TOWN OF BUCKLAND, MASSACHUSETTS

ASHFIELD STREET IMPROVEMENT PROJECT

FEBRUARY 24, 2021

THE TOWN OF BUCKLAND

HEATHER BUTLER– TOWN ADMINISTRATOR

STEVEN DABY – HIGHWAY SUPERINTENDENT

DANIEL FLEURIEL – WASTEWATER TREATMENT PLANT SUPERVISOR

REBEKAH MCDERMOTT – WATER SUPERINTENDENT

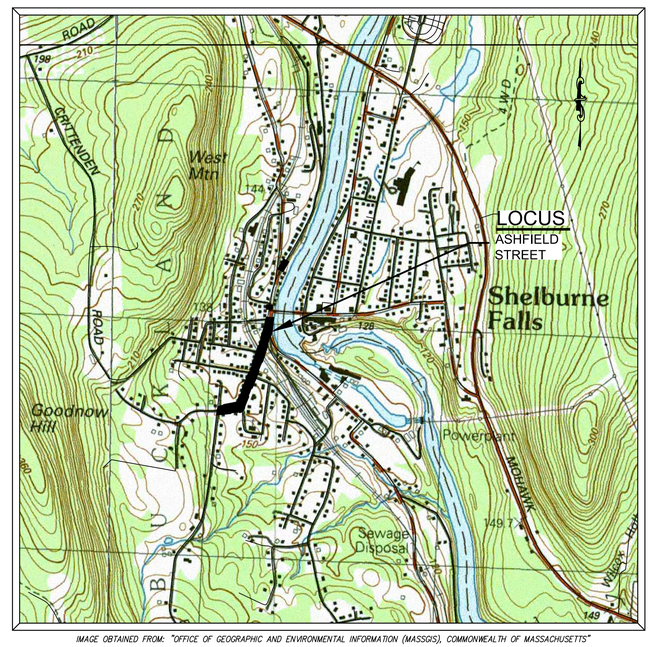

IMAGE OBTAINED FROM: "OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS"

LOCUS PLAN

SCALE : 1" = 1,000'±

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COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 35907
REGISTERED PROFESSIONAL ENGINEER

02/24/2021

GCG ASSOCIATES INC. CONSULTING ENGINEERS WILMINGTON, MASSACHUSETTS

ABBREVIATIONS

ACP	ASBESTOS CEMENT PIPE
BND	BOUND
BLDG	BUILDING
BIT CONC	BITUMINOUS CONCRETE
BM	BENCH MARK
BOL	BOLLARD
BRK	BRICK
CB	CATCH BASIN
CS	COMBINED SEWER
C	CONDUIT
℄	CENTERLINE
CIP	CAST IRON PIPE
CPP	CORRUGATED PLASTIC PIPE
CMP	CORRUGATED METAL PIPE
CSMH	COMBINED SEWER MANHOLE
CST	COBBLESTONE
CULV	CULVERT
CO	COUNTY
CONC	CONCRETE
C.L.D.I.	CONC. LINED DUCTILE IRON
CLF	CHAIN LINK FENCE
DI	DUCTILE IRON PIPE
DR	DRIVE
DMH	DRAIN MANHOLE
EMH	ELECTRIC MANHOLE
EX	EXISTING
FAB	FIRE ALARM BOX
EOP	EDGE OF PAVEMENT
EOR	EDGE OF GRAVEL ROAD
FDMH	FIRE DEPT. MANHOLE
GAR	GARAGE
GG	GAS GATE
GS	GAS SERVICE
GIP	GALVANIZED IRON PIPE
GD	GROUND
HW	HEADWALL
HSE	HOUSE
HOR	HORIZONTAL
HYD	HYDRANT
HP	HIGH PRESSURE
L	LEAD
LP	LIGHT POLE
MB	MAIL BOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NG	NATURAL GAS
OHW	OVERHEAD WIRES
PE	POLYETHYLENE PIPE
PROP	PROPOSED
PL	APPROXIMATE PROPERTY LINE
RCP	REINFORCED CONCRETE PIPE
RET WALL	RETAINING WALL
ROW	APPROXIMATE RIGHT OF WAY
RR	RAILROAD
SB	STONE BOUND
S	SIGN
SMH	SEWER MANHOLE
STA	STATION
S	SEWER
SS	SEWER SERVICE
STL	STEEL
SW	SIDEWALK
TMH	TELEPHONE MANHOLE
TR	TREE
TYP	TYPICAL
UP	UTILITY POLE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
W	WATER MAIN
WG	WATER GATE
WD	WOOD
WIP	WROUGHT IRON PIPE
WMH	WATER MANHOLE
W	WATER SERVICE
WSO	WATER SERVICE SHUTOFF
WV	WATER VALVE

SYMBOLS

1. THE FOLLOWING SYMBOLS ARE USED TO IDENTIFY UTILITY APPURTENANCES.
2. THE SIZE AND TYPE IS NOTED ON THE PLANS ADJACENT TO THE SYMBOL.

- BENCHMARK
- BOUND
- BUILDING
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- GAS GATE
- HYDRANT
- IRON PIPE
- LIGHTPOLE
- SEWER MANHOLE
- TELEPHONE MANHOLE
- TREE
- SIGN
- UTILITY POLE
- WATER GATE

ASHFIELD STREET RECONSTRUCTION NOTES

1.) ALL TRENCHES WILL COMPACTED TO ALLOW PROPER SETTLEMENT. ALL TRENCHES WILL BE COMPACTED TO 95% COMPACTION. INCLUDE PAYMENT UNDER ASSOCIATED PIPE ITEMS.

2.) THE CONTRACTOR SHALL MAINTAIN TRENCH TEMPORARY PAVEMENT FLUSH TO EXISTING GRADE UNTIL ASHFIELD STREET IS RECONSTRUCTED. TEMPORARY TRENCH PAVING SHALL HAVE A MINIMUM COMPACTED THICKNESS OF ONE INCH OVER GRAVEL.

3.) THE CONTRACTOR WILL ALLOW THE TRENCHES TO SETTLE THE REQUIRED PERIOD (30 DAY MIN) AS STATED IN THE SPECIFICATIONS PRIOR TO RECONSTRUCTING THE ENTIRE WIDTH OF ASHFIELD STREET.

4.) THE CONTRACTOR SHALL RECONSTRUCT THE ENTIRE WIDTH OF EXISTING PAVEMENT MATERIAL ON ASHFIELD STREET. THE LIMITS (EDGE OF PAVEMENT) OF THE EXISTING PAVED SURFACE ARE SHOWN IN THE PLAN VIEW OF THESE CONSTRUCTION DRAWINGS.

5.) THE CONTRACTOR SHALL EXCAVATE THE ROAD TO A DEPTH OF 16" BELOW PROPOSED PAVEMENT GRADE AND DISPOSE OF OR SEPARATE MATERIALS AS DEFINED IN THE MEASUREMENT AND PAYMENT UNDER ITEM 3B –"ROADWAY EXCAVATION AND DISPOSAL."

6.) DUE TO THE 16 " EXCAVATION DEPTH AND MINIMAL COVER REMAINING OVER EXISTING UTILITIES – EXCAVATION SHALL NOT BE ALLOWED WITH HEAVY EQUIPMENT WHICH REQUIRES TRAVEL ON THE EXCAVATED AREA. ALL EXCAVATION OF THE ROADWAY, PLACING AND LOADING OF TRUCKS SHALL BE PERFORMED ON THE EXISTING PAVEMENT GRADE. CONSTRUCTION EQUIPMENT OR TRUCKS SHALL NOT BE ALLOWED TO DRIVE ON THE EXCAVATED ROADWAY UNTIL THE ROADWAY IS BACKFILLED TO THE PROPOSED GRAVEL GRADE.

7.) THE CONTRACTOR SHALL CAREFULLY EXCAVATE TO THE ROADWAY EXCAVATION LIMITS AND SHALL NOT DAMAGE THE EXISTING UTILITIES. EXISTING UTILITIES DAMAGED DURING THE EXCAVATION OF THE ROADWAY SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

8.) THE CONTRACTOR SHALL BACKFILL AND COMPACT THE ROAD TO THE PROPOSED ROAD GRADE AND CROSS SECTION AS DEFINED IN THE MEASUREMENT AND PAYMENT UNDER ITEM 3C –"ROADWAY BACKFILL WITHIN NORMAL LIMITS" WITH GRAVEL BORROW WHICH SHALL BE M1.03.0 TYPE "B "GRAVEL AS SPECIFIED BY THE MASSDOT SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.

9.) THE CONTRACTOR SHALL LOWER AND PLATE UTILITY CASTINGS, UTILITY VALVE BOXES, FRAMES AND COVERS WITHIN THE ROAD AND LATER RESTORE ALL UTILITY CASTINGS, UTILITY VALVE BOXES, FRAMES AND COVERS TO THE TOP OF THE BINDER COURSE.

10.) AFTER EXCAVATING THE EXISTING IN PLACE ASPHALT AND UNDERLYING MATERIALS TO THE PROPOSED GRAVEL SUBGRADE, THE CONTRACTOR SHALL BACKFILL, GRADE AND COMPACT THE GRAVEL BASE COURSE TO THE PROPOSED ROAD GRADES AND TYPICAL PROPOSED ROADWAY CROSS–SECTION PLAN TO ALLOW THE PLACEMENT OF A 2–1/2" INTERMEDIATE COURSE PAVEMENT (SIC–19.0–TABLE 460.10–1) AND 1–1/2" SURFACE COURSE (SSC–9.5–TABLE 460.10–1) AND ACCORDING TO MASSDOT SECTION 460–"HOT MIX ASPHALT PAVEMENT FOR LOCAL STREET".

11.) THE CONTRACTOR SHALL FINE GRADE THE BACKFILLED GRAVEL BASE COURSE MATERIAL NO MORE THAN 24 HOURS PRIOR TO THE PLACEMENT OF THE 2 1/2" INTERMEDIATE COURSE PAVEMENT. ALL GRADING, COMPACTION AND DUST CONTROL ASSOCIATED WITH THE GRAVEL BASE COURSE SHALL BE INCLUDED IN THE PRICE OF ITEM 3D (FINE GRADING).

12.) THE CONTRACTOR SHALL GRADE THE GRAVEL BASE COURSE MATERIAL TO MATCH PROPOSED CENTERLINE GRADE AS SHOWN ON THE PROPOSED PROFILE AND TO MEET THE PAVEMENT REQUIREMENTS SHOWN ON THE TYPICAL ROADWAY CROSS SECTION PLAN.

13.) THE CONTRACTOR SHALL LOAM AND SEED ALL DISTURBED AREAS.

14.) THE CONTRACTOR SHALL PROVIDE GENERAL CLEAN–UP TO THE ENTIRE PROJECT SITE. INCLUDE PAYMENT UNDER LUMP SUM ITEM NO. 6B.

15.) THE ENGINEER IN THE FIELD SHALL DETERMINE WHICH DRIVEWAYS REQUIRE REMOVAL OF EXISTING PAVEMENT AND REPLACEMENT. TO TRANSITION TO THE PROPOSED BACK OF SIDEWALK AND ROAD.

16.) ALL CASTINGS, GATE BOXES, ETC. DAMAGED DURING RECONSTRUCTION SHALL BE SUPPLIED AND REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. THE CONTRACTOR SHALL INCLUDE THE COST IN ALL BID ITEMS.

17.) THE CONTRACTOR SHALL FURNISH AND AND INSTALL OR REMOVE AND REPLACE SIGNS AS REQUIRED TO PERFORM THE PROPOSED WORK.

18.) THE CONTRACTOR SHALL BE PAID FOR WORK REQUIRED TO SUPPORT OR REMOVE AND REPLACE EXISTING STRUCTURES AND UTILITY LINES ADJACENT TO OR WITHIN THE LIMITS OF TRENCH EXCAVATION UNDER LUMP SUM ITEM NO. 6B (MISCELLANEOUS WORK).

