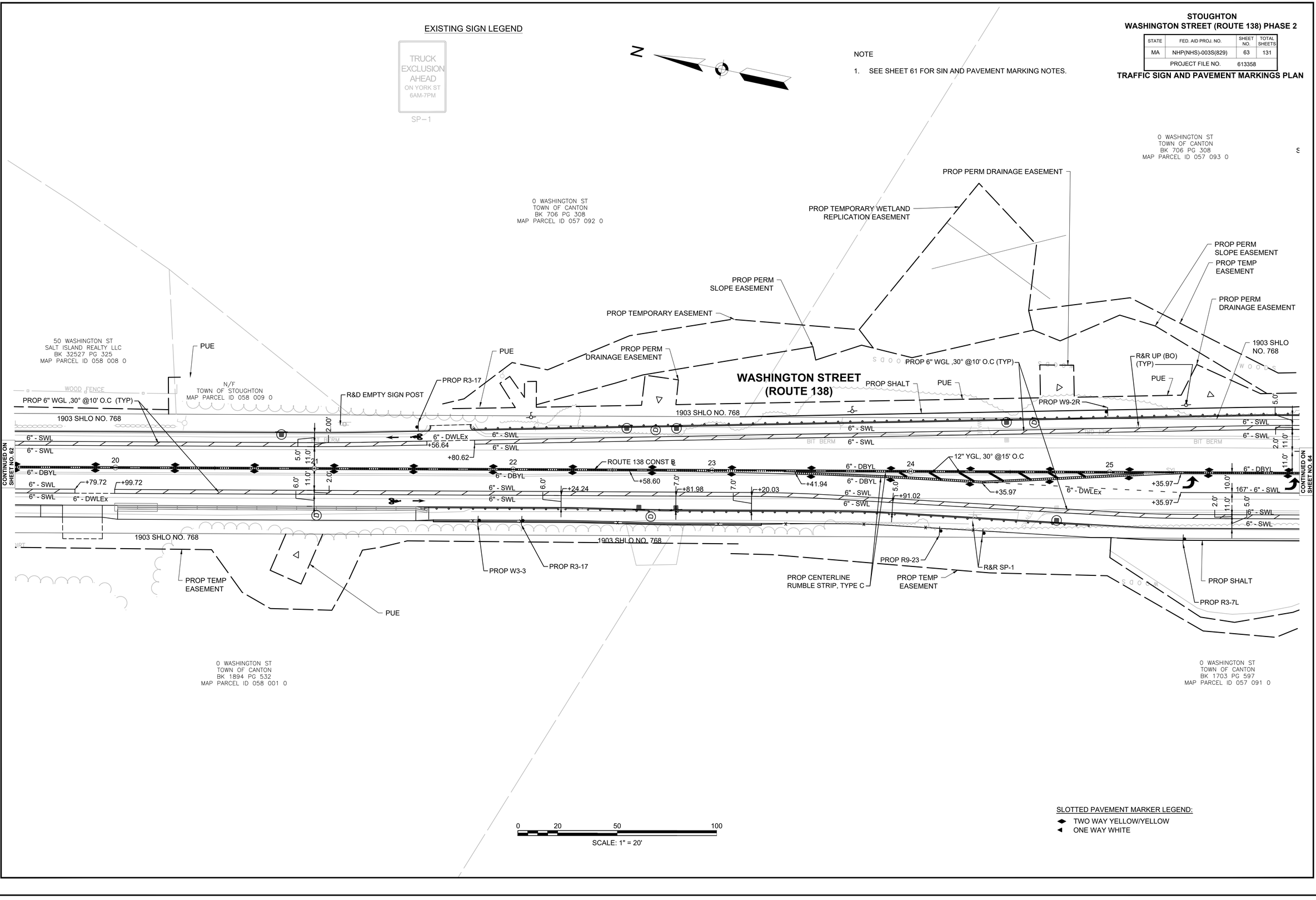
# TRAFFIC SIGN AND PAVEMENT MARKINGS PLAN

EXISTING SIGN LEGEND

TRUCK EXCLUSION AHEAD
ON YORK ST
6AM-7PM
SP-1

NOTE

1. SEE SHEET 61 FOR SIN AND PAVEMENT MARKING NOTES.




SLOTTED PAVEMENT MARKER LEGEND:

- TWO WAY YELLOW/YELLOW
- ONE WAY WHITE

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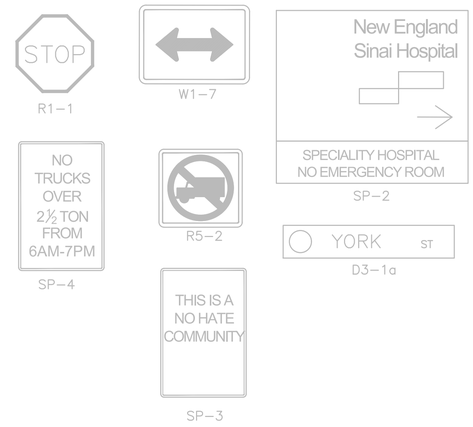
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 64 | 131 |
| PROJECT FILE NO. | 613358 | | |

# TRAFFIC SIGN AND PAVEMENT MARKINGS PLAN

NOTE

1. SEE SHEET 61 FOR SIGN AND PAVEMENT MARKING NOTES

## EXISTING SIGN LEGEND







SLOTTED PAVEMENT MARKER LEGEND:

- TWO WAY YELLOW/YELLOW
- ONE WAY WHITE

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 65 | 131 |
| PROJECT FILE NO. | 613358 | | |

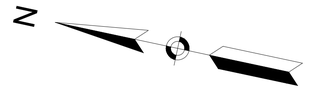
# TRAFFIC SIGN AND PAVEMENT MARKINGS PLAN

NOTE

1. SEE SHEET 61 FOR SIGN AND PAVEMENT MARKING NOTES

EXISTING SIGN LEGEND



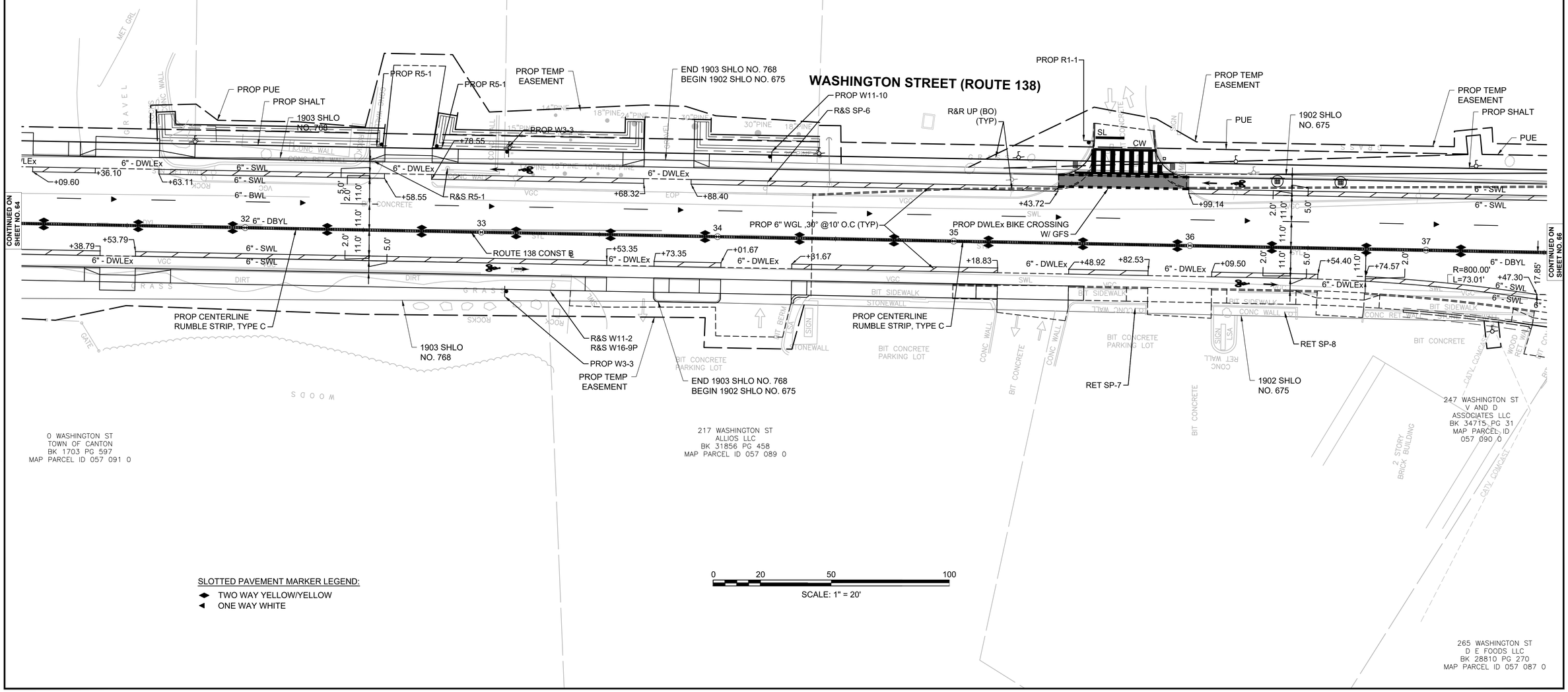




168 WASHINGTON ST
NSTAR ELECTRIC COMPANY
BK 22202 PG 466
MAP PARCEL ID 057 110 0

198 WASHINGTON ST
FRANCIS WILL
aka FRANCIS A. WILL
TRUSTEE OF AREA REALTY
TRUST II
BK 7563 PG 306
MAP PARCEL ID 057 111 0

214 WASHINGTON ST
PETER H. P. & ANGELA F LEE,
TRUSTEES OF YUNG-LAU
REALTY TRUST
BK 7110 PG 583
MAP PARCEL ID 057 112 0

234 WASHINGTON ST
UH STORAGE (DE)
LIMITED PARTNERSHIP
BK 21043 PG 108
MAP PARCEL ID 057 113 0




0 WASHINGTON ST
TOWN OF CANTON
BK 1703 PG 597
MAP PARCEL ID 057 091 0

217 WASHINGTON ST
ALLIOS LLC
BK 31856 PG 458
MAP PARCEL ID 057 089 0

247 WASHINGTON ST
V AND D
ASSOCIATES LLC
BK 34715, PG 31
MAP PARCEL ID
057 090 0

265 WASHINGTON ST
D E FOODS LLC
BK 28810 PG 270
MAP PARCEL ID 057 087 0

SLOTTED PAVEMENT MARKER LEGEND:

- TWO WAY YELLOW/YELLOW
- ONE WAY WHITE

0 20 50 100

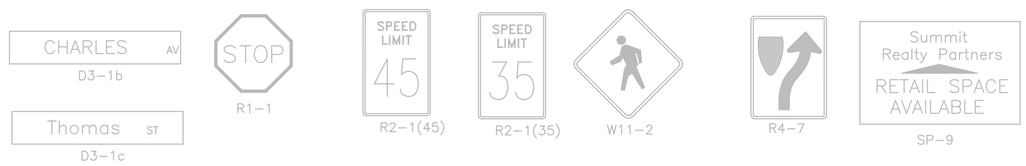
SCALE: 1" = 20'

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 66 | 131 |
| PROJECT FILE NO. | 613358 | | |

# TRAFFIC SIGN AND PAVEMENT MARKINGS PLAN

## EXISTING SIGN LEGEND




NOTE

1. SEE SHEET 61 FOR SIGN AND PAVEMENT MARKING NOTES



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# PROPOSED TRAFFIC SIGN SUMMARY

| IDENTIFICATION NUMBER | SIZE OF SIGN WIDTH | SIZE OF SIGN HEIGHT | TEXT | TEXT DIMENSIONS (INCHES) LETTER HEIGHT | TEXT DIMENSIONS (INCHES) VERTICAL SPACING | TEXT DIMENSIONS (INCHES) ARROW RTE. MKR. | NUMBER OF SIGNS REQUIRED | COLOR BACK-GROUND | COLOR LEGEND | COLOR BORDER | POST SIZE AND NUMBER REQUIRED ② | UNIT AREA (S.F.) | AREA IN SQUARE FEET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MA-D3-1a ③ | 63" | 12" | (SEAL) Washington St | 6D/4D | 2.75" 6D/4D 3.25" | ① | 1 | GREEN | WHITE | WHITE | 1 MOUNT ON MAST ARM | INCLUDED UNDER ITEM 874. | |
| MA-D3-1b | 48" | 18" | (SEAL) York St | 8D/5.33D | 5" 8D/5.33D 5" | | 2 | GREEN | WHITE | WHITE | 2 MOUNT ON MAST ARM | INCLUDED UNDER ITEM 874. | |
| MA-D3-1s | 72" | 12" | (SEAL) Windsor Woods Ln | 6D/4D | 2.75" 6D/4D 3.25" | | 2 | GREEN | WHITE | WHITE | P-5 1 REQ'D | INCLUDED UNDER ITEM 874. | |
| R10-15L ALT | 30" | 30" | TURNING VEHICLES YIELD TO | ① | ① | ① | 1 | WHITE | BLACK | BLACK | 1 MOUNT ON SIGNAL POST | 6.25 | 6.25 |
| R10-15R ALT | 30" | 30" | TURNING VEHICLES YIELD TO | | | | 1 | WHITE | BLACK | BLACK | 1 ON SIGNAL POST | 6.25 | 6.25 |
| R1-1 | 30" | 30" | STOP | | | | 7 | RED | WHITE | WHITE | P-5 7 REQ'D | 6.25 | 43.75 |
| R3-7L | 30" | 30" | LEFT LANE MUST TURN LEFT | | | | 1 | WHITE | BLACK | BLACK | P-5 1 REQ'D | 6.25 | 6.25 |
| R3-8 (c) | 30" | 30" | ONLY ONLY | | | | 1 | WHITE | BLACK | BLACK | P-5 1 REQ'D | 6.25 | 6.25 |
| R3-17 | 24" | 18" | BIKE LANE | | | | 8 | BLACK | WHITE | WHITE | P-5 8 REQ'D | 3.00 | 24.00 |
| R3-17bP | 24" | 8" | ENDS | | | | 1 | WHITE | BLACK | BLACK | 2 MOUNTED W/ R3-17 | 1.33 | 1.33 |
| R5-1 | 30" | 30" | DO NOT ENTER | | | | 2 | RED | WHITE | WHITE | P-5 2 REQ'D | 6.25 | 12.50 |
| R9-23 | 12" | 18' | ALL TURNS FROM BIKE LANE | ⑥ | ⑥ | ⑥ | 1 | WHITE | BLACK | BLACK | P-5 1 REQ'D | 1.50 | 1.50 |
| R9-23aL | 12" | 18' | LEFT TURN MUST USE TURN BOX | | | | 1 | WHITE | BLACK | BLACK | P-5 1 REQ'D | 1.50 | 1.50 |
| R9-23bL | 12" | 18' | LEFT TURN MUST USE TURN BOX | | | | 1 | WHITE | BLACK | BLACK | P-5 1 REQ'D | 1.50 | 1.50 |
| W3-3 | 30" | 30" | | ① | ① | ① | 4 | FLUORE-SCENT YELLOW | BLACK | BLACK | P-5 4 REQ'D | 6.25 | 25.00 |
| W4-2R | 36" | 36" | | | | | 1 | FLUORE-SCENT YELLOW | BLACK | BLACK | P-5 1 REQ'D | 9.00 | 9.00 |

① SEE MUTCD 2009 EDITION, THE 2012 SUPLEMENT TO THE 2004 EDITION OF THE STANDARD HIGHWAY SIGNS AND SECTION M9.30.0 TYPE III OF THE MASSDOT STANDARD SPECIFICATION FOR TEXT DIMENSIONS AND COLOR.

⑥ MUTCD INTERIM APPROVAL IA-20-1

| IDENTIFICATION NUMBER | SIZE OF SIGN WIDTH | SIZE OF SIGN HEIGHT | TEXT | TEXT DIMENSIONS (INCHES) LETTER HEIGHT | TEXT DIMENSIONS (INCHES) VERTICAL SPACING | TEXT DIMENSIONS (INCHES) ARROW RTE. MKR. | NUMBER OF SIGNS REQUIRED | COLOR BACKGROUND | COLOR LEGEND | COLOR BORDER | POST SIZE AND NUMBER REQUIRED ② | UNIT AREA (S.F.) | AREA IN SQUARE FEET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W9-2R | 36" | 36" | LANE ENDS MERGE RIGHT | ① | ① | ① | 1 | FLUORESCENT YELLOW | BLACK | BLACK | P-5 1 REQ'D | 9.00 | 9.00 |
| W11-10 | 36" | 36" | | | | | 1 | YELLOW | BLACK | BLACK | P-5 1 REQ'D | 9.00 | 9.00 |

PBS - PAINTED BOTH SIDES

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 67 | 131 |
| PROJECT FILE NO. | 613358 | | |

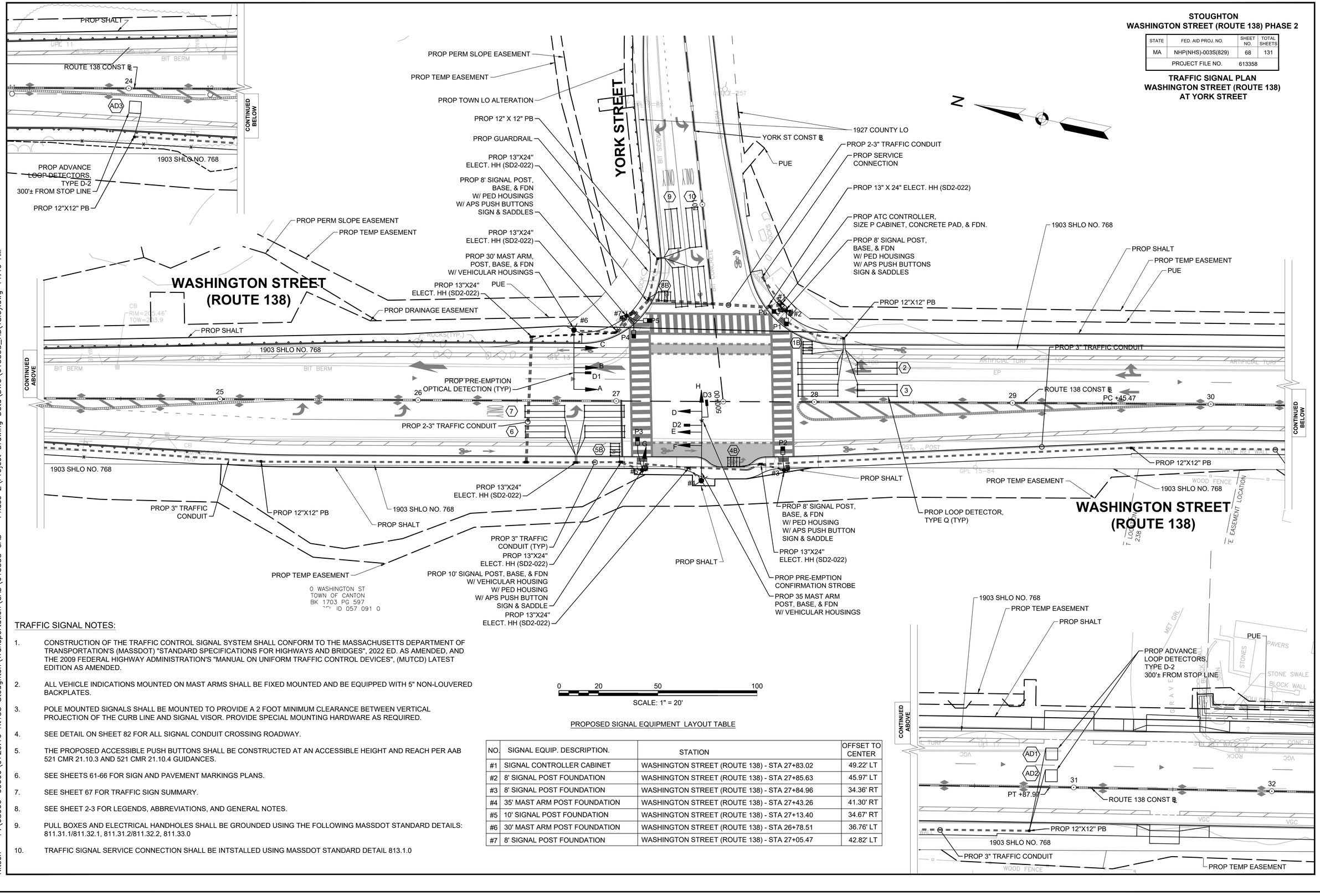
**TRAFFIC SIGN SUMMARY**

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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 68 | 131 |
| PROJECT FILE NO. | 613358 | | |

**TRAFFIC SIGNAL PLAN**
**WASHINGTON STREET (ROUTE 138)**
**AT YORK STREET**




TRAFFIC SIGNAL NOTES:

1. CONSTRUCTION OF THE TRAFFIC CONTROL SIGNAL SYSTEM SHALL CONFORM TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION'S (MASSDOT) "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES", 2022 ED. AS AMENDED, AND THE 2009 FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", (MUTCD) LATEST EDITION AS AMENDED.
2. ALL VEHICLE INDICATIONS MOUNTED ON MAST ARMS SHALL BE FIXED MOUNTED AND BE EQUIPPED WITH 5" NON-LOUVERED BACKPLATES.
3. POLE MOUNTED SIGNALS SHALL BE MOUNTED TO PROVIDE A 2 FOOT MINIMUM CLEARANCE BETWEEN VERTICAL PROJECTION OF THE CURB LINE AND SIGNAL VISOR. PROVIDE SPECIAL MOUNTING HARDWARE AS REQUIRED.
4. SEE DETAIL ON SHEET 82 FOR ALL SIGNAL CONDUIT CROSSING ROADWAY.
5. THE PROPOSED ACCESSIBLE PUSH BUTTONS SHALL BE CONSTRUCTED AT AN ACCESSIBLE HEIGHT AND REACH PER AAB 521 CMR 21.10.3 AND 521 CMR 21.10.4 GUIDANCES.
6. SEE SHEETS 61-66 FOR SIGN AND PAVEMENT MARKINGS PLANS.
7. SEE SHEET 67 FOR TRAFFIC SIGN SUMMARY.
8. SEE SHEET 2-3 FOR LEGENDS, ABBREVIATIONS, AND GENERAL NOTES.
9. PULL BOXES AND ELECTRICAL HANDHOLES SHALL BE GROUNDED USING THE FOLLOWING MASSDOT STANDARD DETAILS: 811.31.1/811.32.1, 811.31.2/811.32.2, 811.33.0
10. TRAFFIC SIGNAL SERVICE CONNECTION SHALL BE INTSTALLED USING MASSDOT STANDARD DETAIL 813.1.0

0 20 50 100
SCALE: 1" = 20'

PROPOSED SIGNAL EQUIPMENT LAYOUT TABLE

| NO. | SIGNAL EQUIP. DESCRIPTION. | STATION | OFFSET TO CENTER |
|---|---|---|---|
| #1 | SIGNAL CONTROLLER CABINET | WASHINGTON STREET (ROUTE 138) - STA 27+83.02 | 49.22' LT |
| #2 | 8' SIGNAL POST FOUNDATION | WASHINGTON STREET (ROUTE 138) - STA 27+85.63 | 45.97' LT |
| #3 | 8' SIGNAL POST FOUNDATION | WASHINGTON STREET (ROUTE 138) - STA 27+84.96 | 34.36' RT |
| #4 | 35' MAST ARM POST FOUNDATION | WASHINGTON STREET (ROUTE 138) - STA 27+43.26 | 41.30' RT |
| #5 | 10' SIGNAL POST FOUNDATION | WASHINGTON STREET (ROUTE 138) - STA 27+13.40 | 34.67' RT |
| #6 | 30' MAST ARM POST FOUNDATION | WASHINGTON STREET (ROUTE 138) - STA 26+78.51 | 36.76' LT |
| #7 | 8' SIGNAL POST FOUNDATION | WASHINGTON STREET (ROUTE 138) - STA 27+05.47 | 42.82' LT |

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| Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 7 | Ø 8 | Ø 9* |
|---|---|---|---|---|---|---|---|---|
| OL | | | NOT USED | NOT USED | | NOT USED | NOT USED | (PED.) |

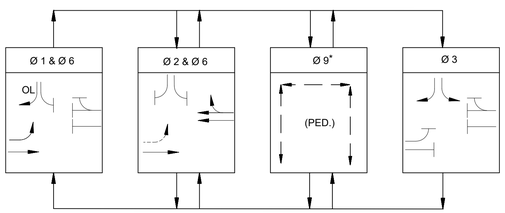
SEQUENCE AND TIMING FOR FULLY-ACTUATED CONTROL

| STREET | DIRECTION | HOUSINGS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | FLASH OPER. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WASHINGTON STREET (ROUTE 138) | NB | A,B,C | R | R | R | G | Y | R | R | R | R | | | | | | | R | R | R | | | | | | | R | R | R | FY |
| WASHINGTON STREET (ROUTE 138) | SB-LT | D | GL | YL | RL | RL | RL | RL | RL | RL | RL | | | | | | | FYL | YL | RL | | | | | | | RL | RL | RL | FRL |
| WASHINGTON STREET (ROUTE 138) | SB-T | E,F | R | R | R | R | R | R | R | R | R | | | | | | | G | Y | R | | | | | | | R | R | R | FY |
| YORK STREET | WB-RT | G | R/GR | R/YR | R | R | R | R | G | Y | R | | | | | | | R | R | R | | | | | | | R | R | R | FR |
| YORK STREET | WB-LT | H | R | R | R | R | R | R | G | Y | R | | | | | | | R | R | R | | | | | | | R | R | R | FR |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PEDESTRIAN CROSSING | EB-WB | P1,P2 | DW | DW | DW | DW | DW | DW | DW | DW | DW | | | | | | | DW | DW | DW | | | | | | | W | FDW | DW | OFF |
| PEDESTRIAN CROSSING | EB-WB | P3,P4 | DW | DW | DW | DW | DW | DW | DW | DW | DW | | | | | | | DW | DW | DW | | | | | | | W | FDW | DW | OFF |
| PEDESTRIAN CROSSING | NB-SB | P5,P6 | DW | DW | DW | DW | DW | DW | DW | DW | DW | | | | | | | DW | DW | DW | | | | | | | W | FDW | DW | OFF |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TIMING IN SECONDS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MINIMUM GREEN (INITIAL) | | | 8 | | | 8 | | | 9 | | | | | | | | | 8 | | | | | | | | | - | | | EMERGENCY ONLY |
| PASSAGE TIME (VEHICLE) | | | 3 | | | 3 | | | 3 | | | | | | | | | 3 | | | | | | | | | - | | | |
| MAXIMUM 1 | | | 8 | | | 45 | | | 9 | | | | | | | | | 60 | | | | | | | | | - | | | |
| MAXIMUM 2 | | | 9 | | | 34 | | | 9 | | | | | | | | | 50 | | | | | | | | | - | | | |
| YELLOW CLEARANCE | | | | 4 | | | 6 | | | 3 | | | | | | | | | 6 | | | | | | | | | - | | |
| RED CLEARANCE | | | | | 3 | | | 1 | | | 3 | | | | | | | | | 1 | | | | | | | | | | 4 | |
| WALK (W) | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | | | |
| PEDESTRIAN CLEARANCE | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RECALL | | | | OFF | | | SOFT | | | OFF | | | | | | | | | SOFT | | | | | | | | OFF | | | |
| MEMORY | | | | NON-LOCKING | | | NON-LOCKING | | | NON-LOCKING | | | | | | | | | NON-LOCKING | | | | | | | | LOCKING | | | |

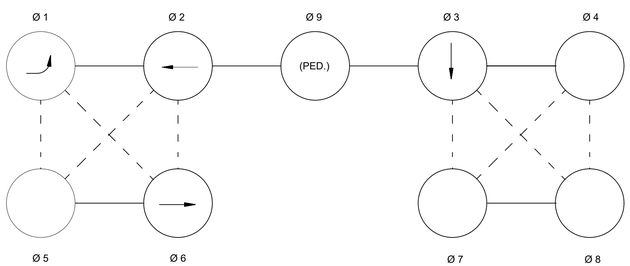
NOTES:

MAX 1: ALL OTHER TIMES
MAX 2: 6:00 AM - 10:00 AM
* PEDESTRIAN PHASE PUSH BUTTON ACTUATED ONLY.

## PREFERENTIAL PHASING SEQUENCE

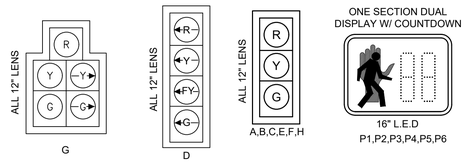



## NEMA DUAL RING PHASING NOTES:




1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

## SIGNAL IDENTIFICATION




NOTES:

1. ALL SIGNALS SHALL HAVE CUT AWAY TUNNEL VISORS.
2. ALL SIGNALS SHALL HAVE 12" LED WITH 5" NON-LOUVERED BACK PLATES.
3. ALL BACKPLATES SHALL HAVE A 3" YELLOW RETROREFLECTIVE BORDER.
4. ALL PEDESTRIAN INDICATIONS SHALL HAVE SUN CAP VISORS

## FIRE PREEMPTION SCHEDULE

| APPROACH | DETECTOR | PREEMPTION PHASE | NEXT PHASE CALLED |
|---|---|---|---|
| NORTHBOUND | D1 | 2 | 2+6 |
| SOUTHBOUND | D2 | 6 | 2+6 |
| WESTBOUND | D3 | 3 | 2+6 |

EMERGENCY VEHICLE PREEMPTION OPERATION:

1. EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
2. PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
3. IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT THAN THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
4. PREEMPTION MINIMUM GREENS SHALL BE TEN SECONDS.
5. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
6. ACTUAL TIMMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MHD PRIOR TO OPERATION.

| PAY ITEM | QUANTITY | MAJOR ITEMS REQUIRED ITEM |
|---|---|---|
| 815.1 | 1 | ATC TRAFFIC CONTROLLER, CABINET, CONCRETE PAD, & FDN. |
| | 1 | SERVICE CONNECTION, TYPE OVERHEAD |
| | 3 | 8' SIGNAL POLE, BASE, & FDN. |
| | 1 | 10' SIGNAL POLE, BASE, & FDN. |
| | 1 | 35 FT TYPE II, GALV. STEEL MAST ARM ASSEMBLY , BASE & FDN. |
| | 1 | 30 FT TYPE II, GALV. STEEL MAST ARM ASSEMBLY , BASE & FDN. |
| | 1 | 1 WAY, 4 SECTION, SIGNAL HOUSING (12" L.E.D.) |
| | 1 | 1 WAY, 5 SECTION, SIGNAL HOUSING (12" L.E.D.) |
| | 6 | 1 WAY, 3 SECTION, SIGNAL HOUSING (12" L.E.D.) |
| | 6 | 5" 3-SECTION BACKPLATES (NON-LOUVERED) WITH 3" RETROREFLECTIVE BORDER |
| | 1 | 5" 4-SECTION BACKPLATES (NON-LOUVERED) WITH 3" RETROREFLECTIVE BORDER |
| | 1 | 5" 5-SECTION BACKPLATES (NON-LOUVERED) WITH 3" RETROREFLECTIVE BORDER |
| | 6 | 16" PEDESTRIAN COUNTDOWN HOUSING, TYPE L.E.D. (INT'L SYMBOL) |
| | 6 | PEDESTRIAN PUSH BUTTON, SIGN & SADDLES (APS) |
| | 8 | DUAL CHANNEL LOOP DETECTOR AMPLIFIER (CARD RACK) |
| | 19 | ROADWAY LOOP DETECTOR (SEE LOOP DETECTOR DATA TABLE) |
| | 3 | EMERGENCY VEHICLE PRE-EMPTION RECEIVER-SINGLE CHANNEL |
| | 2 | EMERGENCY VEHICLE PRE-EMPTION PHASE SELECTOR MODULE-DUAL CHANNEL |
| | 2 | PRE-EMPTION CARD RACK |
| | 1 | EMERGENCY VEHICLE PRE-EMPTION CONFIRMATION STROBE (WHITE) |
| | 1 | GPS TIME UNIT |
| | | |
| 811.22 | 8 | 13" X 24" ELECTRIC HANDHOLE - SD2.022 |
| 811.31 | 6 | 12" X 12" PULL BOX |
| | | Plus all necessary duct, cable, labor, miscellaneous material and equipment to complete the installation. |

NOTE:
1. ALL SIGNAL EQUIPMENT INCLUDING SIGNAL POSTS AND MAST ARM SHALL BE BLACK COLOR AS DETAILED IN THE CONTRACT SPECIFICATIONS.

## LOOP DETECTOR DATA

*SEE PLAN SHEET-LOOP DETECTOR DETAILS FOR LOOP CONSTRUCTION. SPLICING, DETAILS & NOTES. DELAY TIME EFFECTIVE ONLY DURING CALLED Ø RED. TIME IN SEC.*

| DETECTOR NUMBER | AMPLIFIER NUMBER | CHANNEL NUMBER | LOOP SIZE (LXW) | NUM. OF TURNS | Ø CALLED | Ø EXT. | MODE A=PULSE B=PRES. | DELAY TIME | EXT. TIME |
|---|---|---|---|---|---|---|---|---|---|
| 1B | 1 | 1 | 1@4.5'X6' | 4-8-4 | 2 | 2 | B | - | - |
| 2 | 2 | 1 | 2@20'X6' | 2-4-2 | 2 | 2 | B | - | - |
| 3 | 2 | 2 | 2@20'X6' | 2-4-2 | 2 | 2 | B | - | - |
| 4B | 3 | 1 | 1@4.5'X6' | 4-8-4 | 9 | - | B | - | - |
| 5B | 4 | 1 | 1@4.5'X6' | 4-8-4 | 6 | 6 | B | - | - |
| 6 | 4 | 2 | 2@20'X6' | 2-4-2 | 6 | 6 | B | - | - |
| 7 | 5 | 1 | 3@6'X6' | 2-4-2 | 1 | 1 | B | - | - |
| 8B | 6 | 1 | 1@4.5'X6' | 4-8-4 | 3 | 3 | B | - | - |
| 9 | 6 | 2 | 2@20'X6' | 2-4-2 | 3 | 3 | B | - | - |
| 10 | 7 | 1 | 2@20'X6' | 2-4-2 | 3 | 3 | B | - | - |
| AD1 | 7 | 2 | 1@6'X6' | 3 | - | 2 | A | - | 6 |
| AD2 | 8 | 1 | 1@6'X6' | 3 | - | 2 | A | - | 6 |
| AD3 | 8 | 2 | 1@6'X6' | 3 | - | 6 | A | - | 6 |

1. SEE LOOP DETECTOR DETAIL SHEETS FOR SPLICE PATTERN AND OTHER INFORMATION

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

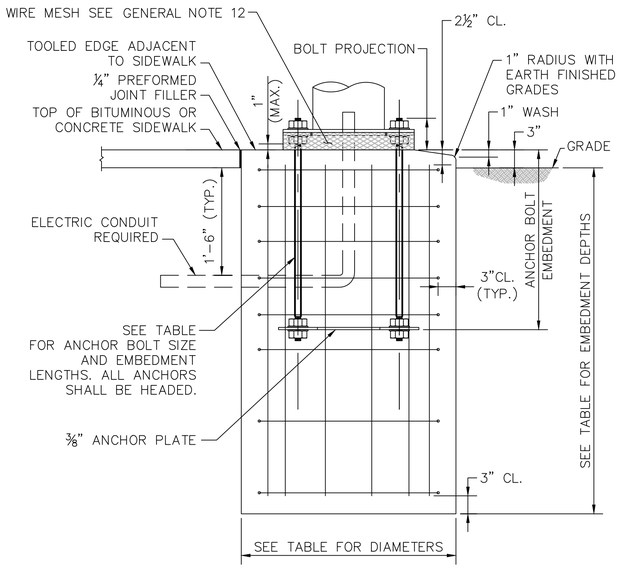
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 69 | 131 |
| PROJECT FILE NO. | 613358 | | |

**TRAFFIC SIGNAL DATA PLAN**
**WASHINGTON STREET (ROUTE 138)**
**AT YORK STREET**

Nitsch - P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD - Phase 2\Project Drawing Data\DWG\613358_HD(TSIG).dwg 11:47 AM
613358_HD(TSIG).DWG Plotted on 29-Jan-2025 11:47 AM

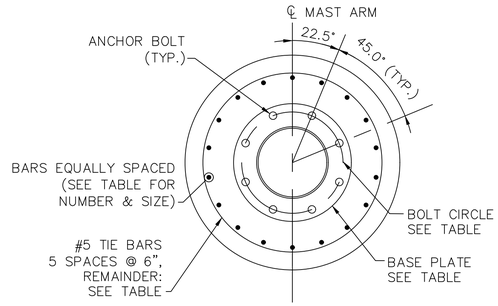
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 70 | 131 |
| PROJECT FILE NO. | 613358 | | |

**TRAFFIC SIGNAL DETAILS**




## MASSDOT STANDARD OVERHEAD SIGNAL FOUNDATION DETAIL

SCALE: 1" = 1'-0"




## MASSDOT STANDARD OVERHEAD SIGNAL FOUNDATION PLAN

SCALE: 1" = 1'-0"

## STANDARD MASSDOT OVERHEAD SIGNAL FOUNDATION NOTES:

1. MASSDOT STANDARD OVERHEAD SIGNAL FOUNDATIONS SHALL BE 4000 PSI, 565 MASSDOT APPROVED MIX DESIGN.
2. MASSDOT STANDARD OVERHEAD SIGNAL FOUNDATIONS SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT STANDARD SPECIFICATIONS ITEM 945 – DRILLED SHAFTS.
3. SANDY SOILS WITH STANDARD PENETRATION VALUES GREATER THAN 20 BLOWS PER FOOT SHALL BE CLASSIFIED AS DENSE DRY SAND AND DENSE WET SAND. SANDY SOILS WITH STANDARD PENETRATION VALUES RANGING FROM 6 TO 20 BLOWS PER FOOT SHALL BE CLASSIFIED LOOSE DRY SAND AND LOOSE WET SAND. IF ENCOUNTERED, SANDY SOILS WITH FEWER THAN 6 BLOWS PER FOOT SHALL REQUIRE A SPECIAL FOUNDATION DESIGN TO BE PERFORMED BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT.
4. CLAYS WITH STANDARD PENETRATION VALUES GREATER THAN 6 BLOWS PER FOOT SHALL BE CLASSIFIED AS STILL CLAY. CLAYS WITH STANDARD PENETRATION VALUES RANGING FROM 2 TO 6 BLOWS PER FOOT SHALL BE CLASSIFIED AS SOFT TO MEDIUM STIFF CLAY. IF ENCOUNTERED, CLAYS WITH FEWER THAN 2 BLOWS PER FOOT SHALL REQUIRE A SPECIAL FOUNDATION DESIGN TO BE PERFORMED BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT.
5. A SANDY SOIL SHALL ONLY BE CLASSIFIED AS 'DRY' IF THE ENTIRE DRY SAND SHAFT LENGTH SITS ABOVE WET SOILS ACCORDING TO THE BORING LOGS. IF ANY PART OF THE SHAFT LENGTH IS CAST AT OR BELOW THE GROUNDWATER LEVEL, THE SOIL SHALL BE CLASSIFIED AS 'WET'.
6. WHERE THE PREDOMINATING SOIL TYPE IS INORGANIC SILT, THE SOIL SHOULD BE TREATED AS CLAY OR WET LOOSE SAND, WHICHEVER LEADS TO A MORE CONSERVATIVE FOUNDATION. IF ENCOUNTERED, INORGANIC SILTS WITH STANDARD PENETRATION N-VALUES LESS THAN 2 BLOWS PER FOOT, ORGANIC SILTS, AND PEAT SHALL REQUIRE A SPECIAL FOUNDATION DESIGNS TO BE PERFORMED BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT.

| STANDARD MASSDOT OVERHEAD SIGNAL FOUNDATION DETAILS FOR 110 MPH WIND SPEED ZONE | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INTERSECTION | LOCATION | MAST ARM LENGTH (FT.) | SOIL DESIGNATION | SHAFT DIAMETER | SHAFT DEPTH | VERTICAL BARS | TIE BARS | PLATE DIA. (IN.) | BOLT CIRCLE DIA. (IN.) | PLATE THICKNESS (IN.) | BOLT HOLE DIA. (IN.) | PLATE HOLE (IN.) | ANCHOR BOLT DIA. (IN.) | ANCHOR BOLT EMBED. (IN.) |
| WASHINGTON STREET & YORK STREET | STA. 26+78.51 36.76'LT | 30 | WET SAND (DENSE) | 3'-6" | 9'-0" | 18-#8 | #5 @ 12" | 27.00 | 22.00 | 2.00 | 1.75 | 10.50 | 1.50 | 36.00 |
| WASHINGTON STREET & YORK STREET | STA. 27+43.16 40.00' RT | 35 | WET SAND (LOOSE) | 3'-6" | 14'-6" | 18-#8 | #5 @ 9" | 27.00 | 22.00 | 2.00 | 1.75 | 12.5 | 1.50 | 36.00 |

## GENERAL NOTES:

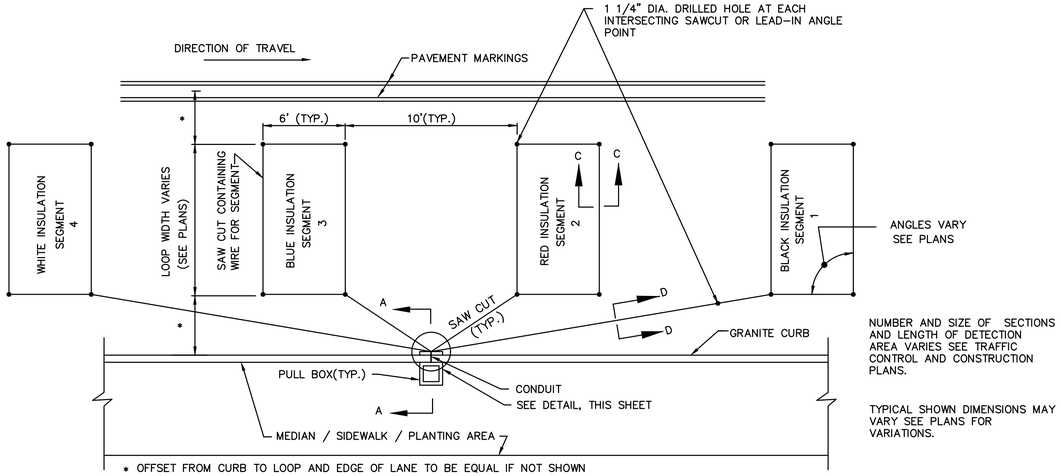
1. DRILLED SHAFT MAST ARM FOUNDATIONS CONSTRUCTED IN SOILS WHICH HAVE BEEN GIVEN A MASSDOT SOIL DESIGNATION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MASSDOT OVERHEAD SIGNAL STRUCTURE & FOUNDATION STANDARD DRAWINGS AND THE DETAILS CONTAINED HEREIN PER ENGINEERING DIRECTIVE E-16-001 DECEMBER 2015. THESE STANDARD FOUNDATIONS SHALL BE PAID USING ITEMS – 815.1 TRAFFIC CONTROL SIGNAL LOCATION NO. 1.
2. ALL REINFORCEMENT SHALL BE EPOXY COATED AND CONFORM TO AASHTO M 31, ASTM A 615 GRADE 60 AND SHALL BE TESTED IN ACCORDANCE TO AASHTO T 285.
3. ANCHOR BOLTS SHALL BE SET BY TEMPLATE.
4. PROVIDE FOR ELECTRICAL CONDUIT.
5. EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSIONS OF THE FOUNDATIONS WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE PROPOSED FOUNDATION BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED TO MASSDOT FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 6 AND 7.
6. THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE-INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR THE EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSDOT. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEOUS MATERIAL FROM FALLING IN FROM THE SIDES AND MIXING WITH THE CONCRETE.
7. IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSIONS OF THE FOUNDATION, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
8. SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO ENSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE. THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASTINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT, UPON APPROVAL FROM MASSDOT. THE STEEL CYLINDERS OR CASTINGS SHALL BE WITHDRAWN AS A FOUNDATION CONCRETE IS PLACED.
9. IF LEDGE OR UNSUITABLE SOIL IS ENCOUNTED (i.e. ONE WHICH DOES NOT APPLY TO SOIL DESIGNATION PROVIDED IN THE TABLE FOR THAT FOUNDATION), AN ALTERNATE DESIGN SHALL BE PROVIDED BY THE DESIGN ENGINEER. IF UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL BACKFILL THE AREA TO ITS ORIGINAL CONDITION UNTIL AND ALTERNATE DESIGN HAS BEEN PROVIDED BY THE DESIGN ENGINEER AND APPROVED BY MASSDOT.
10. A GALVANIZED WIRE MESH SCREEN SHALL BE INSTALLED AT THE BASE OF MAST ARM POLES. THE SCREEN SHALL BE PRESS-FORMED OF 3 OR 4 MESH, 21 GAGE OR HEAVIER, STAINLESS STEEL OR HOT DIPPED GALVANIZED WIRE SCREEN OR APPROVED EQUIVALENT. SCREEN SHALL BE SCREWED INTO POLE BASE PLATE, AND SHALL BE FLUSH WITH THE TOP OF THE DRILLED SHAFT FOUNDATION.
11. MAST ARM FOUNDATIONS ARE DESIGNED TO SUPPORT MAST ARMS WITH OR WITHOUT OPTIONAL LUMINARIES.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT FOUNDATION DIAMETER IS AT LEAST 17.5" GREATER THAN BOLT CIRCLE DIAMETER FOR ALL STRUCTURES.
13. IN ORDER TO CREATE A FLUSH SURFACE, CONTRACTOR SHALL REFER TO THE FINAL ELEVATIONS SHOWN ON THE DESIGN PLANS WHEN INSTALLING FOUNDATIONS IMMEDIATELY ADJACENT TO OR WITHIN A SIDEWALK AREA. 33.
14. THE CONTRACTOR SHALL BE ADVISED THAT DURING SOIL BORING MA-1, FOR MAST ARM #4 AT THE INTERSECTION OF WASHINGTON STREET AND YORK STREET, BOULDERS WERE ENCOUNTERED. THE CONTRACTOR SHALL BE AWARE THAT BOULDERS MAY BE ENCOUNTERED FOR THE MAST ARM'S FOUNDATION AND ADDITIONAL CONCRETE MAY BE REQUIRED DUE TO THE SHAFT'S SOUL SIDES NOT BEING SMOOTH/NEAT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS ADDITIONAL CONCRETE.