19.) THE CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC ON ASHFIELD STREET AT ALL TIMES DURING THE CONSTRUCTION, AND SHALL MAINTAIN ACCESS TO ALL RESIDENTIAL DRIVEWAYS AND ACCESS WAYS.

20.) DAMAGE TO ANY UTILITY WILL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, IN A TIMELY MANNER SO THAT DISRUPTION OF SERVICE TO ANY UTILITY WILL NOT BE LONGER THAN PRACTICALLY NECESSARY TO REPAIR THE DAMAGE. THE CONTRACTOR SHALL COORDINATE REPAIR WITH THE APPROPRIATE UTILITY COMPANY AND THE TOWN OF BUCKLAND.

21.) THE PROPOSED WORK MAY REQUIRE DEWATERING ACTIVITIES. THIS WORK SHALL BE PAID FOR UNDER THE ASSOCIATED PIPE ITEM.

22.) ANY DEWATERED GROUNDWATER SHALL BE TREATED TO REMOVE SILT PRIOR TO DISCHARGING. THE DISCHARGE LOCATION AND DEWATERING PROCEDURES SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF THE DEWATERING ACTIVITIES.

23.) THE EXISTING WATER SYSTEM THAT ARE TO BE REPLACED AS PART OF THIS CONTRACT SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. IF PERMITTED BY THE TOWN THESE UTILITIES MAY BE ABANDONED IN PLACE UNDER THE DIRECTION AND SUPERVISION OF THE ENGINEER.

24.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING ANY DEBRIS, SEDIMENT OR SILTY WATER FROM ENTERING ANY WATERCOURSE, WETLAND, DRAINAGE SYSTEM, ETC. DURING ALL PHASES OF CONSTRUCTION.

25.) THE CONTRACTOR SHALL PROVIDE SEDIMENTATION CONTROLS AT ALL CATCH BASINS IN ORDER TO PREVENT SEDIMENT OR SILTY WATER FROM ENTERING THE DRAINAGE SYSTEM. TYPICAL SEDIMENTATION CONTROLS MAY INCLUDE HAY BALES, SILT FENCE, SILT SACKS, CRUSHED STONE OR OTHER SIMILAR. TYPES OF CONTROLS THAT CAN PERFORM THE INTENDED FUNCTION. THE TYPE OF SEDIMENTATION CONTROLS TO BE USED SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. SEDIMENTATION CONTROLS SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION AND SHALL BE REPLACED AS NECESSARY AT NO ADDITIONAL EXPENSE. THIS WORK SHALL BE PAID FOR UNDER THE ASSOCIATED PAY ITEM.

26.) ABANDONED WATER, SEWER, AND DRAIN PIPE LEFT IN PLACE SHALL HAVE EXPOSED ENDS BRICKED AND MORTARED TIGHT.

WATER SYSTEM NOTES

1.) THE CONTRACTOR SHALL REPLACE ALL WATER SERVICES IN THE PROJECT AREA.

2.) ALL PROPOSED WATER MAINS SHALL BE CEMENT LINED DUCTILE IRON (C.L.D.I.), CL. 52 UNLESS OTHERWISE NOTED.

3.) ALL FITTINGS SHALL BE MECHANICAL JOINT (MJ), AND RESTRAINED WITH MJ RESTRAINTS ("MEGALUG" OR EQUIVALENT). ALL BOLTS AND NUTS TO BE STAINLESS STEEL

4.) THE EXISTING WATER MAIN SHALL BE MAINTAINED UNTIL THE NEW MAIN IS INSTALLED AND TESTED.

5.) THE EXISTING WATER MAIN SHALL BE ABANDONED IN PLACE WITH ENDS CUT AND CAPPED WITH A FITTING AND CONCRETE.

6.) ALL HYDRANTS AND MANHOLE AND CATCH BASIN CASTINGS SHALL BE SALVAGED AND DELIVERED IN TOWN TO A LOCATION TO BE DETERMINED BY OWNER.

7.) ANY HYDRANT WHICH IS NOT IN SERVICE SHALL BE COVERED WITH A SECURELY FASTENED BURLAP BAG.

8.) EXISTING HYDRANT REPLACED BY THE CONTRACTOR SHALL BE DELIVERED TO THE TOWN.

9.) PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL EXCAVATE TEST PITS EVERY 100 FEET OVER THE EXISTING WATER MAIN TO DETERMINE LOCATION OF THE WATER MAIN. THE CONTRACTOR SHALL PLAN AND PERFORM TEST PIT EXCAVATION WELL IN ADVANCE OF COMMENCING CONSTRUCTION, TO ALLOW TIME TO REVIEW ACTUAL CONDITIONS ENCOUNTERED. TEST PITS NOT SPECIFICALLY IDENTIFIED SHALL BE EXCAVATED BY THE CONTRACTOR AT THE DIRECTION AND DISCRETION OF THE ENGINEER.

10.) THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING WATER SERVICES SHOWN ON THE PLAN AND BE RESPONSIBLE FOR LOCATING ANY ADDITIONAL SERVICES NOT SHOWN.

11.) EXISTING WATER SERVICE REPLACEMENT SHALL BE DONE ONCE THE PROPOSED WATER MAIN HAS BEEN ACTIVATED AND TESTING, DISINFECTION AND FLUSHING ARE COMPLETE.

12.) THE SHELBURNE FALLS FIRE DISTRICT AND WATER DEPARTMENT OPERATES ALL TOWN OWNED VALVES. THE CONTRACTOR MAY OPERATE VALVES ONLY WITH PERMISSION OF THE WATER SUPERINTENDENT. THE COST ASSOCIATED WITH THIS WORK WILL BE INCLUDED IN THE MISCELLANEOUS WORK ITEM.

13.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL AFFECTED WATER CUSTOMERS, IN WRITING, OF SHUTTING OFF SERVICE AT LEAST TWO DAYS PRIOR TO SHUTDOWN. NOTICE CARDS WILL BE FURNISHED BY THE CONTRACTOR WHICH WILL INCLUDE THE HOURS OF SHUTDOWN AND NOTE THAT A TEMPORARY RUSTY WATER CONDITION MAY EXIST. NOTICE CARDS WILL ALSO HAVE SPACE FOR THE CONTRACTOR TO FILL IN THE SPECIFIC DATES FOR EACH SHUTDOWN. THE WORK SHALL BE SCHEDULED IN SECTIONS, AS APPROVED BY THE ENGINEER, AS IT IS NECESSARY TO ALLOW FOR COMPLETION OF THE WORK AND RESTORATION OF SERVICE TO THE CUSTOMER WITHIN THE TIMES SPECIFIED BY THE ENGINEER.

14.) ALL NEW CORPORATION COCKS, CURB STOPS AND COPPER TUBING FOR EACH NEW HOUSE SERVICE SHALL BE 1–INCH IN SIZE UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

15.) THE NEW WATER MAIN SHALL BE INSTALLED WITH A MINIMUM GROUND COVER OF FIVE FEET.

RAISING CASTINGS

1.) AFTER MINIMUM 30 DAY SETTLEMENT OF TRENCHES HAS PASSED, ALL CASTINGS IN THE ROAD WILL BE LOWERED OR REMOVED AND PLATED DURING THE RECONSTRUCTING OF THE ROADWAY.

2.) ALL CASTINGS WILL BE RAISED TO BINDER GRADE AFTER PLACEMENT OF THE 2–1/2" BINDER PAVING COURSE. (2021 CONSTRUCTION SEASON)

3.) ALL CASTINGS WILL BE RAISED TO FINISH GRADE PRIOR TO PLACEMENT OF THE 1–1/2" FINAL PAVING COURSE. (2021 CONSTRUCTION SEASON)

CONSTRUCTION SEQUENCE

1.) SPRING 2021 INSTALL THE WATER MAIN.

2.) SPRING/SUMMER OF 2021 RECONSTRUCT ROADWAY AND INSTALL 2–1/2" BINDER COURSE, SIDEWALKS AND GRANITE CURB ON ASHFIELD STREET AS SPECIFIED.

3.) FALL OF 2021 INSTALL 1–1/2" FINAL PAVING ON ASHFIELD STREET AS SPECIFIED.

FINE GRADING AND COMPACTING

1.) THE CONTRACTOR SHALL FINE GRADE AND COMPACT ALL AREAS IN PREPARATION FOR PAVEMENT, INCLUDING, BUT NOT LIMITED TO THE ROADWAY.

2.) THE CONTRACTOR SHALL ALSO STRAIGHT CUT ALL EXISTING JOINTS AND EDGES IN PREPARATION FOR FINAL PAVEMENT. PAYMENT UNDER ASSOCIATED PAVING ITEM.

3.) PAYMENT FOR GRADING AND COMPACTING THE PROPOSED CONC. SIDEWALK, RAMPS, AND DRIVEWAY APRONS SHALL BE INCLUDED UNDER THE ASSOCIATED CONCRETE ITEM.

GENERAL NOTES

1.) PLANS AND TOPOGRAPHIC INFORMATION ARE PREPARED BASED UPON AN ON–THE–GROUND INSTRUMENT SURVEY BY GCG ASSOCIATES ON MAY 22, 2019 AND ON AUGUST 15, 2020.

2.) THE LOCATIONS AND ELEVATIONS SHOWN REFER TO MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83 – NAVD 88)

3.) THE LOCATIONS OF SUBSURFACE UTILITIES AND STRUCTURES WERE OBTAINED FROM AVAILABLE TOWN AND UTILITY RECORDS. THE SIZE, TYPE AND LOCATION OF UTILITIES SHOWN ARE APPROXIMATE–MATE. THE CONTRACTOR SHALL PROPERLY LOCATE THE UTILITIES PRIOR TO THE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN UTILITY INFORMATION BY CONTACTING DIGSAFE (811), (888–344–7233).

4.) WATER MAINS ARE ASSUMED TO BE 5 FEET BELOW THE EXISTING GROUND SURFACE. GAS LINES ARE ASSUMED TO BE 2 TO 3 FEET BELOW THE EXISTING GROUND SURFACE. TELEPHONE AND ELECTRIC CONDUIT ARE ASSUMED TO BE 2 FEET BELOW THE EXISTING GROUND SURFACE.

5.) LOCATION OF THE PROPOSED WATER/SEWER SYSTEM MAY BE ALTERED IN THE FIELD BY THE ENGINEER TO SUIT FIELD CONDITIONS.

6.) THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A CONSTRUCTION SCHEDULE DELINEATING THE SEQUENCE OF WORK, TRAFFIC MANAGEMENT PLAN AND ESTIMATED TIME OF COMPLETION OF EACH SEGMENT OF WORK, PRIOR TO THE COMMENCEMENT OF WORK.

7.) THE CONTRACTOR SHALL MAINTAIN CONTINUOUS TRAFFIC FLOW DURING CONSTRUCTION SATISFACTORY TO THE ENGINEER AND THE TOWN OF BUCKLAND. NO EQUIPMENT SHALL BE ALLOWED TO BE PARKED ON THE ROAD WHEN NOT IN USE. MATERIALS SHALL NOT BE STOCKPILED ON THE ROAD.

8.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE RESTORATION AND CLEAN UP UPON COMPLETION OF THE PROJECT.

9.) THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES AND PROCEDURES, AND FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH ALL WORK INCLUDED UNDER THIS CONTRACT. THE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ALL SAFETY BARRIERS, WARNING FLASHERS AND THE LIKE, AS REQUIRED BY THE CONDUCT OF THE WORK FOR THE PROTECTION OF WORKERS AND NON–WORKERS ALIKE. THE CONTRACTORS ATTENTION IS DIRECTED TO OSHA REQUIREMENTS.

10.) ALL CONSTRUCTION SIGNING SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

11.) PRIOR TO THE PROPOSED CONSTRUCTION ON ASHFIELD STREET, THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE TOWN, A TRAFFIC MANAGEMENT PLAN IN COMPLIANCE WITH MASSDOT AND MUTCD. SAID PLAN WILL SHOW HOW TRAFFIC FLOW WILL BE HANDLED DURING CONSTRUCTION.

12.) THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITY SERVICES AS SHOWN ON THE PLAN AND BE RESPONSIBLE FOR LOCATING ANY ADDITIONAL SERVICES NOT SHOWN.

13.) TRENCH DEWATERING COSTS THROUGHOUT THE DURATION OF THE PROPOSED PROJECT SHALL BE INCLUDED IN THE APPLICABLE BID ITEMS. GROUNDWATER ELEVATION IS TO BE ASSUMED 3' BELOW EXISTING GRADE

MISCELLANEOUS NOTES

1.) THE CONTRACTOR SHALL CUT JOINTS IN THE EXISTING PAVEMENT AREAS WHERE THE PROPOSED PAVEMENT SHALL MEET TO ALLOW A SMOOTH TRANSITION AFTER PAVING. ALL JOINTS SHALL BE SANDED AND SEALED. PAYMENT UNDER ASSOCIATED PAVING ITEM.

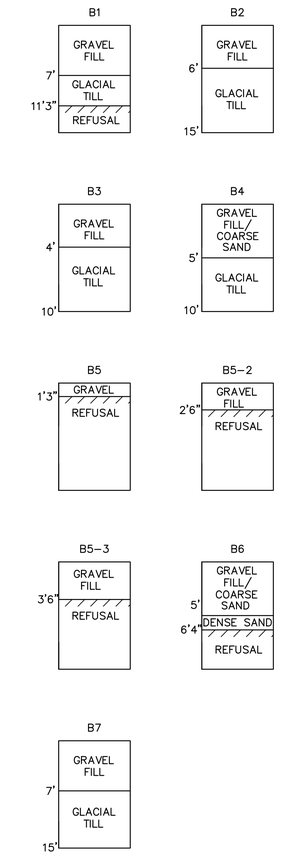
2.) THE CONTRACTOR WILL INSTALL ALL TEMPORARY SEDIMENTATION BARRIERS AS REQUIRED DURING CONSTRUCTION. INCLUDE FOR PAYMENT UNDER ITEM 6B.

3.) PAYMENT FOR REMOVING AND DISPOSING OF EXISTING MANHOLES, CATCH BASINS AND PIPE AS SPECIFIED AND SHOWN ON THE PLANS TO BE INCLUDED FOR PAYMENT THE ASSOCIATED ITEM.

LINEWORK

EXISTING	PROPOSED	
100	100	CONTOUR MAJOR
101	101	CONTOUR MINOR
E	E	ELECTRIC LINE
ECT	ECT	ELECTRIC/TELEPHONE/CABLE
G	G	GAS LINE
		PROPERTY LINE
	N/A	SETBACK
S	S	SEWER LINE
T	T	TELEPHONE LINE
	N/A	TREE LINE
W	W	WATER LINE

BORING DATA, 7/26/2019



NOTE:
BORINGS WERE PERFORMED BY SOIL X. CORP. ON JULY 26, 2019.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

LEGEND & CONSTRUCTION NOTES

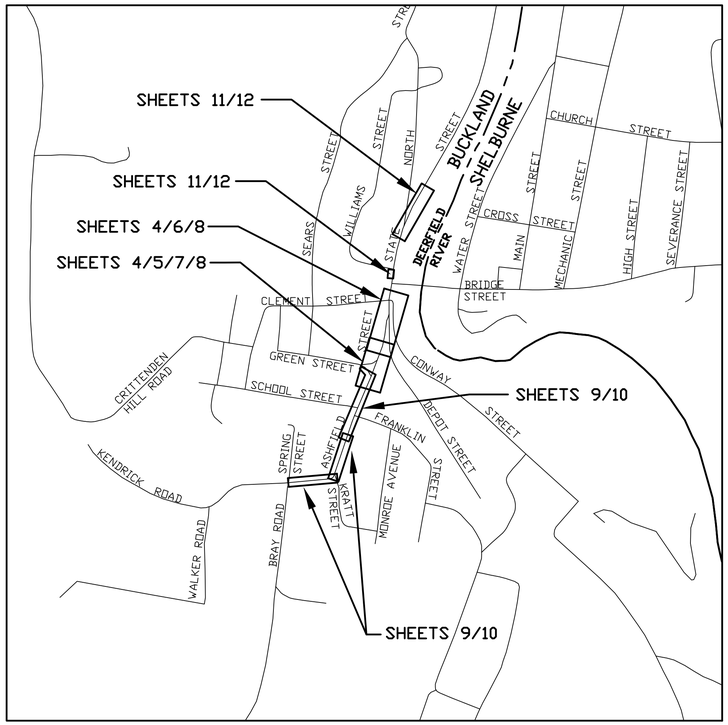
COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 39907
REGISTERED PROFESSIONAL ENGINEER

02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED	DATE: FEBRUARY 24, 2021	
JOB NO.\FILE NAME: 2118–BID.dwg	DESIGNED BY: A.C.M. DRAWN BY: A.C.M. CHECKED BY: M.J.C.	PLAN NO. 2 OF 19

ASHFIELD STREET & STATE STREET LOCUS MAP



PLAN
SCALE: 1" = 500'

ASHFIELD STREET RECLAMATION NOTES (ALTERNATE No. 1)

1. ALL TRENCHES WILL BE COMPACTED TO ALLOW PROPER SETTLEMENT. ALL TRENCHES WILL BE COMPACTED TO 95% COMPACTION. INCLUDE PAYMENT UNDER ASSOCIATED ITEM.
2. AFTER THE COMPACTION PROCESS IS COMPLETED, THE CONTRACTOR SHALL MAINTAIN TRENCH GRAVEL FLUSH TO EXISTING GRADE UNTIL BRIDGE STREET IS RECONSTRUCTED IF REQUIRED BY THE ENGINEER, TRENCH PAVING SHALL BE INSTALLED TO STABILIZE AREAS AS NEEDED.
3. THE CONTRACTOR WILL ALLOW THE TRENCHES TO SETTLE THE REQUIRED PERIOD (30 DAY MIN) AS STATED IN THE SPECIFICATIONS PRIOR TO RECLAIMING THE ENTIRE WIDTH OF ROADWAY.
4. PRIOR TO RECLAIMING, THE CONTRACTOR SHALL COMPLETE ALL EXCAVATING AND PREPARING SUBGRADE REQUIRED TO PULVERIZE THE PAVEMENT AND SHALL LOWER ALL CASTINGS AS SPECIFIED IN THE CONTRACT SPECIFICATIONS.
5. THE ENTIRE ROADWAY SHALL BE RECLAIMED TO A MINIMUM DEPTH OF 16" BELOW THE PROPOSED FINISH GRADE WITHIN THE PROJECT LIMITS. THE EXISTING PAVEMENT SHALL BE PULVERIZED TO THE POINT WHERE NO MATERIAL IS GREATER THAN 3".
6. THE CONTRACTOR SHALL RECLAIM THE ENTIRE WIDTH OF EXISTING MATERIAL. THE LIMITS (EDGE OF PAVEMENT) OF THE EXISTING PAVED SURFACE ARE SHOWN IN THE PLAN VIEW OF THESE CONSTRUCTION DRAWINGS.
7. AFTER PULVERIZING THE ROADWAY ASPHALT PAVEMENT AND UNDERLYING MATERIALS. THE CONTRACTOR SHALL REMOVE AND STOCKPILE (WINROW) THE RECLAIMED MATERIAL. THE CONTRACTOR SHALL THEN EXCAVATE AND REMOVE THE NECESSARY SUBGRADE MATERIAL IN ORDER TO MEET THE FINAL GRADES OF THE ROADWAY. THE CONTRACTOR SHALL THEN PLACE, GRADE AND COMPACT THE EXISTING RECLAIMED BASE COURSE TO A 12" DEPTH AS SHOWN ON THE TYPICAL ROADWAY CROSS SECTION. THE SUBBASE SHALL THEN BE FINE GRADED AND COMPACTED TO ALLOW FOR THE PLACEMENT OF: 2-1/2" INTERMEDIATE COURSE PAVEMENT (SIC-19.0-TABLE 460.10-1) AND 1-1/2" SURFACE COURSE (SSC-9.5-TABLE 460.10-1) AND ACCORDING TO MASSDOT SECTION 460-"HOT MIX ASPHALT PAVEMENT FOR LOCAL STREETS"
8. AFTER PULVERIZING THE EXISTING IN PLACE ASPHALT AND UNDERLYING MATERIAL (TOTAL OF 16" DEPTH), THE CONTRACTOR SHALL PLACE, GRADE AND COMPACT THE EXISTING RECLAIMED BASE COURSE TO A 12" DEPTH AS SHOWN ON THE TYPICAL ROADWAY CROSS SECTION.
9. THE CONTRACTOR SHALL GRADE THE EXISTING RECLAIMED SUBBASE MATERIAL OR GRAVEL BORROW MATERIAL TO ALLOW THE FINAL PAVEMENT SURFACE TO MATCH THE EXISTING EDGE OF PAVEMENT GRADES UNLESS OTHERWISE NOTED. THE RECONSTRUCTION OF THE ROADWAY SHALL ALSO BE IN ACCORDANCE WITH THE TYPICAL CROSS SECTION DETAIL SHOWN ON SHEET 6. ANY GRADING MODIFICATIONS SHALL DIRECT DRAINAGE TOWARDS THE APPROPRIATE AREAS.
10. ALL PROPOSED CUTS AND FILLS REQUIRED TO GRADE THE RECLAIMED MATERIAL TO A 12" DEPTH SHALL BE INCLUDED FOR PAYMENT UNDER THE APPROPRIATE ITEM.
11. ALL DRAINAGE AND UTILITY CASTINGS SHALL BE LOWERED OR REMOVED AND PLATED PRIOR TO RECLAIMING THE ROADWAY. ALL STRUCTURES MUST BE LOWERED TO A DEPTH OF 6 INCHES BELOW THE BOTTOM OF THE PROPOSED RECLAIMED BASE COURSE.
12. THE CONTRACTOR SHALL FINE GRADE THE EXISTING RECLAIMED BASE COURSE MATERIAL NO MORE THAN 24 HOURS PRIOR TO THE PLACEMENT OF THE 2 1/2" BASE COURSE PAVEMENT. ALL GRADING, COMPACTION AND DUST CONTROL ASSOCIATED WITH FINE GRADING TO BE INCLUDED IN THE APPROPRIATE RECLAIM ITEM.
13. THE CONTRACTOR SHALL STOCKPILE AND RETAIN SUFFICIENT SURPLUS SUBBASE AND RECLAIMED PAVEMENT SUBBASE MATERIALS TO USE AS NEEDED IN THE ENTIRE PROJECT AREA. THE COSTS ASSOCIATE WITH THE EXCAVATION, PLACEMENT AND DISPOSAL OF SURPLUS SUBBASE MATERIAL SHALL BE INCLUDED IN THE APPROPRIATE ITEM. NO ADDITIONAL PAYMENT FOR PLACEMENT SHALL BE MADE. SURPLUS SUBBASE AND RECLAIMED PAVEMENT SUBBASE MATERIAL SHALL BE USED ONSITE PRIOR TO GRAVEL BORROW MATERIAL. ANY EXCESS RECLAIMED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. NO ADDITIONAL PAYMENT FOR DISPOSAL SHALL BE MADE.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPACTION TESTING. TESTING SHALL BE PERFORMED AT INTERVALS OF 100 FEET ALONG THE ROADWAY. SEE SPECIFICATION SECTION 02250 FOR COMPACTION CONTROL AND TESTING.
15. PRIOR TO COMPLETING FINAL GRADING OF THE RECLAIMED BASE COURSE, THE ENGINEER SHALL REVIEW GRADES TO DETERMINE THAT SUFFICEINT CROSS SLOPES AND POSITIVE DRAINAGE FLOWS HAVE BEEN MAINTAINED. IF GRADES NEED TO BE ADJUSTED, THE CONTRACTOR SHALL REGRADE AS DIRECTED.
16. CROSS SLOPES AT CATCH BASINS SHALL BE ADJUSTED AS NECESSARY TO ASSURE PROPER DRAINAGE.
17. CONTRACTOR SHALL CONTROL DUST DURING CONSTRUCTION USING CALCIUM CHLORIDE AS NECESSARY.
18. DRAINAGE STRUCTURES SHALL BE ADJUSTED OR REMODELED AS REQUIRED TO MEET GRADE.
19. SHOULDERS OF DRIVEWAY AND PARKING AREAS SHALL BE GRADED FOR A SMOOTH TRANSITION FROM THE PROPOSED EDGE OF PAVEMENT/CURB TO THE EXISTING GRADE.
20. ALL STRUCTURES SHALL BE LOWERED PRIOR TO RECLAIMING AND THEN RAISED TO FINISHED GRADE ONCE BINDER IS PLACED.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