## BASIS OF DESIGN

ALL MAST ARM STRUCTURES AND FOUNDATIONS ARE DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SIXTH EDITION 2013, AND THE FOLLOWING PARAMETERS:

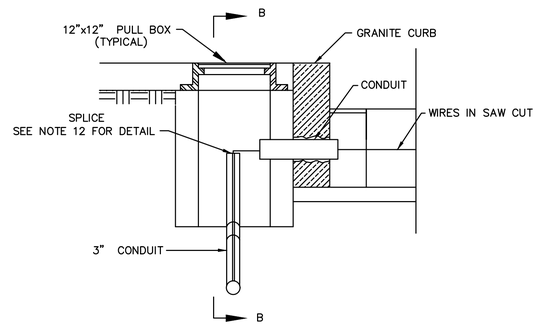
| | | | |
|---|---|---|---|
| OVERTURNING DESIGN | FOUNDATIONS ARE SIZED TO RESIST OVERTURNING ACCORDING TO BROMS' DESIGN METHOD WITH A SAFETY FACTOR THAT INCLUDES AN OVERLOAD FACTOR OF 2.0 AND A SOIL UNDERSTRENGTH FACTOR OF 0.7. | | |
| SOIL PARAMETERS | | UNIT WEIGHT | FRICTION ANGLE |
| | LOOSE DRY SAND: | $\gamma$ = 102 PCF | $\Phi$ = 33° |
| | DENSE DRY SAND: | $\gamma$ = 116 PCF | $\Phi$ = 39° |
| | LOOSE WET SAND: | $\gamma$ = 125 PCF | $\Phi$ = 33° |
| | DENSE WET SAND: | $\gamma$ = 135 PCF | $\Phi$ = 39° |
| | | UNIT WEIGHT | SHEAR STRENGTH |
| | SOFT TO MEDIUM STIFF CLAY: | $\gamma$ = 113 PCF | $S_U$ = 1.0 KSF |
| | STIFF CLAY: | $\gamma$ = 120 PCF | $S_U$ = 1.9 KSF |
| DEFLECTION LIMITS | MAXIMUM LATERAL DEFLECTION AT TOP OF MAST ARM FOUNDATION SHAFTS: $\frac{1}{2}$" | | |

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PLAN OF SEGMENTED DETECTOR DETAIL

NOT TO SCALE



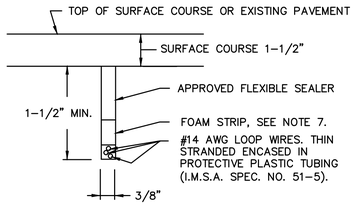

SECTION A–A

NOT TO SCALE

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 71 | 131 |
| PROJECT FILE NO. | 613358 | | |

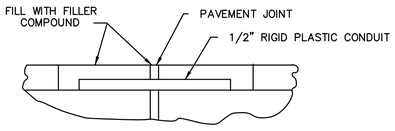
**TRAFFIC SIGNAL DETAILS**
**ROADWAY LOOP DETECTOR DETAILS**




SECTION C–C & D–D

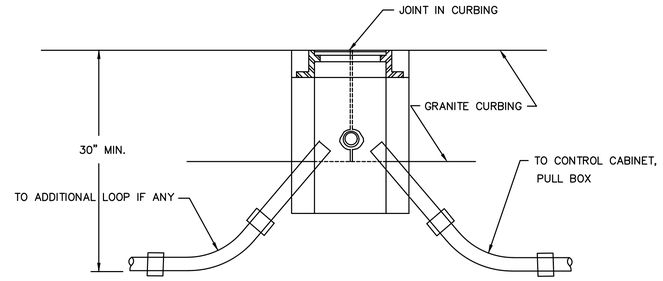
LOOPS IN BINDER COURSE OR EXISTING PAVEMENT TO BE RESURFACED.

NOT TO SCALE




VERTICAL SECTION

TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



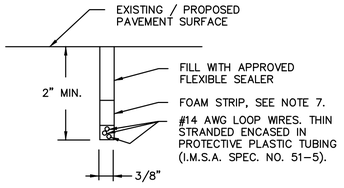

SECTION B–B

NOT TO SCALE

## DETECTOR NOTES

1. IN HANDHOLE, SPLICE ALL SEGMENTS TO TYPE II–SHIELDED LOOP DETECTOR LEAD–IN CABLE. SEGMENTS SHALL BE SPLICED IN PARALLEL, IN SERIES, OR IN A COMBINATION OF PARALLEL & SERIES AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. NUMBER OF TURNS OF WIRE SHALL ALSO BE AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. SEE NOTE 12.
2. SEE SPECIAL PROVISIONS FOR REQUIREMENTS OF DETECTOR AMPLIFIER.
3. LEAD IN WIRES SHALL BE TWISTED FROM SEGMENT TO SPLICE WITH SHIELDED CABLE. FIVE TURNS PER FOOT. LEAD–IN SHALL BE TYPE II (M8.16. II).
4. BEFORE STARTING ANY SPLICING, THE ELECTRICAL CONTRACTOR SHALL FURNISH DATA SHEETS ON THE MATERIALS AND/OR METHODS TO BE USED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD OPERATING PROCEDURES FOR APPROVAL OF SHOP DRAWINGS, SEE SECTION 815.64, ESPECIALLY PARAGRAPH 1.
5. THE METALLIC SHIELD WHICH SHALL ENCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROADWAY COMPONENT OF THE DETECTOR) TO THE CONTROLLER, AND THE DRAIN WIRE UNDER THE METALLIC SHIELD, SHALL NOT BE GROUNDED TO THE EARTH GROUNDING BUS IN THE CONTROLLER, AND THE SHIELD AND DRAIN WIRE SHALL BE CAREFULLY INSULATED FROM THE TRANSFORMER NEUTRAL OR FROM EARTH GROUND AT ALL OTHER POINTS ALONG ITS LENGTH. SPECIFICALLY, THIS INCLUDES CAREFUL INSULATION OF THE EXPOSED PORTION OF THE SHIELD AND THE DRAIN WIRE AT THE END AWAY FROM THE CONTROLLER WHERE IT IS SPLICED TO WIRES LEADING TO THE ROADWAY COMPONENT OF THE DETECTOR. THIS IS IMPORTANT TO AVOID A GROUND RETURN LOOP.
6. FILL ALL CONDUIT OPENINGS WITH DUCT SEAL.
7. AFTER SAW CUTS ARE COMPLETE, BLOW OUT WATER WITH OIL–FREE COMPRESSED AIR UNTIL CUTS ARE CLEAN AND DRY. INSERT WIRE INTO CLEAN SLOT WITH A BLUNT, SMOOTH, ROUND–EDGED TOOL OF WOOD OR PLASTIC SUCH AS PAINT STIRRER. DO NOT USE A SCREWDRIVER, THEN INSERT FOAM PLASTIC HOLD DOWN STRIPS, SIMILAR TO ETHA FOAM SB. STRIPS SHALL BE ABOUT 2" LONG, PLACED IN THE SLOT ABOUT EVERY 2 FEET THEN POUR SEALER, TAKING CARE TO ELIMINATE BUBBLES.
8. THE COMBINED ROADWAY LOOP, TWISTED LEAD–IN WIRES, SPLICE AND SHIELDED LEAD–IN CABLE SHALL HAVE A RESISTANCE TO GROUND AT LEAST 100 MEGAOHMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
9. DETAIL IS THE SAME FOR INSTALLATION OF SINGLE (ONE SEGMENT) SMALL WIRE LOOP DETECTOR.
10. CUT LOOPS IN BINDER AND FILL WITH APPROVED FLEXIBLE SEALER.
11. DETECTOR WIRE SHALL BE A DIFFERENT COLOR FOR EACH SEGMENT OF A DETECTOR GROUP. SEE DETAIL.
12. SPLICING PATTERN P= SERIES/PARALLEL: SPLICE SEGMENTS 1 AND 3 OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE SEGMENTS 2 AND 4 IN SERIES. SPLICE THE RESULTANT TWO GROUPS IN PARALLEL. SPLICE THE RESULTANT COMBINATION TO ONE LEAD–IN CABLE. CONNECT THIS CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.

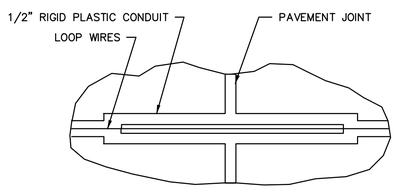
    SPLICING PATTERN S= SERIES: SPLICE ALL SEGMENTS (TYPICALLY FOUR, BUT MAY BE LESS) OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE THE RESULTANT COMBINATION TO ONE LEAD–IN CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.




SECTION C–C & D–D

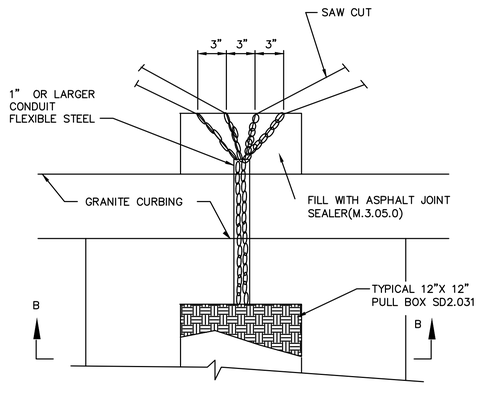
LOOPS IN SURFACE COURSE
(FOR AREAS OUTSIDE LIMITS OF PAVEMENT WORK ONLY)

NOT TO SCALE




PLAN

TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE




DETAIL – PLAN VIEW

NOT TO SCALE

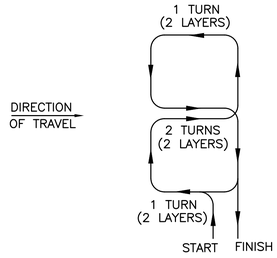
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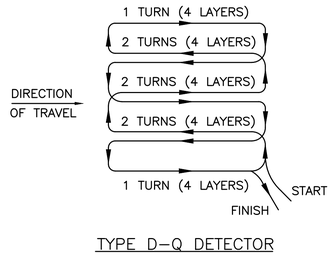
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|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 72 | 131 |
| PROJECT FILE NO. | 613358 | | |

# TRAFFIC SIGNAL DETAILS
# BICYCLE LOOP DETECTOR DETAILS

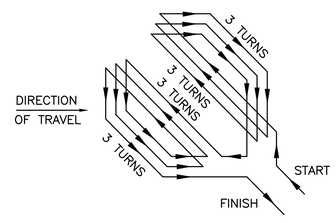
## WINDING DETAILS



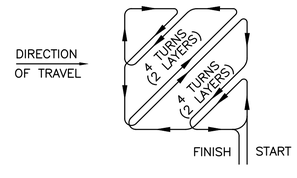

TYPE Q DETECTOR




TYPE D–Q DETECTOR

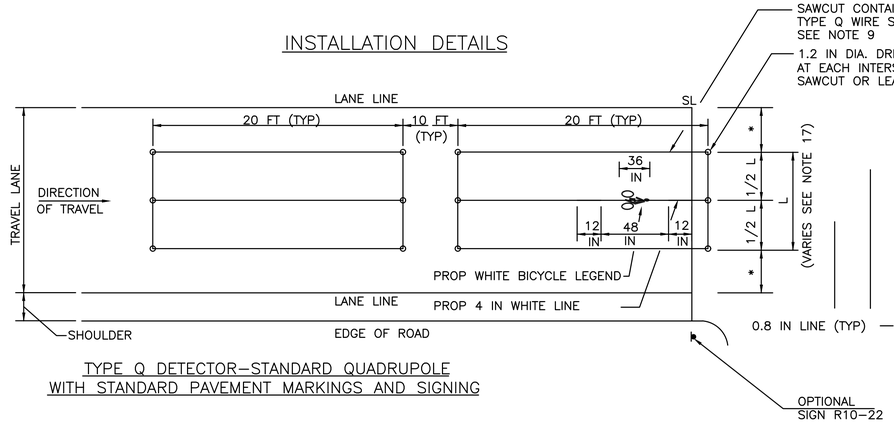



TYPE D–1 DETECTOR

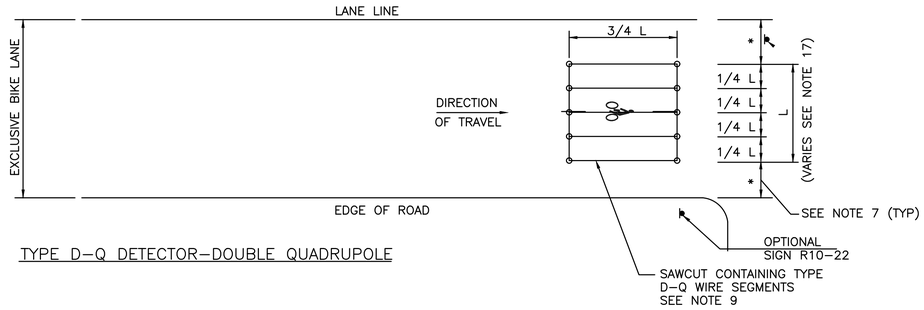



TYPE D–2 DETECTOR

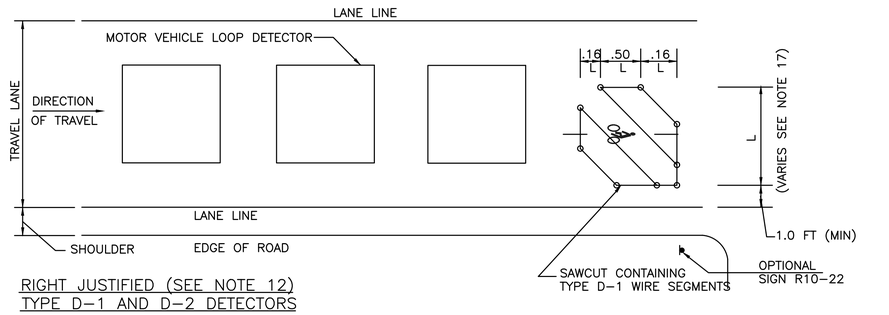
## INSTALLATION DETAILS



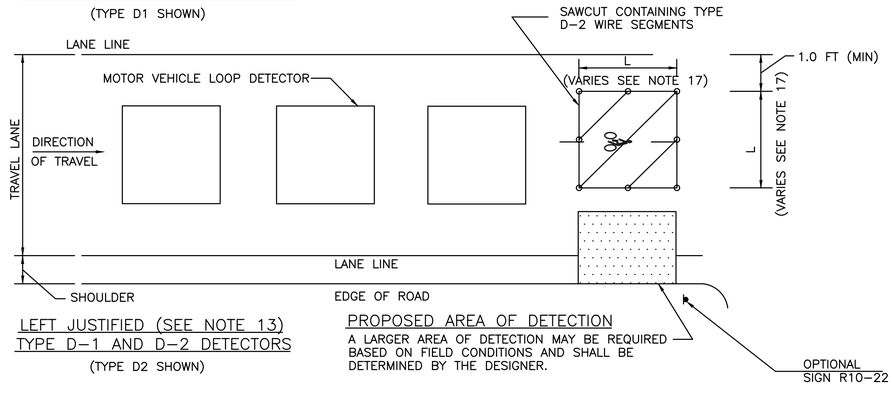

TYPE Q DETECTOR–STANDARD QUADRUPOLE
WITH STANDARD PAVEMENT MARKINGS AND SIGNING




TYPE D–Q DETECTOR–DOUBLE QUADRUPOLE



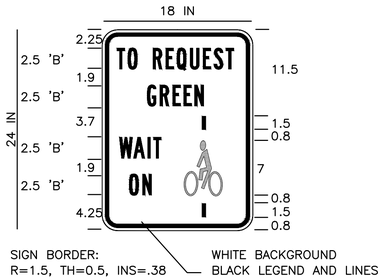

RIGHT JUSTIFIED (SEE NOTE 12)
TYPE D–1 AND D–2 DETECTORS
(TYPE D1 SHOWN)




LEFT JUSTIFIED (SEE NOTE 13)
TYPE D–1 AND D–2 DETECTORS
(TYPE D2 SHOWN)

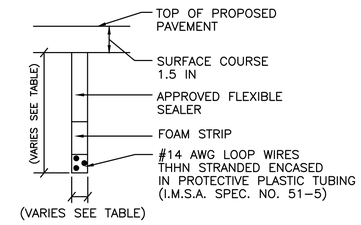
PROPOSED AREA OF DETECTION
A LARGER AREA OF DETECTION MAY BE REQUIRED BASED ON FIELD CONDITIONS AND SHALL BE DETERMINED BY THE DESIGNER.

## SIGN R10–22




NOTE: ALL SIGN DIMENSIONS IN INCHES

NOTE: SIGN PANEL NOT SHOWN TO SCALE




SECTION THRU LOOP DETECTOR

| SAWCUT SLOT DEPTH GUIDE | | |
|---|---|---|
| TURNS OF WIRE | SLOT SIZE | |
| | DEPTH (IN) | WIDTH (IN) |
| 1 | 1.5 | 0.5 |
| 2 | 1.5 | 0.5 |
| 3 | 1.5 | 0.5 |
| 4 | 2.0 | 0.5 |
| 5 | 2.0 | 0.5 |
| 6 | 2.0 | 0.5 |
| 7 | 2.0 | 0.5 |
| 8 | 2.0 | 0.5 |

NOTES:

1. REFER TO VEHICLE LOOP DETECTOR DETAIL SHEET FOR ADDITIONAL NOTES AND CONSTRUCTION DETAILS.
2. ALL DETAILS ARE GRAPHICAL WITH NO SCALE.
3. THE NUMBER, SIZE, LOCATION AND LENGTH OF DETECTION AREA VARIES AND SHALL BE DETERMINED BY THE DESIGNER REFER TO TRAFFIC SIGNAL PLAN.
4. BICYCLE LOOPS SHALL BE CONNECTED TO SEPARATE LOOP DETECTOR AMPLIFIERS CAPABLE OF HIGHER LEVELS OF SENSITIVITY.
5. BICYCLE LOOPS SHALL BE INSTALLED IN THE BASE COURSE OF EXISTING PAVEMENT. THE EXISTING PAVEMENT SHALL BE COLD PLANED TO THE BASE COURSE AND SAWCUT FOR LOOP INSTALLATION.
6. SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED FOR ALL BICYCLE DETECTORS TO INFORM CYCLISTS OF THE DETECTION AREA.
7. * OFFSETS FROM LANE LINE EQUAL UNLESS OTHERWISE NOTED. SEE PLANS.
8. TYPE Q DETECTORS SHALL BE WIRED IN A FIGURE EIGHT PATTERN WITH A DOUBLE LAYER DESIGN ("2–4–2") WITH 2 TURNS IN THE PERIMETER SLOTS AND 4 TURNS IN THE CENTER SLOT AS SHOWN IN THE WINDING DETAIL.
9. BICYCLES WILL BE DETECTED WITHIN 4 IN. OF THE INTERIOR LONGITUDINAL LOOP WIRES FOR TYPE Q AND D–Q DETECTORS.
10. PROVIDE 3 TURNS FOR TYPE D–1 DETECTORS.
11. INSTALL 2 LAYERS OF WIRE WOUND IN THE SAME DIRECTION IN BOTH LAYERS FOR TYPE D–2 DETECTORS. THE RESULT IS 4 TURNS IN EACH DIAGONAL.
12. RIGHT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE RIGHT SIDE OF A THRU TRAVEL LANE.
    b) BICYCLE STOPPING ON THE RIGHT SIDE OF AN EXCLUSIVE LEFT TURN LANE.
13. LEFT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE LEFT SIDE OF A SHARED LEFT/THRU LANE.
    b) BICYCLE STOPPING JUST TO THE RIGHT OF THE CENTERLINE WHEN TURNING LEFT ON A TWO–LANE ROADWAY.
14. RECTANGULAR LOOP DETECTORS SHALL BE CONSIDERED FOR BICYCLES STOPPING ON EITHER THE LEFT OR RIGHT SIDE OF A TWO–LANE ROADWAY. THE MINIMUM OFFSET FROM LANE LINE OR CURB LINE SHALL BE 1.0 FT.
15. PAVEMENT CORES OR TEST PITS MAY BE REQUIRED TO DETERMINE THE DEPTH OF EXISTING PAVEMENT AND CONFIRM THAT THE DETECTION OPTION CHOSEN AND CORRESPONDING WINDING PATTERN CAN BE ACCOMMODATED.
16. THESE DETAILS APPLY TO BICYCLE LOOPS INSTALLED IN ROADWAYS. PUSH BUTTON ACTUATION SHALL BE CONSIDERED FOR RECREATIONAL BIKE PATHS.
17. THE MINIMUM DIMENSION FOR L SHALL BE 6 FT MIN. FOR DETECTORS TYPE D–Q, D–1 & D–2. FINAL DIMENSIONS SHALL BE DETERMINED BY THE DESIGN ENGINEER.

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 73 | 131 |
| PROJECT FILE NO. | 613358 | | |

**TEMPORARY TRAFFIC CONTROL PLANS**

## TRAFFIC MANAGEMENT NOTES:

1. ALL TRAFFIC MANAGEMENT AND WORK ZONE TRAFFIC CONTROL MEASURES SHALL CONFORM TO THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) CURRENT EDITION WITH MASSACHUSETTS AMMENDMENTS, THE STANDARD SPECIFICATIONS, THE PROJECT SPECIAL PROVISIONS, AND THE FOLLOWING NOTES.
2. THE TRAFFIC MANAGEMENT PLANS CONTAINED HEREIN ARE GIVEN AS A GUIDE FOR TYPICAL WORK ZONE TRAFFIC CONTROL APPLICATIONS FOR THE TYPES OF WORK ANTICIPATED FOR THIS PROJECT. THEY ARE NOT INTENDED TO COVER ALL POSSIBLE CONSTRUCTION OPERATIONS WHICH THE CONTRACTOR MAY CHOOSE TO EMPLOY. WORK ZONE TRAFFIC CONTROL FOR OTHER CONSTRUCTION OPERATIONS OR OTHER TRAFFIC SITUATIONS IF APPLICABLE SHALL BE IN ACCORDANCE WITH THE MUTCD AND AS APPROVED OR DIRECTED BY THE ENGINEER.
3. NO CONSTRUCTION VEHICLES SHALL BE PARKED WITHIN THE TRAVEL WAY WITHOUT PROPER PROTECTION AND APPROVAL OF THE ENGINEER.
4. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
5. ALL WARNING SIGNS SHALL BE BLACK LEGEND ON A REFLECTIVE ORANGE BACKGROUND AND IN ACCORDANCE WITH THE MUTCD. ALL REGULATORY SIGNS SHALL BE BLACK LEGEND ON A WHITE REFLECTIVE BACKGROUND. ALL CONSTRUCTION SIGNS SHALL BE ATTACHED TO THEIR OWN INDEPENDENT SUPPORTS UNLESS SHOWN OTHERWISE.
6. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO AVOID PLACING TEMPORARY TRAFFIC CONTROL DEVICES ON PRIVATE PROPERTY. IF SUCH PLACEMENT ON PRIVATE PROPERTY IS UNAVOIDABLE, IT SHALL BE DONE WITH THE EXPLICIT APPROVAL OF THE PROPERTY OWNER AND THE ENGINEER.
7. ABUTTER ACCESS SHALL NOT BE CLOSED EXCEPT FOR SHORT PERIODS AND ONLY WITH THE APPROVAL OF THE ENGINEER. THE CONTRACTOR 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.
8. THE CONTRACTOR SHALL PROVIDE IMMEDIATE ACCESS TO EMERGENCY VEHICLES AT ALL TIMES.
9. GRADE DIFFERENCES IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF DRUMS.
10. GRADE DIFFERENCES IN EXCESS OF 4" DURING NON-WORKING HOURS SHALL BE PROTECTED BY BACKFILLING WITH A TRANSITION OF GRAVEL OR OTHER MATERIAL TO BE COMPACTED AT A 4:1 SLOPE, AND DELINEATED BY DRUMS.
11. CONSTRUCTION SIGNS NOT APPLICABLE TO VARIOUS STAGES OF CONSTRUCTION SHALL BE REMOVED OR COVERED.
12. USE MA-W20-7b SIGNS ONLY WHEN POLICE OFFICER IS DIRECTING TRAFFIC. THEY SHALL BE TAKEN DOWN OR COVERED AT THE CLOSE OF EACH OPERATION.
13. MAINTAIN PEDESTRIAN ACCESS THROUGH THE WORK AREA AT ALL TIMES. THE POLICE DETAIL SHALL PROVIDE CONTROL TO CROSS PEDESTRIANS ON ROADWAY TO SIDEWALK. PROVIDE TEMPORARY CROSSWALKS AND RAMPS AS NEEDED AND AS DIRECTED BY THE ENGINEER.
14. ALL CONSTRUCTION SIGNING AND OTHER TRAFFIC MAINTENANCE DEVICES SHALL CONFORM WITH THE 2009 MUTCD AS AMENDED, MASH, AND MASSDOT STANDARDS.
15. ADVANCE WARNING SIGNS NO LONGER APPLICABLE, WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS, SHALL EITHER BE COVERED OR REMOVED AS SOON AS POSSIBLE. NO SIGN SHALL BE VISIBLE TO TRAFFIC THAT MAY CONFLICT WITH ACTUAL ROADWAY CONDITIONS.
16. ALL DISTANCES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.HOWEVER, MINIMUM DISTANCES, WHERE INDICATED, SHOULD BE MAINTAINED.
17. THE CONTRACTOR SHALL USE TEMPORARY PATCHING OR BEVELED STEEL PLATES TO COVER PIPE TRENCHES AND OTHER EXCAVATED HOLES NOT COMPLETED BY THE END OF EACH WORK DAY.
18. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
19. MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH WILL BE MEASURED FROM THE EDGE OF DRUMS OR CONES OR MEDIAN BARRIER.
20. ORANGE CONSTRUCTION FLAGS MAY BE USED ON ADVANCE WARNING SIGNS AS DIRECTED BY THE ENGINEER. FLAGS SHALL BE A MINIMUM OF 16" X 16".
21. MAINTAIN EXISTING PAVEMENT MARKINGS WHERE APPLICABLE. WHEN LANES SHIFT, IF NECESSARY, EXISTING MARKINGS SHALL BE REMOVED AND TEMPORARY PAVEMENT MARKING SHALL BE PROVIDED.
22. AT THE END OF EACH WORK DAY, NO TRAFFIC CONTROL DEVICES SHALL REMAIN IN THE ROADWAY AND ALL LANES SHALL BE OPEN FOR TRAFFIC FLOW.
23. THE CONTRACTOR MAY PROPOSE TO USE A DIFFERENT SEQUENCE OF WORK AREAS THAN WHAT IS BEING PROPOSED IN THESE DOCUMENTS. THE CONTRACTOR SHALL SUBMIT PHASING AND TRAFFIC MANAGEMENT PLANS FOR APPROVAL BY THE ENGINEER.
24. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
25. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH. (20' SPACING TYPICAL ON TAPER, 25' SPACING TYPICAL ON TANGENTS.)
26. CHANNELIZATION WILL BE ACCOMPLISHED THROUGH THE USE OF REFLECTORIZED PLASTIC DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS.
27. THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING WARNING LIGHTS.
28. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
29. POLICE DETAIL SHALL BE USED WHILE SETTING UP THE TEMPORARY TRAFFIC CONTROL DEVICES ON THE ROADWAY.
30. EACH WORK ZONE SHALL HAVE MA-R2-10a, MA-R2-10e, AND W-20 SERIES SIGNS WHERE APPLICABLE.
31. POLICE DETAILS SHALL BE EMPLOYED AND SHALL BE SUBSTITUTED WITH CERTIFIED ROADWAY FLAGGERS AS DIRECTED BY THE ENGINEER AND PER SECTION 850 "TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS" IN THE MASSDOT SUPPLEMENTAL SPECIFICATIONS DATED JUNE 12, 2012.
32. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
33. ALL DRIVEWAYS AND STREETS SHALL REMAIN OPEN AT ALL TIMES EXCEPT FOR SHORT PERIODS AS APPROVED BY THE ENGINEER.
34. SEE SHEETS 84 AND 85 FOR ADDITIONAL TYPICAL TEMPORARY TRAFFIC CONTROL PLAN DETAILS.
35. THE CONTRACTOR IS REQUIRED TO COORDINATE CONSTRUCTION ACTIVITIES WITH THE PLANNED DETOUR FOR THE NEARBY BRIDGE REPLACEMENT PROJECT IN RANDOLPH, ROUTE 24 OVER CANTON STREET (MASSDOT PROJECT NUMBER 612188). THIS PROJECT'S PLANNED DETOUR ROUTE UTILIZES WASHINGTON STREET (ROUTE 138) FROM THE CANTON TOWN LINE TO CENTRAL STREET AND CENTRAL STREET, EAST OF ROUTE 138. THE PROPOSED BRIDGE REPLACEMENT PROJECT HAS TWO SEPARATE DETOURS SCHEDULED FOR THE SPRING OF 2024, WHICH WILL BE FROM FRIDAY THROUGH MONDAY. THE CONTRACTOR FOR THIS PROJECT SHALL COORDINATE WITH THE OTHER PROJECT THE EXACT DATES OF THE PLANNED DETOURS. NO WORK SHALL TAKE PLACE AS PART OF THIS PROJECT ALONG THE PROPOSED DETOUR ROUTE. WORK MAY OCCUR DURING THE DETOUR ALONG ROUTE 138, SOUTH OF CENTRAL STREET, NOT IMPACTING THE DETOUR OPERATIONS.

### SUGGESTED WORK ZONE WARNING SIGN SPACING

| ROAD TYPE | DISTANCE BETWEEN SIGNS ** | | |
|---|---|---|---|
| | A | B | C |
| LOCAL OR LOW VOLUME ROADWAYS* | 350 (100) | 350 (100) | 350 (100) |
| MOST OTHER ROADWAYS* | 500 (150) | 500 (150) | 500 (150) |
| FREEWAYS AND EXPRESSWAYS* | 1,000 (300) | 1,500 (450) | 2,640 (800) |

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

** DISTANCES ARE SHOWN IN FEET (METERS). 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.

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

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

Based on: Table 6C-1 MUTCD LATEST EDITION

### STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

| SPEED* (mph) | DISTANCE (ft) |
|---|---|
| 20 | 115 |
| 25 | 155 |
| 30 | 200 |
| 35 | 250 |
| 40 | 305 |
| 45 | 360 |
| 50 | 425 |
| 55 | 495 |
| 60 | 570 |
| 65 | 645 |
| 70 | 730 |
| 75 | 820 |

*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION

CONVENTIONAL ROADWAY- A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY- A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY- A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD- A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: 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 (METERS)

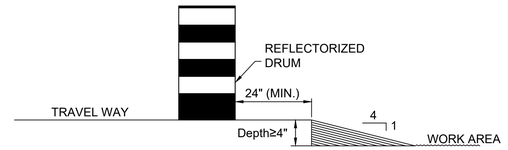
W = WIDTH OF OFFSET IN FEET (METERS)

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICAPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 MUTCD LATEST EDITION

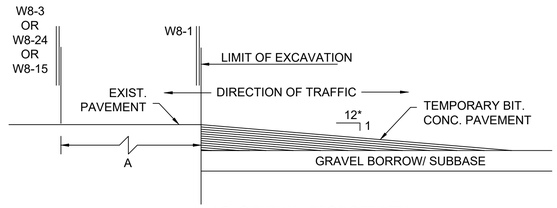
## LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- P/F POLICE/FLAGGER DETAIL
- TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ARROW BOARD
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN



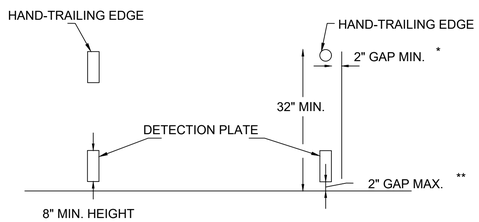

## LATERAL DROP-OFF DETAIL

**NOT TO SCALE**




LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE

* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS




CROSS SECTION VIEW

## PEDESTRIAN CHANNELIZING DEVICE

NOTES:

*THERE SHALL BE A 2 INCH GAP BETWEEN THE HAND-TRAILING EDGE AND ITS SUPPORT.

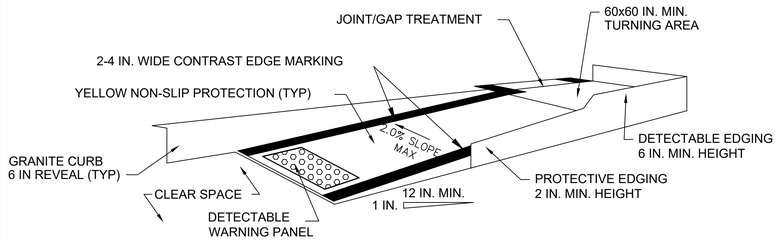
**A MAXIMUM 2 INCH GAP BETWEEN THE BOTTOM OF THE BOTTOM RAIL AND THE SURFACE MAY BE USED TO PROVIDE DRAINAGE.

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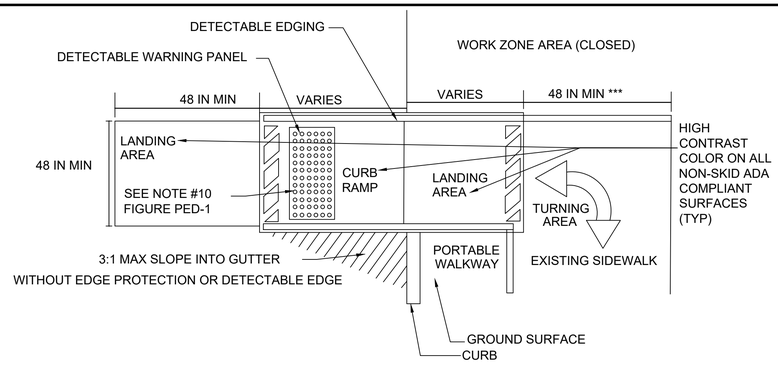
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

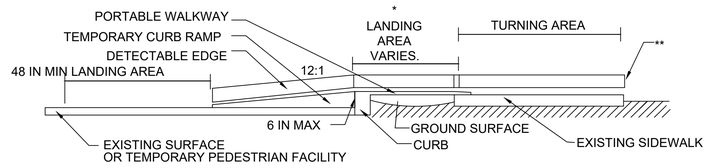
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 74 | 131 |
| PROJECT FILE NO. | 613358 | | |

**TEMPORARY TRAFFIC CONTROL PLANS**




## TEMPORARY CURB RAMP-PARALLEL TO CURB



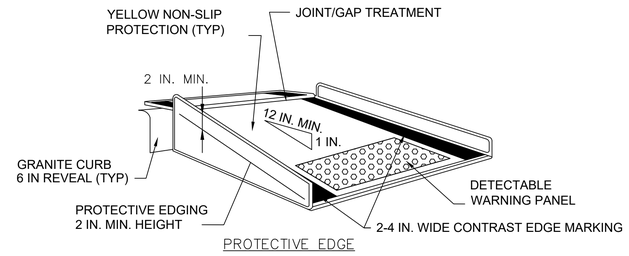




TEMPORARY CURB RAMP

* -LANDING AREA USED TO OVERLAP NON-ADA COMPLIANT SURFACES.

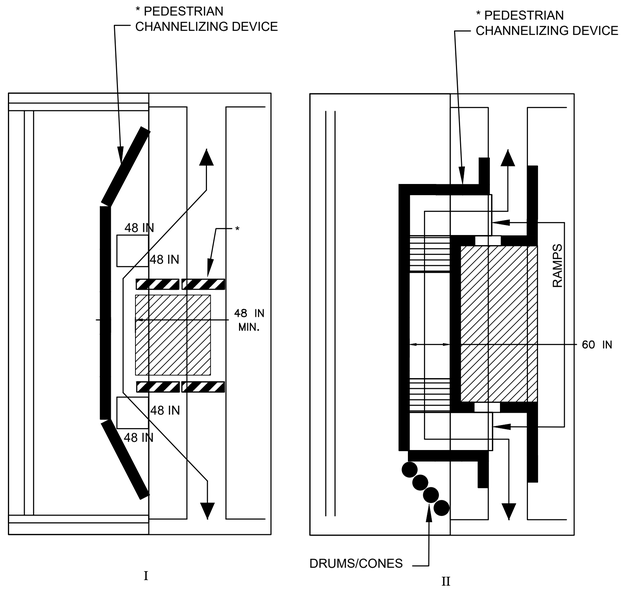
** -DETECTABLE EDGE REMOVED IF A CONTINUOUS SIDEWALK.

*** -60 IN. IF AN OBSTRUCTION IS AT BACK OF SIDEWALK

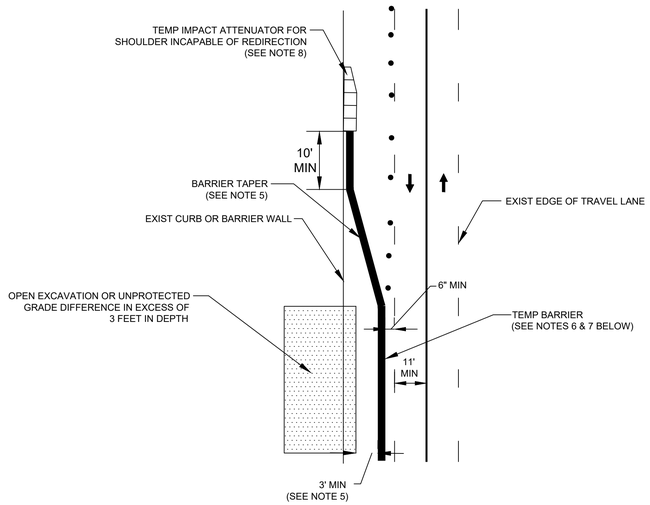



PROTECTIVE EDGE

## TEMPORARY CURB RAMP-PERPENDICULAR TO CURB




## TEMPORARY PEDESTRIAN DELINEATION DETAILS




## BARRIER ADJACENT TO LIVE TRAVEL LANE DETAIL

NOT TO SCALE

NOTES:

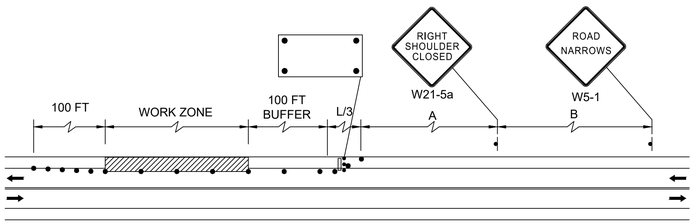
1. ANY EXCAVATION GREATER THAN 3' DEEP ADJACENT TO TRAFFIC SHALL BE PROTECTED BY TEMPORARY BARRIER.
2. ALL BLUNT ENDS OF BARRIER SHALL BE PROTECTED AT ALL TIMES IN ACCORDANCE WITH THE LATEST EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE.
3. TEMPORARY IMPACT ATTENUATORS SHALL BE DESIGNED FOR TEST LEVEL 2 (TL-2) ON ROADWAYS HAVING A POSTED SPEED LESS THAN OR EQUAL TO 40 MPH.
4. BARRIER TAPER RATES SHALL BE:
   5:1 IF POSTED SPEED IS LESS THAN 40 MPH
   13:1 IF POSTED SPEED IS GREATER THAN OR EQUAL TO 40 MPH
5. CLEAR SLIDE SPACE FOR BARRIER SHALL BE FREE FROM OBSTRUCTIONS AT ALL TIMES. 3 FEET CLEAR SHALL BE PROVIDED FOR SPEEDS LESS THAN OR EQUAL TO 45 MPH.
6. IF MINIMUM CLEAR SLIDE SPACE CANNOT BE PROVIDED TEMP BARRIER SHALL BE ANCHORED OR RESTRAINED BY A MASSDOT APPROVED METHOD.
7. TEMP IMPACT ATTENUATOR SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. TEMP IMPACT ATTENUATORS SHALL BE SIZED TO FIT IN THE ALLOWABLE SHOULDER.

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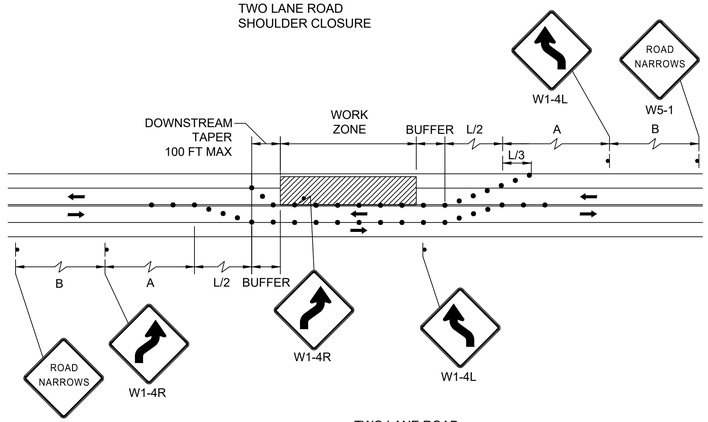
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 75 | 131 |
| PROJECT FILE NO. | 613358 | | |

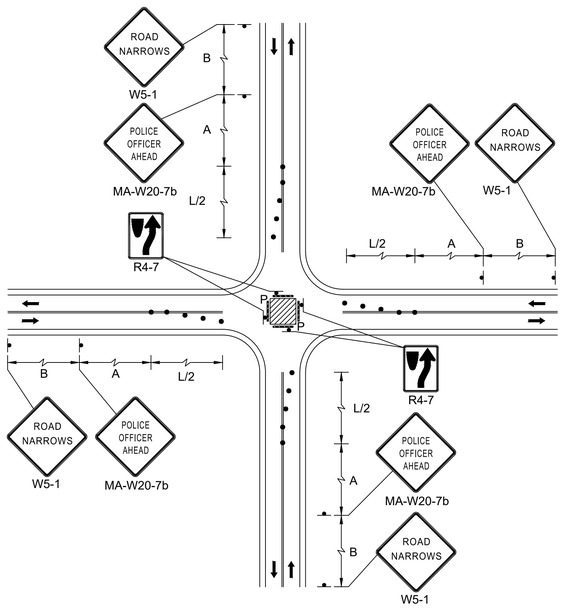
# TEMPORARY TRAFFIC CONTROL PLANS



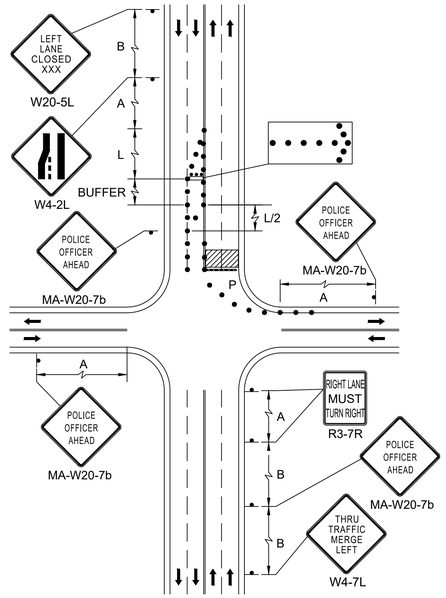

TWO LANE ROAD
SHOULDER CLOSURE



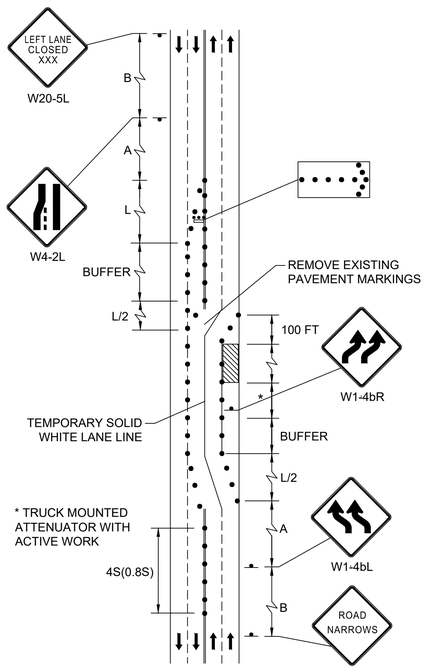

TWO LANE ROAD
SHOULDER AND LANE CLOSURE



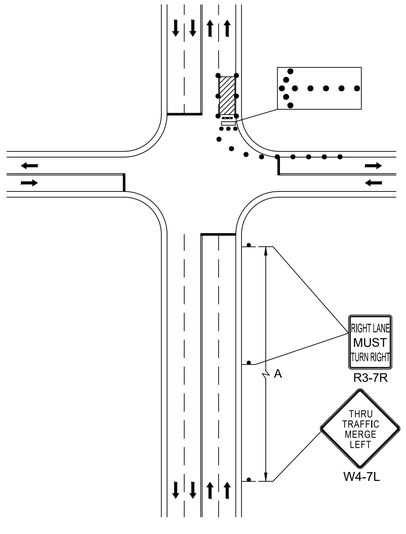

SINGLE LANE APPROACH INTERSECTION
CENTER CLOSURE



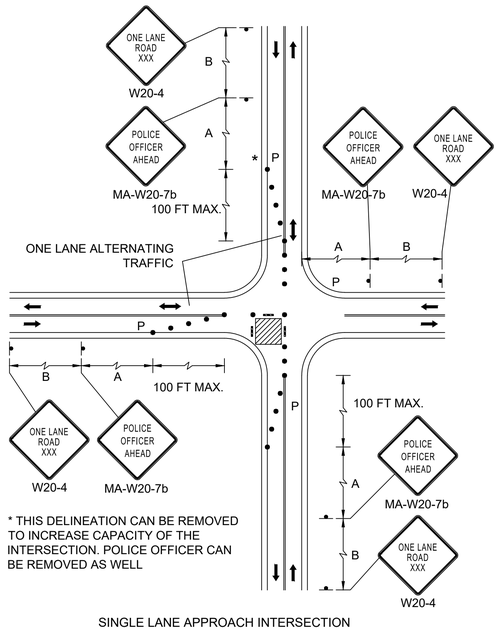

**DOUBLE LANE APPROACH**
**HALF ROAD CLOSURE**




**MULTIPLE LANE ROAD**
**INTERIOR LANE CLOSURE W/ UNEVEN VOLUMES**

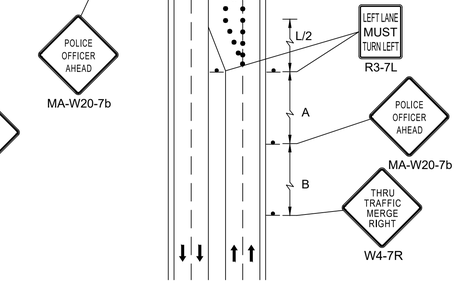



**DOUBLE LANE APPROACH FAR**
**SIDE CLOSURE RIGHT LANE**




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

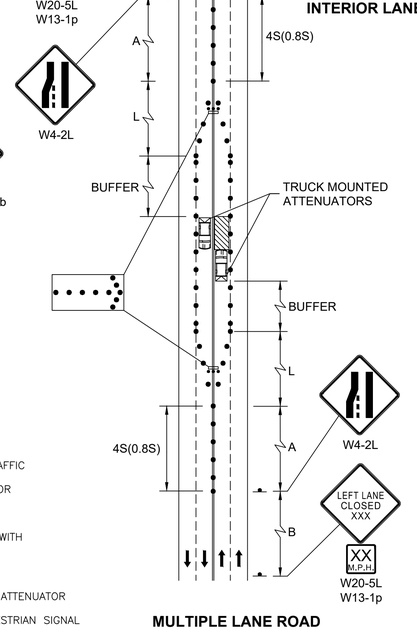
SINGLE LANE APPROACH INTERSECTION
ONE CORNER CLOSURE




**DOUBLE LANE APPROACH FAR**
**SIDE CLOSURE INSIDE LANE**

## LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- P/F POLICE/FLAGGER DETAIL
- TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ARROW BOARD
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN




**MULTIPLE LANE ROAD**
**INTERIOR LANE CLOSURE**

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# CONSTRUCTION SIGN SUMMARY

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 76 | 131 |
| PROJECT FILE NO. | 613358 | | |

**TEMPORARY TRAFFIC CONTROL PLANS**

| IDENTIFICATION NUMBER | SIZE OF SIGN WIDTH | SIZE OF SIGN HEIGHT | SIGN DIAGRAM | COLOR BACKGROUND | COLOR LEGEND | COLOR BORDER | # REQ'D * | UNIT AREA S.F. | AREA IN SQUARE FEET |
|---|---|---|---|---|---|---|---|---|---|
| W1-4L | 36" | 36" | | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| W1-4R | 36" | 36" | | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| W4-2L | 36" | 36" | | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| MA-W4-7L | 36" | 36" | THRU TRAFFIC MERGE LEFT | FLUORESCENT ORANGE | BLACK | BLACK | 1 | 9.00 | 9.00 |
| W5-1 | 36" | 36" | ROAD NARROWS | FLUORESCENT ORANGE | BLACK | BLACK | 4 | 9.00 | 36.00 |
| W8-1 | 36" | 36" | BUMP | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| W8-3 | 36" | 36" | PAVEMENT ENDS | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| W8-15 | 36" | 36" | GROOVED PAVEMENT | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| W8-24 | 36" | 36" | STEEL PLATE AHEAD | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| W13-1p | 24" | 24" | XX M.P.H. | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 4.00 | 8.00 |
| W20-1 | 36" | 36" | ROAD WORK AHEAD | FLUORESCENT ORANGE | BLACK | BLACK | 19 | 9.00 | 63.00 |
| W20-4 | 36" | 36" | ONE LANE ROAD 500 FT | FLUORESCENT ORANGE | BLACK | BLACK | 4 | 9.00 | 36.00 |
| W20-5L | 36" | 36" | LEFT LANE CLOSED XX FT | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| MA-W20-7b | 36" | 36" | POLICE OFFICER AHEAD | FLUORESCENT ORANGE | BLACK | BLACK | 4 | 9.00 | 36.00 |
| W21-5a | 36" | 36" | RIGHT SHOULDER CLOSED | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| MA-R2-10a | 48" | 36" | WORK ZONE / SPEEDING FINES DOUBLED | FLUORESCENT ORANGE / WHITE | BLACK / BLACK | BLACK / BLACK | 6 | 12.00 | 60.00 |
| MA-R2-10e | 36" | 48" | END ROAD WORK / DOUBLE FINES END | FLUORESCENT ORANGE / WHITE | BLACK / BLACK | BLACK / BLACK | 18 | 12.00 | 216.00 |
| R3-7L | 30" | 30" | LEFT LANE MUST TURN LEFT | WHITE | BLACK | BLACK | 2 | 6.25 | 12.50 |
| R3-7R | 30" | 30" | RIGHT LANE MUST TURN RIGHT | WHITE | BLACK | BLACK | 2 | 6.25 | 12.50 |
| R4-7 | 24" | 30" | | WHITE | BLACK | BLACK | 2 | 5.00 | 10.00 |
| R9-9 | 24" | 12" | SIDEWALK CLOSED | FLUORESCENT ORANGE | BLACK | BLACK | 4 | 2.00 | 8.00 |
| R9-11aR | 24" | 12" | SIDEWALK CLOSED CROSS HERE | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 2.00 | 4.00 |
| R9-11aL | 24" | 12" | SIDEWALK CLOSED CROSS HERE | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 2.00 | 4.00 |
| W11-2 | 36" | 36" | | FLUORESCENT YELLOW GREEN | BLACK | BLACK | 4 | 9.00 | 36.00 |
| W16-7p | 24" | 12" | | FLUORESCENT YELLOW GREEN | BLACK | BLACK | 4 | 2.00 | 8.00 |
| W1-4bL | 36" | 36" | | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |
| W1-4R | 36" | 36" | | FLUORESCENT ORANGE | BLACK | BLACK | 2 | 9.00 | 18.00 |

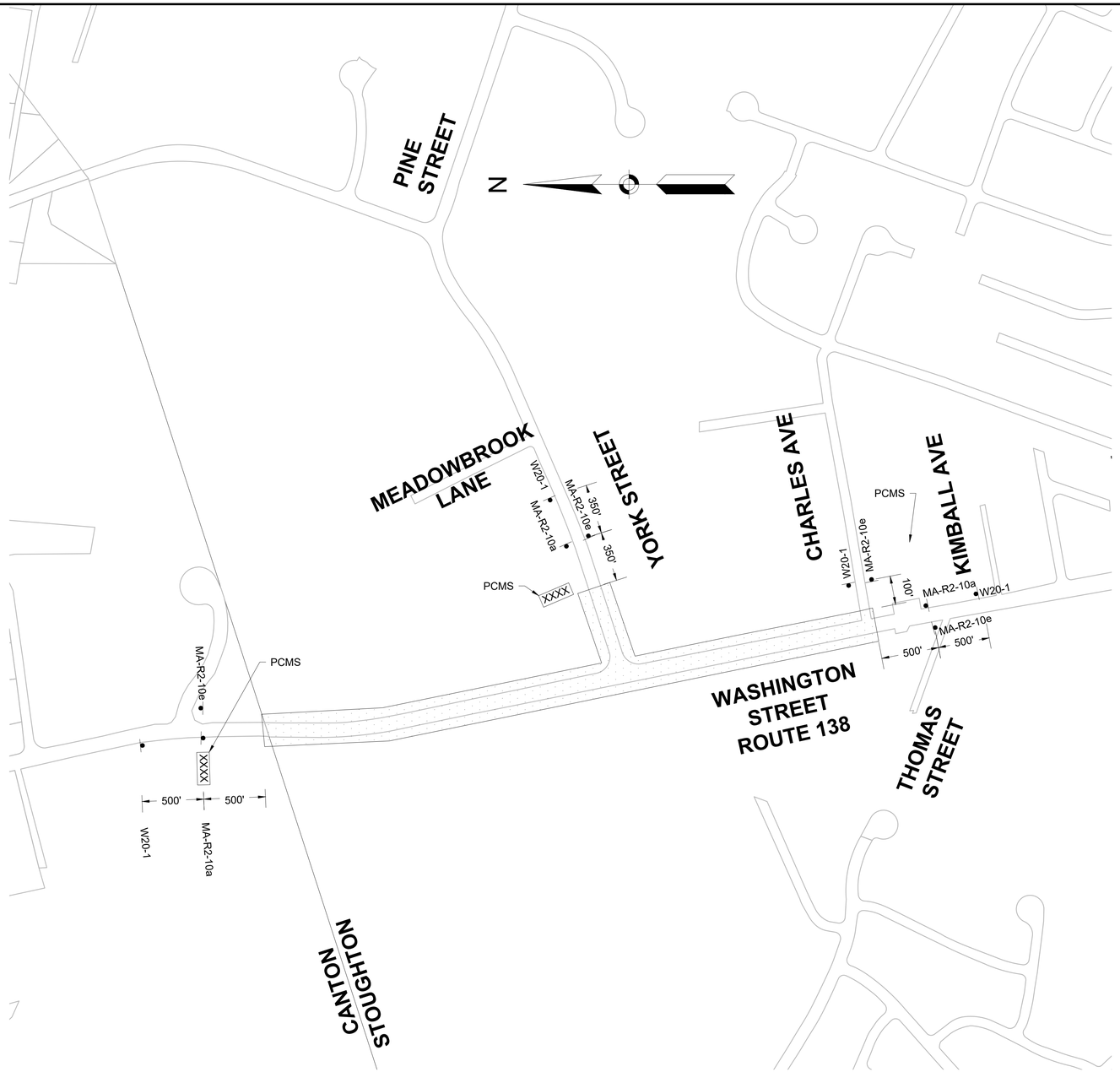
* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 77 | 131 |
| PROJECT FILE NO. | 613358 | | |

**TEMPORARY TRAFFIC CONTROL PLANS**




## ADVANCE SIGN PLAN

NTS

NOTES:

1. PCMS SHALL BE INSTALLED AT LEAST 2 WEEKS PRIOR TO THE START OF WORK. WITH THE WORD MESSAGE "CONSTRUCTION TO BEGIN MM-DD THROUGH MM-DD SEEK ALT ROUTE"
2. THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF THE PCMS WITH THE RESIDENT ENGINEER AND THE TOWN OF STOUGHTON.
3. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO CONTINUALLY UPDATE THE PCMS BASED UPON ON-GOING WORK. ABBREVIATIONS SHALL BE IN ACCORDANCE WITH THE MUTCD.

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613358_HD(TTCP).DWG Plotted on 29-Jan-2025 11:51 AM

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613358_HD(PHASING).DWG Plotted on 29-Jan-2025 11:56 AM

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 78 | 131 |
| PROJECT FILE NO. | 613358 | | |

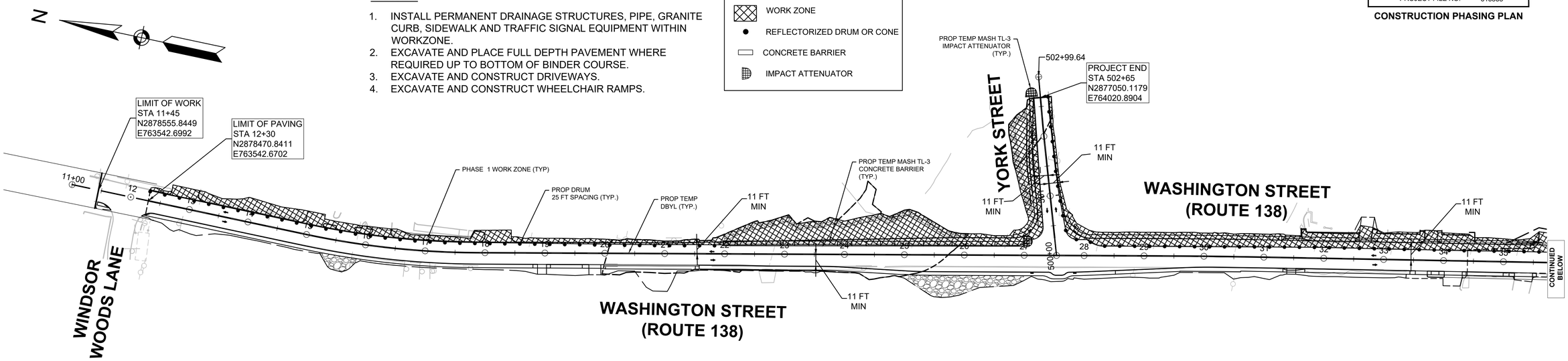
**CONSTRUCTION PHASING PLAN**

PHASE 1

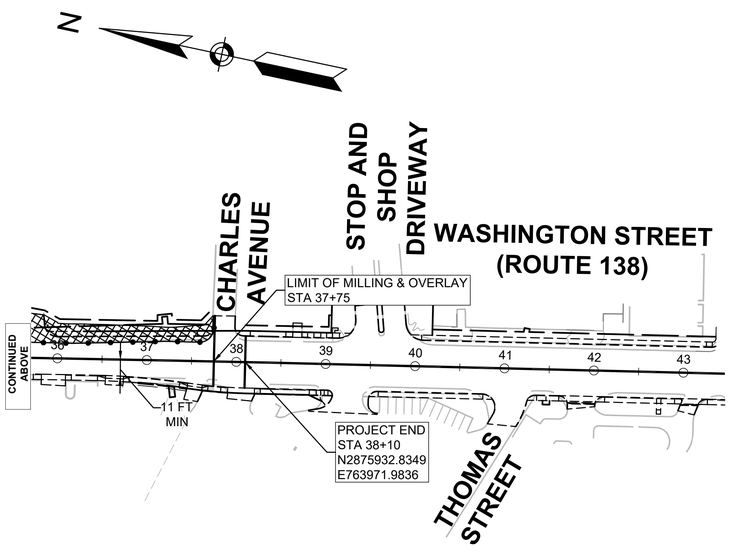
1. INSTALL PERMANENT DRAINAGE STRUCTURES, PIPE, GRANITE CURB, SIDEWALK AND TRAFFIC SIGNAL EQUIPMENT WITHIN WORKZONE.
2. EXCAVATE AND PLACE FULL DEPTH PAVEMENT WHERE REQUIRED UP TO BOTTOM OF BINDER COURSE.
3. EXCAVATE AND CONSTRUCT DRIVEWAYS.
4. EXCAVATE AND CONSTRUCT WHEELCHAIR RAMPS.

KEY:

- DIRECTION OF TRAVEL
- WORK ZONE
- REFLECTORIZED DRUM OR CONE
- CONCRETE BARRIER
- IMPACT ATTENUATOR




0 80 200 300
SCALE: 1" = 80'




0 80 200 300
SCALE: 1" = 80'

1. THESE PHASING PLANS ARE SUGGESTED ONLY AND REFLECT TYPICAL WORK ZONE TRAFFIC MANAGEMENT. THEY ARE NOT INTENDED TO COVER ALL CONSTRUCTION OPERATIONS WHICH THE CONTRACTOR MAY CHOOSE TO EMPLOY. TYPICAL TRAFFIC MANAGEMENT PLANS TO ACHIEVE COMMON CLOSURES CAN BE FOUND ON PRIOR PLANS. WORK ZONE TRAFFIC CONTROL PLANS SHALL BE IN ACCORDANCE WITH THE LATEST MUTCD OR AS APPROVED BY MASSDOT.
2. PHASING PLANS SHOW A GENERALIZED CONCEPT FOR PROJECT EXECUTION. ACTIVITIES ARE NOT NECESSARILY INTENDED TO BE PERFORMED SEQUENTIALLY. VARIOUS PHASES AND ACTIVITIES MAY OVERLAP TO THE EXTENT THAT THE LIMITATIONS OF OPERATIONS AND MAINTENANCE OF TRAFFIC ARE OBSERVED.
3. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION EFFORT WITH OTHER PROJECTS IN THE VICINITY IN ORDER TO MINIMIZE POTENTIAL TRAFFIC IMPACTS.
4. PROVIDE SUB-PHASES TO ALLOW ACCESS TO LOCAL BUSINESSES & TO MAINTAIN TRAFFIC FLOW. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY ADA COMPLIANT PEDESTRIAN ACCESS WHERE EXISTING ACCESS IS DISTURBED, AND MAINTAINING TWO-WAY ABUTTER ACCESS AT ALL TIMES EXCEPT FOR SHORT PERIODS APPROVED BY MASSDOT.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ACTIVE FIRE HYDRANTS AND OTHER EMERGENCY FACILITIES WITHIN THE PROJECT LIMITS AT ALL TIMES.
6. EXCAVATION FOR CONSTRUCTION ON BOTH SIDES OF THE PAVEMENT AT ANY ONE LOCATION AT THE SAME TIME WILL BE SUBJECT TO THE APPROVAL OF THE RESIDENT ENGINEER.
7. THE CONTRACTOR SHALL SECURE WORK AREAS ACCORDING TO CURRENT STANDARDS TO ENSURE PUBLIC SAFETY AND CONVENIENCE. THIS SHALL INCLUDE ENSURING THAT ALL EXCAVATIONS ARE PROTECTED AT ALL TIMES AND AT THE END OF EACH WORK DAY.
8. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES TO COORDINATE WORK SCHEDULES.
9. THE CONTRACTOR SHALL INSTALL REQUIRED SIGNING, TEMPORARY TRAFFIC CONTROLS, AND TEMPORARY PAVEMENT MARKINGS PRIOR TO START OF WORK.
10. THE SIGNALIZED INTERSECTION WITHIN THE LIMIT OF WORK IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. EXISTING TRAFFIC SIGNALS SHALL BE MAINTAINED UNTIL PROPOSED EQUIPMENT IS INSTALLED AND OPERATIONAL. EXISTING TRAFFIC SIGNAL EQUIPMENT MAY NEED TO BE SUPPORTED OR RELOCATED TO TEMPORARY SUPPORTS. NO ADDITIONAL PAYMENT WILL BE MADE FOR TEMP SUPPORT OR RELOCATION OF EXISTING TRAFFIC SIGNAL EQUIPMENT BUT ALL COSTS SHALL BE INCLUDED IN THE VARIOUS TRAFFIC SIGNAL ITEMS FOR THIS PROJECT.
11. GENERALLY WORK ON THIS PROJECT IS TO BE EXECUTED IN 1 SHIFT PER DAY PER LOCATION, 5 DAYS A WEEK BETWEEN THE HOURS OF 7:00 AM AND 3:30 PM. WORK WITHIN THE ROADWAY THAT WILL UNDULY DISRUPT TRAVEL ON THE EXISTING ROADWAYS (LANE CLOSURES, TRENCHING, ETC) MAY ONLY BE EXECUTED BETWEEN 9:00 AM AND 2:30 PM. THE CONTRACTOR WILL BE REQUIRED TO SCHEDULE ROADWAY ACCESS WITH DISTRICT 5 OPERATIONS.
12. AT THE END OF EACH WORK DAY, ALL LANES SHALL BE OPEN, NO TRAFFIC CONTROL DEVICES SHALL REMAIN IN THE ROADWAY, WHICH INHIBIT TWO WAY TRAFFIC FLOW.
13. ALL INSTANCES OF ONE-WAY ALTERNATING TRAFFIC WILL ONLY OCCUR FOR SHORT TERM TEMPORARY OPERATIONS DURING NON PEAK, NORMAL CONSTRUCTION WORK HOURS.
14. SEE TEMPORARY TRAFFIC CONTROL PLANS, SHEETS 73-77, FOR SPECIFIC SETUPS OF TEMPORARY TRAFFIC CONTROL DEVICES.

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 79 | 131 |
| | PROJECT FILE NO. 613358 | | |

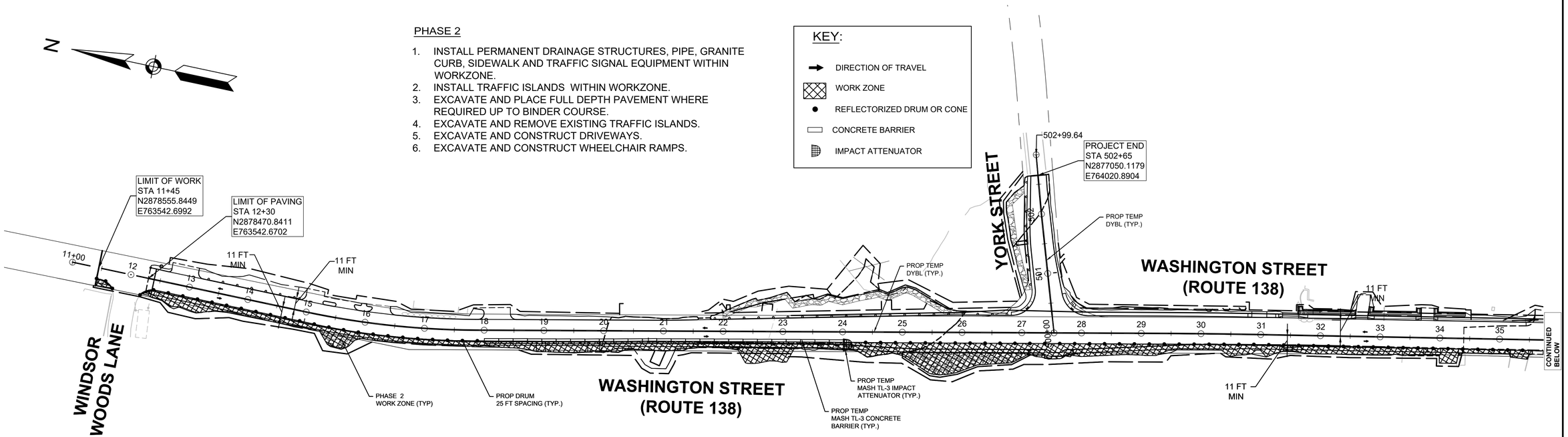
**CONSTRUCTION PHASING PLAN**

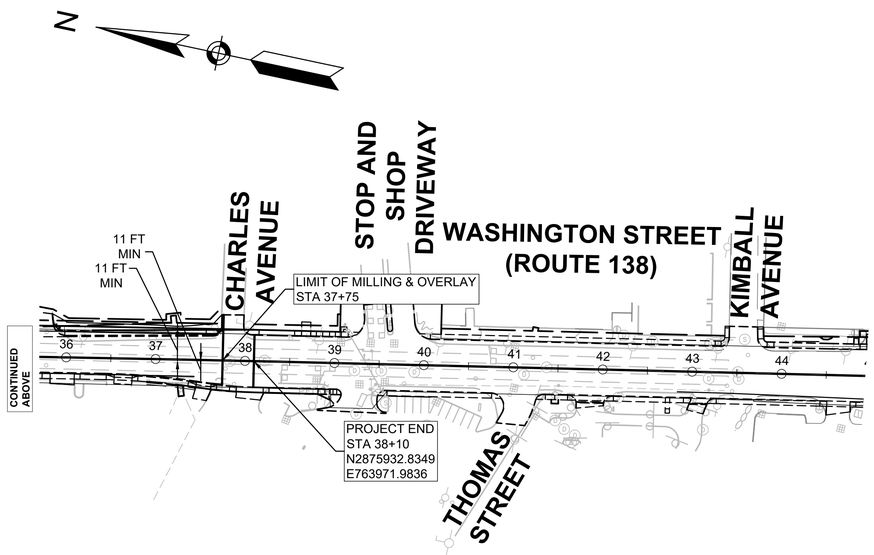
PHASE 2

1. INSTALL PERMANENT DRAINAGE STRUCTURES, PIPE, GRANITE CURB, SIDEWALK AND TRAFFIC SIGNAL EQUIPMENT WITHIN WORKZONE.
2. INSTALL TRAFFIC ISLANDS WITHIN WORKZONE.
3. EXCAVATE AND PLACE FULL DEPTH PAVEMENT WHERE REQUIRED UP TO BINDER COURSE.
4. EXCAVATE AND REMOVE EXISTING TRAFFIC ISLANDS.
5. EXCAVATE AND CONSTRUCT DRIVEWAYS.
6. EXCAVATE AND CONSTRUCT WHEELCHAIR RAMPS.

KEY:

- DIRECTION OF TRAVEL
- WORK ZONE
- REFLECTORIZED DRUM OR CONE
- CONCRETE BARRIER
- IMPACT ATTENUATOR

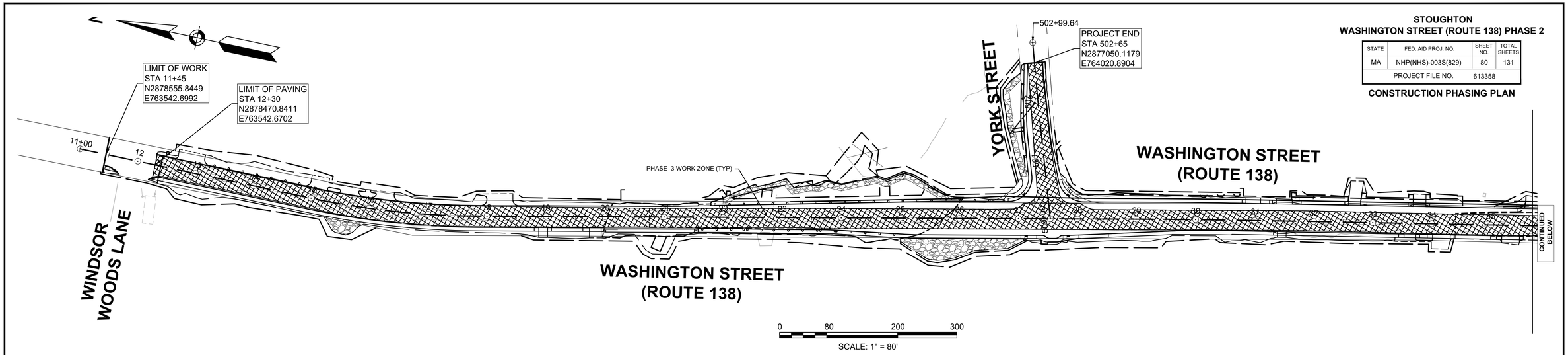


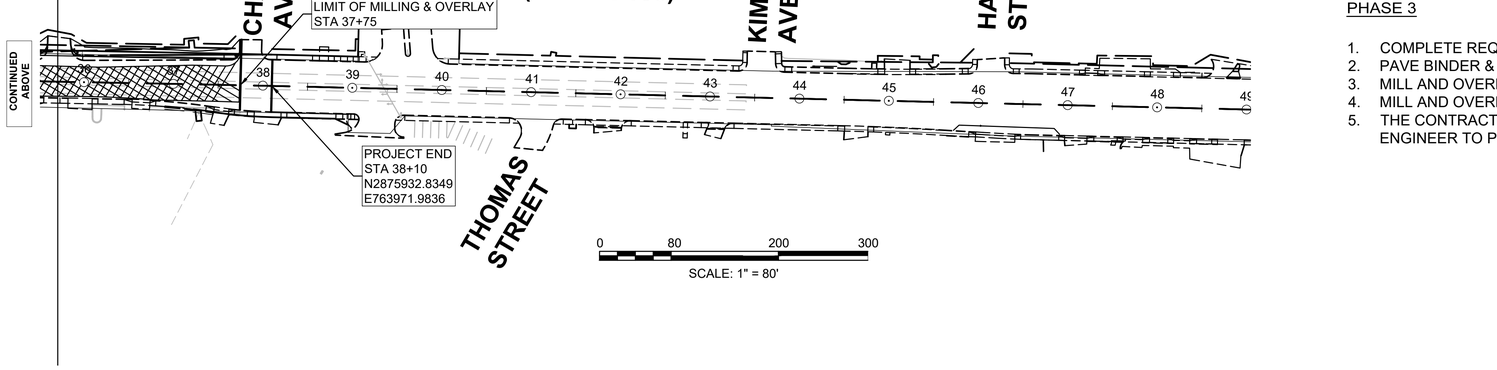




0 80 200 300

SCALE: 1" = 80'

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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 80 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CONSTRUCTION PHASING PLAN**

PHASE 3

1. COMPLETE REQUIRED DRAINAGE CONNECTIONS
2. PAVE BINDER & INTERMEDIATE COURSES (IF NECESSARY)
3. MILL AND OVERLAY PROPOSED SURFACE.
4. MILL AND OVERLAY WORK SHALL BE DONE DURING NON PEAK HOURS.
5. THE CONTRACTOR SHALL COORDINATE WITH THE TOWN AND RESIDENT ENGINEER TO PHASE MILL AND OVERLAY CONSTRUCTION.

KEY:

- DIRECTION OF TRAVEL
- WORK ZONE
- REFLECTORIZED DRUM OR CONE

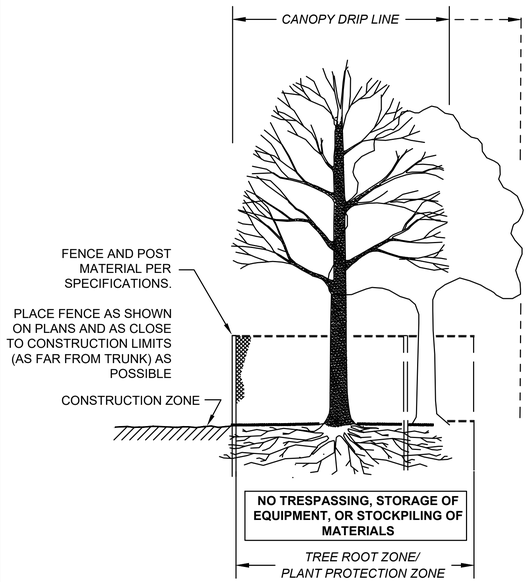
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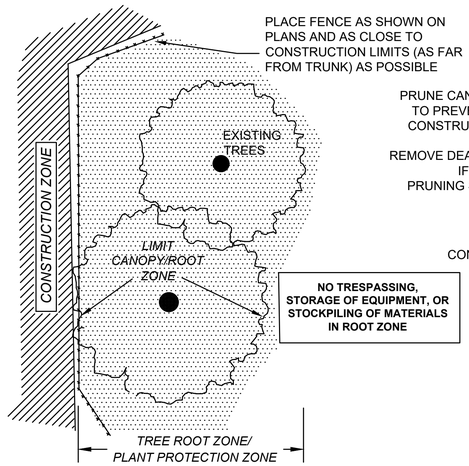
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 81 | 131 |
| PROJECT FILE NO. | 613358 | | |

CONSTRUCTION DETAILS

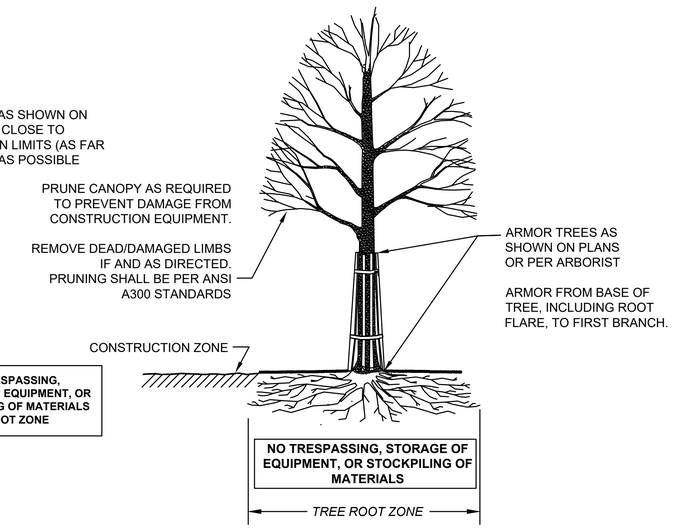
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SECTION - FENCE PROTECTION OF ROOT ZONE




PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

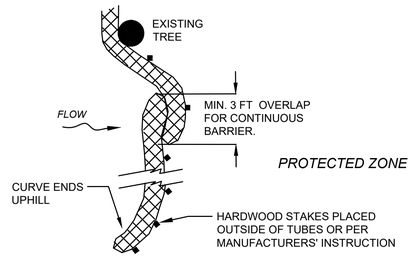



SECTION - TRUNK ARMORING & PRUNING

## TREE PROTECTION - TRUNK

## TREE PROTECTION - ROOT ZONE

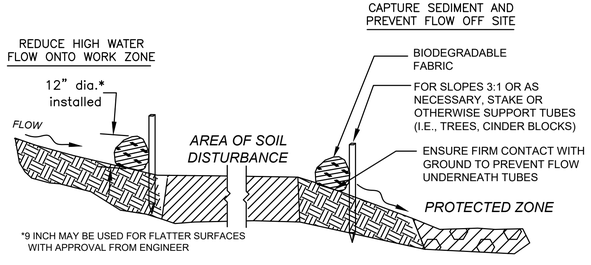
NOT TO SCALE




PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW

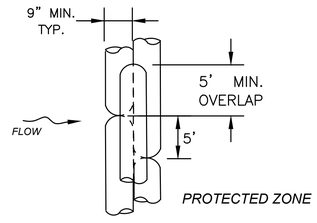



SECTION

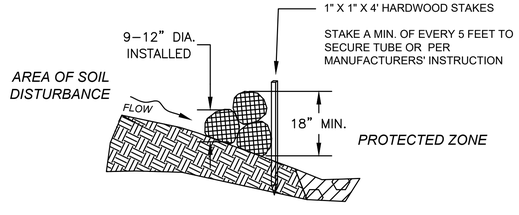
## SEDIMENT BARRIER - COMPOST FILTER TUBE

NOT TO SCALE

*WHERE SPECIFIED ON CONSTRUCTION PLANS OR AS REQUIRED*



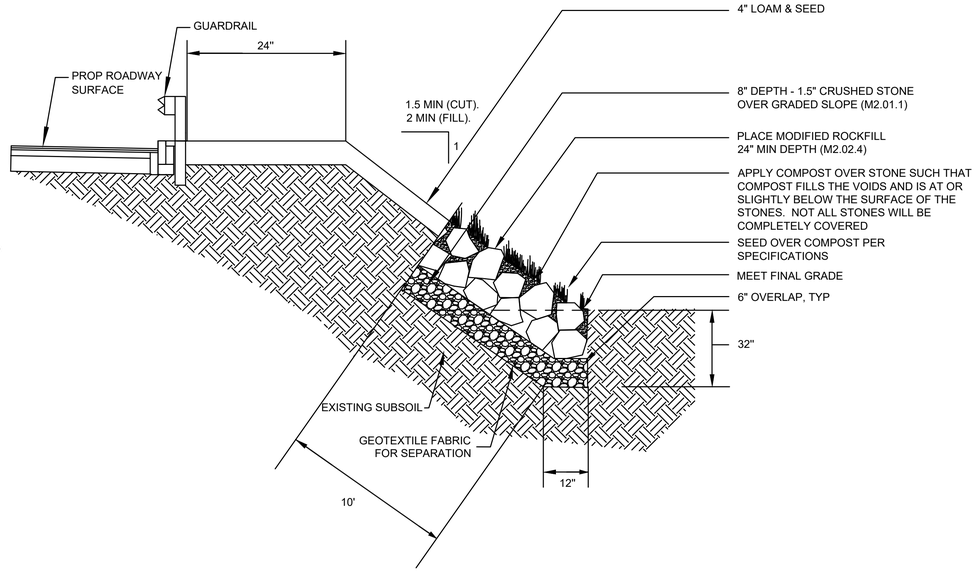

PLAN VIEW




SECTION

## COMPOST FILTER TUBES STACKED

NOT TO SCALE



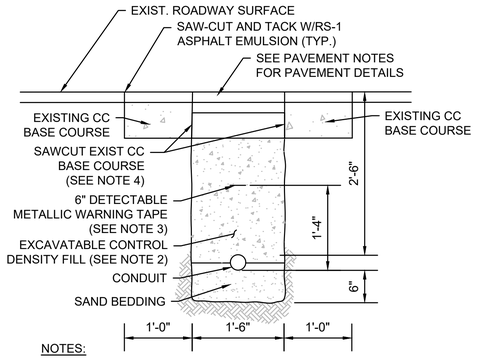

## COMPOST AND SEED OVER MODIFIED ROCKFILL (NON-WATERWAY)

NOT TO SCALE

20160320_MassDOT

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 82 | 131 |
| PROJECT FILE NO. | 613358 | | |

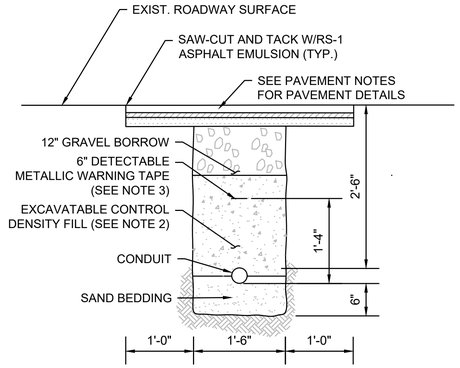
## CONSTRUCTION DETAILS




NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY MASSDOT.
2. CONTROLLED DENSITY FILL SHALL MEET THE REQUIREMENTS OF SUBSECTION M4.08.0
3. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.
4. SAWCUTTING OF EXISTING CEMENT CONCRETE BASE COURSE SHALL WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR PROPOSED CONDUIT.

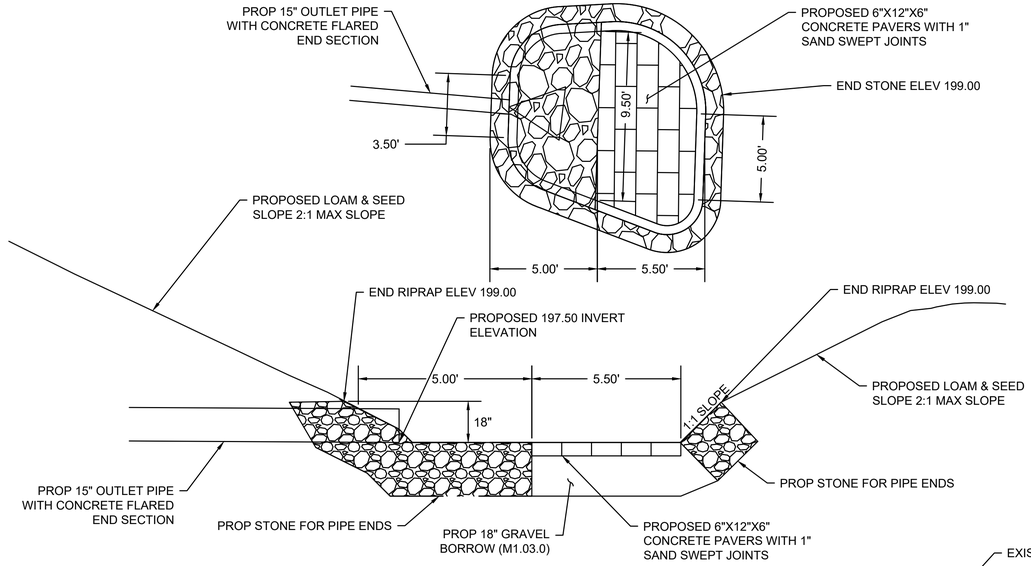
CONDUIT CROSSING ROADWAY
(EX CC ROAD BASE COURSE)
NOT TO SCALE




NOTES:

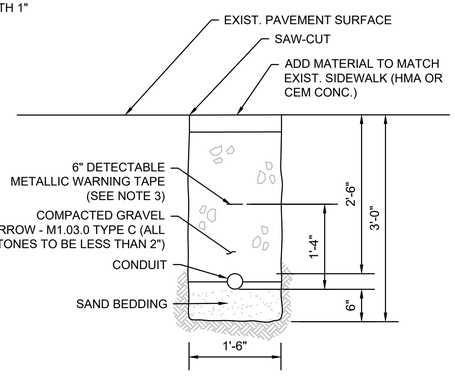
1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY MASSDOT.
2. CONTROLLED DENSITY FILL SHALL MEET THE REQUIREMENTS OF SUBSECTION M4.08.0
3. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.

CONDUIT CROSSING ROADWAY
NOT TO SCALE




## SEDIMENT FOREBAY DETAIL STA 20+90.96 RT

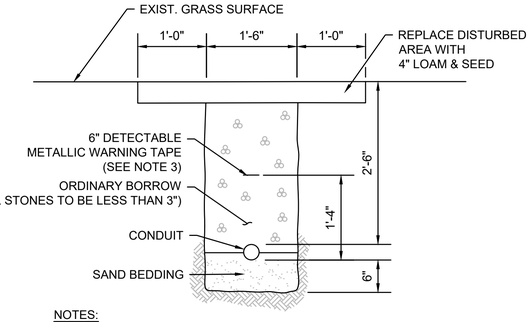
**NOT TO SCALE**




NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY MASSDOT.
2. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.

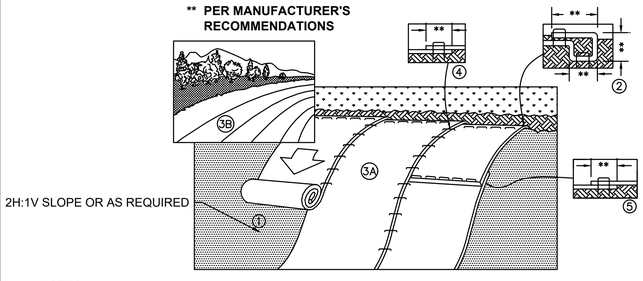
CONDUIT UNDER SIDEWALK
NOT TO SCALE




NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY MASSDOT.
2. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.