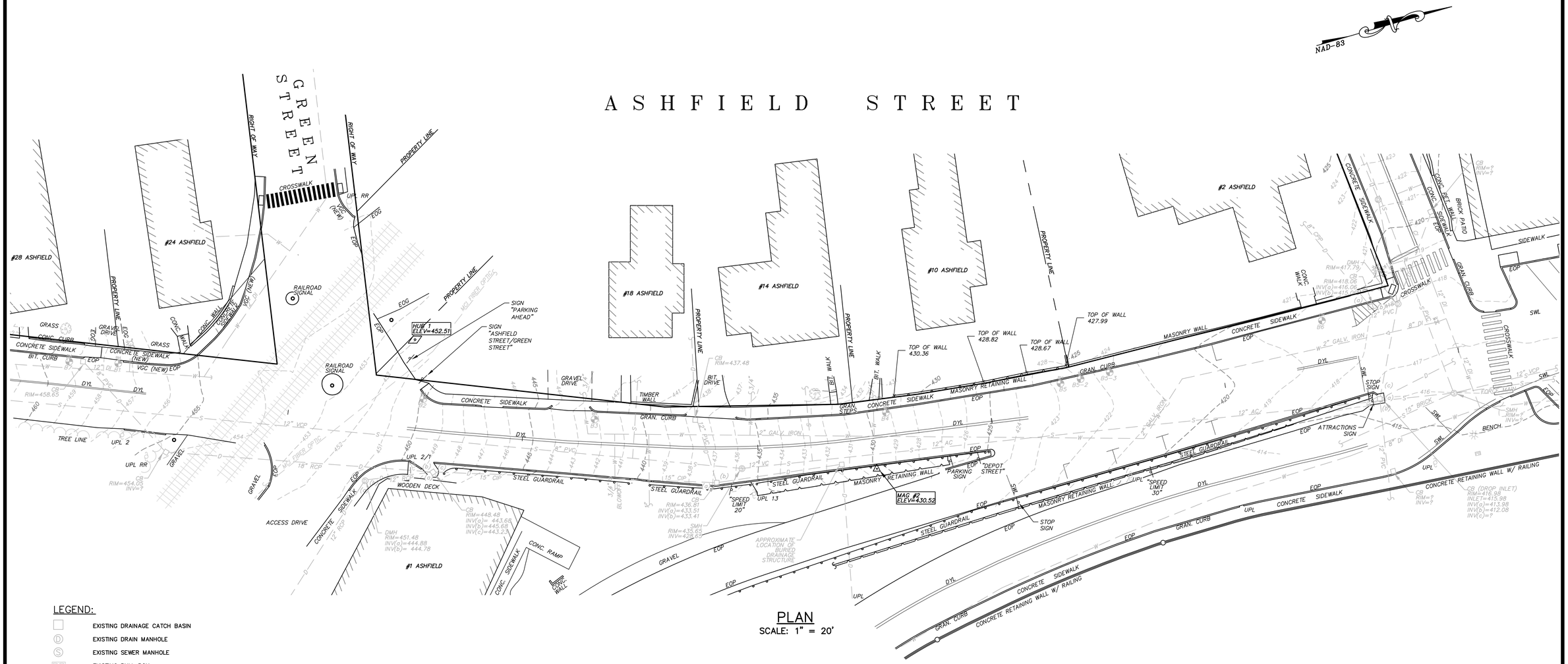
LOCUS MAP &
CONSTRUCTION NOTES CONTINUED

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 35907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED
DATE: FEBRUARY 24, 2021

JOB NO.\FILE NAME: 2118-Bid.dwg
DESIGNED BY: A.C.M.
DRAWN BY: A.C.M.
CHECKED BY: M.J.C.
PLAN NO. 3 OF 19



PLAN

SCALE: 1" = 20'

LEGEND:

- EXISTING DRAINAGE CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING PULL BOX
- EXISTING UTILITY POLE
- EXISTING MAIL BOX
- EXISTING WATER GATE VALVE
- EXISTING WATER SHUT OFF
- EXISTING HYDRANT
- EXISTING SIGN
- MAG NAIL TRAVERSE POINT
- HUB TRAVERSE POINT
- EXISTING SEWER LINE
- EXISTING DRAIN LINE
- EXISTING WATER LINE
- EOP — EDGE OF PAVEMENT
- ROW — APPROX. EXISTING RIGHT OF WAY
- EXISTING WALL
- 300 — EXISTING 5' CONTOURS
- 301 — EXISTING 1' CONTOURS
- EXISTING SHURB
- EXISTING TREE
- CPP — CORRUGATED PLASTIC PIPE
- B7 — SOIL BORING

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

LOWER ASHFIELD STREET
EXISTING CONDITIONS PLAN

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 33907
REGISTERED PROFESSIONAL ENGINEER

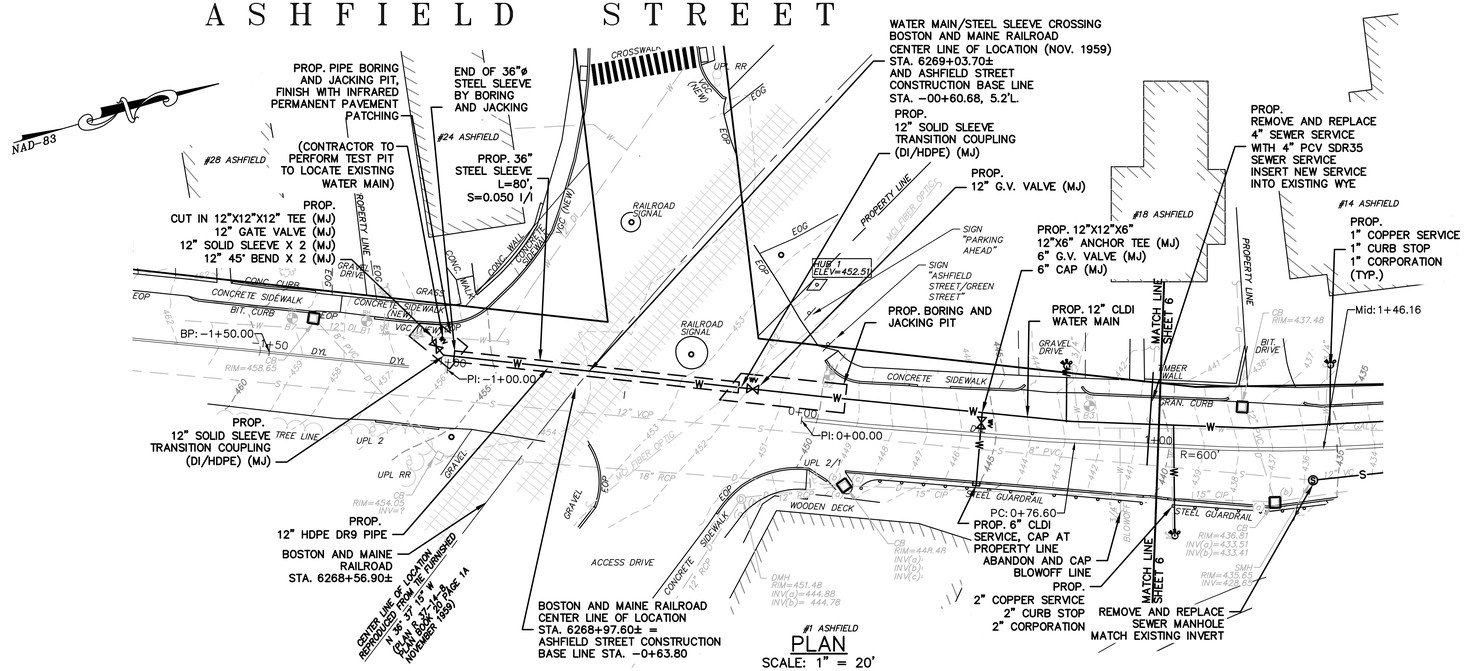
02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED
DATE: FEBRUARY 24, 2021

JOB NO.\FILE NAME: 2118-BID.dwg
DESIGNED BY: A.C.M.
DRAWN BY: W.R.H.
CHECKED BY: M.J.C.
PLAN NO. 4 OF 19

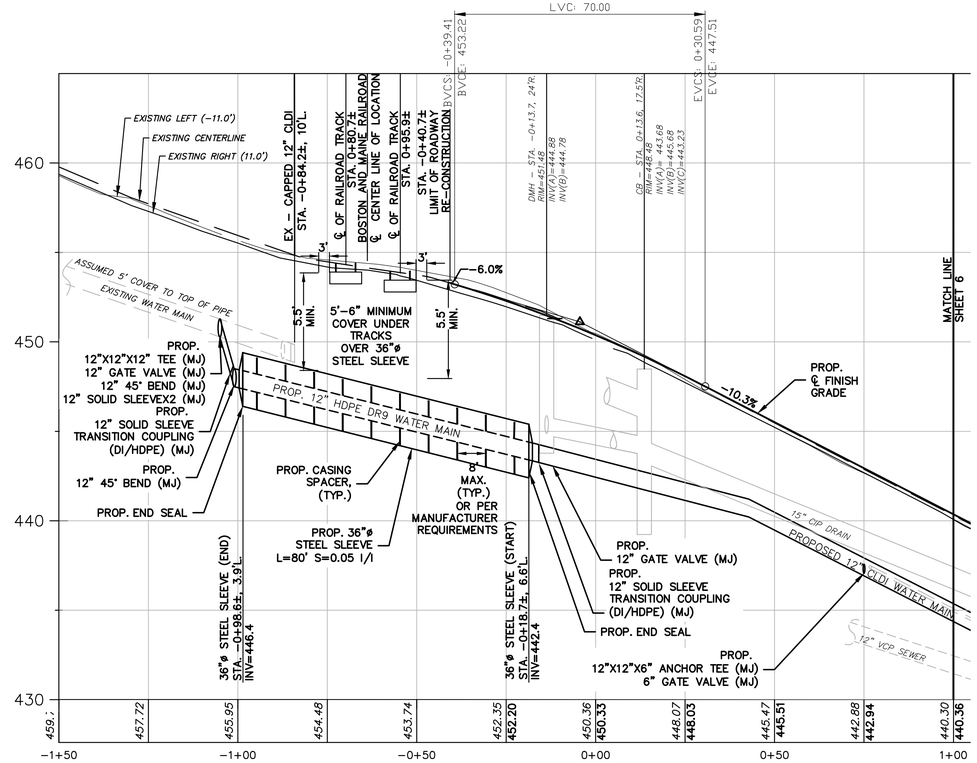
A S H F I E L D S T R E E T



PLAN

SCALE: 1" = 20'

PVI STA: –0+04.41
PVI ELEV: 451.12
K: 16.28
LVC: 70.00



PROFILE

SCALE: HORI. 1" = 20'
VERT. 1" = 4'

STEEL SLEEVE NOTE:

1. THE OUTSIDE DIAMETER OF THE CASING PIPE SHALL BE A MINIMUM OF THIRTY–SIX (36) INCHES WITH A MINIMUM OR SIX (6) INCHES GREATER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE, JOINTS OR COUPLING
2. THE CASING PIPE SHALL BE DESIGNED TO WITHSTAND COOPERS E–80 RAILROAD LOADING. NOMINAL MINIMUM THICKNESS OF STEEL SLEEVE SHALL BE 36 INCHES WITH MINIMUM THICKNESS OF 0.532 INCHES.
3. THE CASING PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI AND CONFORM TO THE LATEST REVISION OF THE REQUIREMENTS OF A.W.A. STANDARDS FOR FABRICATING ELECTRICALLY WELDED STEEL WATER PIPES OR ITS EQUIVALENT.
4. THE INSTALLATION OF CASING PIPE SHALL COMPLY WITH SECTION III, STANDARD RAILROAD SPECIFICATIONS, PAN AM RAILWAYS/SPRINGFIELD TERMINAL RAILWAY COMPANY ENGINEERING DEPARTMENT, PREPARED BY OFFICE OF VICE PRESIDENT ENGINEERING, DATED 01/2011.