CONDUIT UNDER GRASS AREAS
NOT TO SCALE

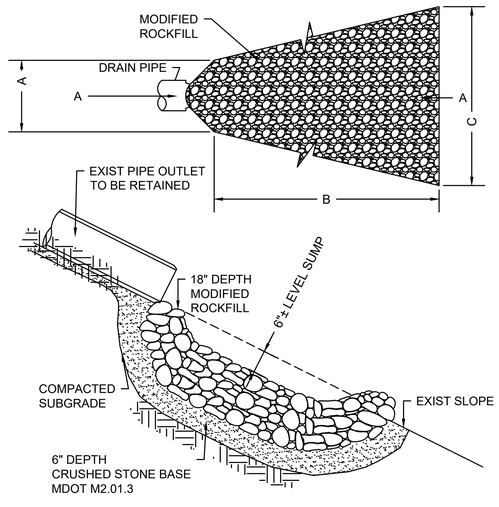



**SLOPE INSTALLATION**

NOTES:

1. PREPARE SOIL BEFORE INSTALLING JUTE MESH, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE JUTE MESH IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING PORTION OF THE JUTE MESH BACK OVER SEED AND COMPACTED SOIL. SECURE JUTE MESH OVER COMPACTED SOIL WITH A ROW OF STAKES/STAPLES SPACED ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATIONS ACROSS THE WIDTH OF THE JUTE MESH.
3. ROLL THE JUTE MESH DOWN (A) OR HORIZONTALLY (B) ACROSS THE SLOPE. JUTE MESH WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL JUTE MESH MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAKES/STAPLES IN APPROPRIATE LOCATIONS AS SHOWN ON THE STAKE/STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL JUTE MESH MUST BE STAKED/STAPLED WITH OVERLAP DEPENDING ON JUTE MESH TYPE. SEE THE MANUFACTURER'S RECOMMENDATIONS.
5. CONSECUTIVE JUTE MESH SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN OVERLAP (SEE THE MANUFACTURER'S RECOMMENDATIONS). STAKE/STAPLE THROUGH OVERLAPPED AREA, ACROSS ENTIRE JUTE MESH WIDTH PER MANUFACTURER'S RECOMMENDATIONS.
6. IN LOOSE SOIL CONDITIONS, THE USE OF STAKE OR STAPLE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE JUTE MESH.
7. THE CONTRACTOR SHALL FOLLOW ALL INSTALLATION INSTRUCTIONS AS RECOMMENDED BY THE MANUFACTURER.

**JUTE MESH FOR STEEP SLOPES DETAIL**
NOT TO SCALE




## STONE PAD DETAIL

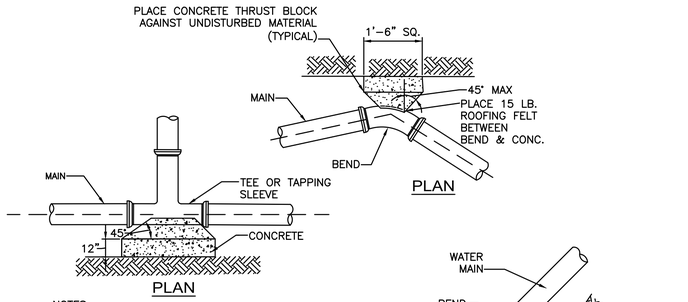
**NOT TO SCALE**

| PROPOSED DRAINAGE STONE PADS | | | | |
|---|---|---|---|---|
| STATION | DIAMETER (INCHES) | A (FEET) | B (FEET) | C (FEET) |
| 22+73 LT | 12 | 3 | 6 | 7 |
| 24+73 LT | 12 | 3 | 6 | 7 |
| 25+52 LT | 15 | 3.75 | 8 | 9.25 |

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 83 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CONSTRUCTION DETAILS



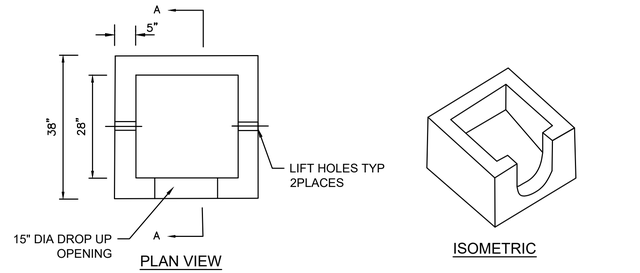

NOTES:

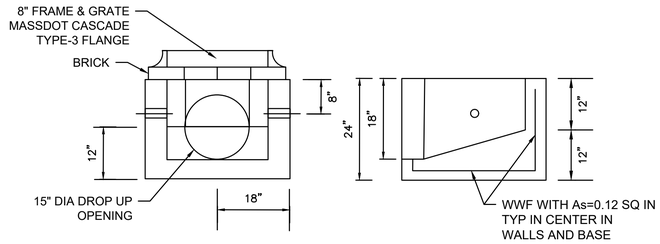
1. THRUST BLOCKS TO BE USED ON ALL PRESSURE PIPES AT HORIZONTAL AND VERTICAL BENDS GREATER OR EQUAL TO 45°, TEES AND DEAD ENDS.
2. FOR FITTINGS WITH LESS THAN 45° DEFLECTION USE BEARING AREAS FOR 45° BEND.
3. BEARING AREAS BASED ON HORIZONTAL PASSIVE SOIL PRESSURE OF 2000 PSF AND A MINIMUM INTERNAL WATER PRESSURE OF 175 PSIG. JOINTS SHALL NOT BE ENCASED IN CONCRETE, BEARING AREAS MAY BE DISREGARDED FOR TRENCHES IN ROCK WHERE THE TOP OF THE ROCK FACE IS AT OR ABOVE THE CROWN OF THE PIPE. HOWEVER, CONCRETE BACKING SHALL BE PLACED BETWEEN THE PIPE AND ROCK FACE.

TABLE OF BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR FITTING. *

| SIZE OF MAIN (INCHES) | 90° BEND (S.F.) | 45° BEND (S.F.) | DEAD END (S.F.) |
|---|---|---|---|
| 4 | 2.3 | 1.3 | 1.6 |
| 6 | 4.7 | 2.5 | 3.3 |
| 8 | 8.0 | 4.5 | 6.0 |
| 12 | 17.0 | 9.5 | 12.0 |

THRUST BLOCK DETAILS
NOT TO SCALE

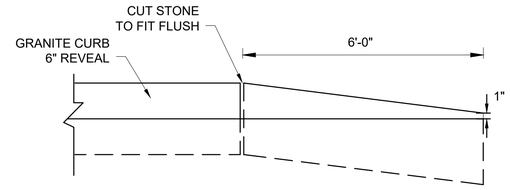


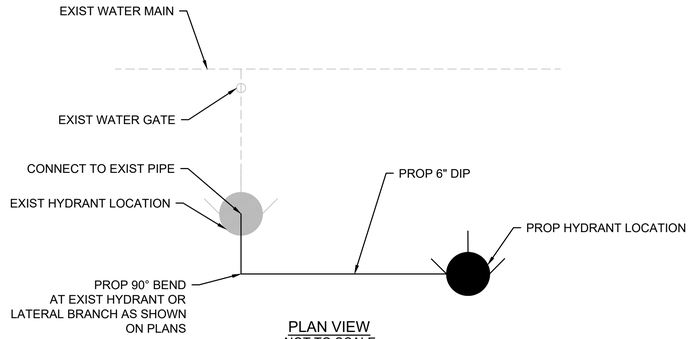

NOTES:

1. DESIGNED FOR AASHTO HS25-44 LOADING.
2. CONCRETE STRENGTH fc=4000 PSI
3. REINFORCING STEEL ASTM A185 (wwf) fy=60,000 PSI
4. CURB INLETS ARE REQUIRED WHEN GUTTER INLETS ARE INSTALLED AGAINST CURBING.

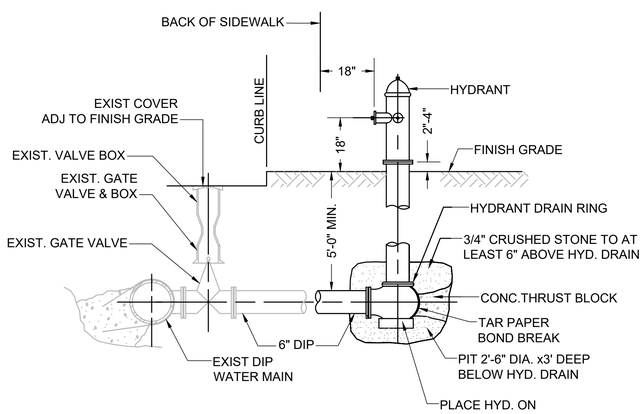
SPECIAL GUTTER INLET
NOT TO SCALE




TRANISTION CURB (NO SIDEWALK)
ELEVATION VIEW
NOT TO SCALE

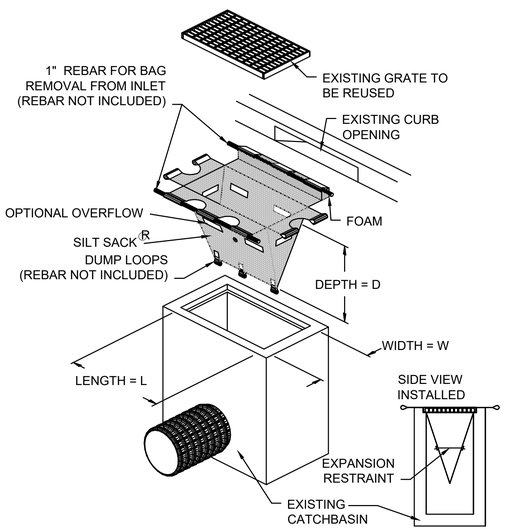



PLAN VIEW
NOT TO SCALE

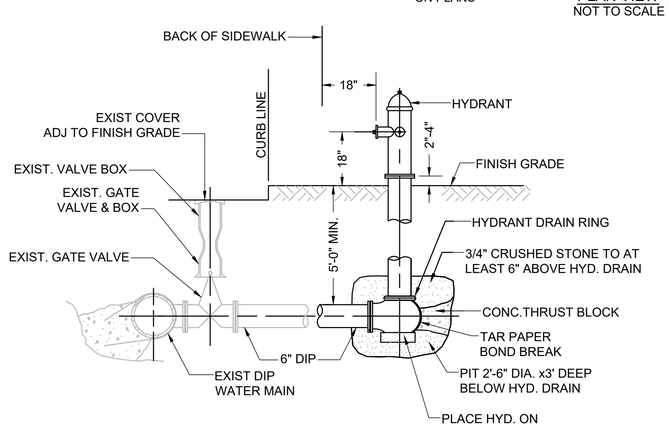



NOTES:
1. ALL JOINTS ON HYDRANT BRANCH TO BE RESTRAINED JOINTS

FIRE HYDRANT REMOVED AND RESET DETAIL - IN LINE SHIFT
NOT TO SCALE




CATCH BASIN W/ SILTSACK
INLET PROTECTION
NOT TO SCALE




NOTES:
1. ALL JOINTS ON HYDRANT BRANCH TO BE RESTRAINED JOINTS

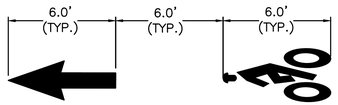
FIRE HYDRANT REMOVED AND RESET DETAIL - LATERAL SHIFT
NOT TO SCALE

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(DET).dwg 11:58 AM

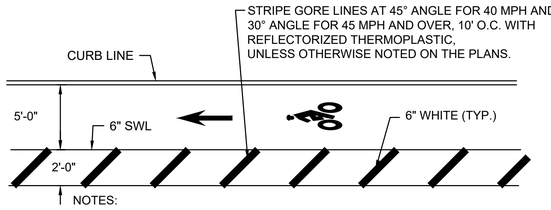
613358_HD(DET).DWG Plotted on 29-Jan-2025 11:58 AM

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 84 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CONSTRUCTION DETAILS**

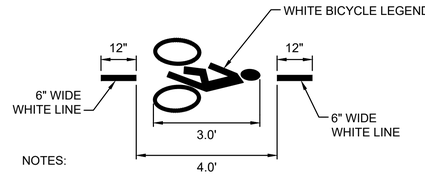



BICYCLE WITH ARROW PAVEMENT MARKING
NOT TO SCALE




1. ALL PROPOSED PAVEMENT MARKINGS AND SYMBOLS SHALL BE REFLECTORIZED THERMOPLASTIC.

BUFFERED BIKE LANE DETAIL
NOT TO SCALE

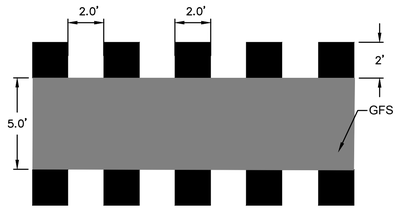



1. ALL PROPOSED BICYCLE DETECTOR PAVEMENT MARKINGS SHALL BE REFLECTORIZED (TAPE) THERMOPLASTIC.

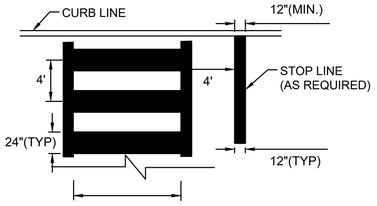
BICYCLE DETECTOR PAVEMENT MARKING
NOT TO SCALE




DOTTED WHITE LINE EXTENSION DETAIL
NOT TO SCALE

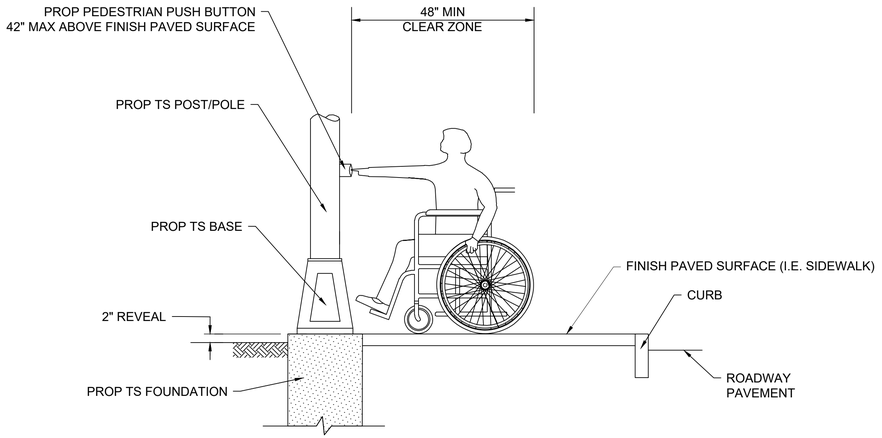



DOTTED WHITE LINE EXTENSION BICYCLE CROSSING
FOR SEPARATED BIKE LANE
NOT TO SCALE

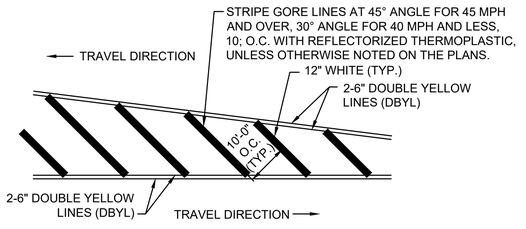



1. ALL PROPOSED STOP LINES AND CROSSWALKS SHALL BE WHITE REFLECTORIZED THERMOPLASTIC.

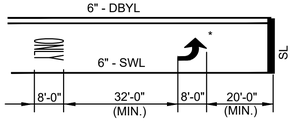
HIGH VISIBILTY CROSSWALK & STOP LINE
NOT TO SCALE




FORWARD APPROACH (SIDE REACH)
NOT TO SCALE

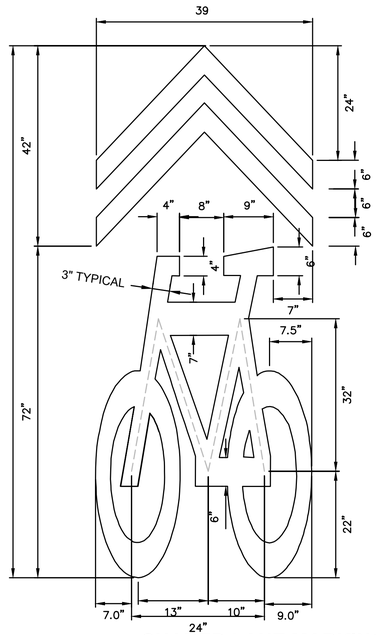



TYPICAL GORE MARKINGS
NOT TO SCALE




*ARROW SHALL BE POINTED RIGHT FOR RIGHT TURN ONLY.

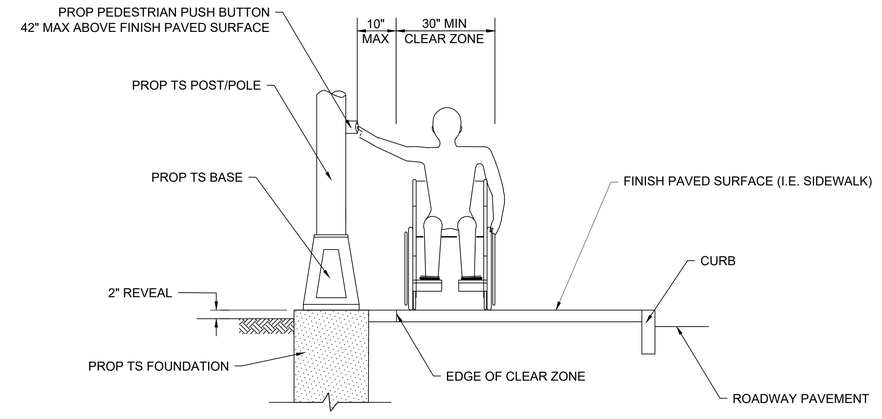
DIMENSION FOR TYPICAL PAVEMENT MARKINGS
NOT TO SCALE




**SHARED LANE MARKING DETAIL**
**NOT TO SCALE**

SHARED LANE SYMBOL PLACEMENT NOTES:

1. SHARED LANE MARKING SYMBOLS SHALL BE PLACED SO THAT THE CENTER IS 4 FEET FROM THE ADJACENT SOLID WHITE EDGE LINE.
2. DO NOT PLACE SYMBOLS ON LANE LINES.
3. SHARED LANE SYMBOLS SHALL BE PLACED A MAXIMUM OF 500 FEET APART.




PARALLELL APPROACH (SIDE REACH)

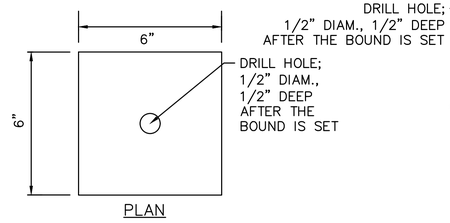
NOTES:
1. A CLEAR GROUND SPACE SHALL CONSIST OF A STABLE AND FIRM AREA, COMPLYING WITH 521 WMR 6.5 (FORWARD REACH) OR 521 CMR 6.6 (SIDE REACH) AND SHALL BE PROVIDED AT EACH OF THE PEDESTRIAN PUSH BUTTONS.
   1.1. WHERE A FORWARD APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL BE WITHIN TEN INCHES (10") HORIZONTALLY OF AND CENTERED ON THE CLEAR GROUND SPACE.
   1.2. WHERE A PARALLEL APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL BE WITHIN TEN INCHES (10") HORIZONTALLY OF AND CENTERED ON THE CLEAR GROUND SPACE.

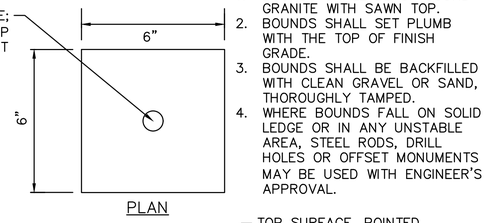
PEDESTRIAN PUSH BUTTON CLEAR ZONE
NOT TO SCALE

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613358_HD(DET).DWG Plotted on 29-Jan-2025 11:59 AM

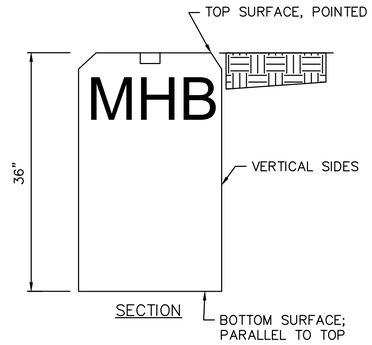
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 85 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CONSTRUCTION DETAILS**

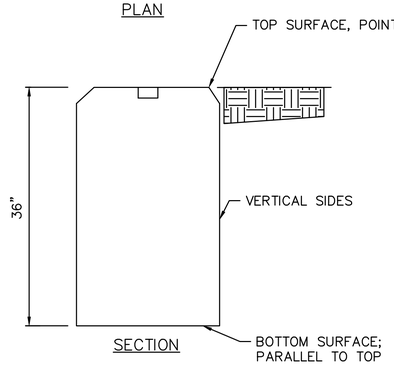


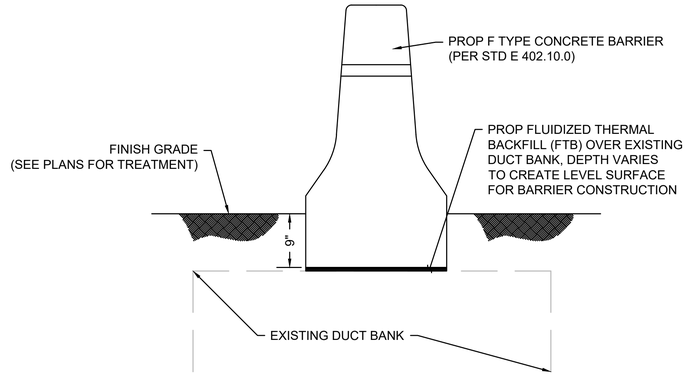

NOTE:
1. BOUNDS SHALL BE OF SOUND GRANITE WITH SAWN TOP.
2. BOUNDS SHALL SET PLUMB WITH THE TOP OF FINISH GRADE.
3. BOUNDS SHALL BE BACKFILLED WITH CLEAN GRAVEL OR SAND, THOROUGHLY TAMPED.
4. WHERE BOUNDS FALL ON SOLID LEDGE OR IN ANY UNSTABLE AREA, STEEL RODS, DRILL HOLES OR OFFSET MONUMENTS MAY BE USED WITH ENGINEER'S APPROVAL.




LETTERED GRANITE BOUND DETAIL
NOT TO SCALE



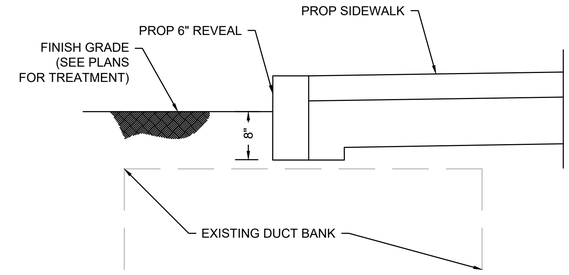

GRANITE BOUND DETAIL
NOT TO SCALE




## F SHAPE CONCRETE BARRIER OVER EXISTING DUCT BANK

**NOT TO SCALE**

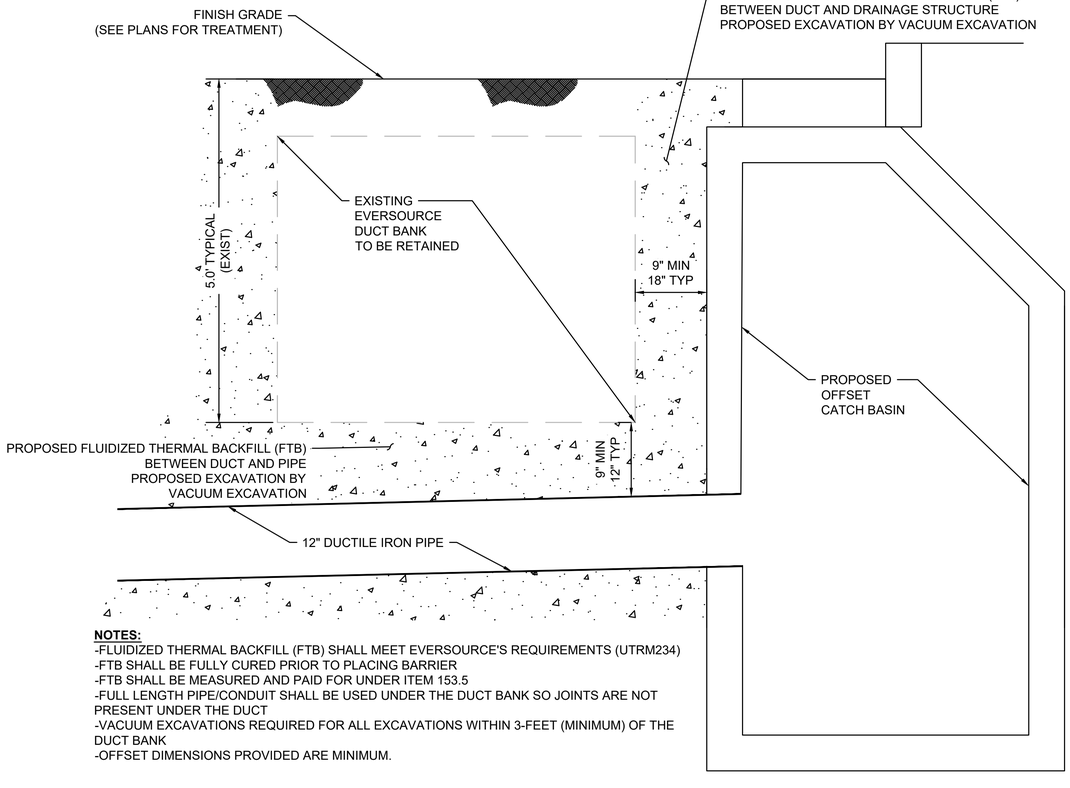
**NOTES:**
-REFER TO MASSDOT STD E 402.10.0 FOR F SHAPE CONCRETE BARRIER DIMENSIONS AND DETAIL
FLUIDIZED THERMAL BACKFILL (FTB) SHALL MEET EVERSOURCE'S REQUIREMENTS (UTRM234)
-FTB SHALL BE FULLY CURED PRIOR TO PLACING BARRIER
-CONTRACTOR SHALL CLEAN THE TOP OF THE EXISTING DUCTBANK PRIOR TO PLACEMENT OF FTB.
-FTB SHALL BE MEASURED AND PAID FOR UNDER ITEM 153.5




## GRANITE CURB OVER EXISTING DUCT BANK

**NOT TO SCALE**

**NOTES:**
-CURB TO BE PAID FOR UNDER ITEM 506.




**NOTES:**
-FLUIDIZED THERMAL BACKFILL (FTB) SHALL MEET EVERSOURCE'S REQUIREMENTS (UTRM234)
-FTB SHALL BE FULLY CURED PRIOR TO PLACING BARRIER
-FTB SHALL BE MEASURED AND PAID FOR UNDER ITEM 153.5
-FULL LENGTH PIPE/CONDUIT SHALL BE USED UNDER THE DUCT BANK SO JOINTS ARE NOT PRESENT UNDER THE DUCT
-VACUUM EXCAVATIONS REQUIRED FOR ALL EXCAVATIONS WITHIN 3-FEET (MINIMUM) OF THE DUCT BANK
-OFFSET DIMENSIONS PROVIDED ARE MINIMUM.

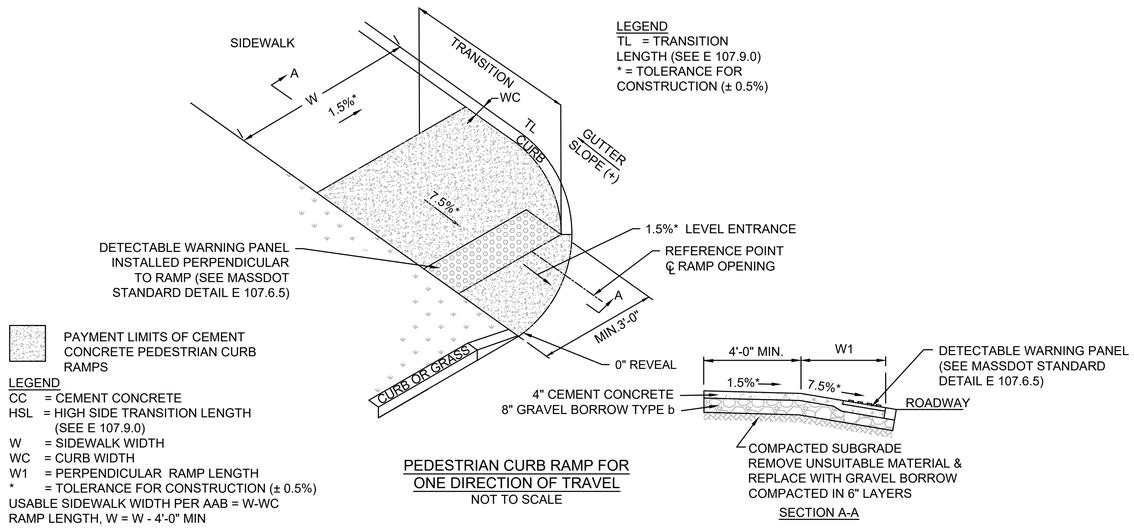
## DRAINAGE NEAR EXISTING DUCT BANK

**NOT TO SCALE**

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613358_HD(DET).DWG Plotted on 29-Jan-2025 11:59 AM

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 86 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CONSTRUCTION DETAILS



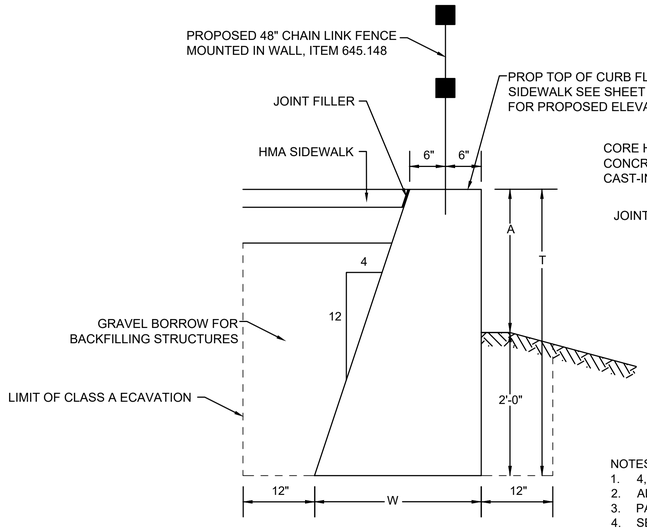

LEGEND
TL = TRANSITION LENGTH (SEE E 107.9.0)
* = TOLERANCE FOR CONSTRUCTION (± 0.5%)

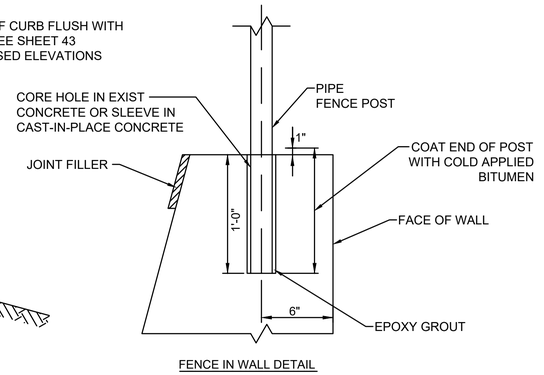
PAYMENT LIMITS OF CEMENT CONCRETE PEDESTRIAN CURB RAMPS

LEGEND
CC = CEMENT CONCRETE
HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0)
W = SIDEWALK WIDTH
WC = CURB WIDTH
W1 = PERPENDICULAR RAMP LENGTH
* = TOLERANCE FOR CONSTRUCTION (± 0.5%)
USABLE SIDEWALK WIDTH PER AAB = W-WC
RAMP LENGTH, W = W - 4'-0" MIN

PEDESTRIAN CURB RAMP FOR ONE DIRECTION OF TRAVEL
NOT TO SCALE

| | PEDESTRIAN CURB RAMP DATA - ONE DIRECTION OF TRAVEL | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MASSDOT ID | PEDESTRIAN CURB RAMP NUMBER | STREET NAME ℄ | STATION | OFFSET | SIDEWALK WIDTH (W) | RAMP OPENING WIDTH | LEVEL LANDING WIDTH | CENTERLINE ELEVATION | GUTTER SLOPE | TRANS-ITION LENGTH (W1) | REVEAL |
| - | 7 | WASHINGTON STREET (ROUTE 138) | 35+52.72 | 32.00' LT | 6'-0" | 3'-0" | 4'-0" | 239.23 | 2.00% | 9.00' | 6" |
| - | 8 | WASHINGTON STREET (ROUTE 138) | 35+90.17 | 32.00' LT | 6'-0" | 3'-0" | 4'-0" | 238.65 | 1.47% | 6.50' | 6" |
| PED-22941 | 9 | WASHINGTON STREET (ROUTE 138) | 37+70.56 | 31.89' LT | 6'-0" | 3'-0" | 4'-0" | 235.55 | 3.10% | 14.00' | 6" |




FENCE IN WALL DETAIL

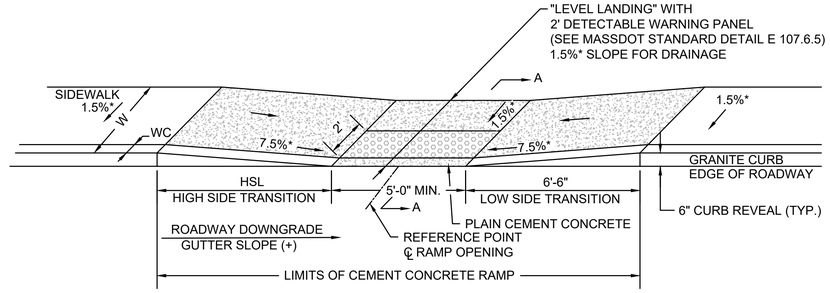
NOTES:
1. 4,000 PSI, 1.5 IN., 565 CEMENT CONCRETE.
2. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.
3. PAYMENT UNDER ITEM 901. WILL BE BASED ON TABLE BELOW.
4. SEE SHEET 32 FOR CURB OFFSETS.
5. SEE CROSS SECTIONS FOR LIMITS OF CLASS A TRENCH EXCAVATION.
6. SEE SHEET 43 FOR CURB ELEVATIONS.

| HEIGHTS | | WIDTH | AREA | CU. YDS. |
|---|---|---|---|---|
| A | T | W | SQ. FT. | PER LIN. FT. |
| 2'-0" | 4'-0" | 2'-4" | 6.667 | 0.247 |

## CAST IN PLACE CONCRETE CURBING AT BACK OF WALK
## STA 21+60 TO 23+25 RT
**NOT TO SCALE**

NOTES:
* N/A - NO TRANSITION NEEDED

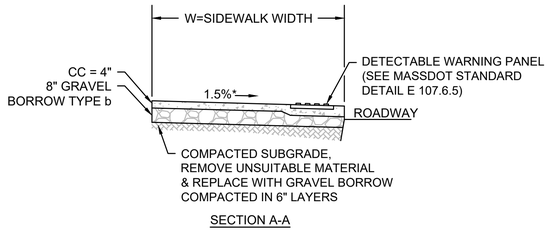
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613358_HD(DET).DWG Plotted on 29-Jan-2025 11:59 AM




NOTE:
ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS

PAYMENT LIMITS OF CEMENT CONCRETE PEDESTRIAN CURB RAMPS

LEGEND
CC = CEMENT CONCRETE
HSL = HIGH SIDE TRANSITION LENGTH (SEE MASSDOT DETAIL E 107.9.0)
W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH (W-4')
WC = CURB WIDTH
* = TOLERANCE FOR CONSTRUCTION (±0.5%)
USABLE SIDEWALK WIDTH PER AAB = W-Wc
USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"



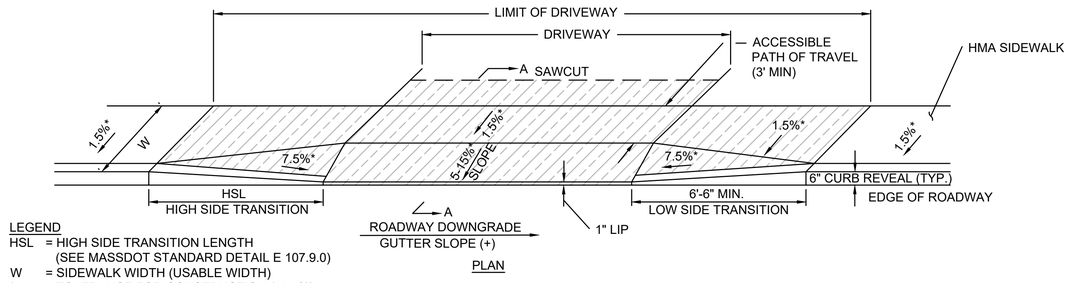

SECTION A-A

## PEDESTRIAN CURB RAMP ON NARROW SIDEWALK WITH DETECTABLE WARNING PANEL

NOT TO SCALE

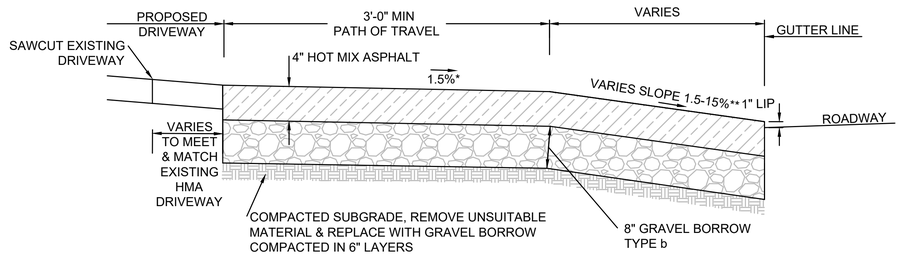
| | PEDESTRIAN CURB RAMP DATA ON NARROW SIDEWALK WITH DETECTABLE WARNING PANEL | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MASSDOT ID | PEDESTRIAN CURB RAMP NUMBER | STREET NAME ℄ | STATION | OFFSET | SIDEWALK WIDTH (W) | RAMP OPENING WIDTH | LEVEL LANDING WIDTH | CENTERLINE ELEVATION | GUTTER SLOPE | LEFT SIDE | | RIGHT SIDE | |
| | | | | | | | | | | TRANS-ITION LENGTH | REVEAL | TRANS-ITION LENGTH | REVEAL |
| - | 3 | WASHINGTON STREET (ROUTE 138) | 27+13.18 | 28.00 RT | 6'-0" | 5'-6" | 5'-0" | 219.18 | 5.22% | 15.00' | 6" | 6.50' | 6" |
| - | 4 | WASHINGTON STREET (ROUTE 138) | 27+10.27 | 40.24 LT | 5'-6" | 5'-0" | 5'-9" | 217.62 | -1.90% | 7.50' | 6" | 10.50' | 6" |
| - | 5 | WASHINGTON STREET (ROUTE 138) | 27+83.08 | 39.12 LT | 6'-0" | 5'-6" | 5'-0" | 222.79 | -7.58% | 7.83' | 6" | 17.00 | 6" |
| - | 6 | WASHINGTON STREET (ROUTE 138) | 27+84.58 | 27.69 RT | 6'-0" | 5'-6" | 5'-0" | 222.85 | 5.22% | 15.00' | 6" | 6.50' | 6" |

613358_HD(DET).DWG Plotted on 29-Jan-2025 11:59 AM
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LEGEND
HSL = HIGH SIDE TRANSITION LENGTH (SEE MASSDOT STANDARD DETAIL E 107.9.0)
W = SIDEWALK WIDTH (USABLE WIDTH)
* = TOLERANCE FOR CONSTRUCTION (±0.5%)

PLAN




NOTE:
1. SEE DRAWING E107.7.0 OF THE MASSDOT CONSTRUCTION STANDARDS.

* = TOLERANCE FOR CONSTRUCTION (± 0.5%)
** = 8% MAX DRIVEWAY SLOPE IS RECOMMENDED

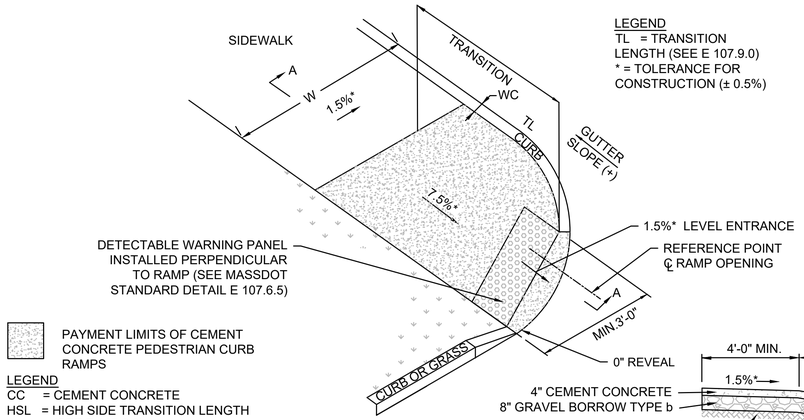
LIMIT OF PAY ITEM 702.

SECTION A-A

## HOT MIX ASPHALT DRIVEWAY - TYPE C
NOT TO SCALE

| DRIVEWAY DATA - HOT MIX ASPHALT DRIVEWAY TYPE C | | | | | | | |
|---|---|---|---|---|---|---|---|
| DRIVE-WAY NUMBER | STREET NAME ℄ | STATION | OFFSET | SIDEWALK WIDTH | ROADWAY GUTTER SLOPE | CURB TRANSITION LENGTH | |
| | | | | | | LEFT SIDE | RIGHT SIDE |
| 6 | WASHINGTON STREET (ROUTE 138) | 18+95.32 | 19.00' RT | 6'-0" | -0.96% | 6.50' | 7.67' |
| 7*** | WASHINGTON STREET (ROUTE 138) | 19+83.50 | 19.00' RT | 6'-0" | -2.60% | 0.00' | 11.00' |
| 9 | WASHINGTON STREET (ROUTE 138) | 30+97.10 | 29.00' LT | 6'-0" | -4.99% | 6.50' | 11.00' |
| 10 | WASHINGTON STREET (ROUTE 138) | 31+46.29 | 18.00' RT | 6'-0" | 4.13% | 15.00' | 6.50' |
| 11 | WASHINGTON STREET (ROUTE 138) | 31+49.61 | 29.00' LT | 6'-0" | -4.13% | 6.50' | 15.00' |
| 12 | WASHINGTON STREET (ROUTE 138) | 32+68.55 | 18.00' LT | 6'-0" | -0.82% | 6.50' | 7.67' |
| 13 | WASHINGTON STREET (ROUTE 138) | 33+63.35 | 18.00' RT | 6'-0" | -1.44% | 6.50' | 9.00' |
| 14 | WASHINGTON STREET (ROUTE 138) | 33+78.36 | 29.00' LT | 6'-0" | 1.44% | 9.00' | 6.50' |
| 15 | WASHINGTON STREET (ROUTE 138) | 34+16.67 | 18.00' RT | 6'-0" | -2.00% | 6.50' | 9.00' |

*** = 0" CURB REVEAL ON LEFT SIDE OF DWY 7 DUE TO F TYPE BARRIER

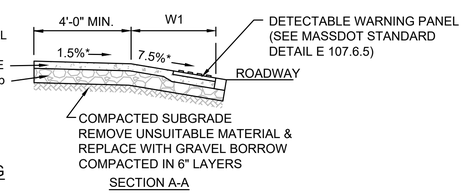



PAYMENT LIMITS OF CEMENT CONCRETE PEDESTRIAN CURB RAMPS

LEGEND
CC = CEMENT CONCRETE
HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0)
W = SIDEWALK WIDTH
WC = CURB WIDTH
W1 = PERPENDICULAR RAMP LENGTH
* = TOLERANCE FOR CONSTRUCTION (± 0.5%)
USABLE SIDEWALK WIDTH PER AAB = W-WC
RAMP LENGTH, W = W - 4'-0" MIN

LEGEND
TL = TRANSITION LENGTH (SEE E 107.9.0)
* = TOLERANCE FOR CONSTRUCTION (± 0.5%)

## PEDESTRIAN CURB RAMP FOR ONE DIRECTION OF TRAVEL - WARNING PANEL ACROSS RAMP OPENING
NOT TO SCALE




SECTION A-A

| | PEDESTRIAN CURB RAMP DATA - WARNING PANEL ACROSS RAMP OPENING | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MASSDOT ID | PEDESTRIAN CURB RAMP NUMBER | STREET NAME ℄ | STATION | OFFSET | SIDEWALK WIDTH (W) | RAMP OPENING WIDTH | LEVEL LANDING WIDTH | CENTERLINE ELEVATION | GUTTER SLOPE | TRANS-ITION LENGTH (W1) | REVEAL |
| - | 1 | WASHINGTON STREET (ROUTE 138) | 11+63.44 | 22.08' RT | 5'-6" | 3'-3" | 4'-0" | 185.25 | 1.22% | 6.50' | 6" |
| - | 2 | WASHINGTON STREET (ROUTE 138) | 12+32.82 | 20.02' RT | 6'-0" | 3'-8" | 4'-0" | 185.66 | 3.47% | 14.00' | 6" |

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

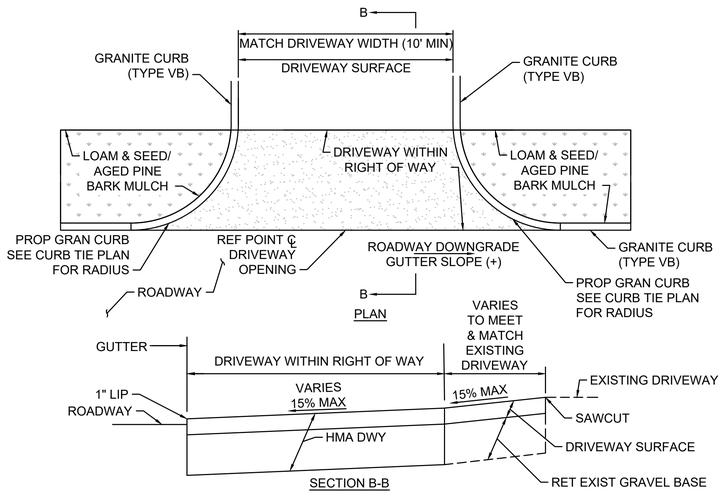
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 88 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CONSTRUCTION DETAILS**

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613358_HD(DET).DWG Plotted on 29-Jan-2025 11:59 AM

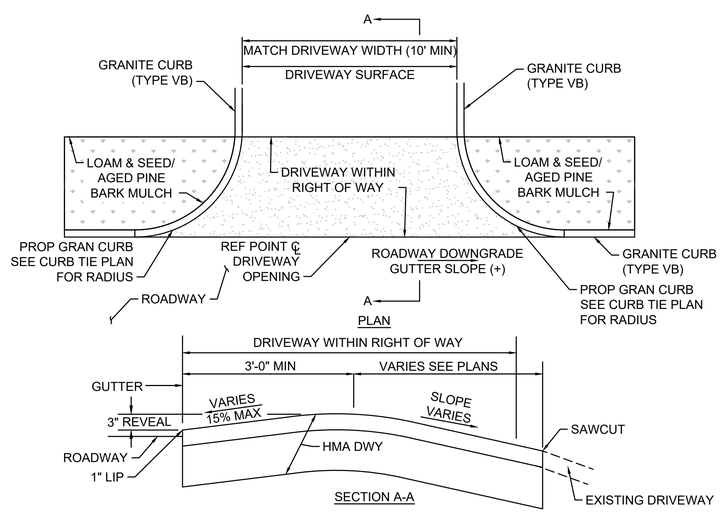
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 89 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CONSTRUCTION DETAILS



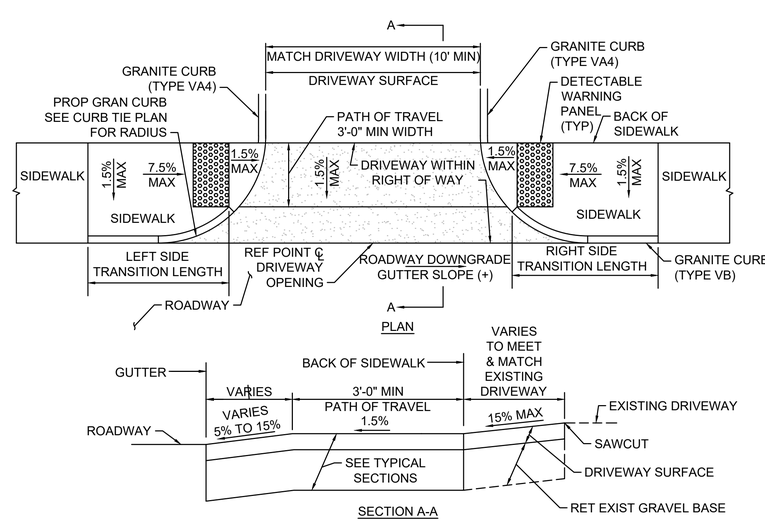

HOT MIX ASPHALT DRIVEWAY TYPE B
NOT TO SCALE

| DRIVEWAY DATA - HOT MIX ASPHALT DRIVEWAY TYPE B | | | | | |
|---|---|---|---|---|---|
| DRIVE-WAY NUMBER | STREET NAME ℄ | STATION | OFFSET | SIDEWALK WIDTH | ROADWAY GUTTER SLOPE |
| 3 | WASHINGTON STREET (ROUTE 138) | 15+66.03 | 18.17' LT | - | -5.59% |
| 4 | WASHINGTON STREET (ROUTE 138) | 16+24.22 | 18.23' LT | - | -5.63% |
| 8 | WASHINGTON STREET (ROUTE 138) | 21+68.47 | 19.33' LT | - | 2.62% |




HOT MIX ASPHALT DRIVEWAY TYPE A
NOT TO SCALE

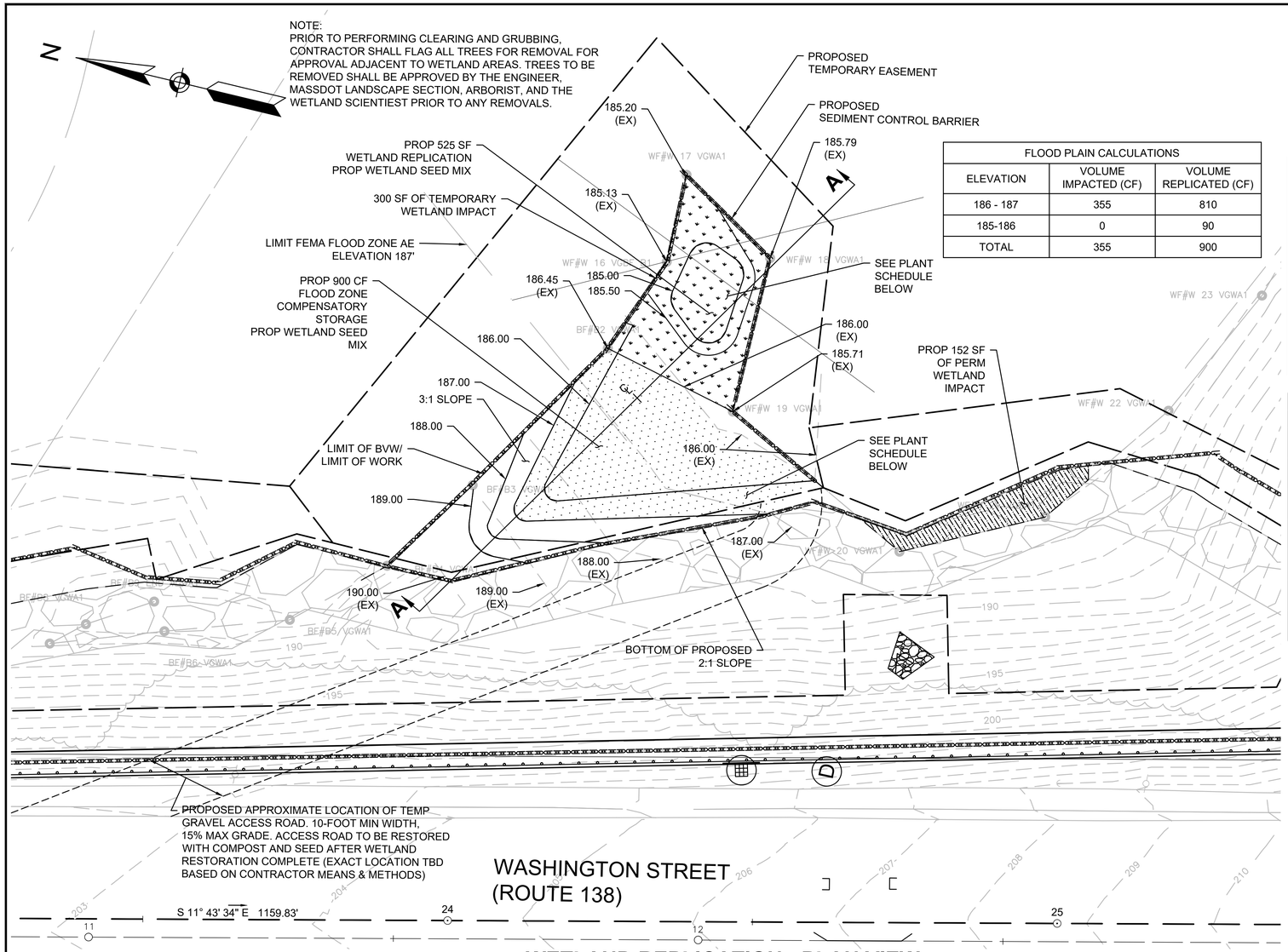
| DRIVEWAY DATA - HOT MIX ASPHALT DRIVEWAY TYPE A | | | | | |
|---|---|---|---|---|---|
| DRIVE-WAY NUMBER | STREET NAME ℄ | STATION | OFFSET | SIDEWALK WIDTH | ROADWAY GUTTER SLOPE |
| 1 | WASHINGTON STREET (ROUTE 138) | 12+90.08 | 17.90' LT | - | -3.56% |
| 2 | WASHINGTON STREET (ROUTE 138) | 15+05.79 | 18.13' LT | - | -5.16% |
| 5 | WASHINGTON STREET (ROUTE 138) | 18+21.71 | 18.00' LT | - | -0.66% |




HOT MIX ASPHALT DRIVEWAY - TYPE D
WITH WARNING PANEL
NOT TO SCALE

| DRIVEWAY DATA - HOT MIX ASPHALT DRIVEWAY TYPE D | | | | | | | |
|---|---|---|---|---|---|---|---|
| DRIVE-WAY NUMBER | STREET NAME ℄ | STATION | OFFSET | SIDEWALK WIDTH | ROADWAY GUTTER SLOPE | CURB TRANSITION LENGTH | |
| | | | | | | SEE PCR CHARTS | |
| 17 | WASHINGTON STREET (ROUTE 138) | 35+71.43 | 29.00' LT | 6'-0" | -2.00% | -- | -- |

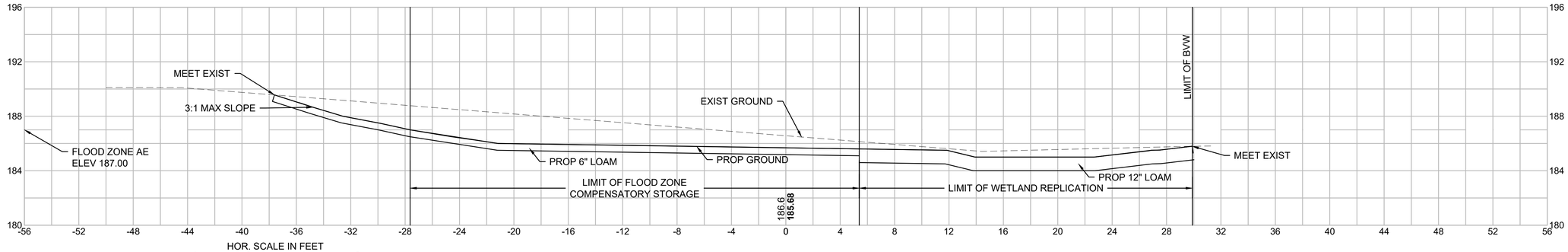
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613358_HD(DET).DWG Plotted on 29-Jan-2025 12:00 PM




| FLOOD PLAIN CALCULATIONS | | |
|---|---|---|
| ELEVATION | VOLUME IMPACTED (CF) | VOLUME REPLICATED (CF) |
| 186 - 187 | 355 | 810 |
| 185-186 | 0 | 90 |
| TOTAL | 355 | 900 |

0 10 20 30 40
SCALE: 1" = 10'

## WETLAND REPLICATION - PLAN VIEW
## SCALE: 1" = 10'




HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8

## WETLAND REPLICATION - SECTION A-A VIEW
## SCALE: 1" = 4'

**NOTE:**
1.EXACT PLANT LOCATION TO BE WITHIN PROPOSED WETLAND REPLICATION OR BUFFER ZONE REPLICATION AREA. EXACT LOCATION TO BE FIELD MARKED AND APPROVED BY MASSDOT, WETLAND SPECIALIST, AND THE ENGINEER
2. SEED MIX, PLANTINGS, EXCAVATION, GRADING, AND COMPLETION OF THE WETLAND RESTORATION AND FLOODZONE COMPENSATORY AREAS SHALL BE INCLUDED UNDER ITEM 755.35 - WETLAND REPLICATION AREA.

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 90 | 131 |
| PROJECT FILE NO. | 613358 | | |

**WETLAND DETAILS**

| BUFFER ZONE/COMPENSATORY PLANT SCHEDULE | | | |
|---|---|---|---|
| QUANTITY | BOTANICAL NAME | COMMON NAME | SIZE |
| 2 | Quercus rubra | RED OAK | 10-12' O.C., 3'-4' |
| 2 | Prunus serotina | BLACK CHERRY | 10-12' O.C., 3'-4' |
| 8 | Viburnum lentago | NANNYBERRY | 6' O.C. CLUSTERED, 2'-3' |
| 8 | Hamamelis virginiana | WITCH HAZEL | 6' O.C. CLUSTERED, 2'-3' |
| 8 | Morella (Myrica) pensylvanica | BAYBERRY | 6' O.C. CLUSTERED, 2'-3' |
| 8 | Clethra alnifolia | SWEET PEPPERBUSH | 6' O.C. CLUSTERED, 2'-3' |

| WETLAND REPLICATION PLANT SCHEDULE | | | |
|---|---|---|---|
| QUANTITY | BOTANICAL NAME | COMMON NAME | SIZE/SPACING |
| 2 | Acer Rubrum | RED MAPLE | 10-12' O.C., 3'-4' |
| 4 | Viburnum dentatum | NORTHERN ARROWWOOD | 6' O.C. CLUSTERED, 2'-3' |
| 4 | Rhododendron viscosum | SWAMP AZALEA | 6' O.C. CLUSTERED, 2'-3' |
| 4 | Vaccinium corymbosum | HIGHBUSH BLUEBERRY | 6' O.C. CLUSTERED, 2'-3' |
| 4 | Clethra alnifolia | SWEET PEPPERBUSH | 6' O.C. CLUSTERED, 2'-3' |
| 25 | Osmunda cinnamomea | CINNAMON FERN | 1' O.C. CLUSTERED, 1#' |
| 25 | Carex stricta | TUSSOCK SEDGE | 1' O.C. CLUSTERED, 1# |

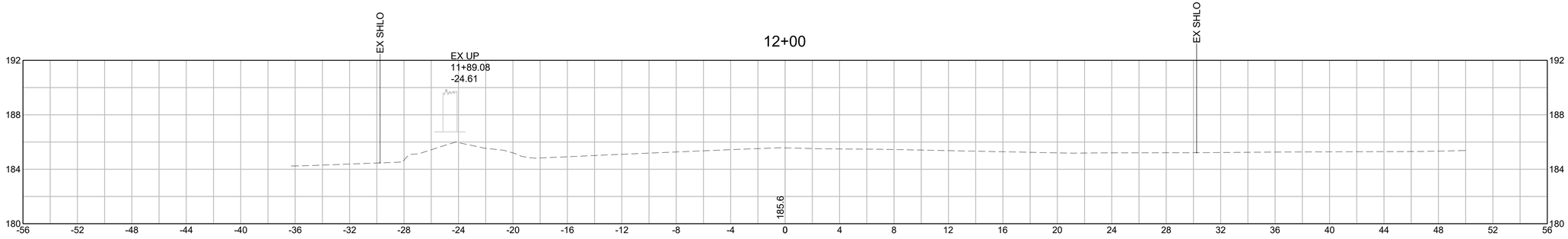
**Wetland Replication Area Construction Sequence**

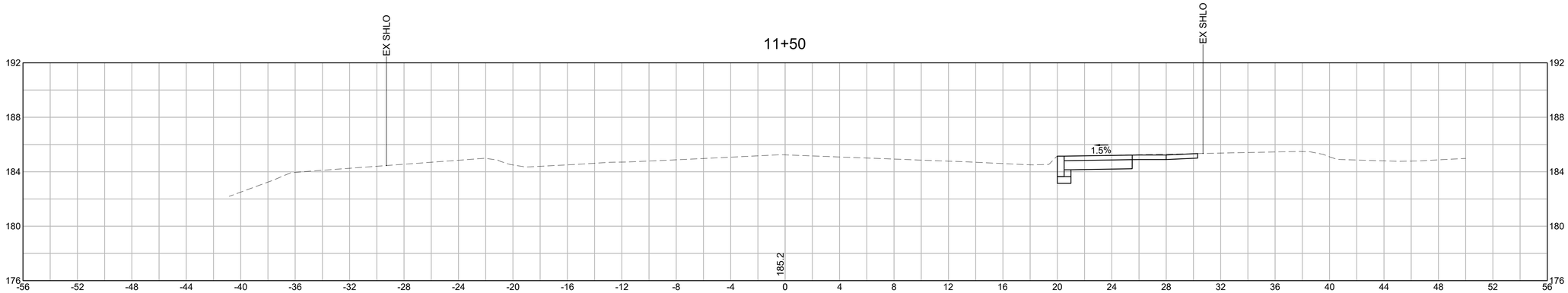
1. A qualified Wetland Scientist shall supervise all aspects of the proposed Wetland Replication Area during construction; eg., erosion controls, site preparatory, grading, backfilling, planting and seeding.
2. Flag or stake limits of Wetland Replication Area. Flag trees and/or shrubs adjacent to the existing wetland boundary to remain. Install erosion control barrier along intersection of the Wetland Replication Area and adjacent wetland, taking into considering that grading within the wetland will be required to achieve a suitable hydrologic connection to the WRA. Once the Wetland Replication Area and adjacent side slope have been graded, install an erosion control barrier at the toe of slope to protect the Wetland Replication Area.
3. During construction of the Wetland Replication Area, the supervisory Wetland Scientist shall oversee the proposed grading and planting scheme. The final elevation shall be determined in the field and will correspond to the elevation of the adjacent wetland. During construction, the Wetland Replication Area shall be excavated to final grade unless a suitable topsoil is not encountered, at which time the area will be excavated to one foot below the final design grade to facilitate the placement of approved clean wetland soil (12% organic carbon content (or 20% organic matter content) and pH of 6.2-6.8) as a suitable substrate for the establishment of wetland vegetation. Wetland soils will consist of the topsoil (A Horizon) from the Wetland Impact Area and/or a wetland soil mixture manufactured by combining topsoil with a soil textural class of sandy loam, fine sandy loam, or silt loam with decomposed leaf litter at a 1:1 ratio. The wetland soil shall be free of stumps, roots, heavy or stiff clay, stones, coarse sand, noxious weeds, weed seeds or other litter. Settling of soils shall be taken into consideration for final elevations.
4. Apply wetland seed mix at the specified application rate or higher if applied at the end of the growing season and lightly rake to insure seed-to-soil contact. There shall be no seeding in areas of standing water. Do not apply within 1-foot of shrub and tree plantings.
5. Apply conservation seed mix to side slopes at the specified application rate and lightly rake to insure seed-to-soil contact.
6. Apply a light mulch of clean weed free straw.
7. The supervisory Wetland Scientist shall reserve the right to reject acceptance of wetland plant species upon delivery based on plant vigor/conditions, unauthorized substitutions, and/or non- conformance with the planting plan and specifications. All plantings shall be native varieties with no landscape cultivars accepted. During transport, the plants shall be protected to minimize stress.
8. The supervisory wetland scientist shall reserve the right to require a supplemental watering program of plantings.
9. Remove erosion control barriers upon stabilization of the side slope and Wetland Replication Area and Wetland Restoration Area.

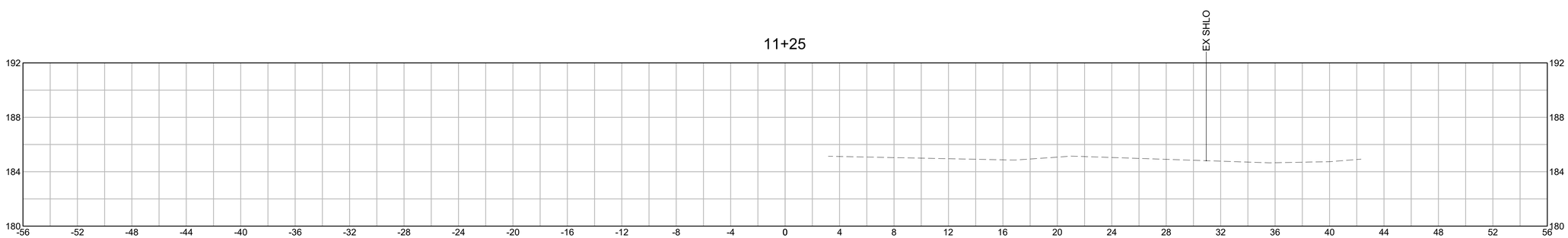
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 91 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS



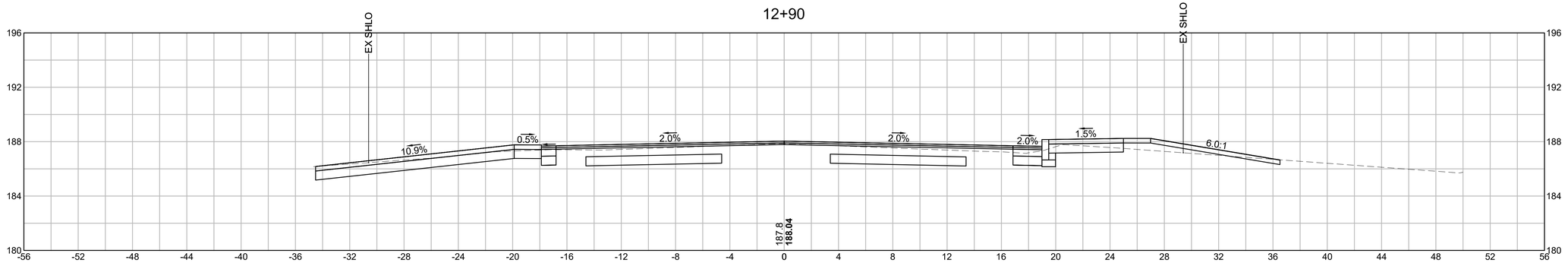

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VER. SCALE IN FEET

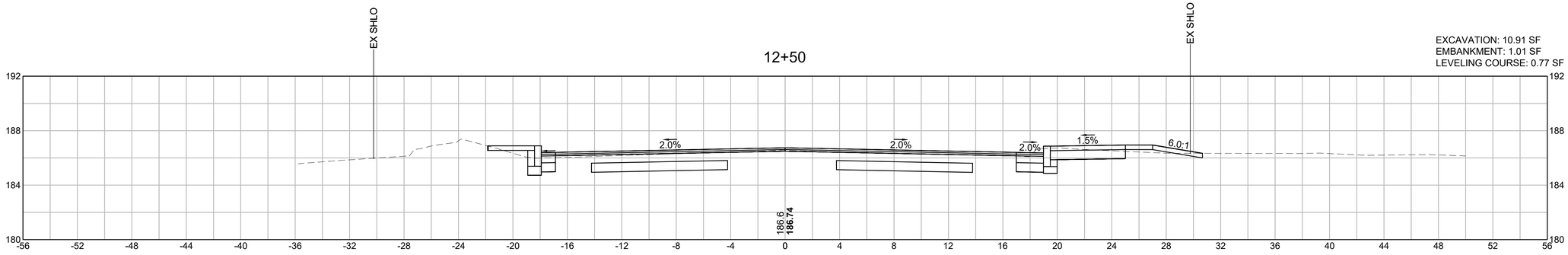
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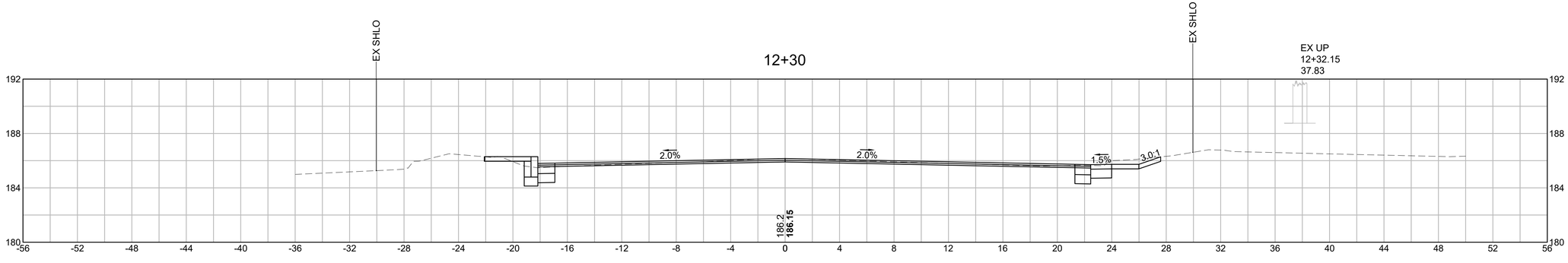
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 92 | 131 |
| | PROJECT FILE NO. | 613358 | |

**CROSS SECTIONS**




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4 0 4 8

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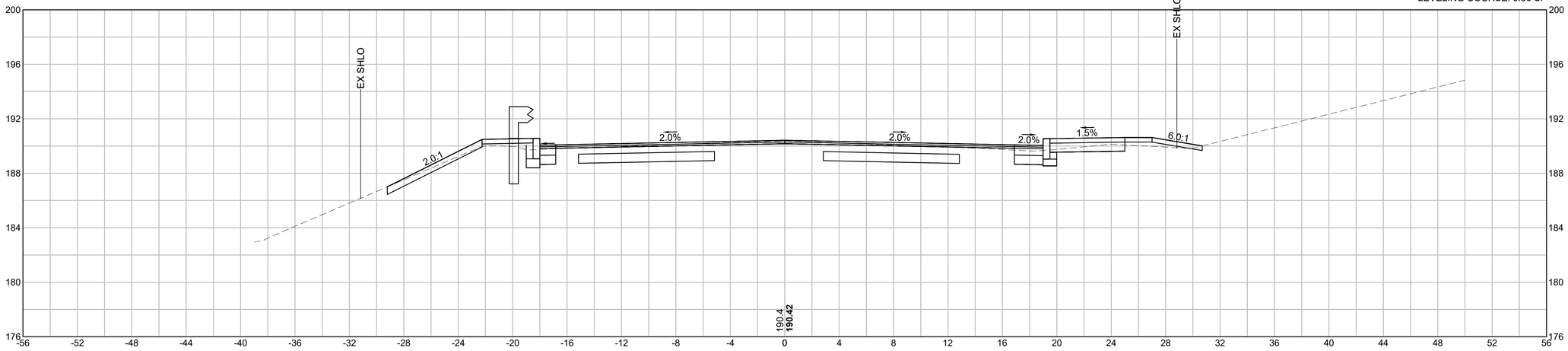
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 93 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS

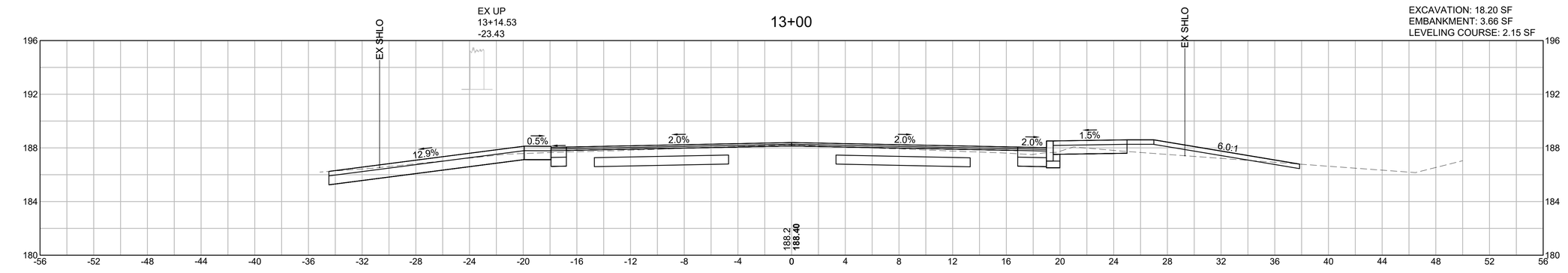
13+50

EXCAVATION: 11.98 SF
EMBANKMENT: 1.53 SF
LEVELING COURSE: 0.36 SF




13+00

EXCAVATION: 18.20 SF
EMBANKMENT: 3.66 SF
LEVELING COURSE: 2.15 SF




HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8

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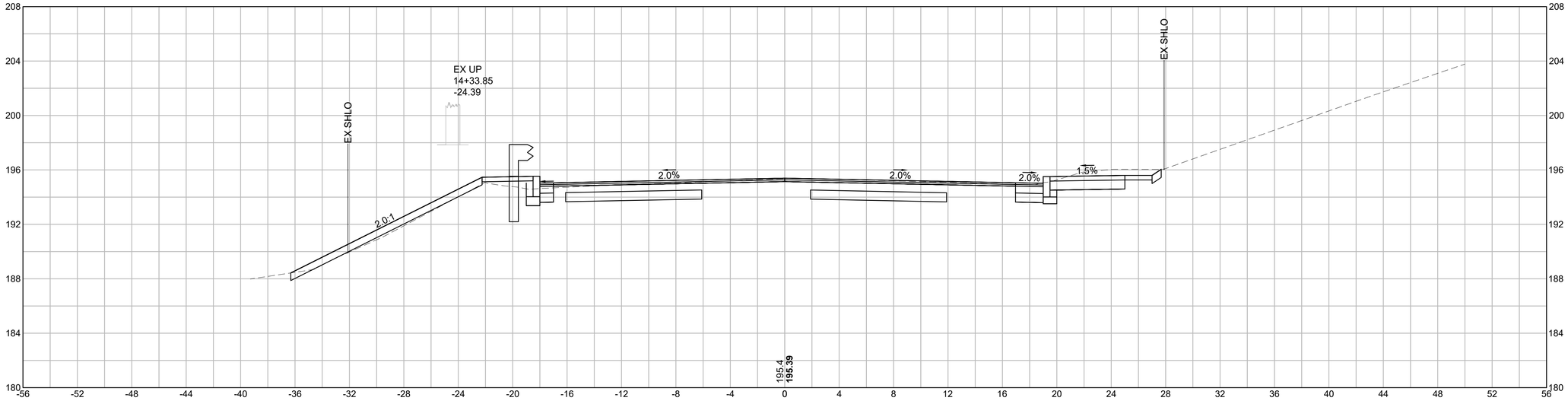
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 94 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CROSS SECTIONS**

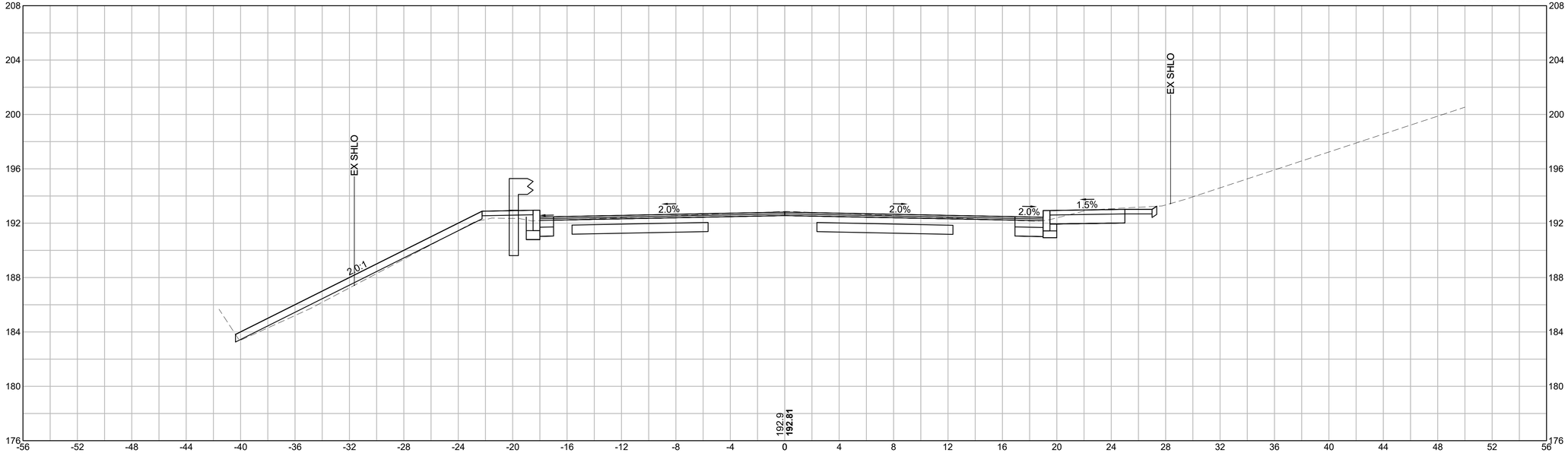
## 14+50

EXCAVATION: 17.15 SF
EMBANKMENT: 1.59 SF
LEVELING COURSE: 0.29 SF




## 14+00

EXCAVATION: 13.91 SF
EMBANKMENT: 2.98 SF
LEVELING COURSE: 0.02 SF




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VER. SCALE IN FEET
4 0 4 8

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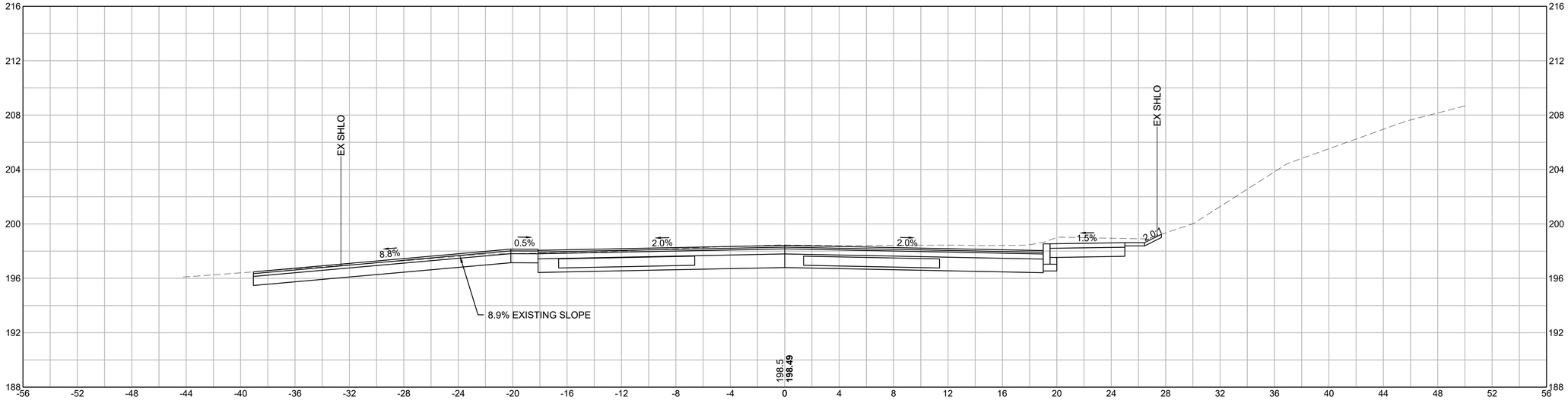
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 95 | 131 |
| | PROJECT FILE NO. 613358 | | |

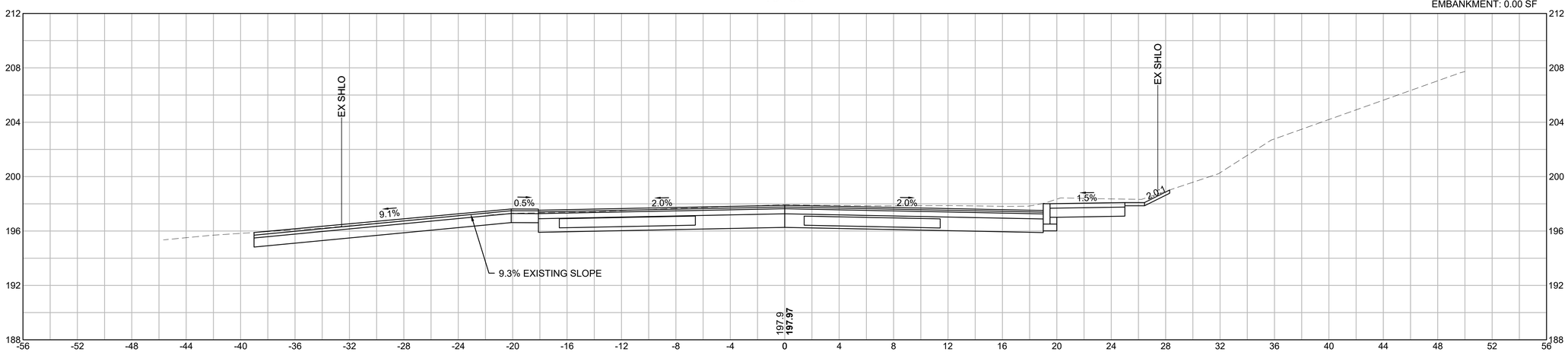
**CROSS SECTIONS**

## 15+10




## 15+00

EXCAVATION: 90.45 SF
EMBANKMENT: 0.00 SF



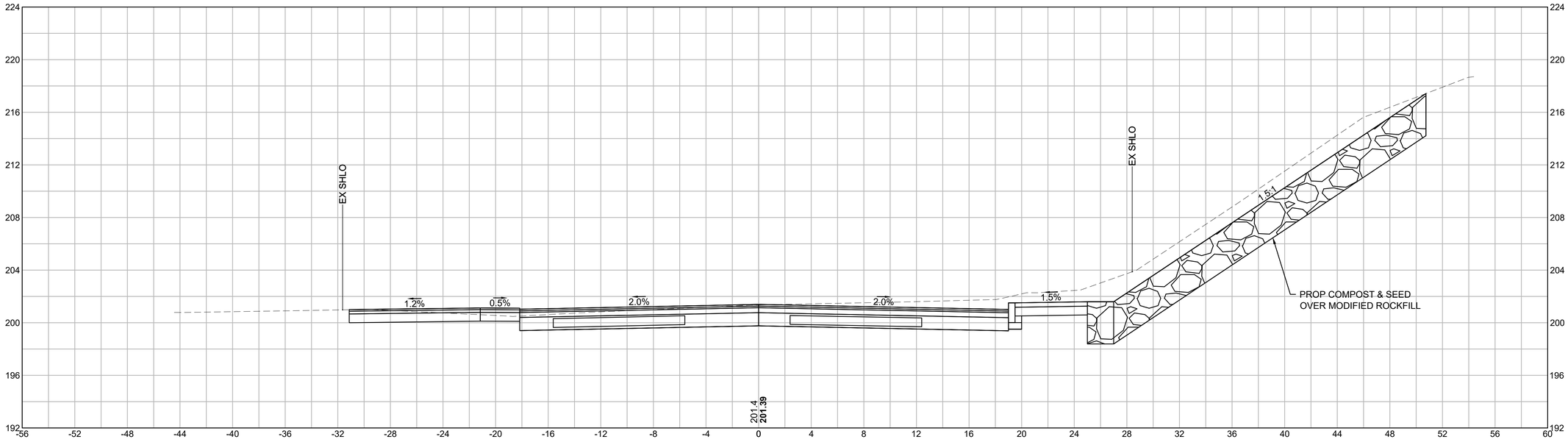

HOR. SCALE IN FEET
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4 0 4 8
VER. SCALE IN FEET

**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 96 | 131 |
| | PROJECT FILE NO. 613358 | | |

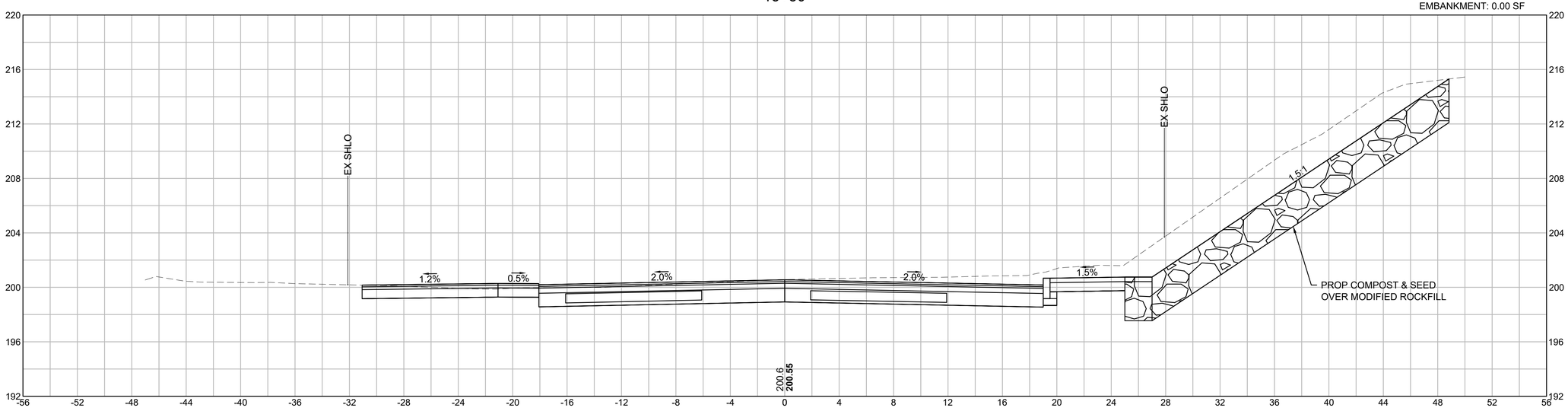
**CROSS SECTIONS**

15+65




15+50

EXCAVATION: 212.16 SF
EMBANKMENT: 0.00 SF



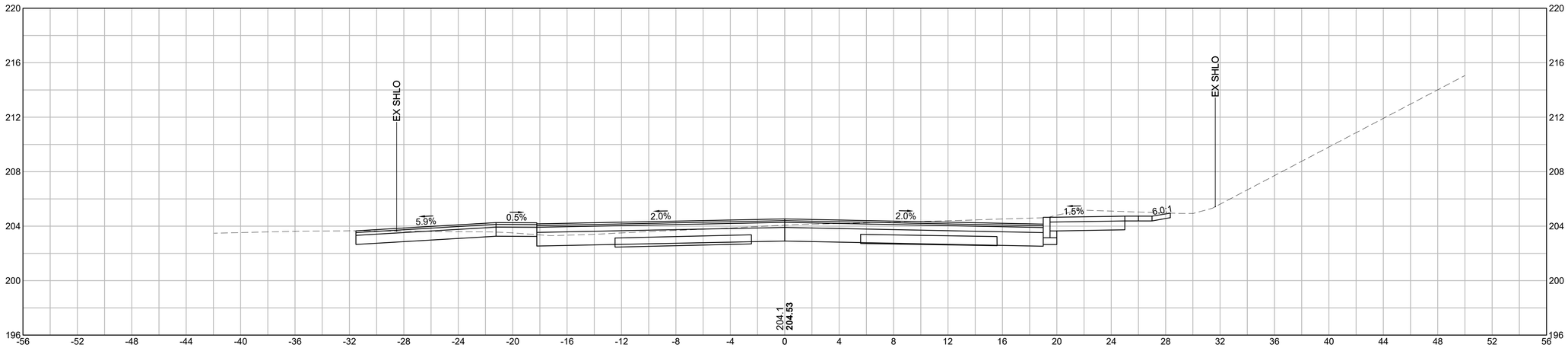

HOR. SCALE IN FEET
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VER. SCALE IN FEET
4 0 4 8

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 97 | 131 |
| | PROJECT FILE NO. 613358 | | |