ALIGNMENTS STATION NOTE:

1. BOSTON AND MAINE RAILROAD CENTER LINE OF LOCATION STATION 6268+97.60± EQUALS TO ASHFIELD STREET CONSTRUCTION BASE LINE STATION – 00+63.80

GRAPHIC SCALE
VERTICAL
4 0 2 4 8 16
(IN FEET)
1 inch = 4 ft.

GRAPHIC SCALE
HORIZONTAL
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

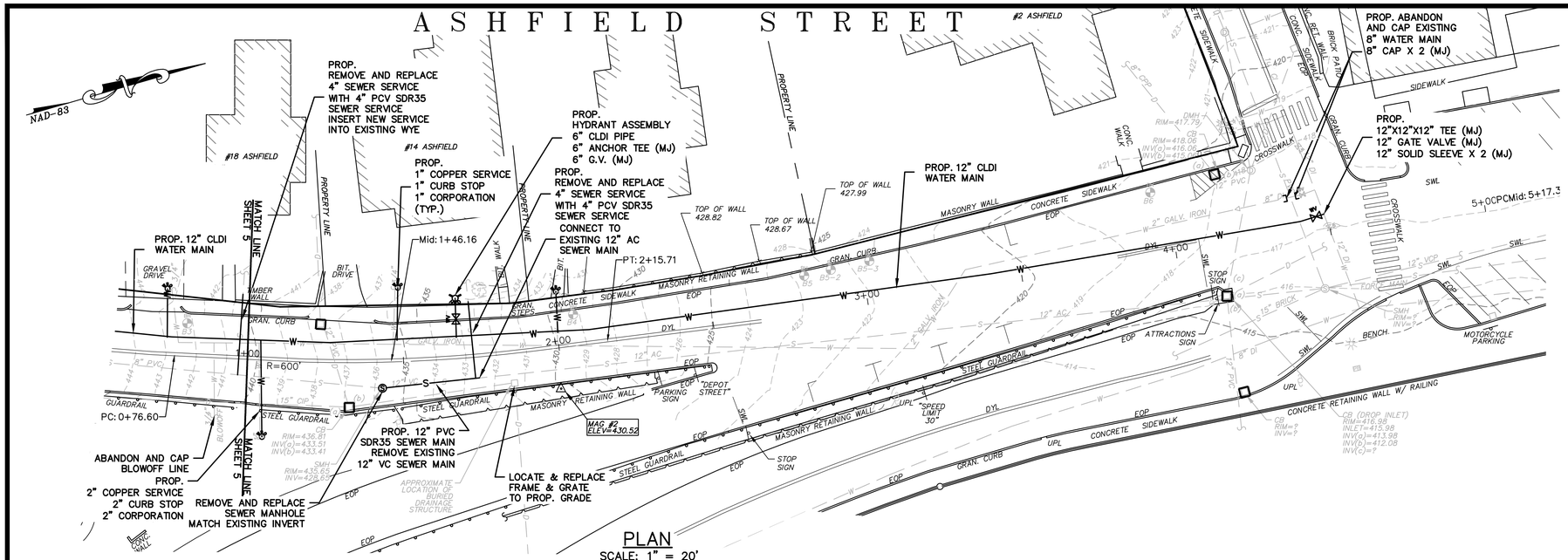
TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

LOWER ASHFIELD STREET
STATION –1+50 TO STATION 1+00
PLAN AND PROFILE

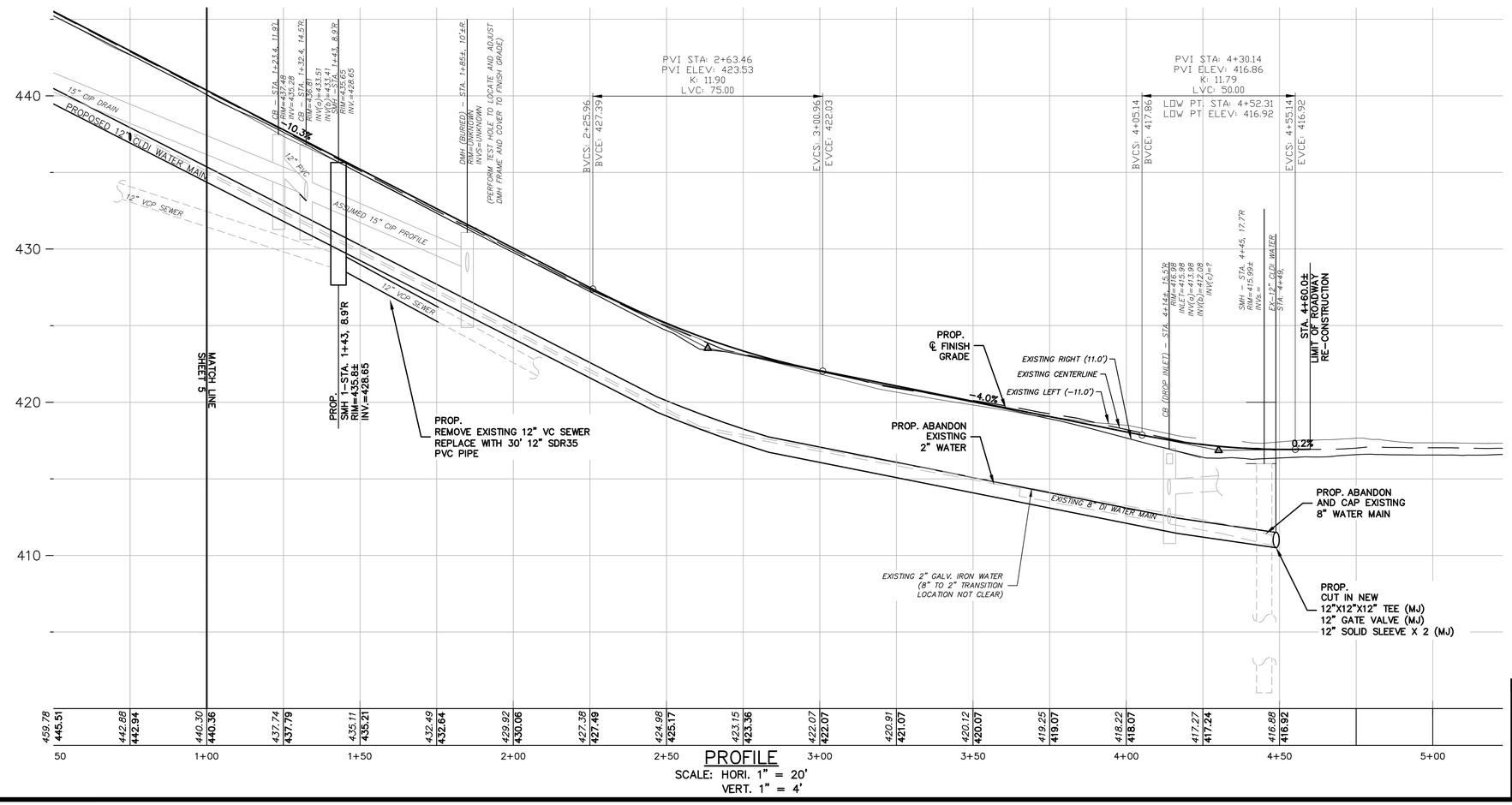
COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 35907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED
DATE: FEBRUARY 24, 2021
JOB NO.\FILE NAME: 2118–BID.dwg
DESIGNED BY: A.C.M.
DRAWN BY: W.R.H.
CHECKED BY: M.J.C.
PLAN NO. 5 OF 19



PLAN
SCALE: 1" = 20'



PROFILE
SCALE: HORI. 1" = 20'
VERT. 1" = 4'

GRAPHIC SCALE VERTICAL
(IN FEET)
1 inch = 4 ft.

GRAPHIC SCALE HORIZONTAL
(IN FEET)
1 inch = 20 ft.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

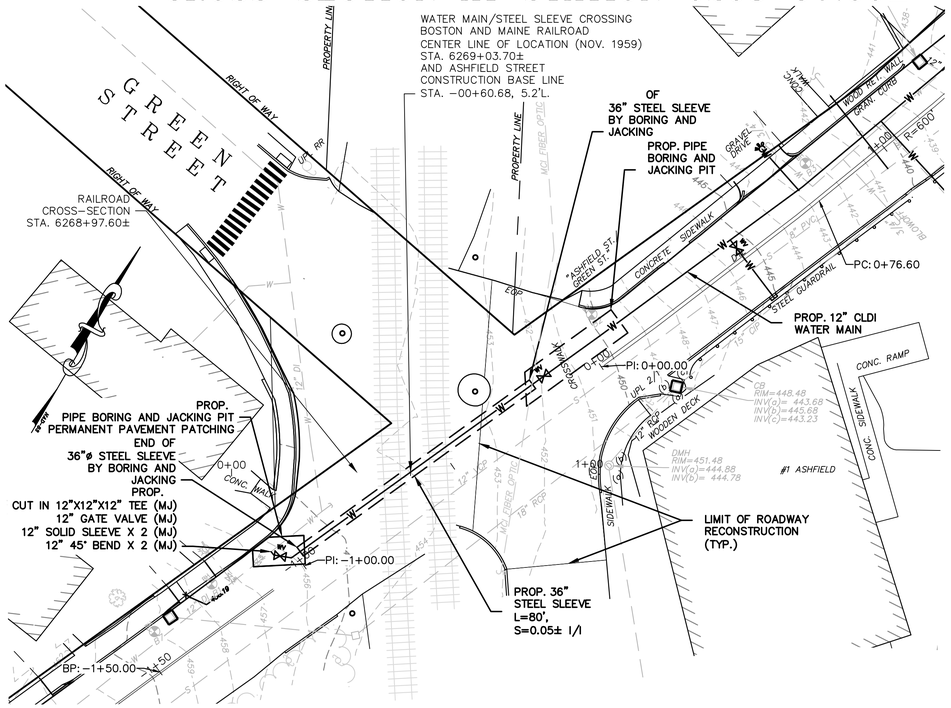
LOWER ASHFIELD STREET
STATION 1+00 TO STATION 5+00
PLAN AND PROFILE

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS MICHAEL J. CARTER CIVIL No. 35907 REGISTERED PROFESSIONAL ENGINEER
02/24/2021

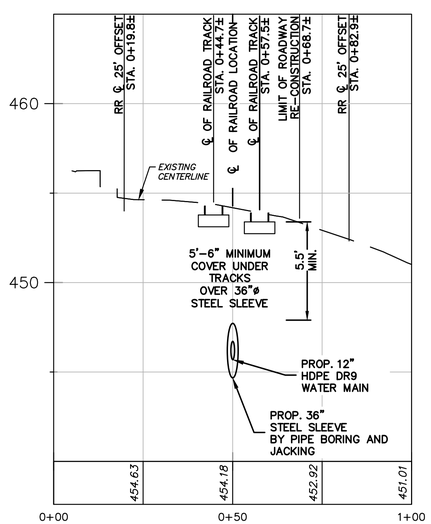
SCALE: AS NOTED
DATE: FEBRUARY 24, 2021
JOB NO.\FILE NAME: 2118-BID.dwg
DESIGNED BY: A.C.M.
DRAWN BY: W.R.H.
CHECKED BY: M.J.C.
PLAN NO. 6 OF 19

BOSTON AND MAINE RAILROAD (PAN AM SOUTHERN)
CROSS-SECTION AT STATION 6268+97.60±



PLAN

SCALE: 1" = 20'



PROFILE

SCALE: HORI. 1" = 20'
VERT. 1" = 4'

NOTE:

1. ALL WORK WITHIN THE RAILROAD RIGHT OF WAY REQUIRES A RAILROAD SERVICE AGREEMENT FROM PAN AM SOUTHERN LLC AND SPRINGFIELD TERMINAL RAILWAY COMPANY, C/O PAN AM SYSTEMS INCORPORATED, IRON HORSE PARK, NORTH BILLERICA, MASSACHUSETTS 01862

GRAPHIC SCALE
VERTICAL

4 0 2 4 8 16

(IN FEET)
1 inch = 4 ft.