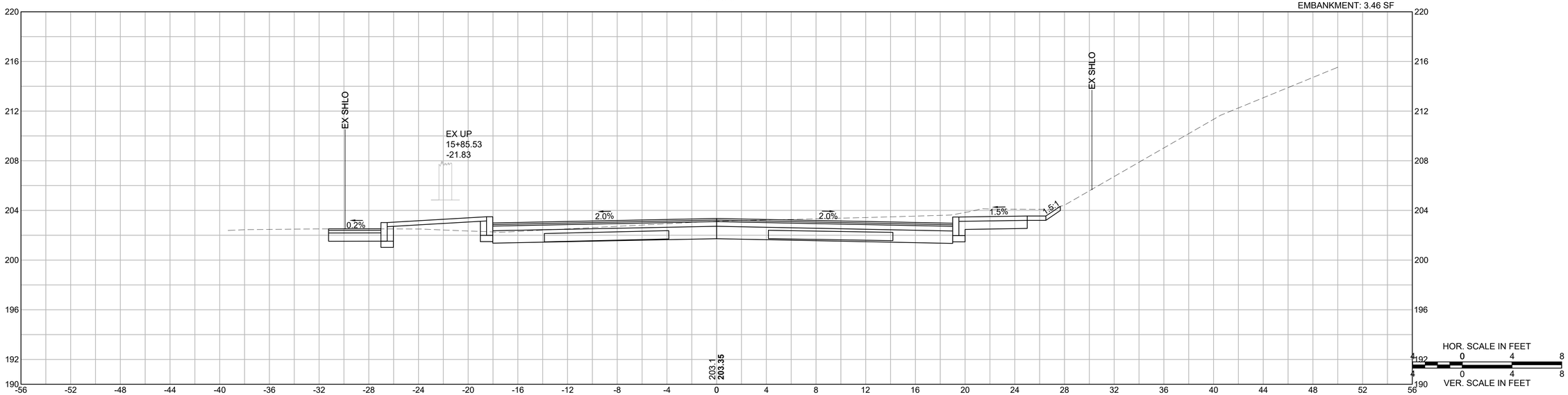
## CROSS SECTIONS

16+20




16+00

EXCAVATION: 73.79 SF
EMBANKMENT: 3.46 SF



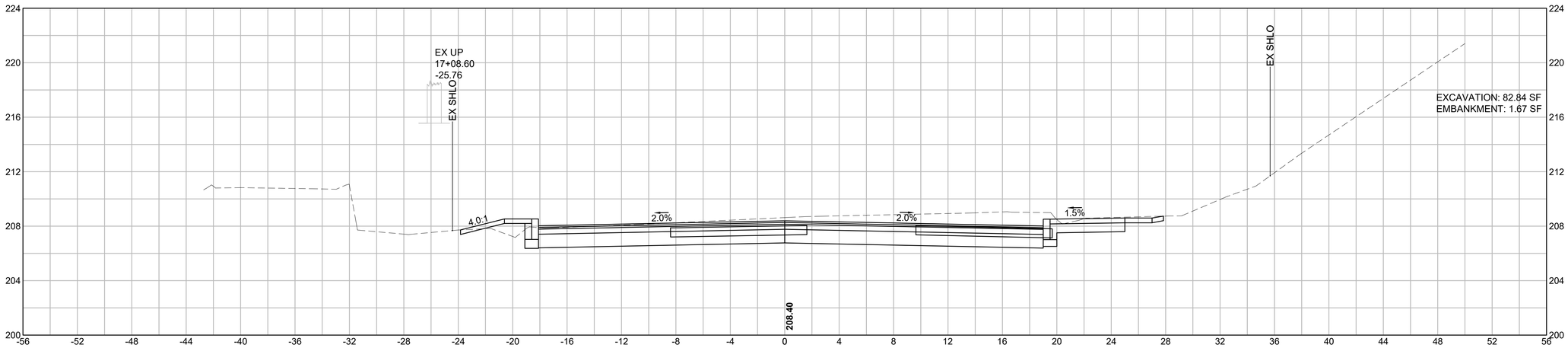

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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

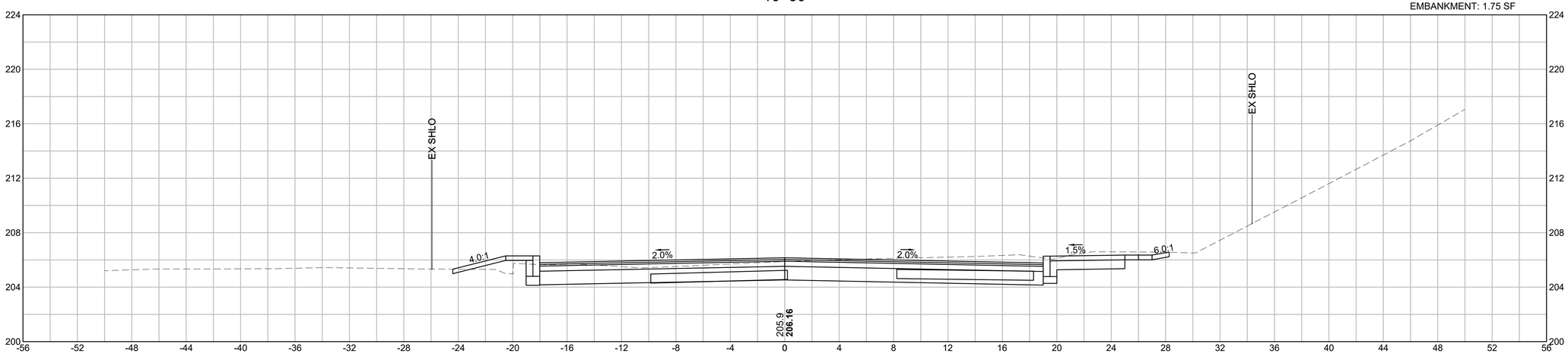
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 98 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**

17+00




16+50




HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(XSECTIONS).dwg 12:08 PM

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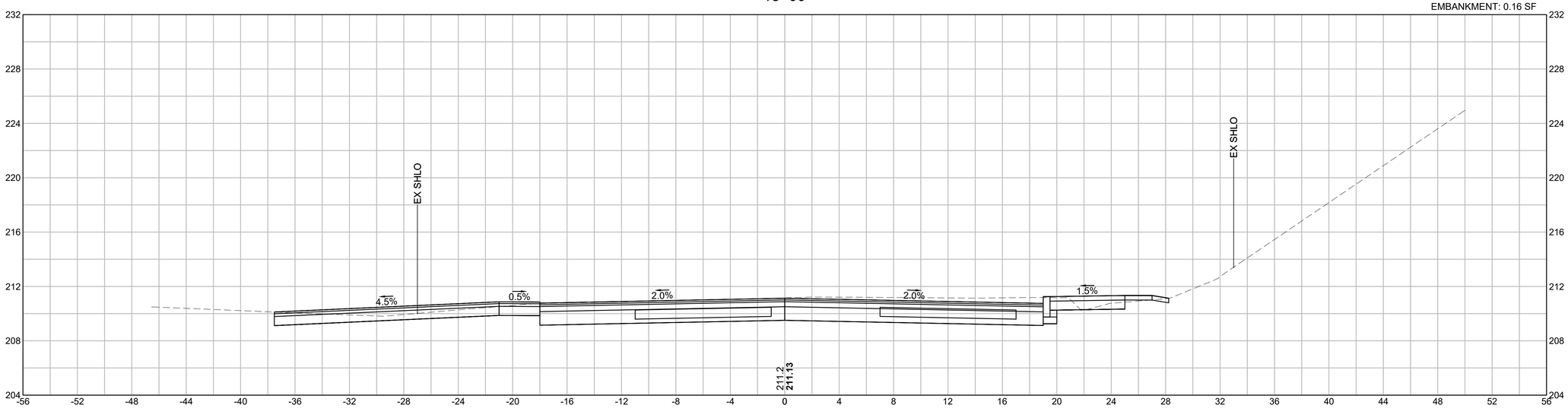
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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| MA | NHP(NHS)-003S(829) | 99 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**

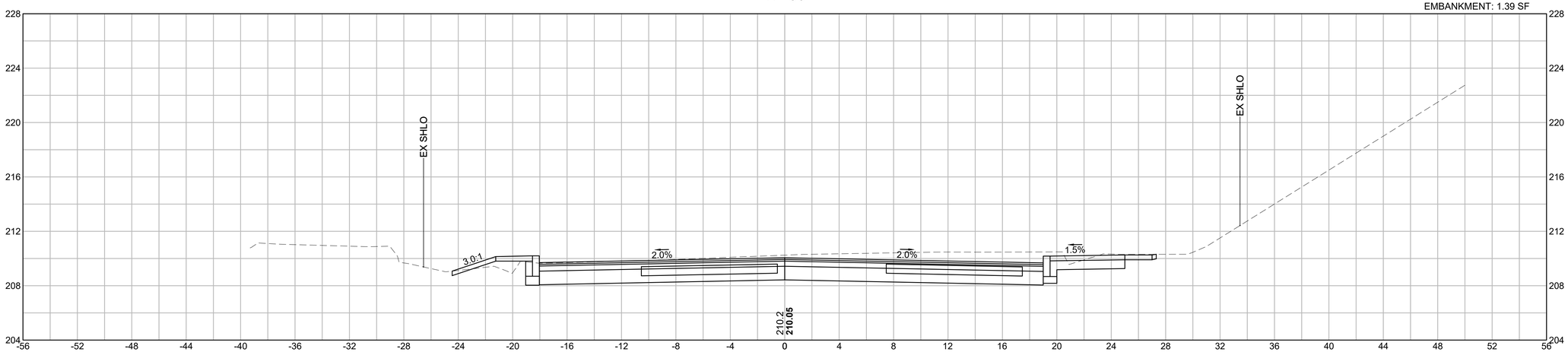
18+00

EXCAVATION: 80.45 SF
EMBANKMENT: 0.16 SF




17+50

EXCAVATION: 81.01 SF
EMBANKMENT: 1.39 SF




HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(XSECTIONS).dwg 12:08 PM
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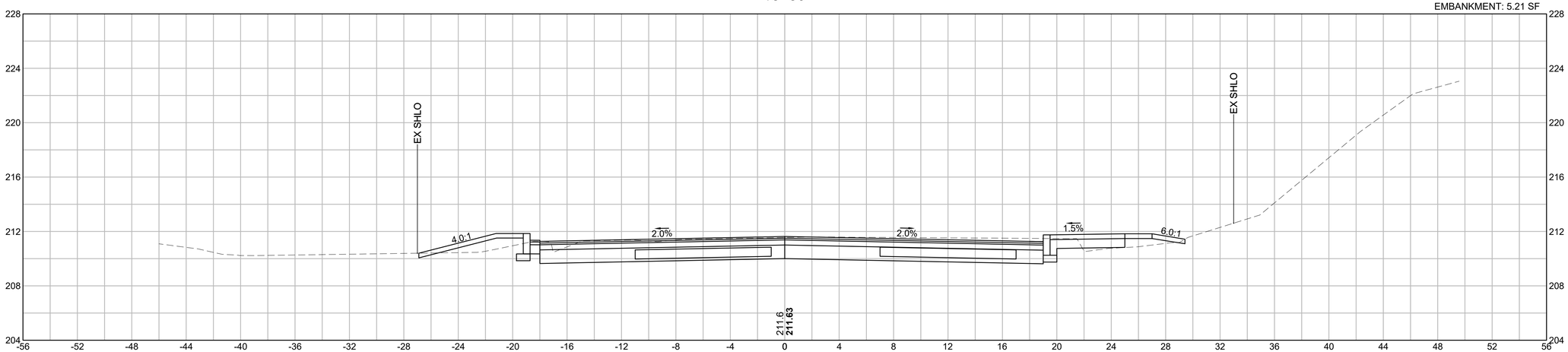
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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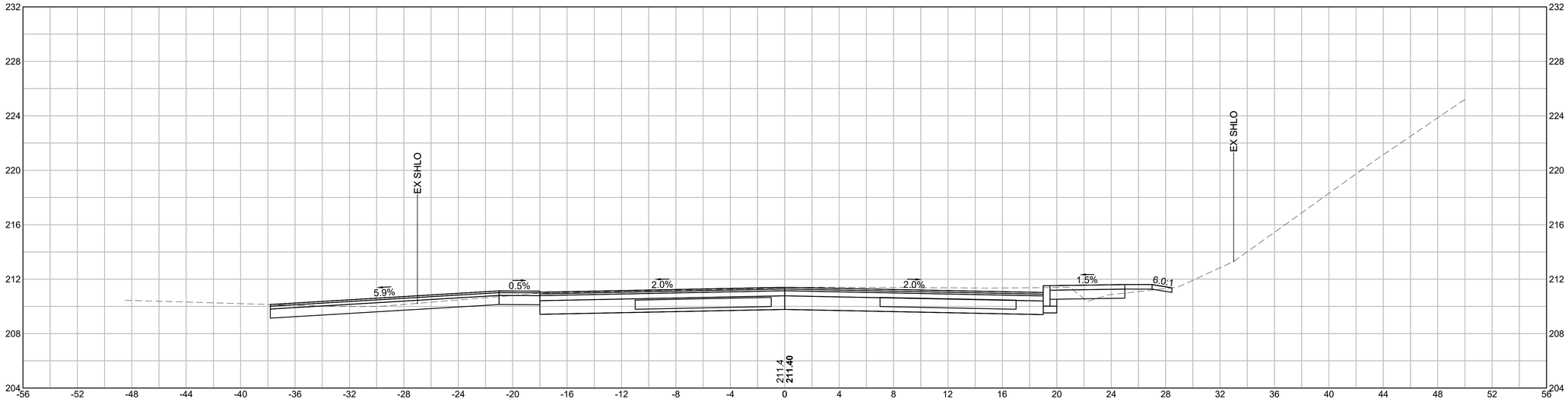
**CROSS SECTIONS**

18+50

EXCAVATION: 64.81 SF
EMBANKMENT: 5.21 SF




18+20



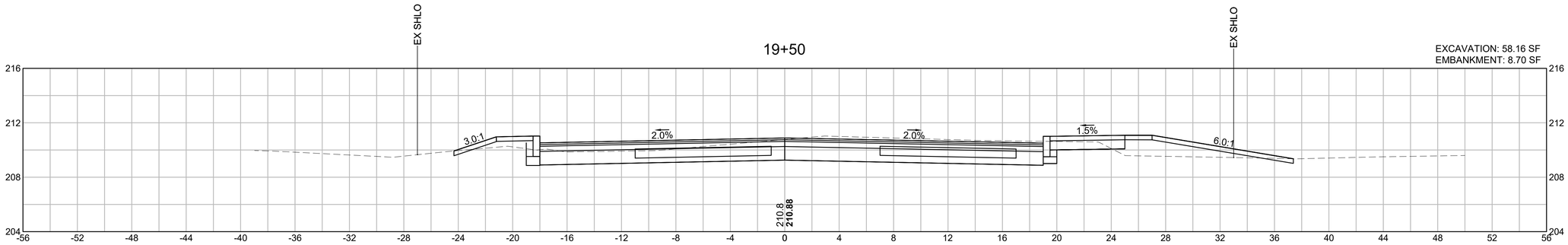

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VER. SCALE IN FEET

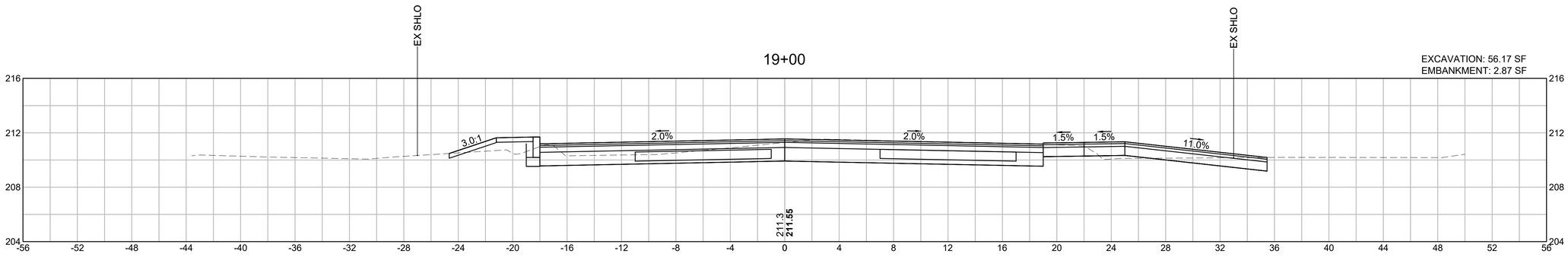
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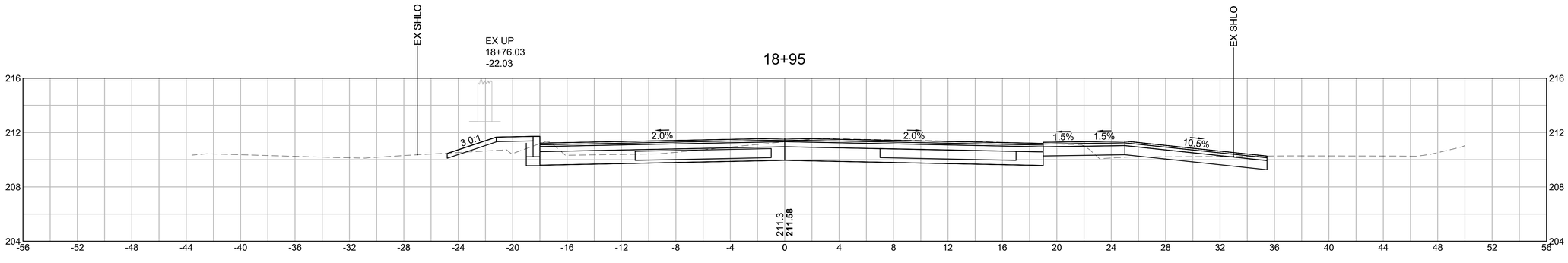
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS



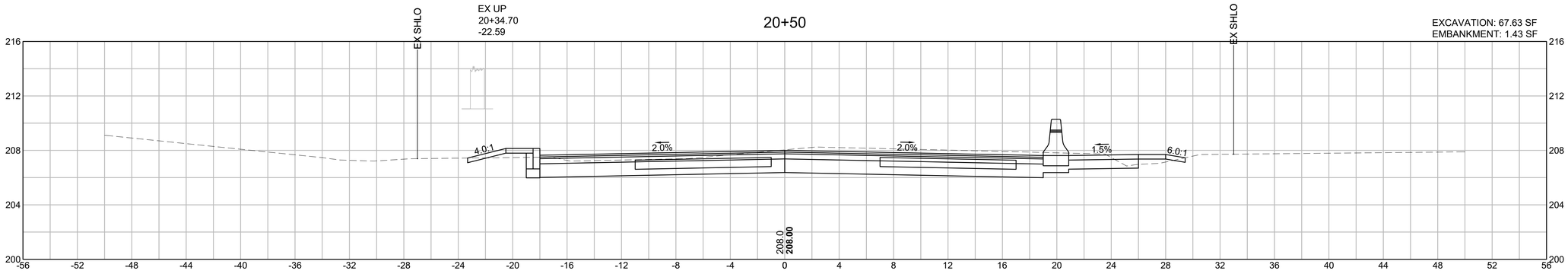



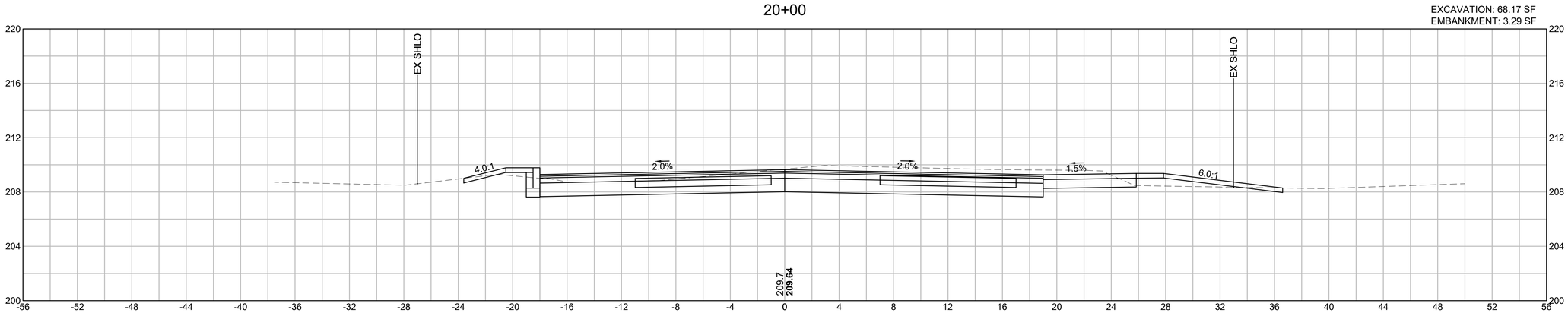

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4 0 4 8
VER. SCALE IN FEET

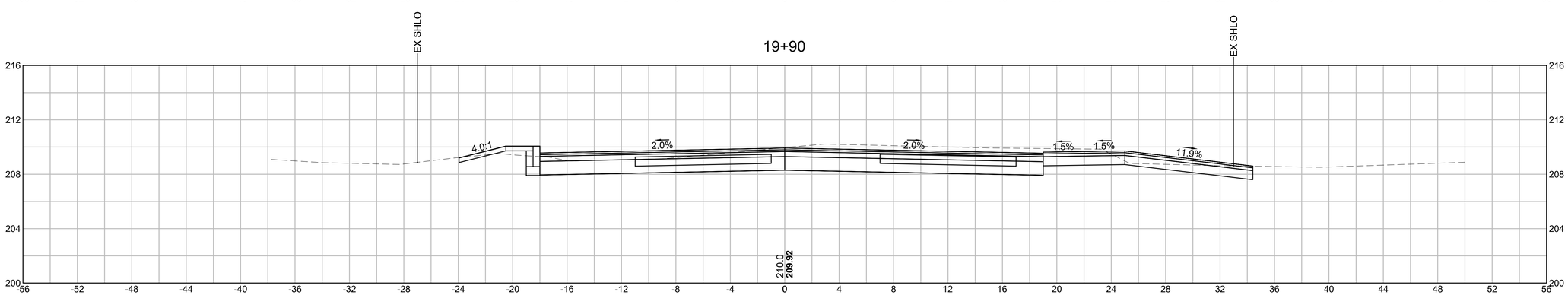
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 102 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS




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4 0 4 8
VER. SCALE IN FEET

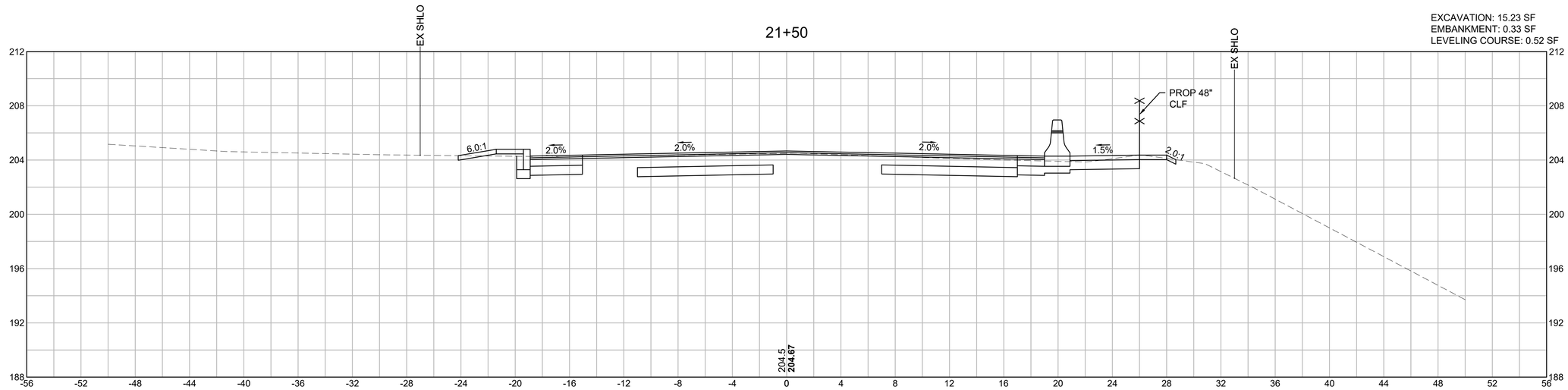
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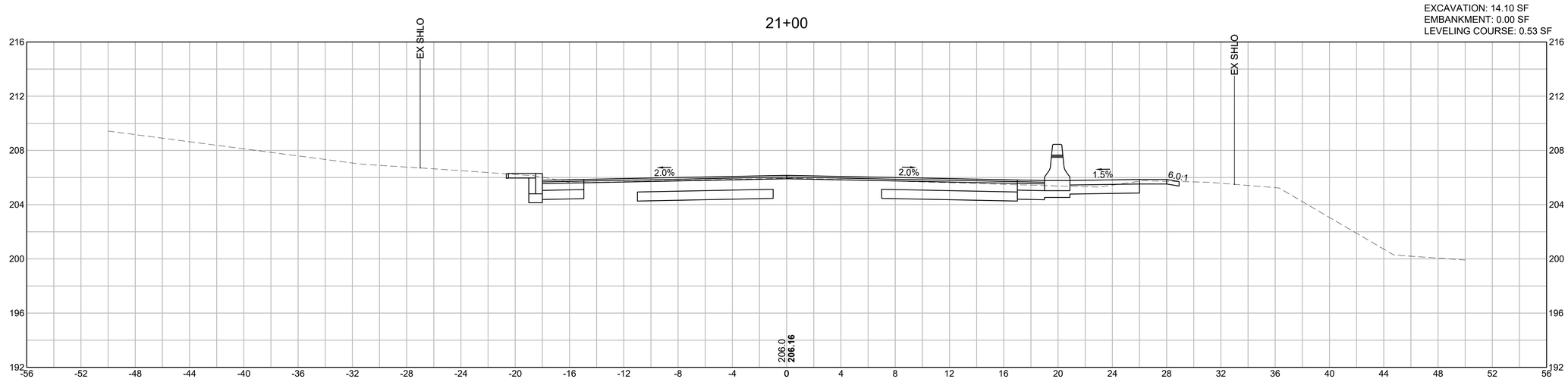
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 103 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**




HOR. SCALE IN FEET
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4 0 4 8
VER. SCALE IN FEET

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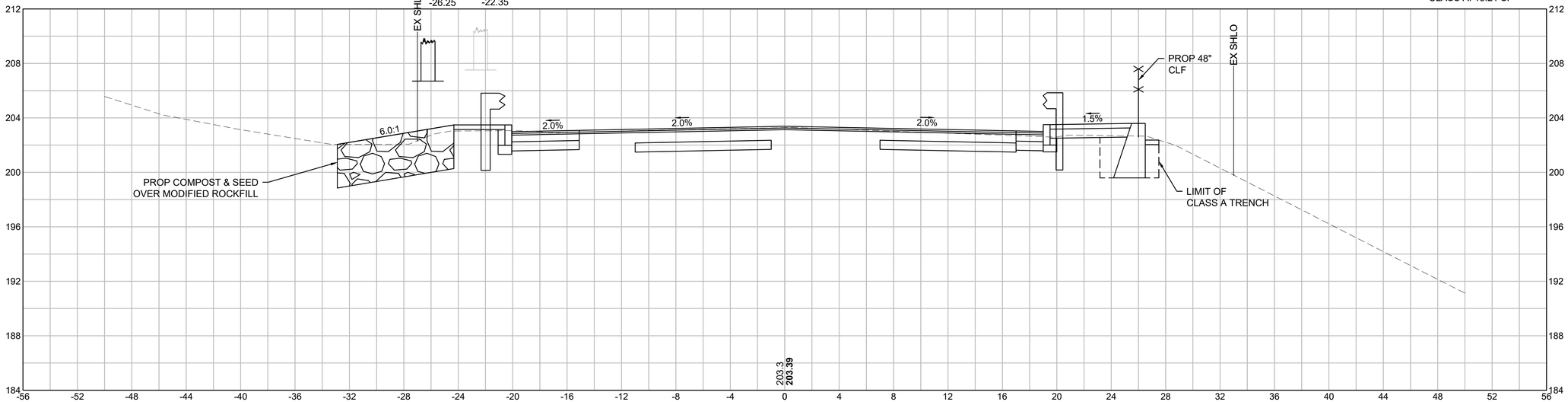
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
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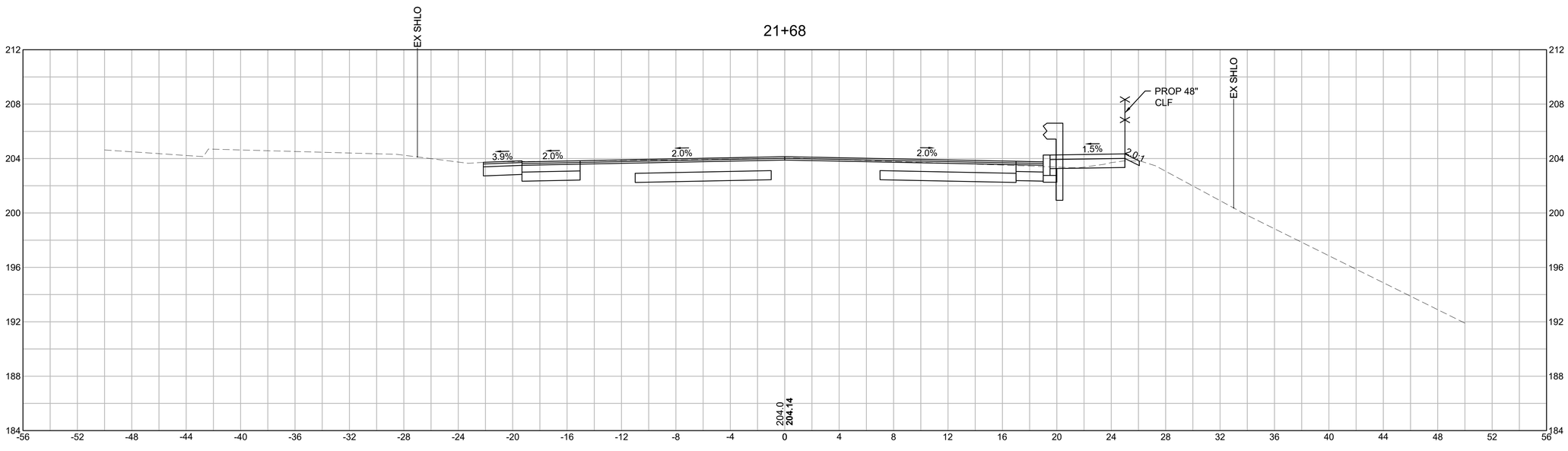
**CROSS SECTIONS**

EXCAVATION: 45.03 SF
EMBANKMENT: 0.25 SF
LEVELING COURSE: 0.31 SF
CLASS A: 13.21 SF

## 22+00




## 21+68




HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(XSECTIONS).dwg 12:09 PM

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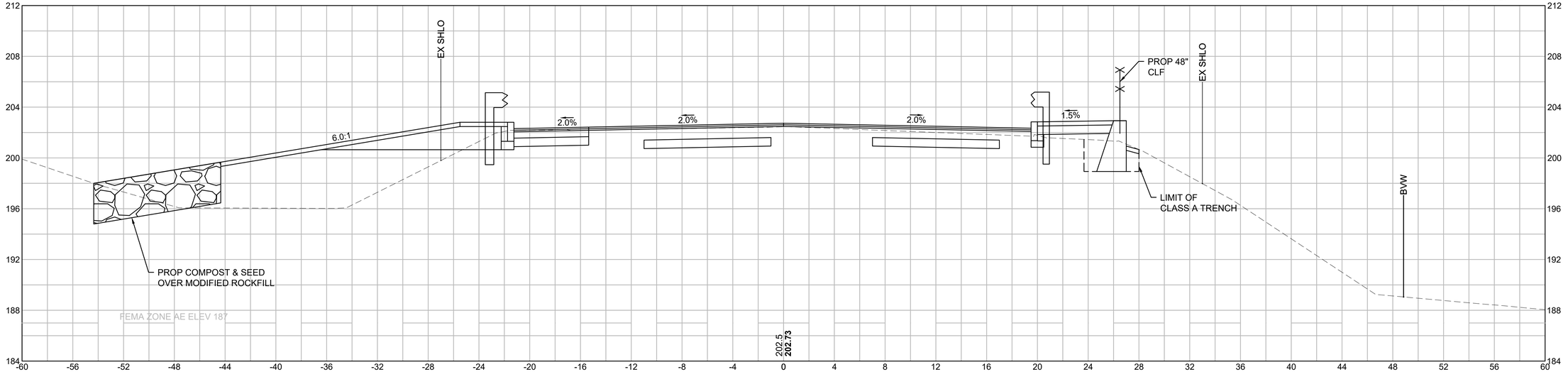
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 105 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**

22+50

EXCAVATION: 31.48 SF
EMBANKMENT: 76.09 SF
LEVELING COURSE: 2.90 SF
CLASS A: 10.01 SF




HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8

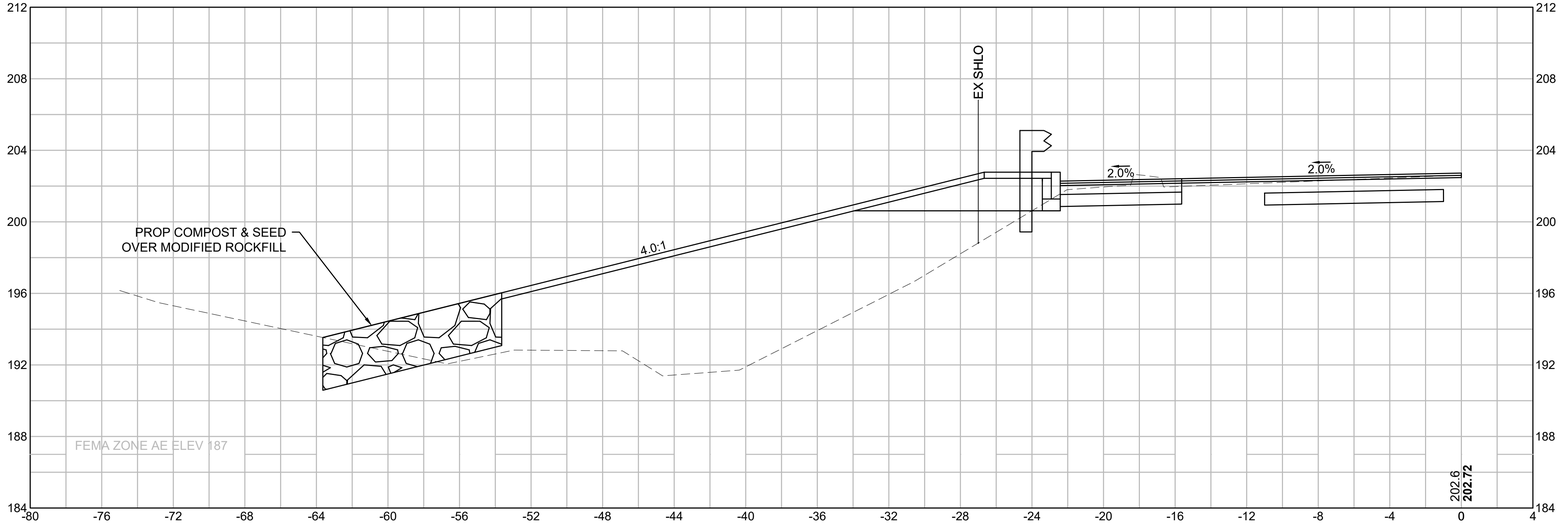
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 106 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**

23+00




HOR. SCALE IN FEET
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4 0 4 8
VER. SCALE IN FEET

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(XSECTIONS).dwg 12:09 PM

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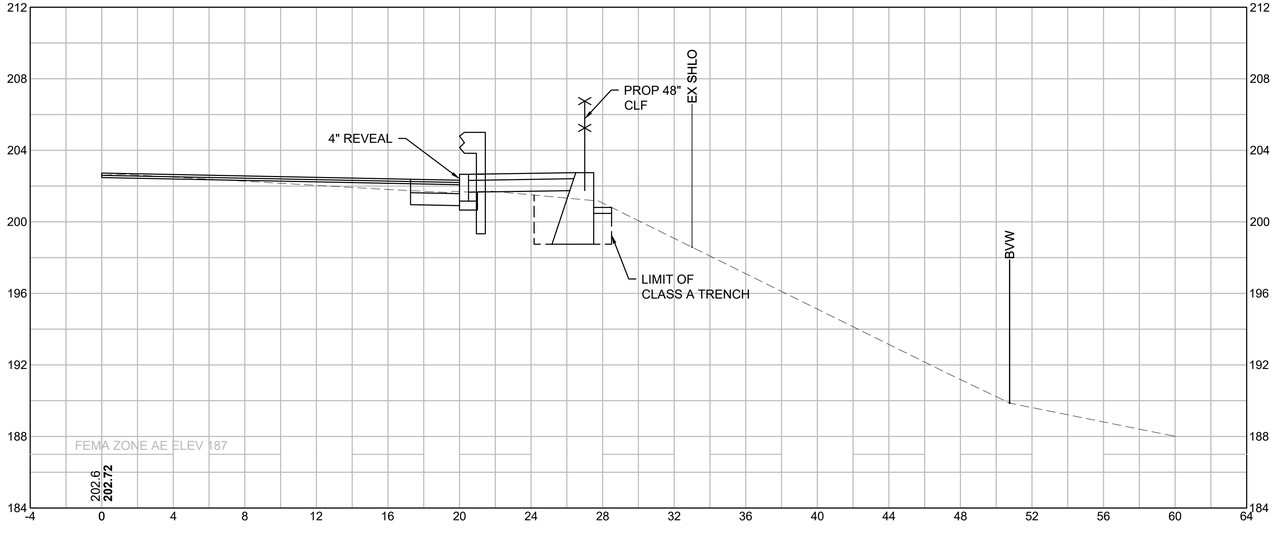
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 107 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CROSS SECTIONS**

23+00

EXCAVATION: 28.18 SF
EMBANKMENT: 151.04 SF
LEVELING COURSE: 2.85 SF
CLASS A: 10.92 SF




HOR. SCALE IN FEET
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VER. SCALE IN FEET
4 0 4 8

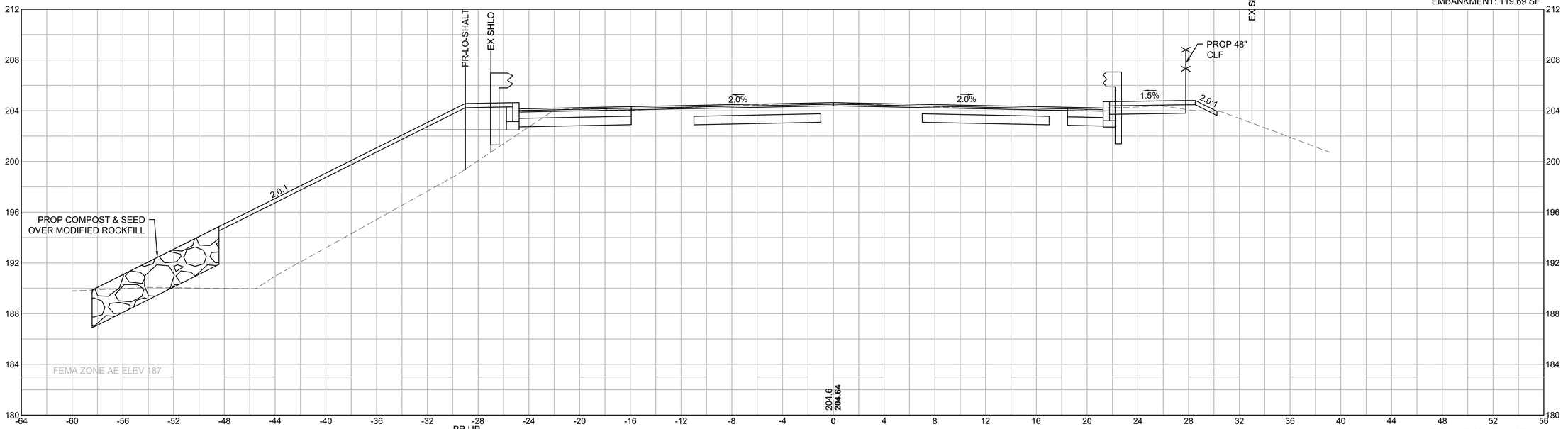
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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**CROSS SECTIONS**

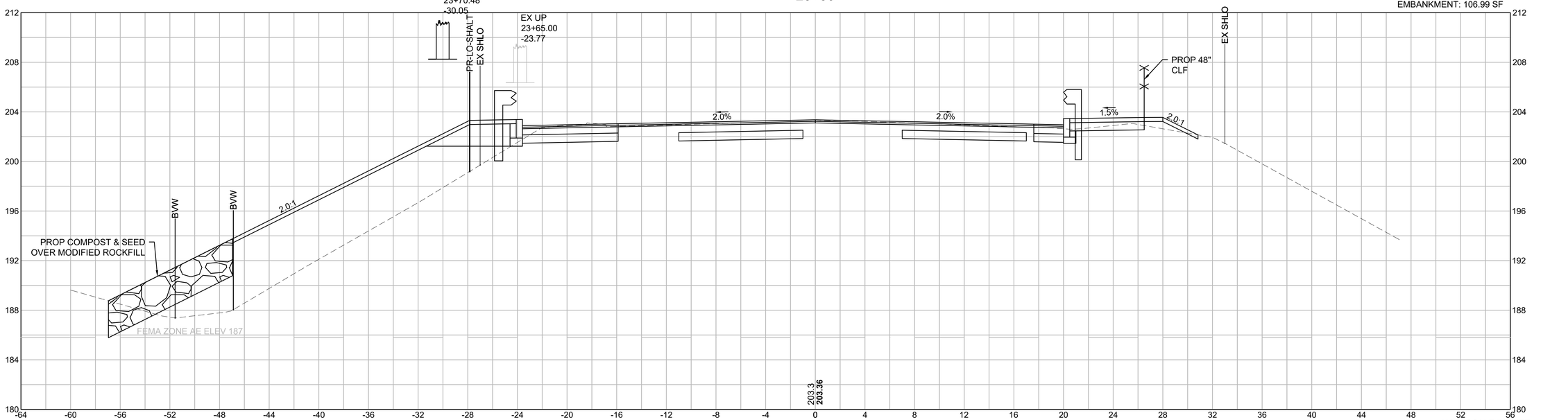
## 24+00

EXCAVATION: 26.75 SF
EMBANKMENT: 119.69 SF




## 23+50

EXCAVATION: 22.85 SF
EMBANKMENT: 106.99 SF




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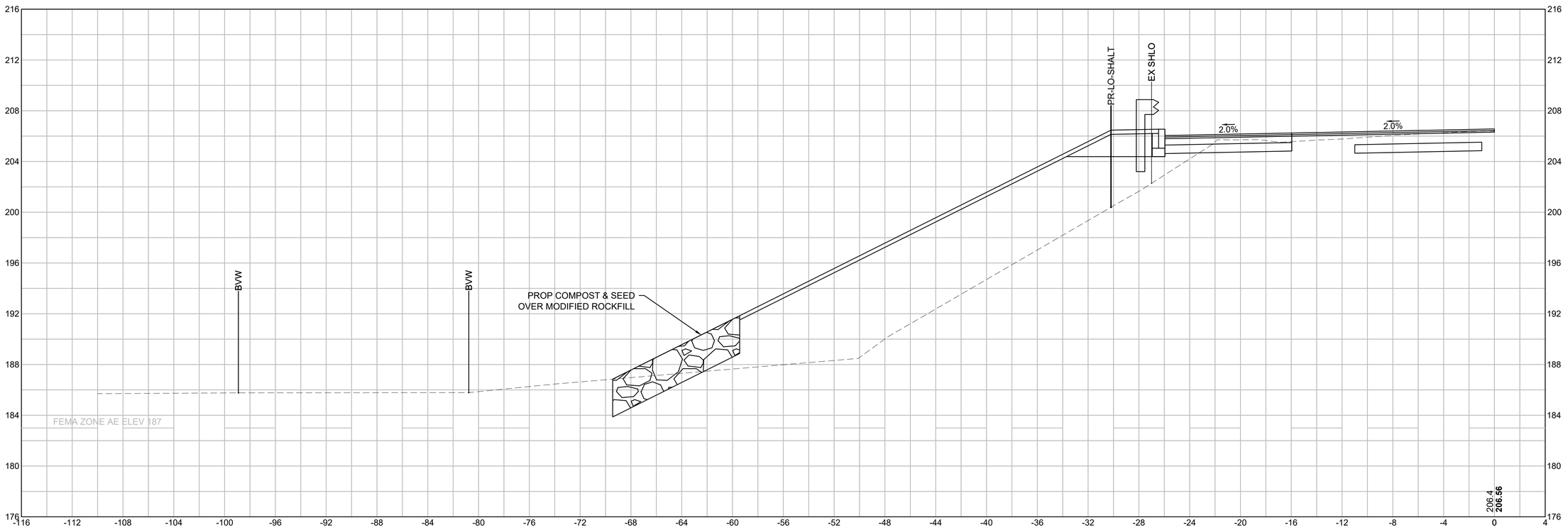
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 109 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**