GRAPHIC SCALE
HORIZONTAL

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

BOSTON AND MAINE RAILROAD
STA. 6269+03.70± CROSS-SECTION
PLAN AND PROFILE

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 39907
REGISTERED PROFESSIONAL ENGINEER

02/24/2021

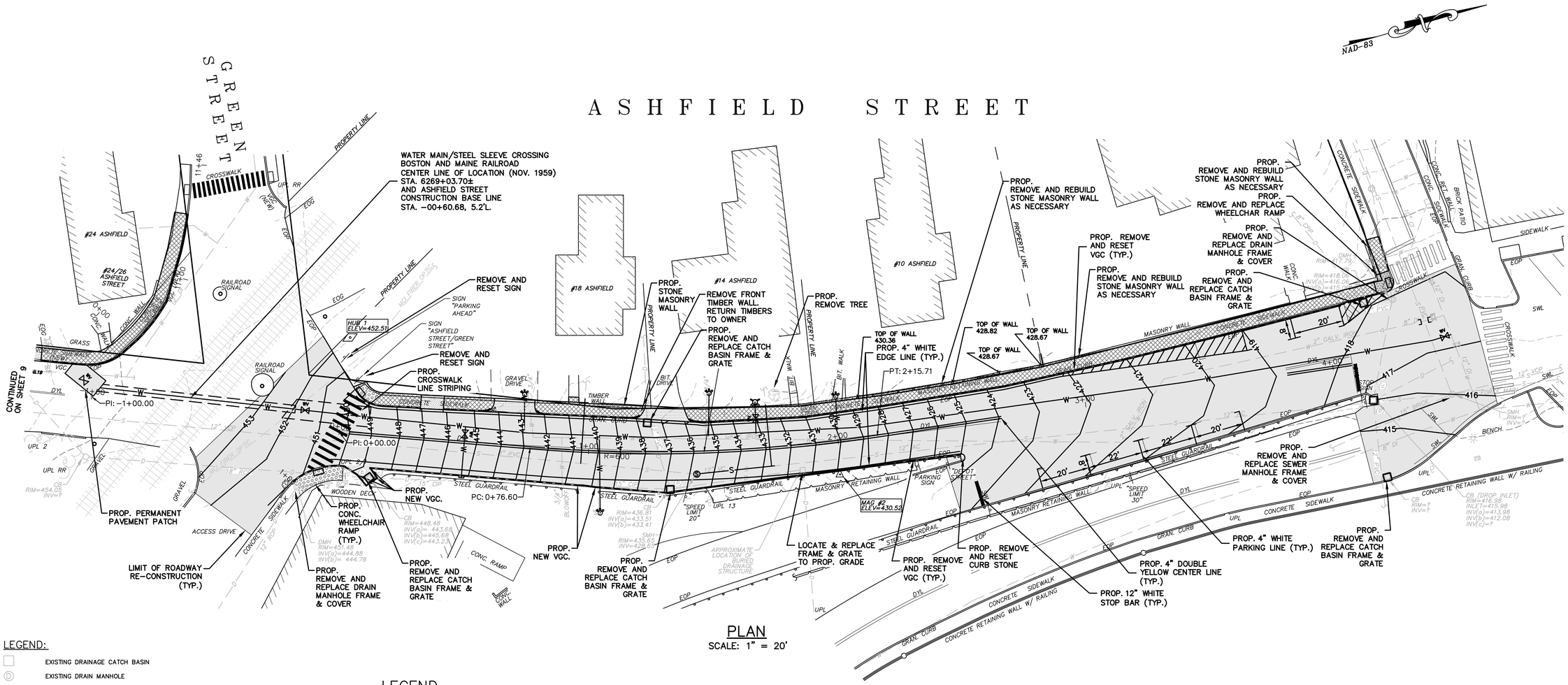
GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED
DATE: FEBRUARY 24, 2021

JOB NO.\FILE NAME: 2118-BID.dwg

DESIGNED BY: A.C.M.
DRAWN BY: W.R.H.
CHECKED BY: M.J.C.

PLAN NO.
7 OF 19



PLAN

SCALE: 1" = 20'

LEGEND:

- EXISTING DRAINAGE CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING PULL BOX
- EXISTING UTILITY POLE
- EXISTING MAIL BOX
- EXISTING WATER GATE VALVE
- EXISTING WATER SHUT OFF
- EXISTING HYDRANT
- EXISTING SIGN
- MAG NAIL TRAVERSE POINT
- HUB TRAVERSE POINT
- EXISTING SEWER LINE
- EXISTING DRAIN LINE
- EXISTING WATER LINE
- EOP — EDGE OF PAVEMENT
- ROW — APPROX. EXISTING RIGHT OF WAY
- EXISTING WALL
- 300 — EXISTING 5' CONTOURS
- 301 — EXISTING 1' CONTOURS
- EXISTING SHURB
- EXISTING TREE
- CPP — CORRUGATED PLASTIC PIPE
- B7 — SOIL BORING

LEGEND

- REMOVE & REPLACE CONC. SIDEWALK, 5' WIDE
- REMOVE & REPLACE BIT. DRIVEWAY APRON WITH CONC. DRIVEWAY APRON
- REMOVE & REPLACE CONC. WHEELCHAIR RAMP
- PROPOSED NEW VERTICAL GRANITE CURB (VGC) AS SPECIFIED
- REMOVE AND RESET GRANITE CURB
- PROPOSED SILT SACK

NOTE:

1. ALL WORK WITHIN THE RAILROAD RIGHT OF WAY REQUIRES A RAILROAD SERVICE AGREEMENT FROM PAN AM SOUTHERN LLC AND SPRINGFIELD TERMINAL RAILWAY COMPANY, C/O PAN AM SYSTEMS INCORPORATED, IRON HORSE PARK, NORTH BILLERICA, MASSACHUSETTS 01862

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
35907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

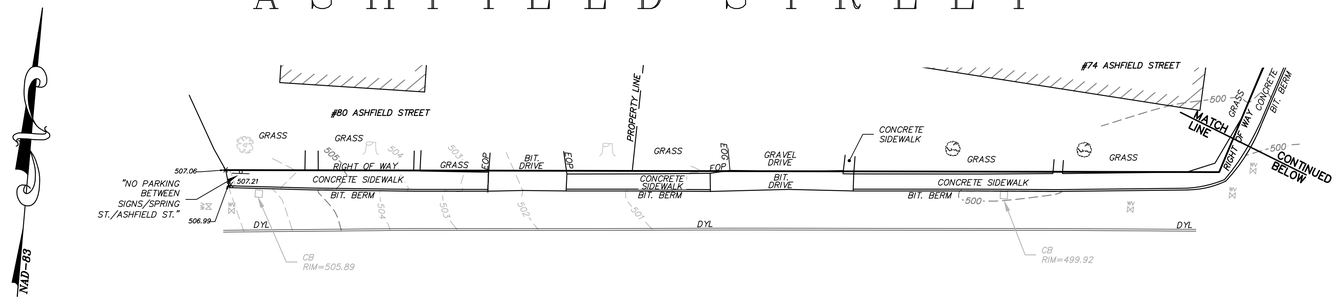
TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

LOWER ASHFIELD STREET
SITE PLAN
STATION −1+50 TO STATION 5+00

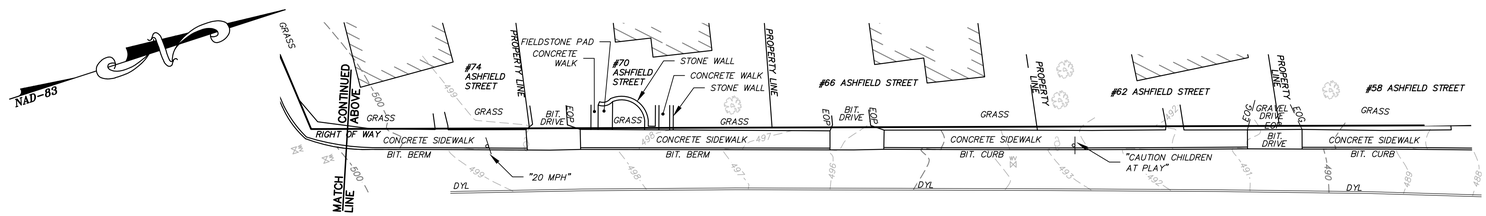
GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: 1" = 20'	DATE: FEBRUARY 24, 2021
JOB NO.\FILE NAME: 2118−BID.dwg	DESIGNED BY: W.R.H. DRAWN BY: W.R.H. CHECKED BY: M.J.C.
PLAN NO.	8 OF 19

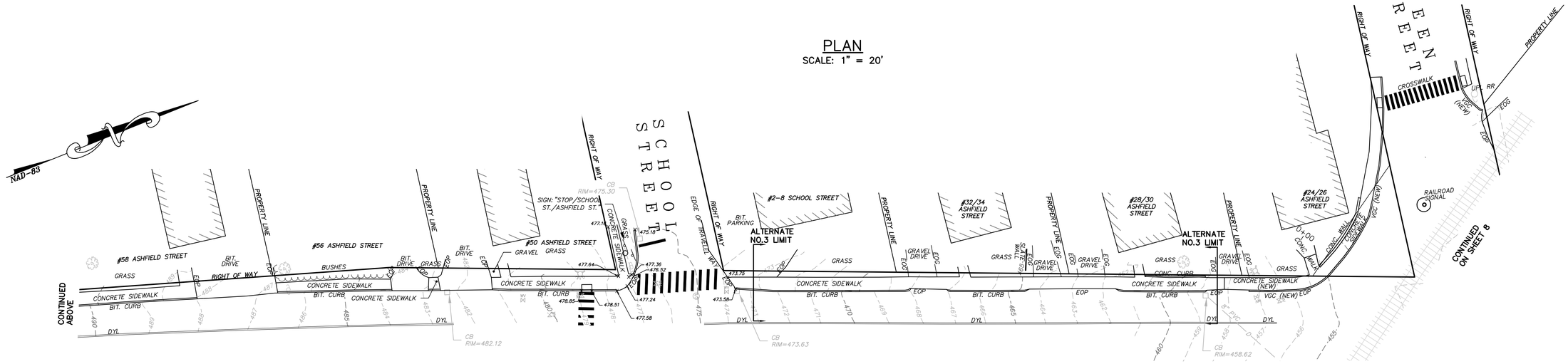
A S H F I E L D S T R E E T



PLAN
SCALE: 1" = 20'



PLAN
SCALE: 1" = 20'



PLAN
SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

MICHAEL J. CARTER
CIVIL
No. 35907
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS
02/24/2021

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

UPPER ASHFIELD STREET
EXISTING CONDITIONS PLAN

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

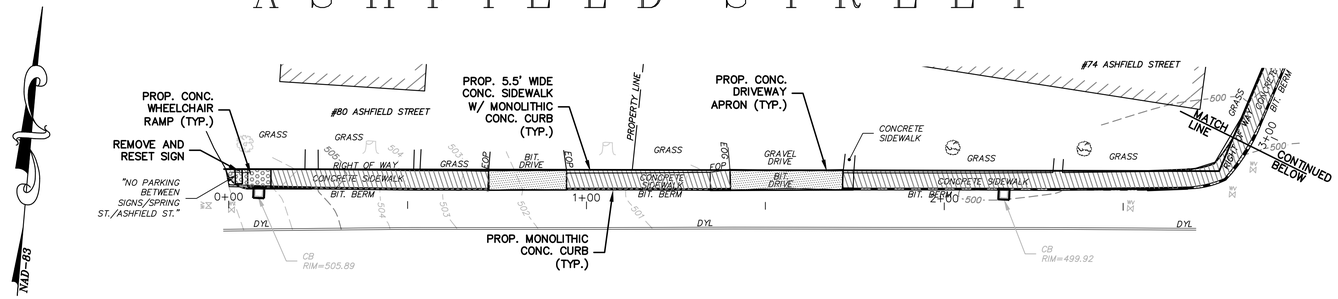
SCALE: 1" = 20' DATE: FEBRUARY 24, 2021

JOB NO.\FILE NAME:	DESIGNED BY: L.P.B.	PLAN NO.
2118-BID	DRAWN BY: L.P.B.	9 OF 19
	CHECKED BY: M.J.C.	

Tab: existing upper Plot Style: GCG(2018.ctb Plotted By: Lucas Birkman

2118-Bid.dwg Saved: 2/19/2021 2:47 PM Plotted: Feb 22, 2021 2:11pm

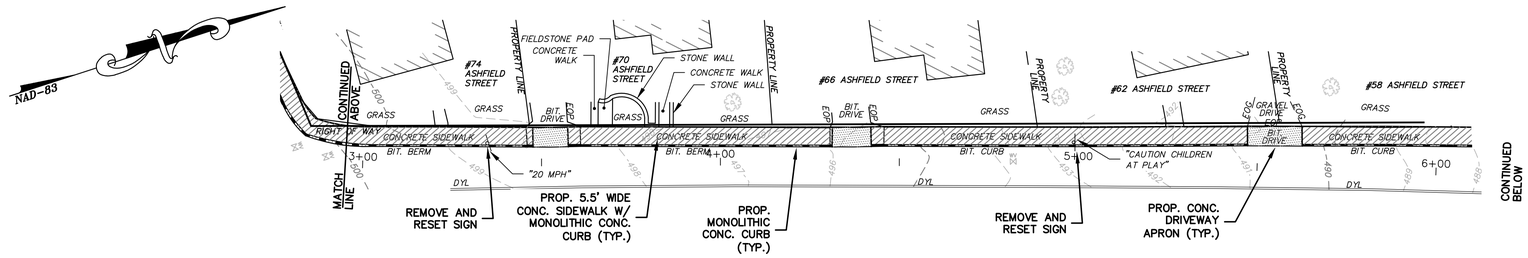
A S H F I E L D S T R E E T



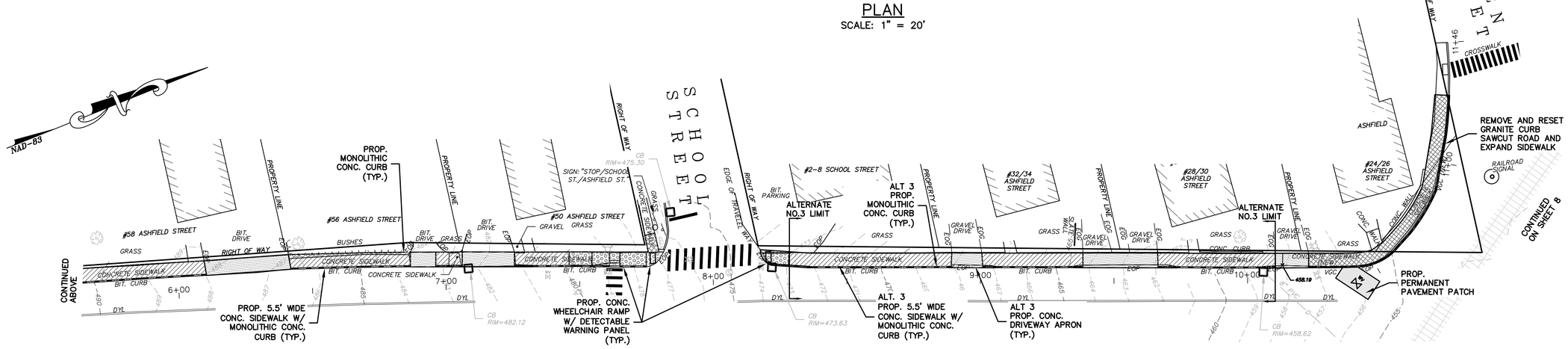
PLAN
SCALE: 1" = 20'

LEGEND

- REMOVE & REPLACE CONC. SIDEWALK, 5' WIDE
- REMOVE & REPLACE CONC. SIDEWALK WITH MONOLITHIC CURB, 5.5' WIDE
- REMOVE & REPLACE BIT. DRIVEWAY APRON WITH CONC. DRIVEWAY APRON
- REMOVE & REPLACE CONC. WHEELCHAIR RAMP
- NEW CONC. CURB, CAST IN PLACE WITH SIDEWALK
- REMOVE AND RESET GRANITE CURB
- PROPOSED SILT SACK



PLAN
SCALE: 1" = 20'



PLAN
SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 39907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

ASHFIELD STREET
PROPOSED SIDEWALK PLAN
STATION 0+00 TO STATION 11+46

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

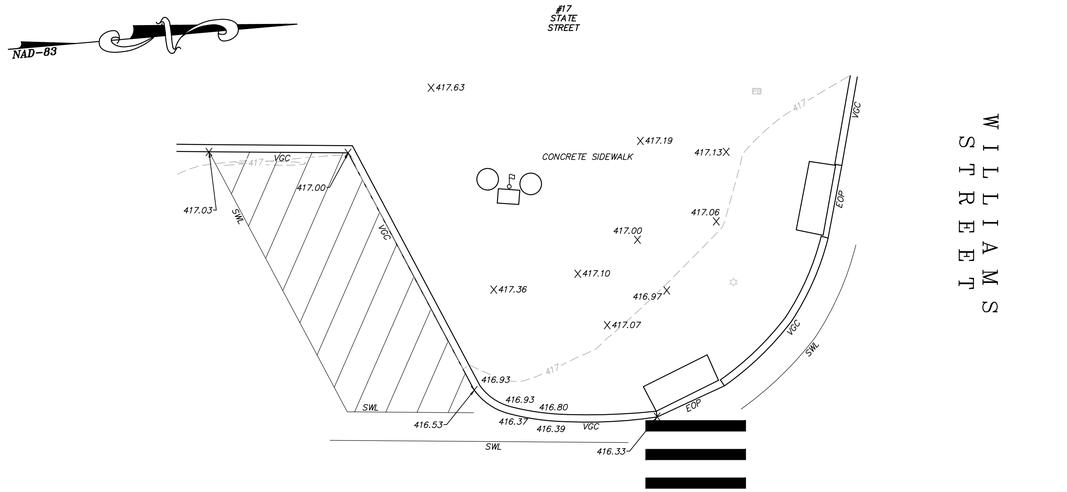
SCALE: 1" = 20'	DATE: FEBRUARY 24, 2021	
JOB NO.\FILE NAME: 2118-BID	DESIGNED BY: L.P.B. DRAWN BY: L.P.B. CHECKED BY: M.J.C.	PLAN NO. 10 OF 19

Tab: upper-site Plot Style: GCG-2018.ctb Plotted By: Lucas Brennan

2118-Bid.dwg Saved: 2/19/2021 2:47 PM Plotted: Feb 22, 2021 3:39 pm

LEGEND:

- EXISTING DRAINAGE CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING PULL BOX
- EXISTING UTILITY POLE
- EXISTING MAIL BOX
- EXISTING WATER GATE VALVE
- EXISTING WATER SHUT OFF
- EXISTING HYDRANT
- EXISTING SIGN
- MAG NAIL TRAVERSE POINT
- HUB TRAVERSE POINT
- EXISTING SEWER LINE
- EXISTING DRAIN LINE
- EXISTING WATER LINE
- EDGE OF PAVEMENT
- APPROX. EXISTING RIGHT OF WAY
- EXISTING WALL
- EXISTING 5' CONTOURS
- EXISTING 1' CONTOURS
- EXISTING SHURB
- EXISTING TREE
- CORRUGATED PLASTIC PIPE
- SOIL BORING



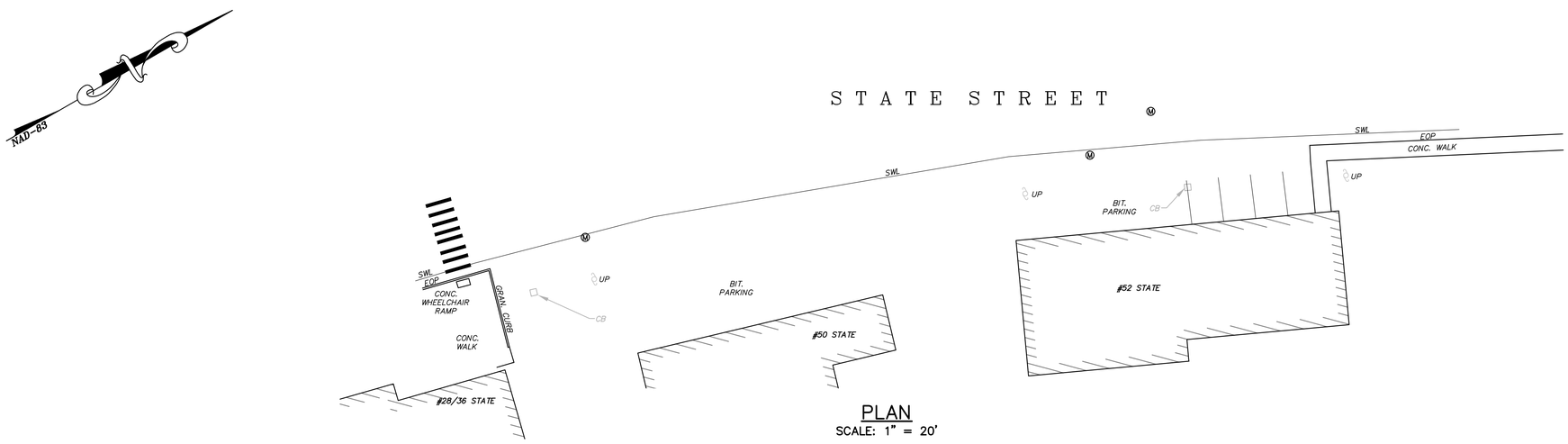
PLAN

SCALE: 1" = 5'

GRAPHIC SCALE

5 0 2.5 5 10 20

(IN FEET)
1 inch = 5 ft.



PLAN

SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 35907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

VARIOUS SITES
EXISTING CONDITIONS PLAN

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS SPECIFIED DATE: FEBRUARY 24, 2021

JOB NO.\FILE NAME: 2118-BID

DESIGNED BY: L.P.B.
DRAWN BY: L.P.B.
CHECKED BY: M.J.C.