24+50



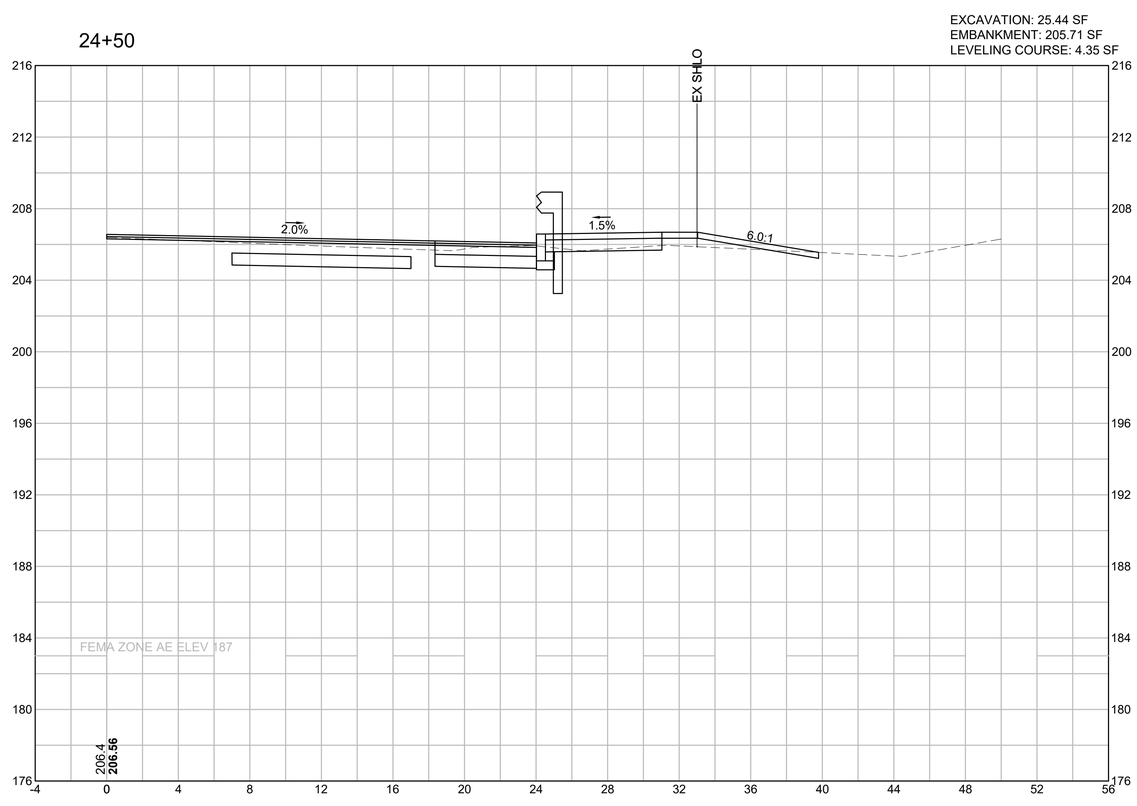

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4 0 4 8
VER. SCALE IN FEET

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(XSECTIONS).dwg 12:09 PM

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 110 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS




HOR. SCALE IN FEET
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4 0 4 8
VER. SCALE IN FEET

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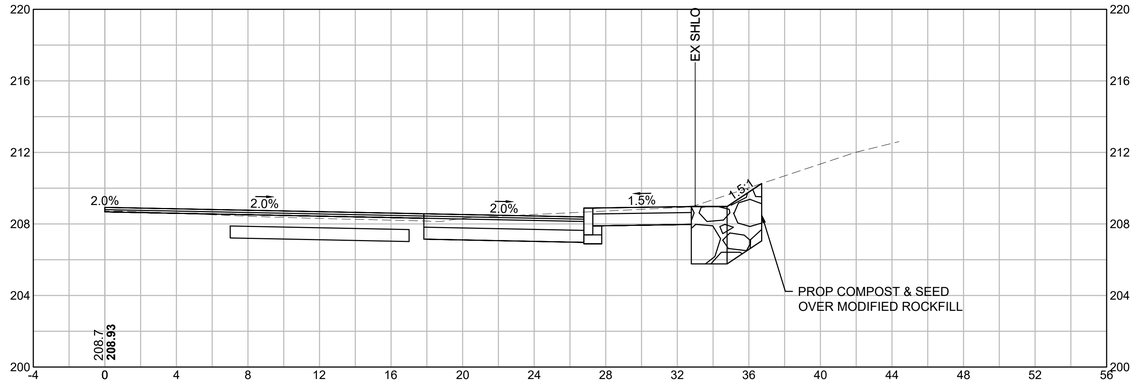
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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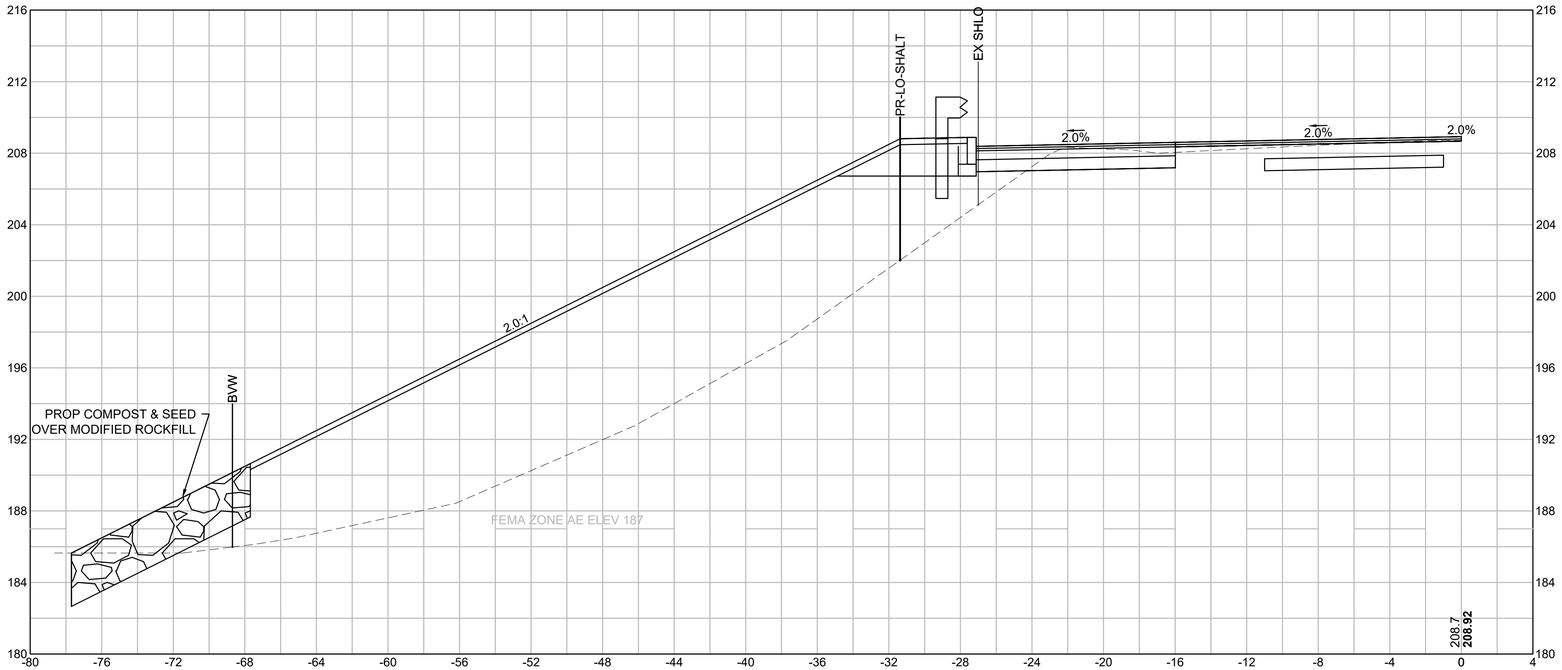
**CROSS SECTIONS**

25+00

EXCAVATION: 49.31 SF
EMBANKMENT: 284.87 SF
LEVELING COURSE: 3.01 SF




25+00




HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8

Nitsch – P:\08000–09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(XSECTIONS).dwg 12:10 PM

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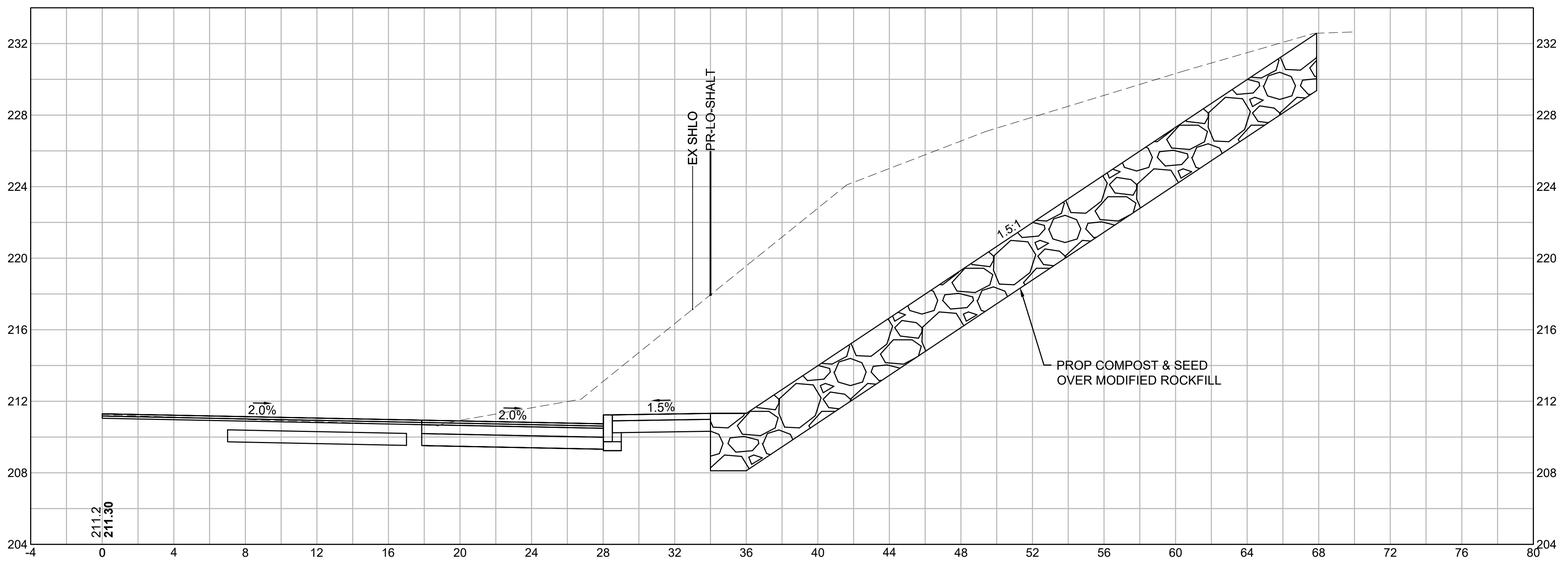
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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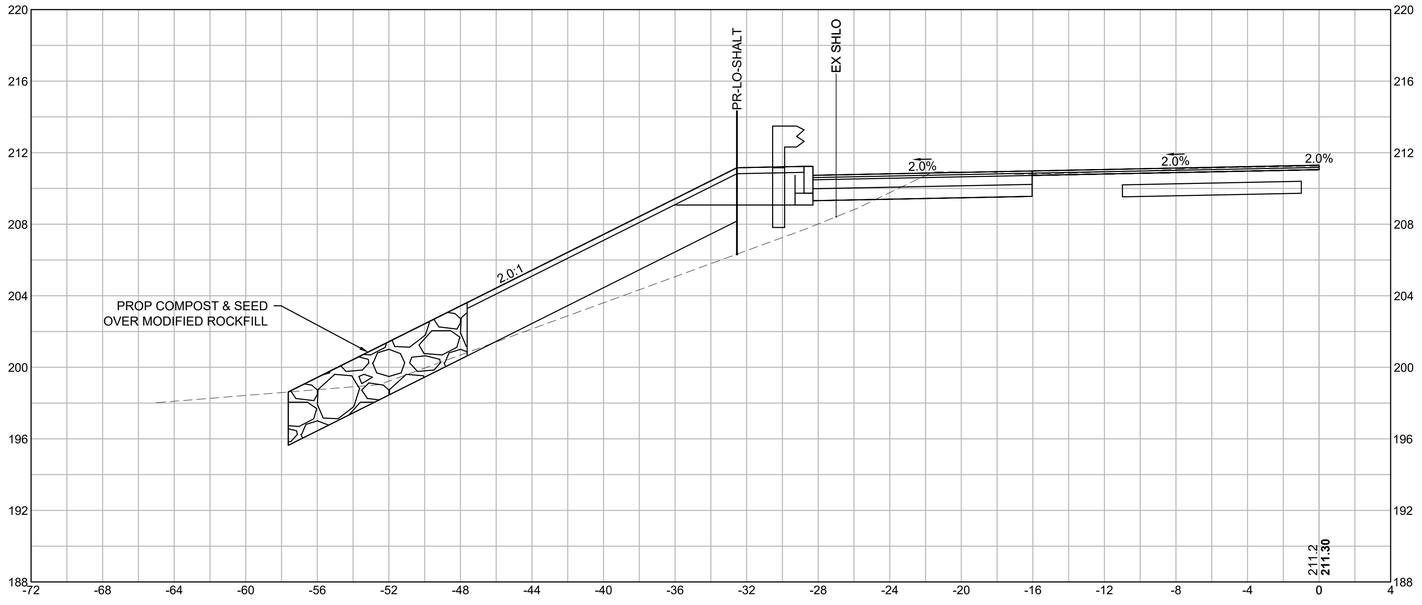
**CROSS SECTIONS**

25+50

EXCAVATION: 374.06 SF
EMBANKMENT: 64.97 SF



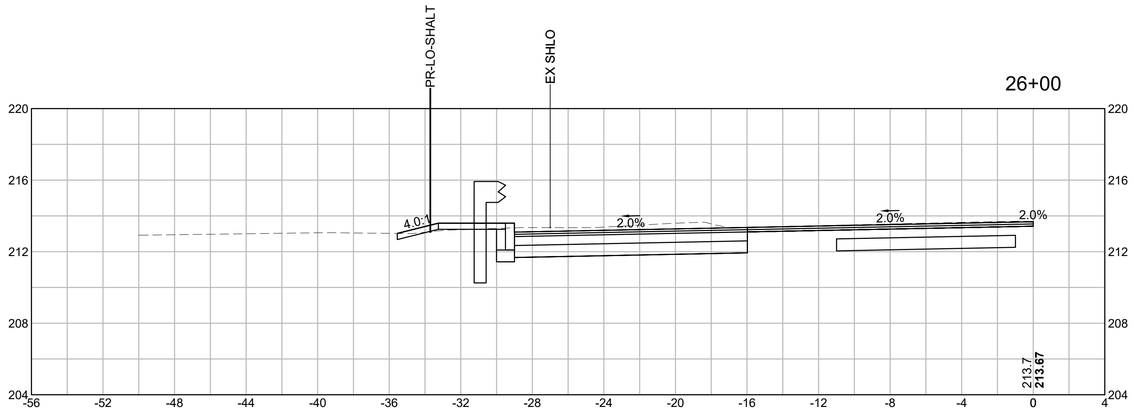

25+50

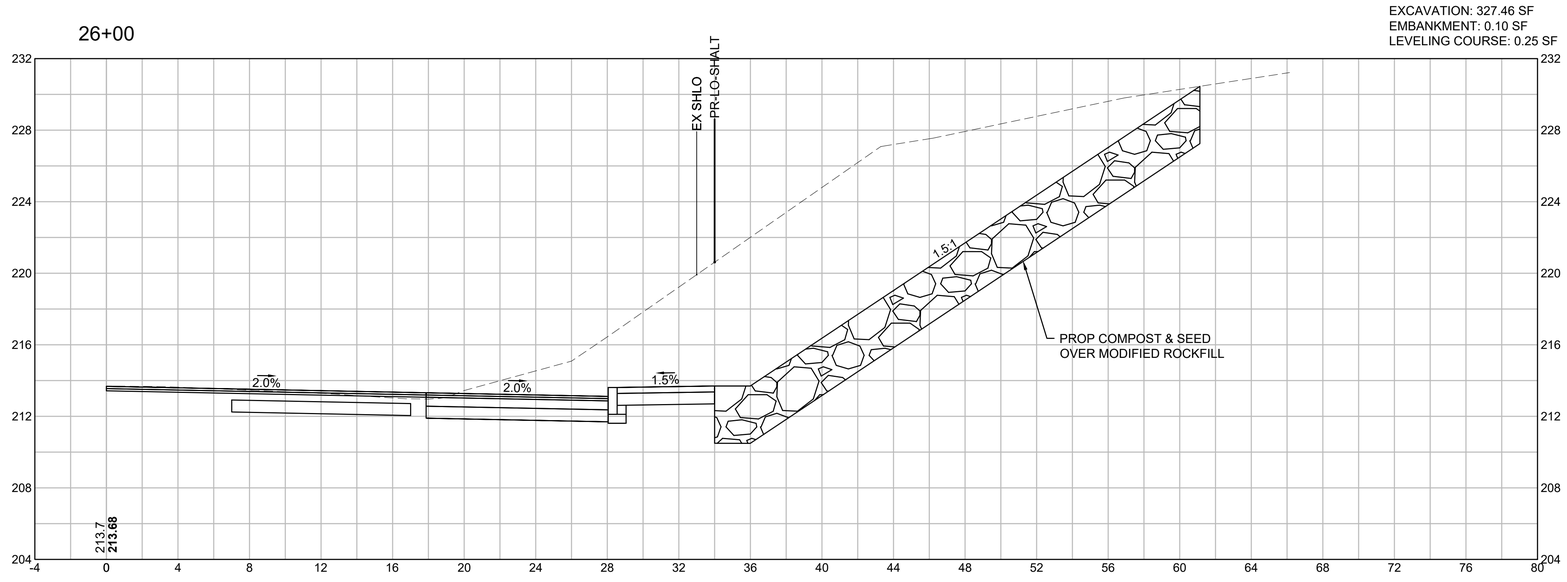



HOR. SCALE IN FEET
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VER. SCALE IN FEET
4 0 4 8

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 113 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CROSS SECTIONS




HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

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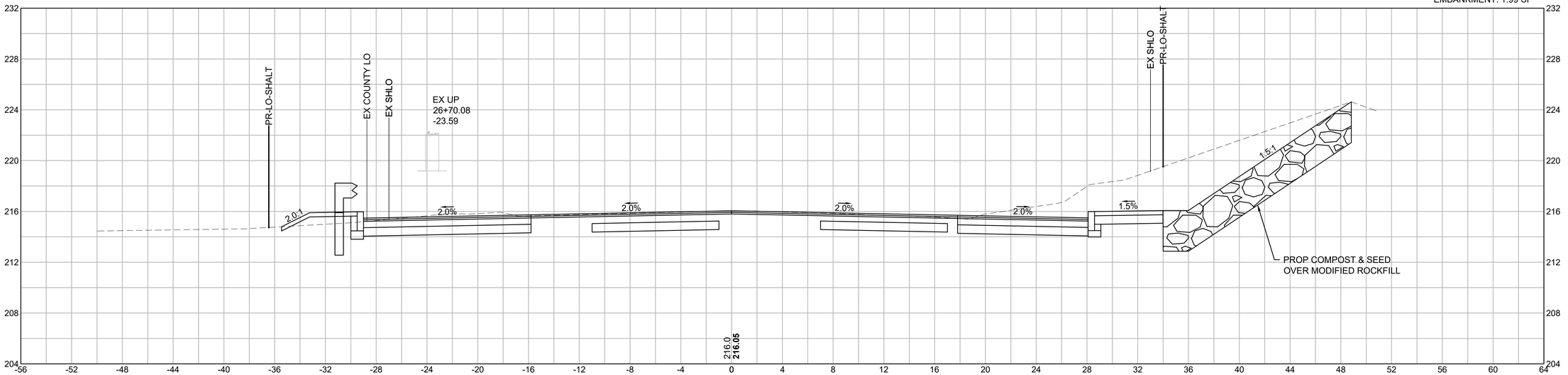
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 114 | 131 |
| | PROJECT FILE NO. | 613358 | |

## CROSS SECTIONS

26+50

EXCAVATION: 148.54 SF
EMBANKMENT: 1.99 SF




HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8

Nitsch – P:\08000-09999\9720.16 Rt138 Stoughton\Transportation\CAD\613358 CAD – Phase 2\Project Drawing Data\DWG\613358_HD(XSECTIONS).dwg 12:10 PM

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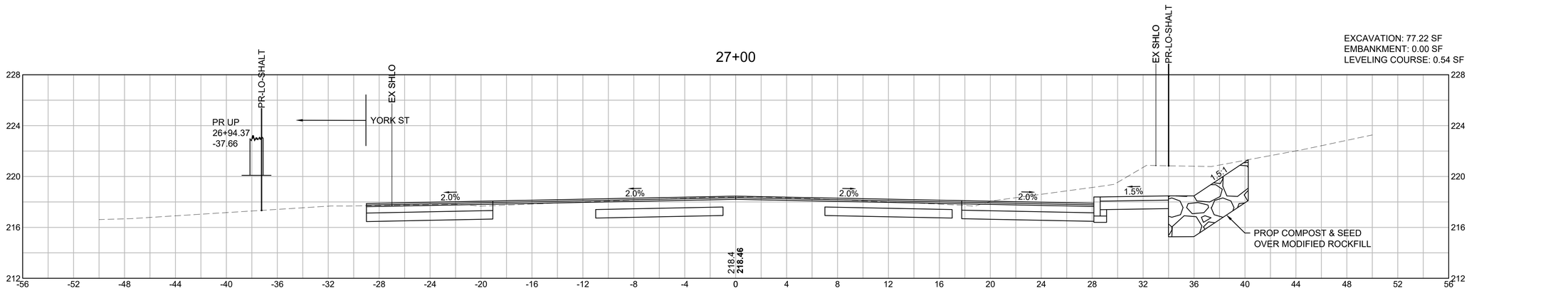
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 115 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CROSS SECTIONS

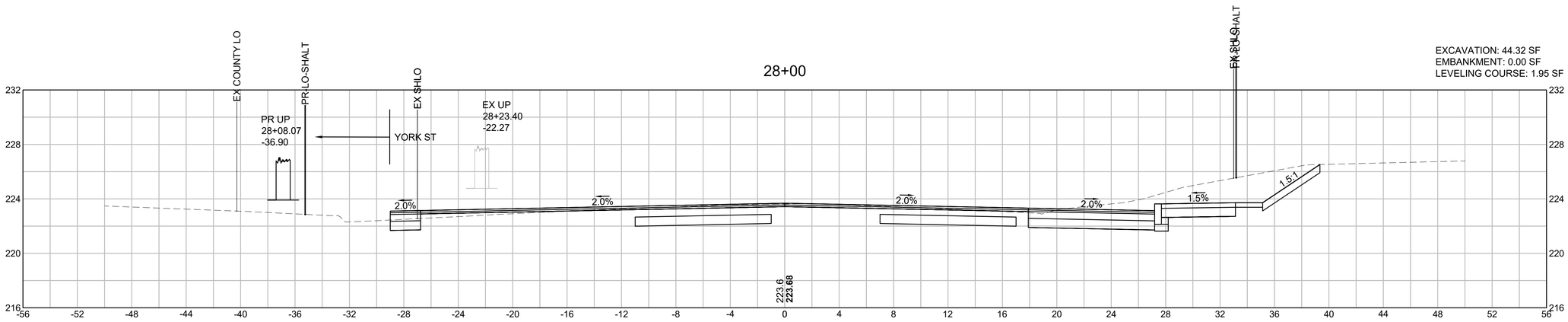



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VER. SCALE IN FEET

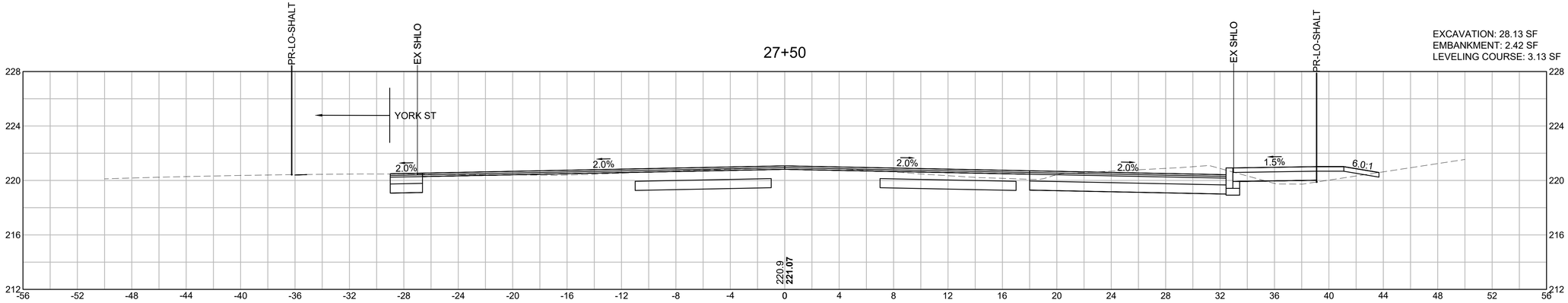
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 116 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS

### 28+00




### 27+50




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4 0 4 8
VER. SCALE IN FEET

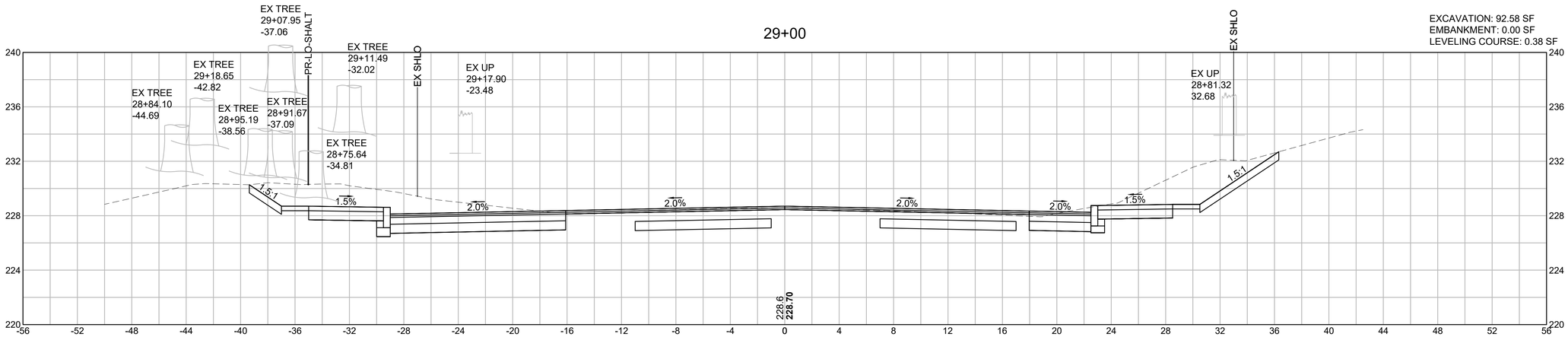
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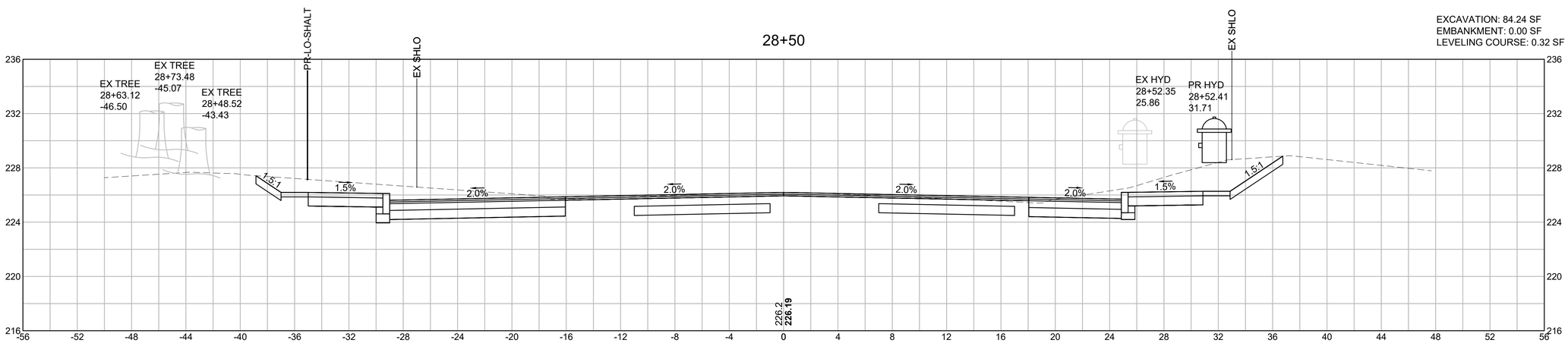
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 117 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CROSS SECTIONS**



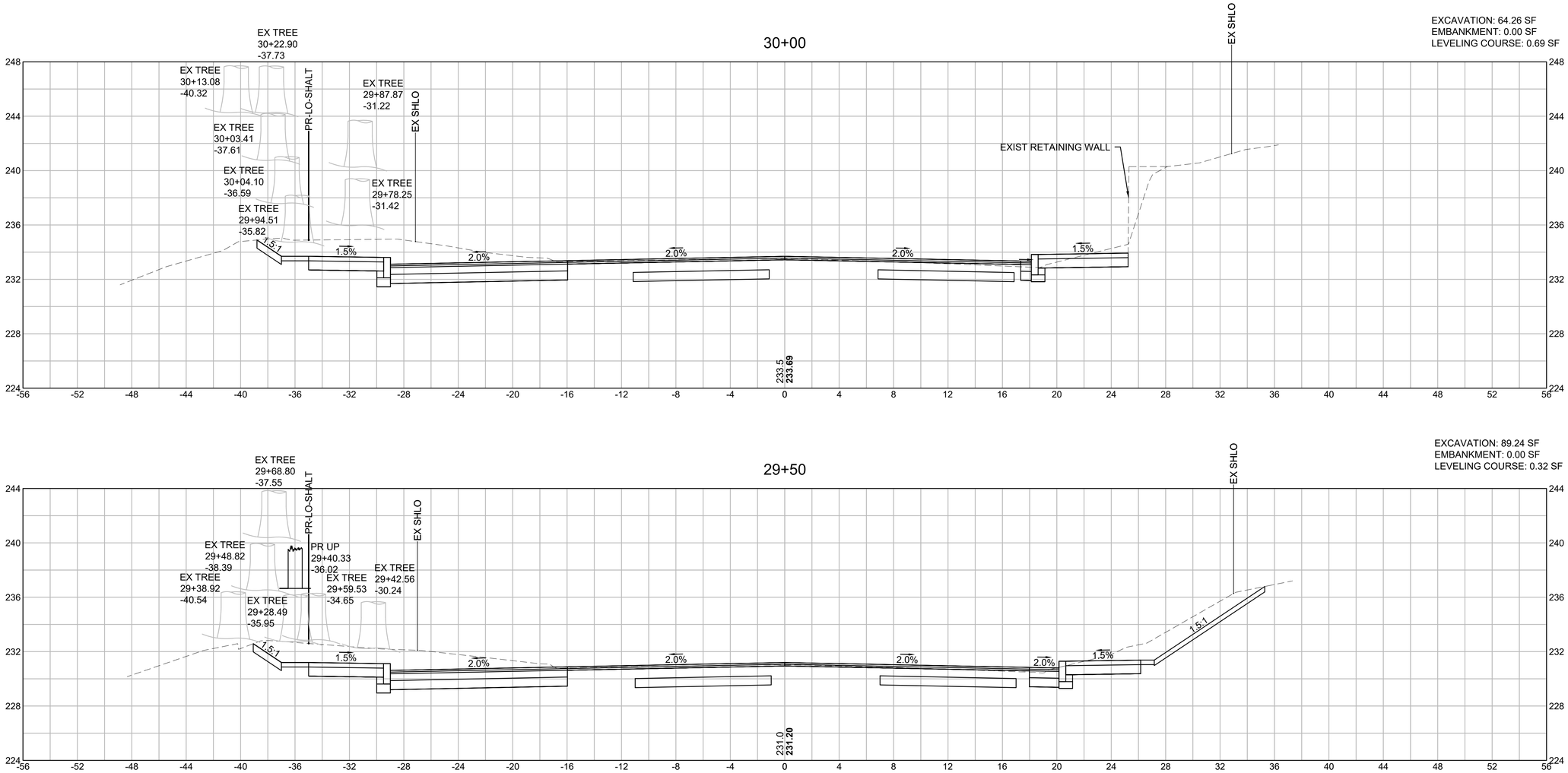

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VER. SCALE IN FEET

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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 118 | 131 |
| | PROJECT FILE NO. | 613358 | |

## CROSS SECTIONS



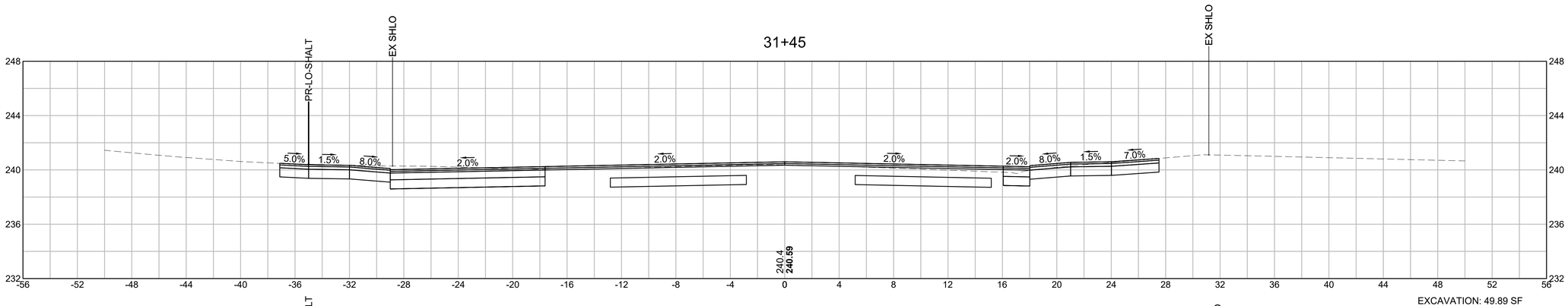

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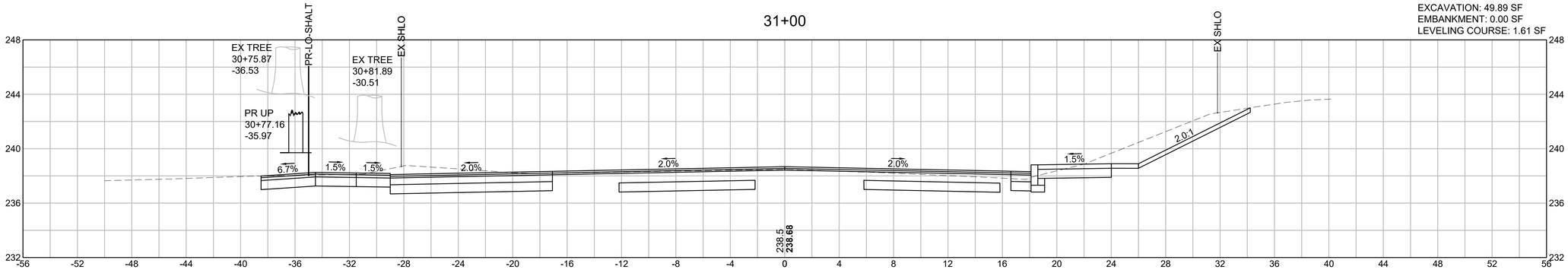
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

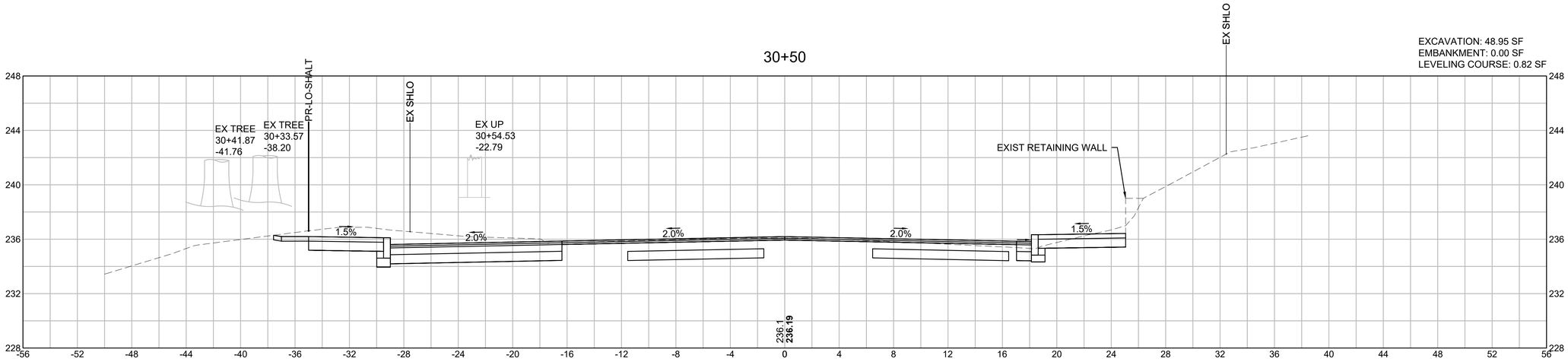
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 119 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**




EXCAVATION: 49.89 SF
EMBANKMENT: 0.00 SF
LEVELING COURSE: 1.61 SF




EXCAVATION: 48.95 SF
EMBANKMENT: 0.00 SF
LEVELING COURSE: 0.82 SF

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VER. SCALE IN FEET
4 0 4 8

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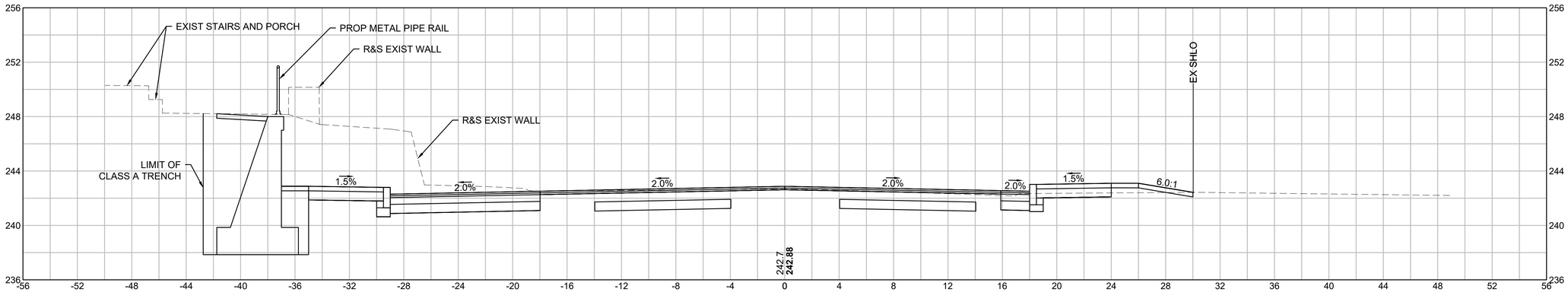
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

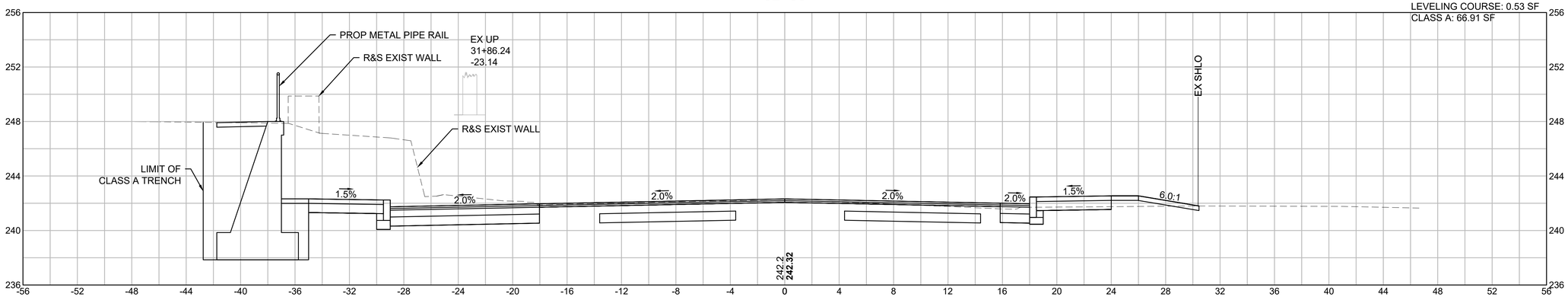
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
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| PROJECT FILE NO. | 613358 | | |

**CROSS SECTIONS**

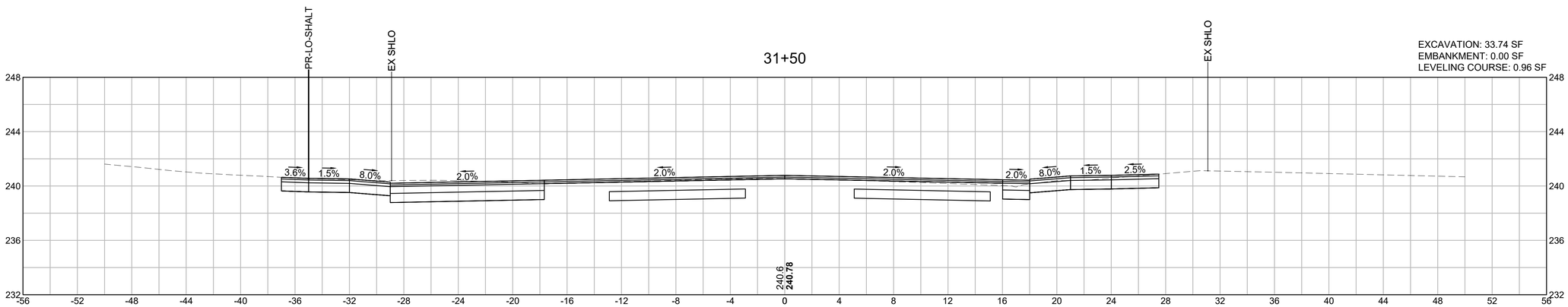
## 32+25




## 32+00




## 31+50

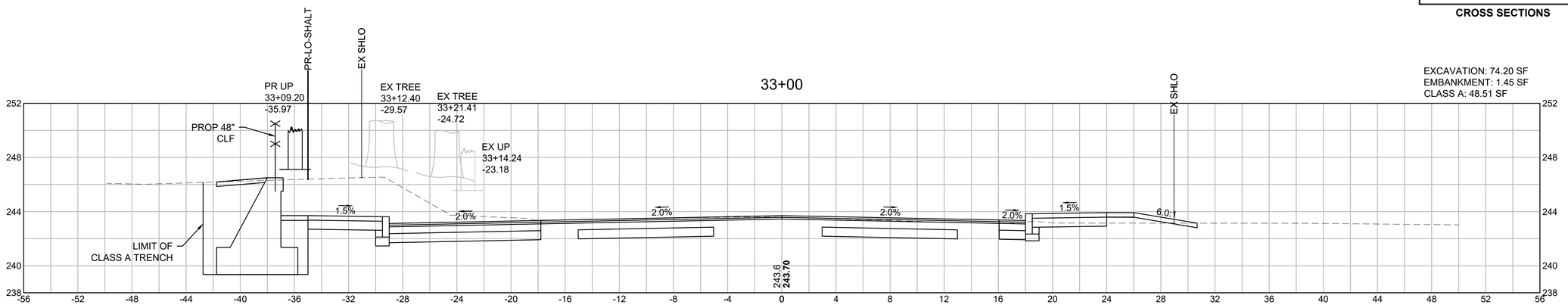


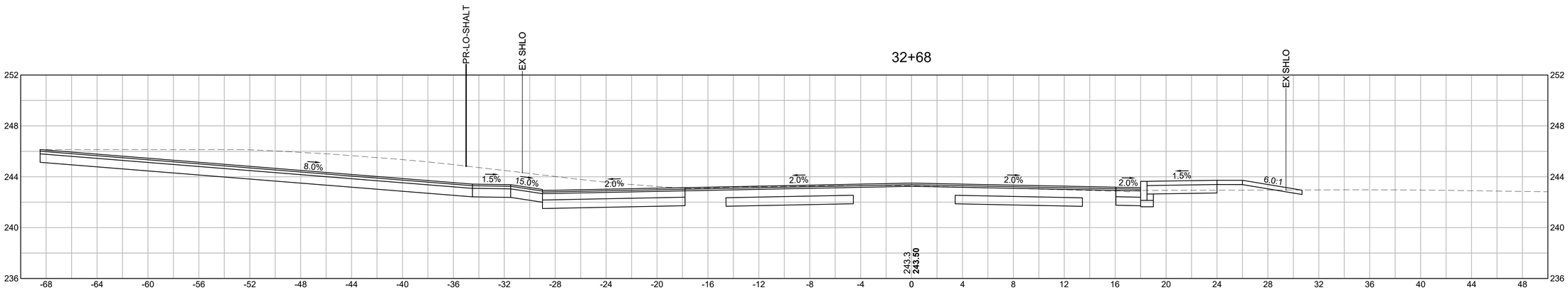

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VER. SCALE IN FEET

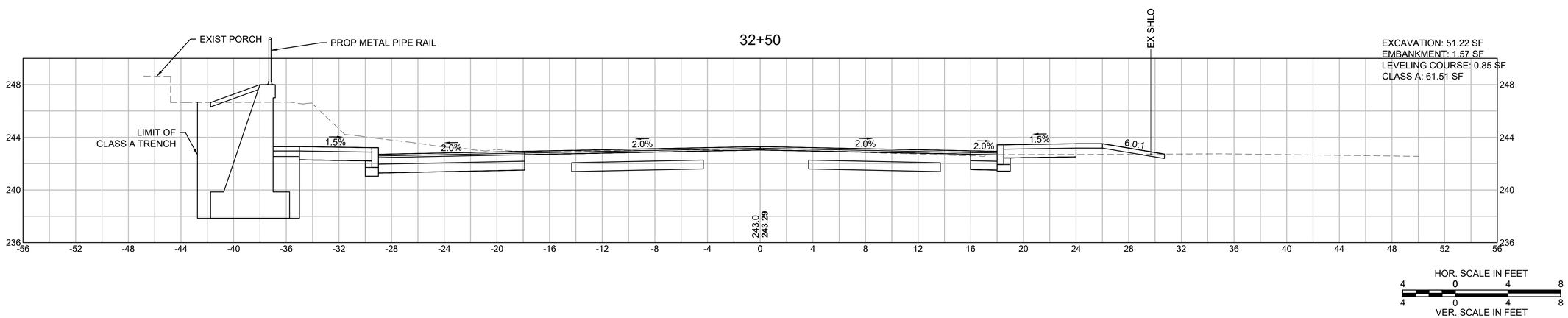
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 121 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS




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VER. SCALE IN FEET

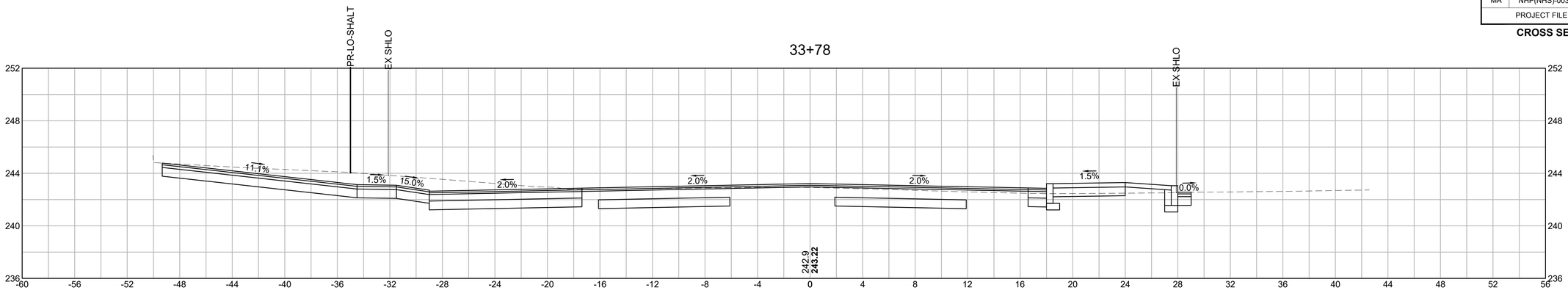
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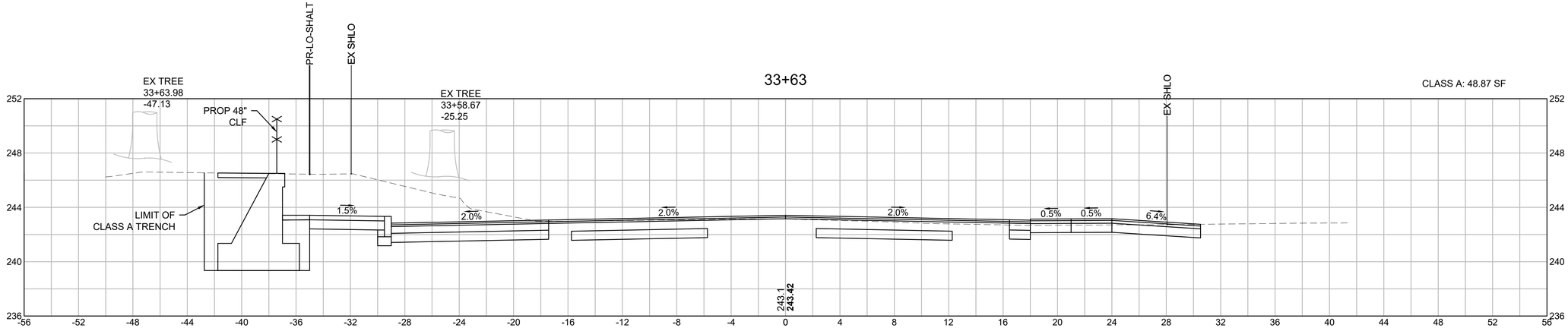
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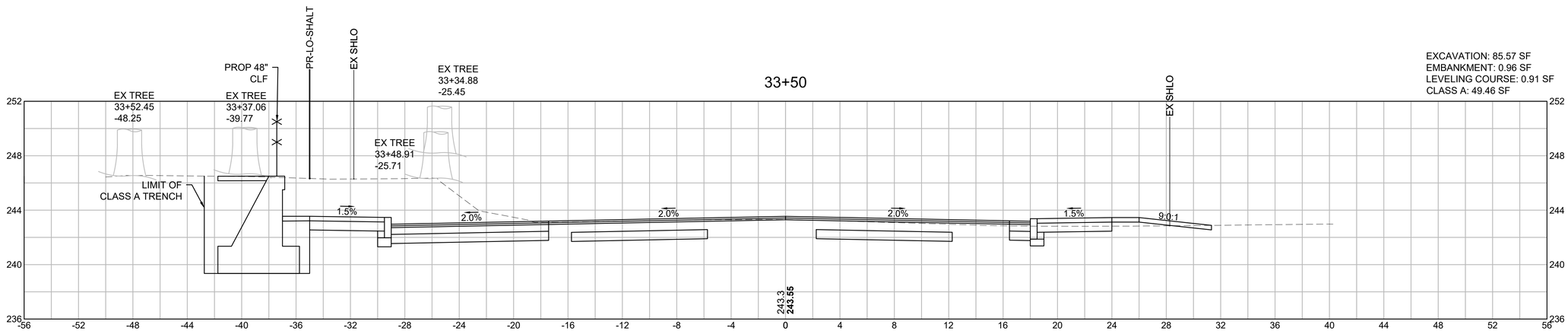
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 122 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS



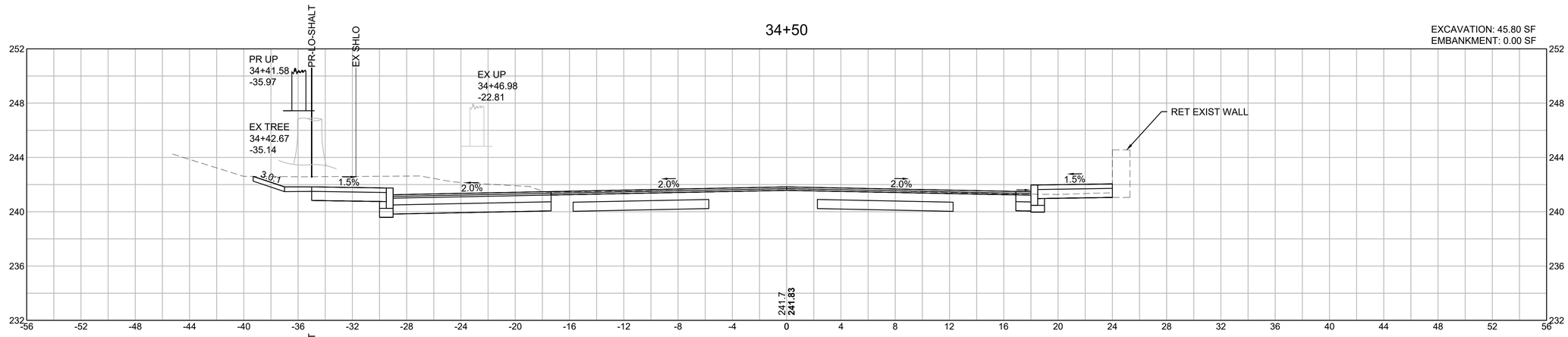

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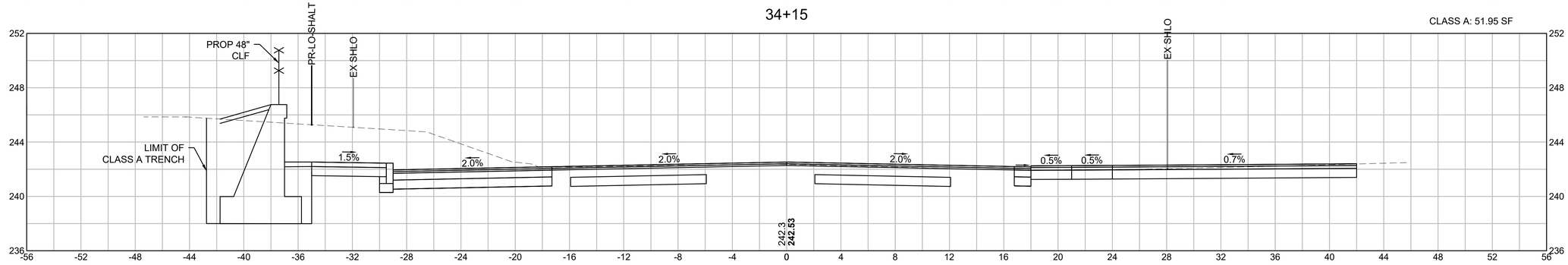
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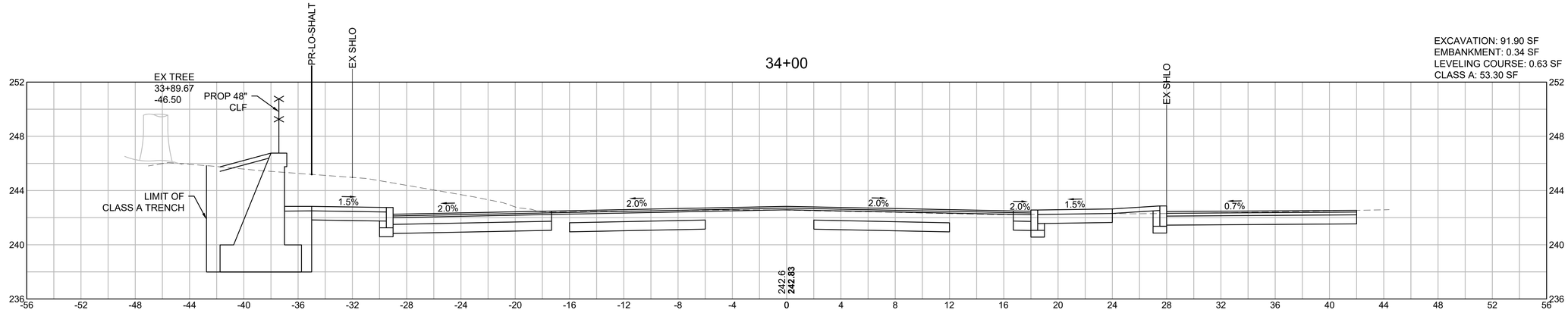
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 123 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS



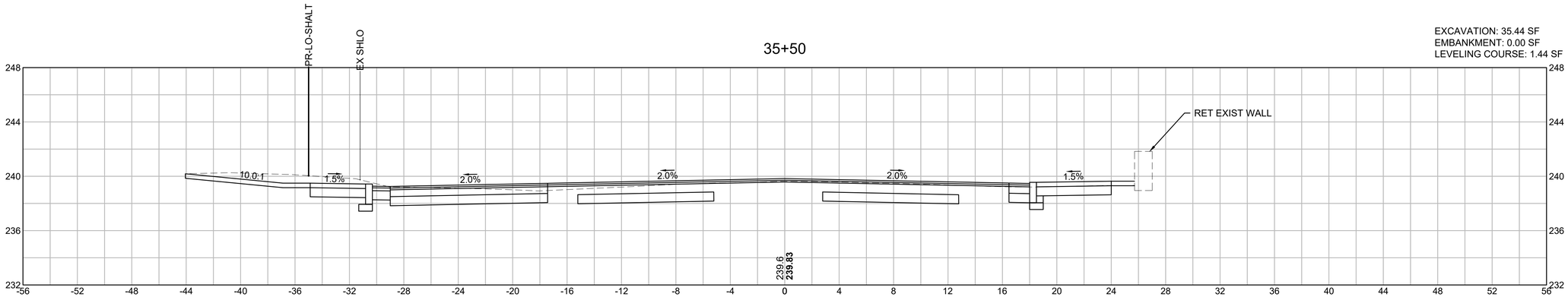

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VER. SCALE IN FEET

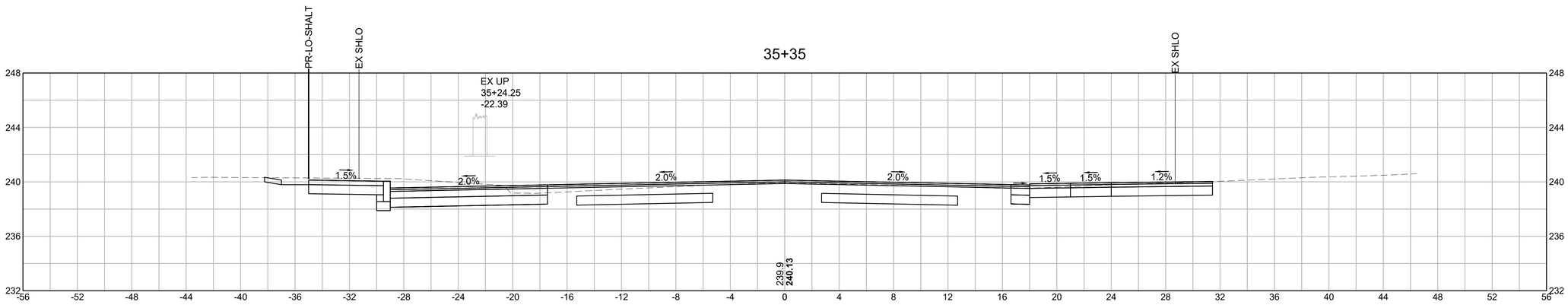
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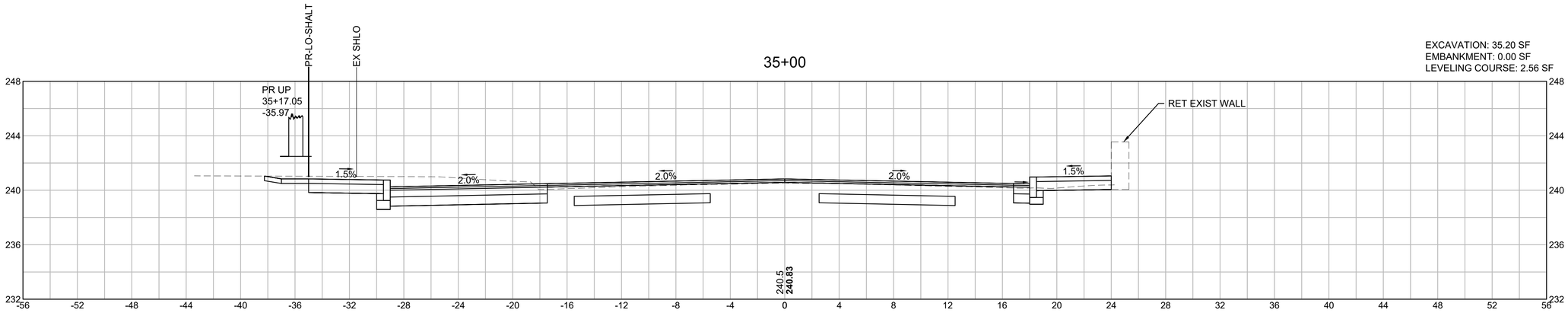
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 124 | 131 |
| | PROJECT FILE NO. | 613358 | |

## CROSS SECTIONS



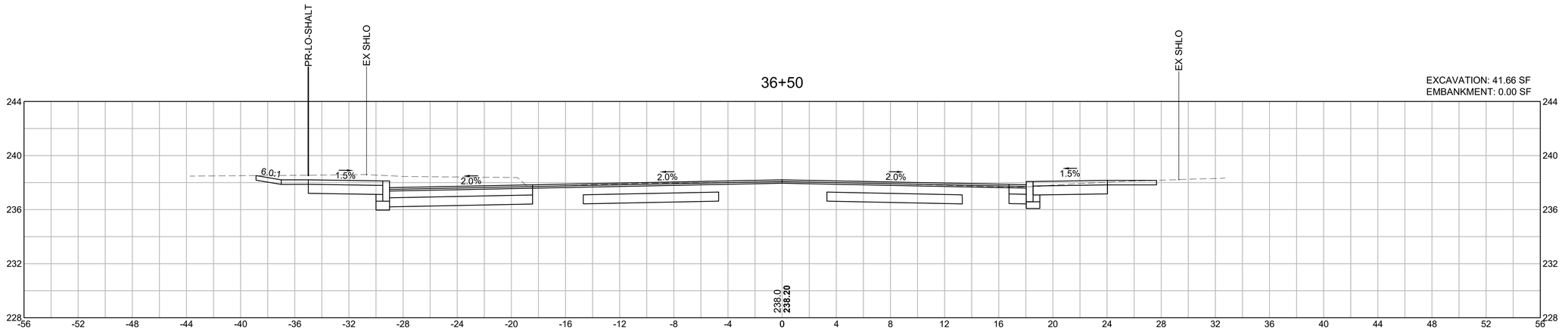

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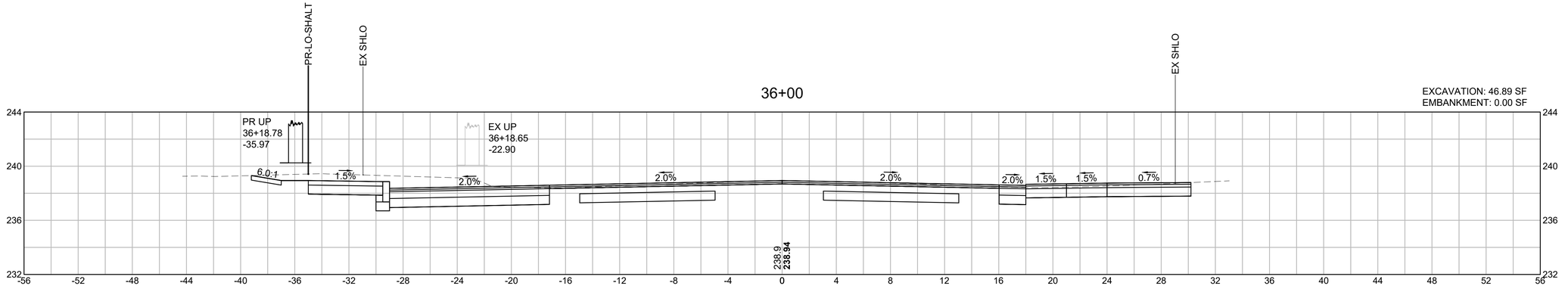
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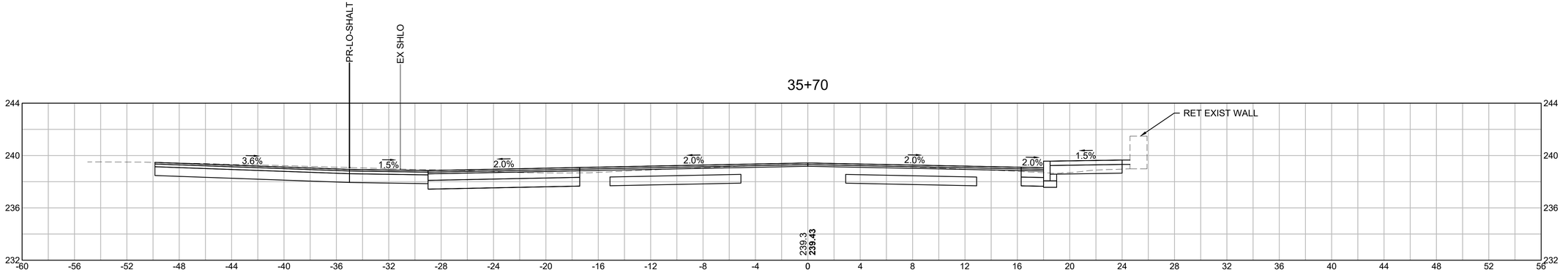
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 125 | 131 |
| PROJECT FILE NO. | 613358 | | |

## CROSS SECTIONS



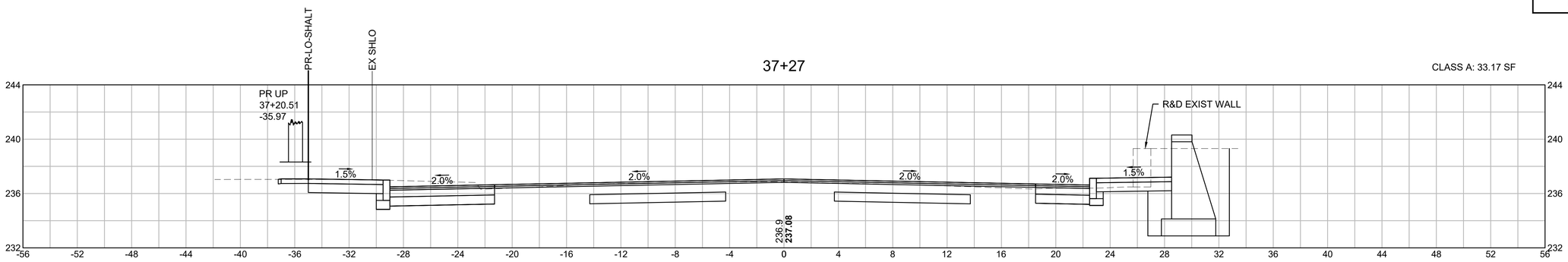

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VER. SCALE IN FEET
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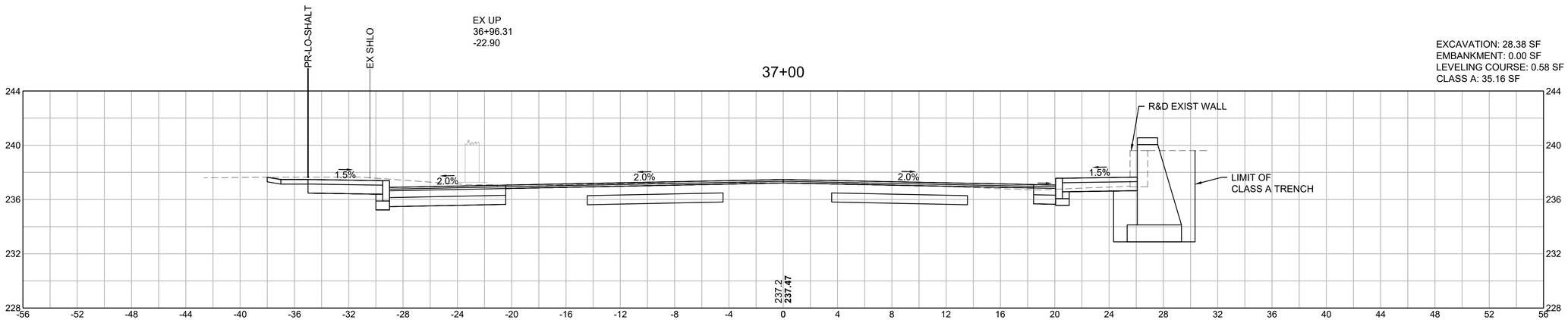
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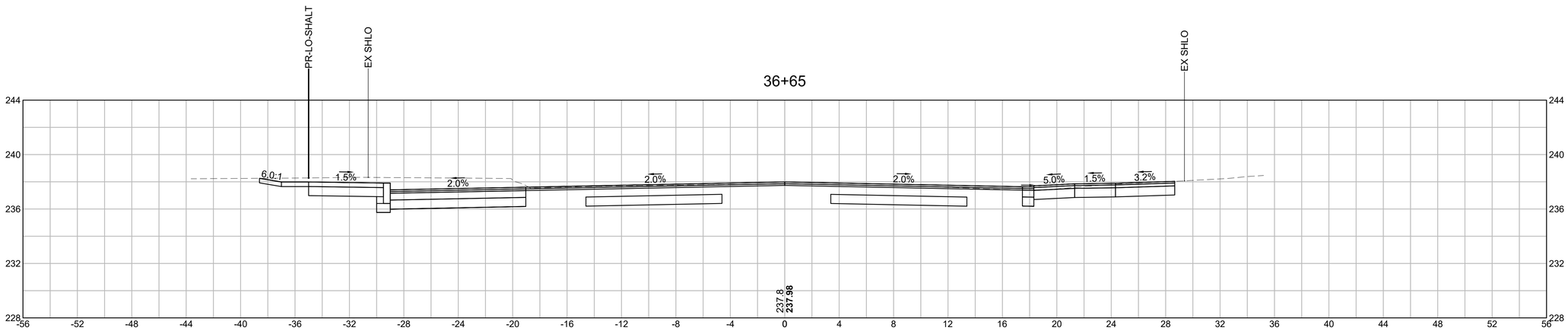
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 126 | 131 |
| PROJECT FILE NO. | 613358 | | |

**CROSS SECTIONS**




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4 0 4 8
VER. SCALE IN FEET

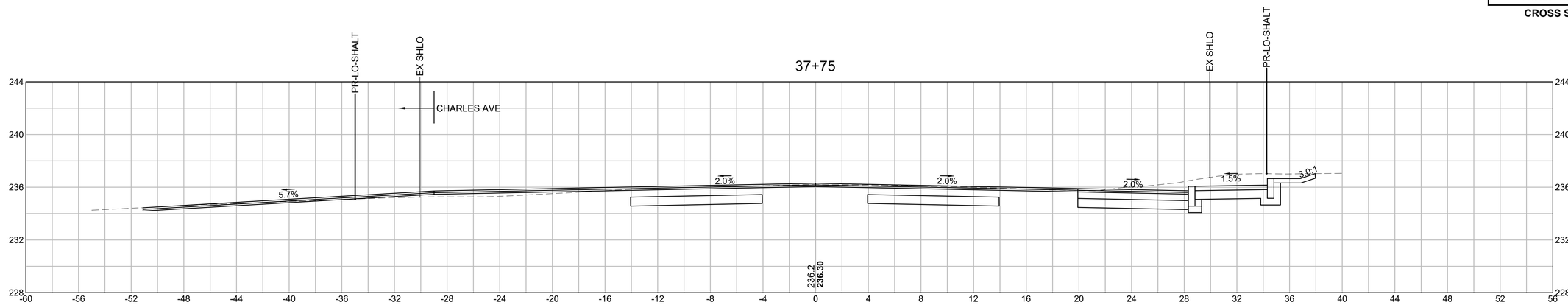
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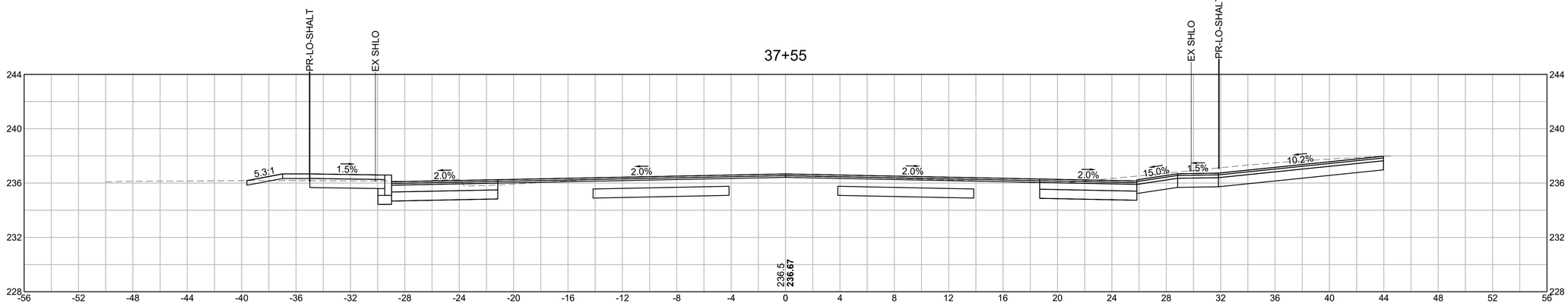
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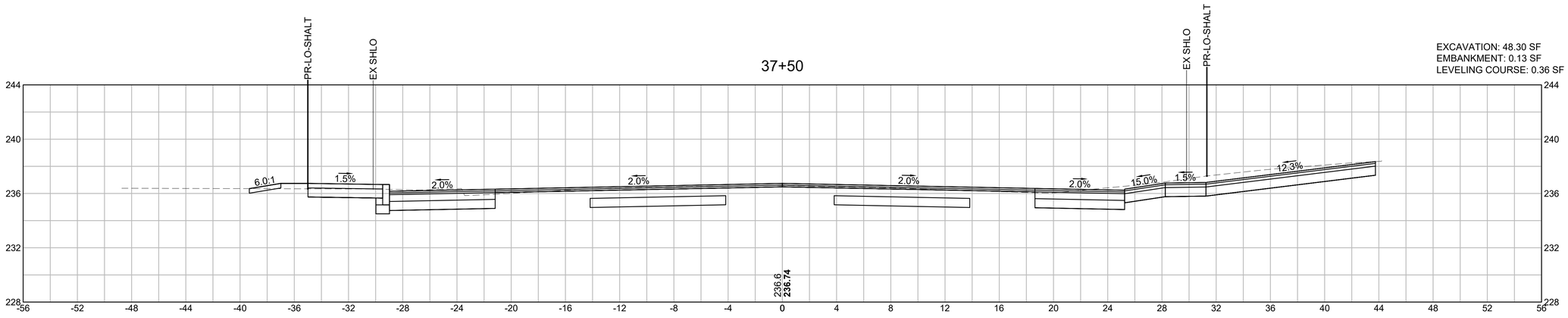
**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 127 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS



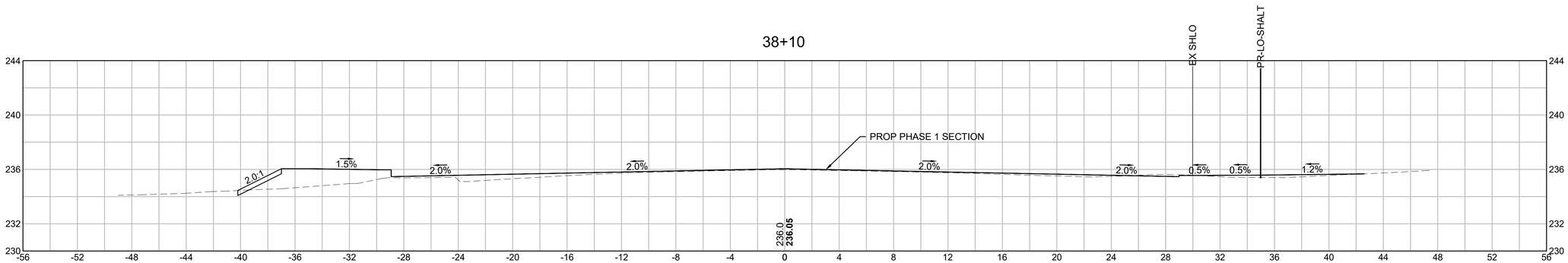

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VER. SCALE IN FEET
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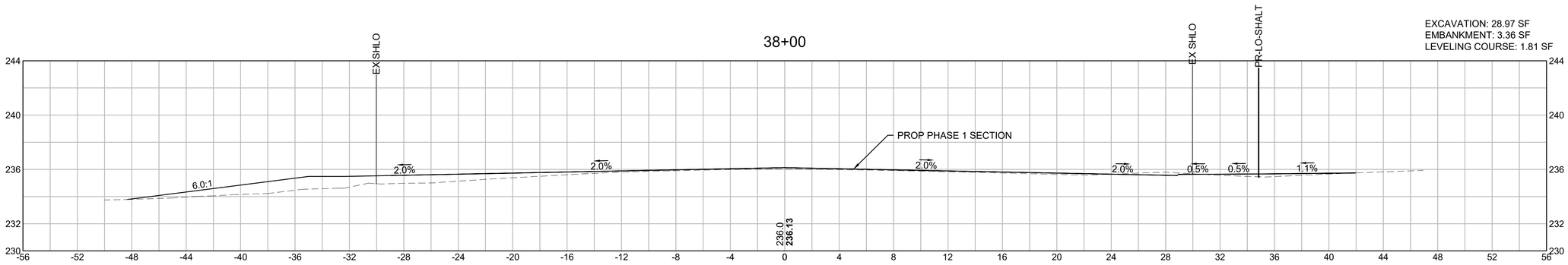
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| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 128 | 131 |
| | PROJECT FILE NO. 613358 | | |

## CROSS SECTIONS




EXCAVATION: 28.97 SF
EMBANKMENT: 3.36 SF
LEVELING COURSE: 1.81 SF

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4 0 4 8
VER. SCALE IN FEET

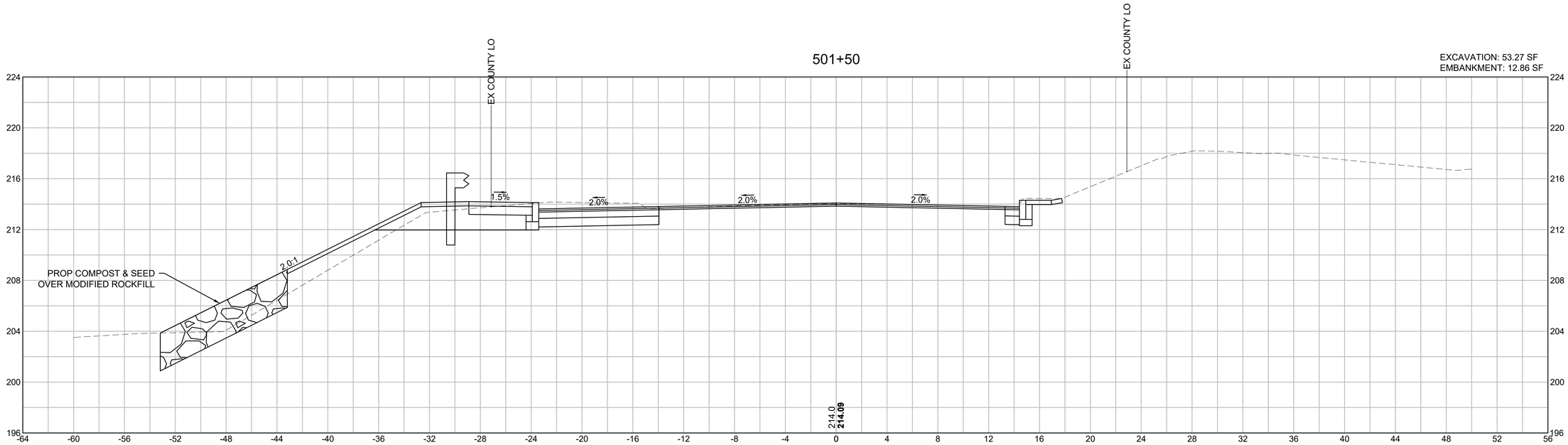
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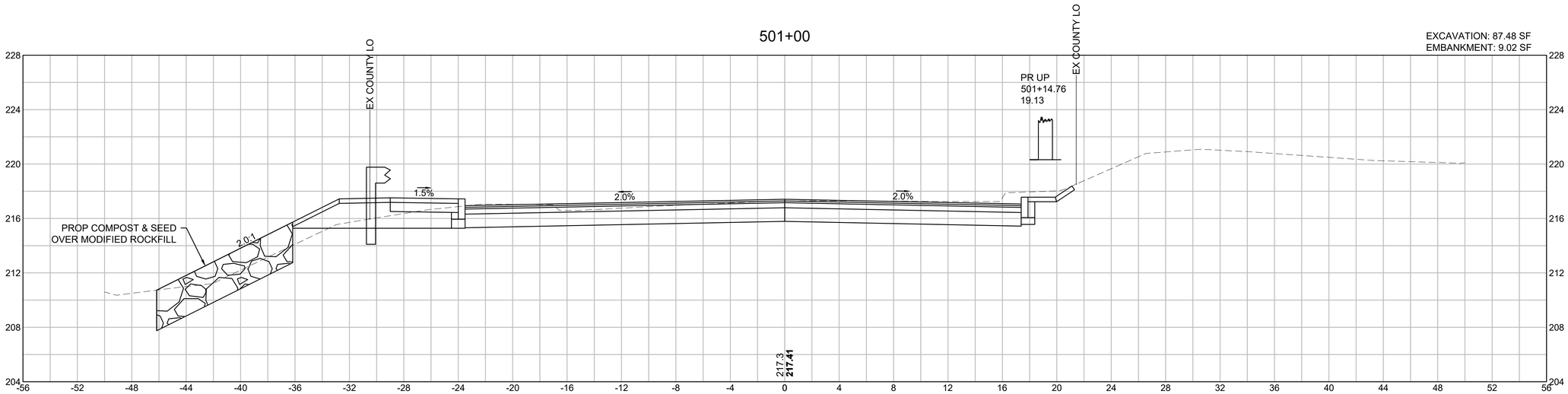
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 129 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**




HOR. SCALE IN FEET
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4 0 4 8
VER. SCALE IN FEET

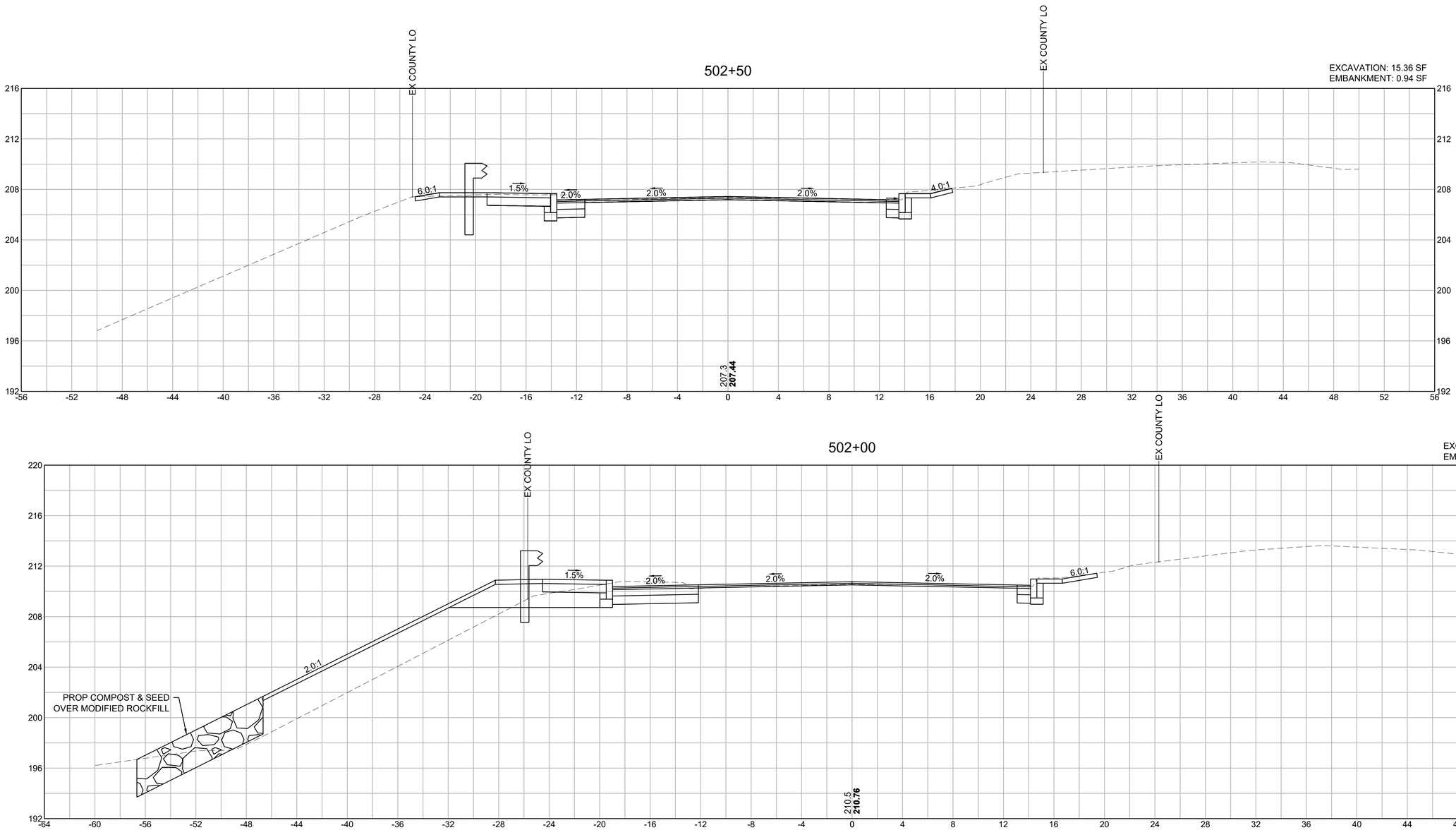
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 130 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**




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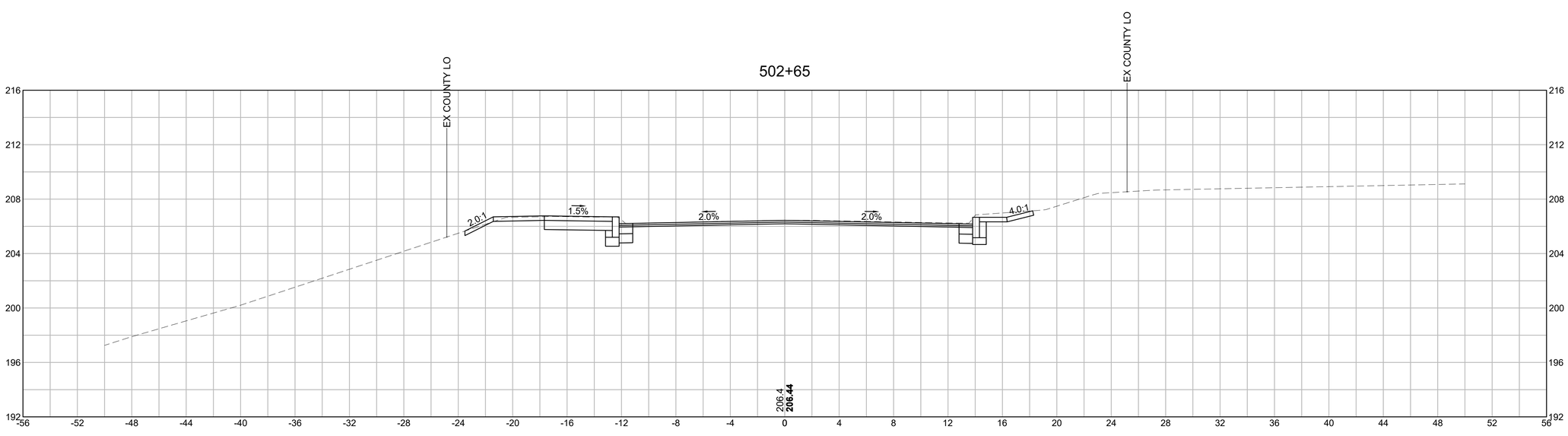
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**STOUGHTON**
**WASHINGTON STREET (ROUTE 138) PHASE 2**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | NHP(NHS)-003S(829) | 131 | 131 |
| | PROJECT FILE NO. 613358 | | |

**CROSS SECTIONS**




HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8