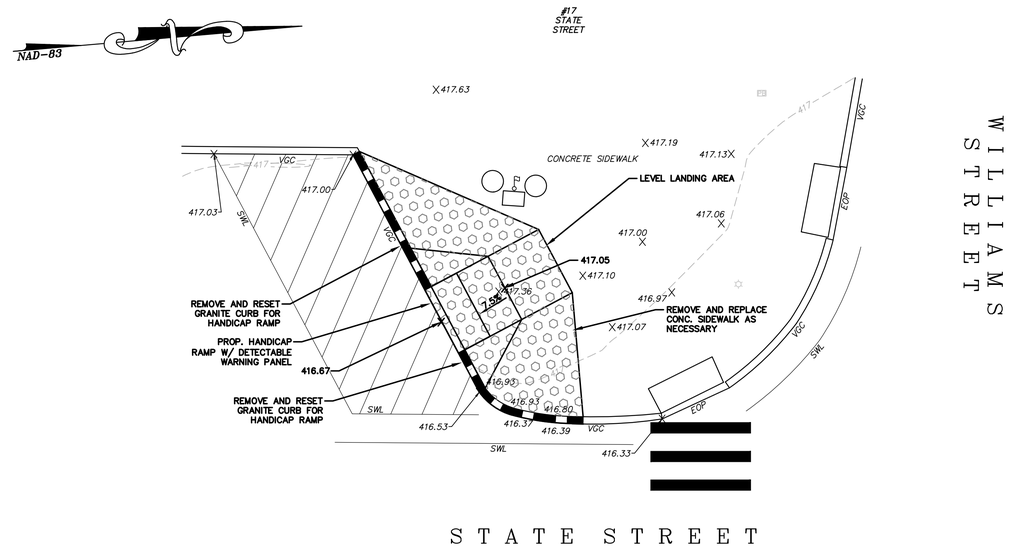
PLAN NO. 11 OF 19

Tab: existing-various Plot Style: GCG2018.ctb Plotted By: Lucas Brennan

2118-Bid.dwg Saved: 2/19/2021 2:47 PM Plotted: Feb 22, 2021 3:33pm

LEGEND

- REMOVE & REPLACE CONC. SIDEWALK WITH MONOLITHIC CURB, 5.5' WIDE
- REMOVE & REPLACE BIT. DRIVEWAY APRON WITH CONC. DRIVEWAY APRON
- REMOVE & REPLACE CONC. WHEELCHAIR RAMP
- REMOVE AND RESET GRANITE CURB

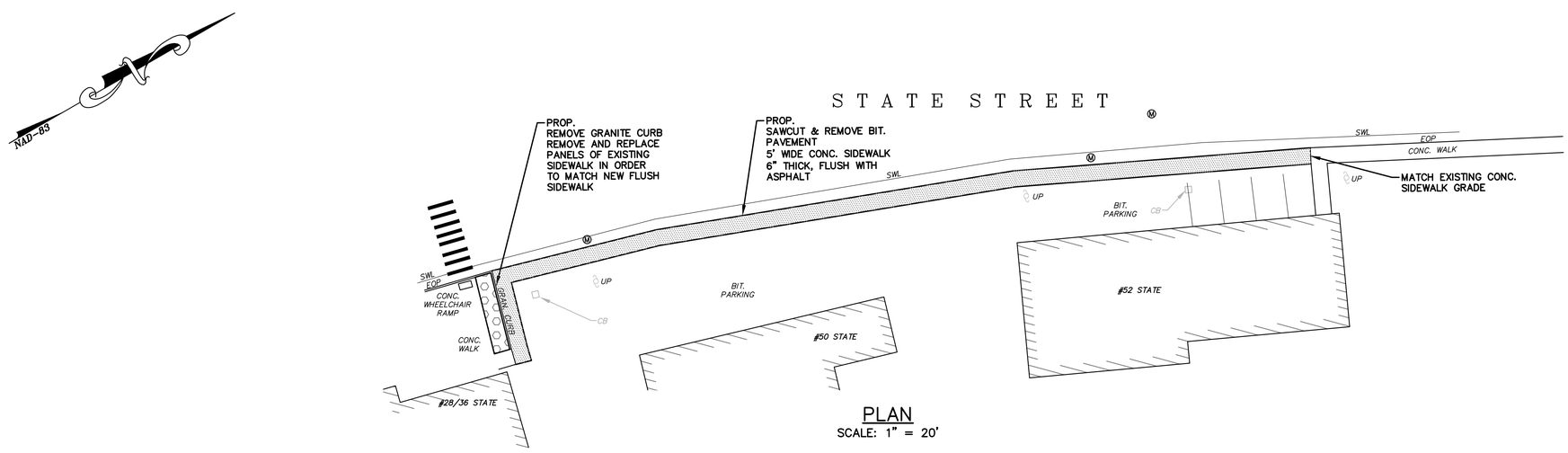


PLAN
SCALE: 1" = 5'

GRAPHIC SCALE

5 0 2.5 5 10 20

(IN FEET)
1 inch = 5 ft.



PLAN
SCALE: 1" = 20'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

VARIOUS SITES
SITE PLAN

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 30907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

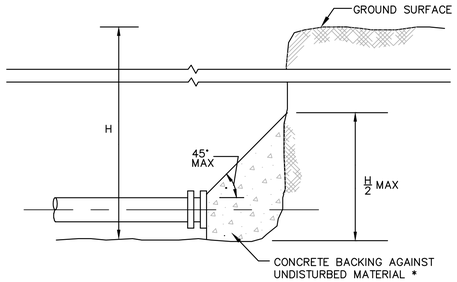
GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS SPECIFIED DATE: FEBRUARY 24, 2021

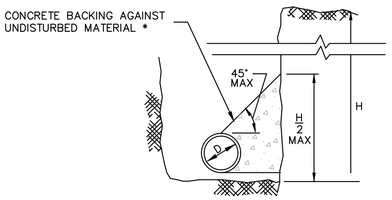
JOB NO.\FILE NAME: 2118-BID
DESIGNED BY: L.P.B.
DRAWN BY: L.P.B.
CHECKED BY: M.J.C.
PLAN NO. 12 OF 19

Tab: various SITE Plot Style: GCG2018.ctb Plotted By: Lucas Bireman

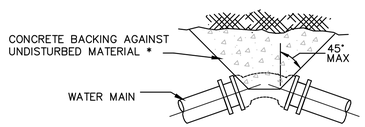
2118-Bid.dwg Saved: 2/19/2021 2:47 PM Plotted: Feb 22, 2021 3:35pm



TYPICAL WATER MAIN PLUG
NTS



TYPICAL WATER MAIN THRUST BLOCK SECTION DETAILS
NTS



* SEE TABLE ON THRUST BLOCK BEARING AREAS FOR THE AREA OF CONCRETE REQUIRED.

TYPICAL WATER MAIN BEND THRUST BLOCK DETAILS
NTS

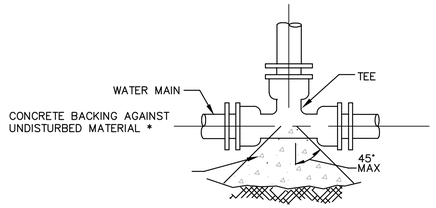
THRUST BLOCK BEARING AREAS FOR WATER PIPE

TABLE OF BEARING AREAS IN SQ. FT. AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS*			
SIZE OF MAIN (IN.)	90° BEND	TEES AND PLUGS	45° BEND
6	4	2.5	2
8	6	4	3
12	12	9	7
16	21	16	12

* TYPE OF SOIL IS MEDIUM CLAYEY, 6 OR MORE BLOWS PER FOOT, OR LOOSE GRANULAR, 9 OR MORE BLOWS PER FOOT. SOIL CONDITIONS OTHER THAN THOSE GIVEN WILL REQUIRE LARGER BEARING AREAS.

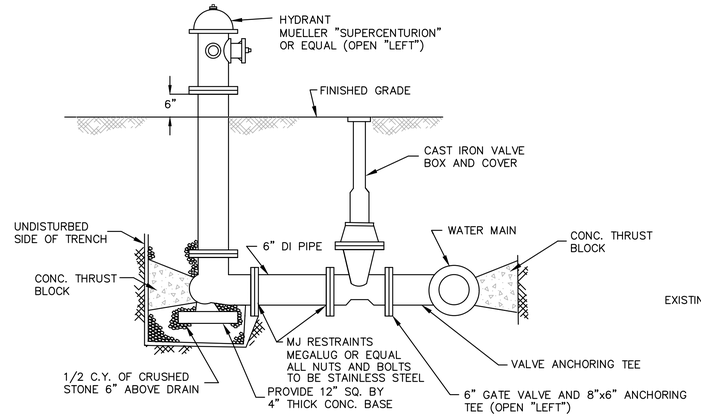
NOTES:

1. FOR FITTINGS WITH LESS THAN 45° DEFLECTION, USE BEARING AREAS FOR 45° BEND.
2. BEARING AREAS BASED ON HORIZONTAL PASSIVE SOIL PRESSURE OF 2000 P.S.F. AND INTERNAL WATER PRESSURE OF 150 P.S.I.G. 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 THE ROCK FACE.
3. ALL FITTINGS AND VALVES SHALL BE DUCTILE IRON MECHANICAL JOINT AND RESTRAINED WITH MJ RESTRAINTS. (MEGALUG OR EQUAL). ALL BOLTS AND NUTS TO BE STAINLESS STEEL.
4. WATER MAINS SHALL BE C.L.D.I. CLASS 52 – DOUBLE CEMENT LINED.
5. ALL WORK RELATED TO THRUST BLOCKS SHALL BE PAID FOR UNDER THE CONCRETE ITEM.



* SEE TABLE ON THRUST BLOCK BEARING AREAS FOR THE AREA OF CONCRETE REQUIRED.

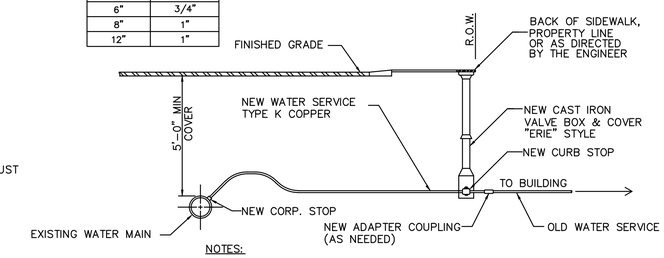
TYPICAL WATER MAIN TEE THRUST BLOCK DETAILS
NTS



HYDRANT DETAIL
NTS

MAXIMUM SIZE TAPPED CONNECTION *	
WATER MAIN DIAMETER	MAXIMUM TAP DIAMETER
4"	1/2"
6"	3/4"
8"	1"
12"	1"

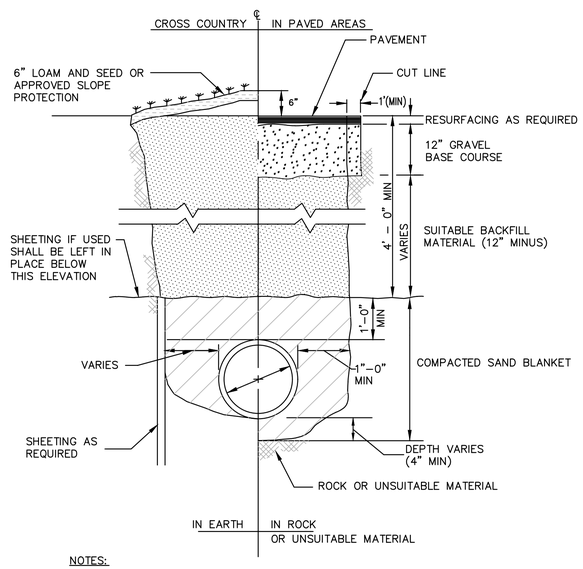
* WHERE THE SIZE OF THE CONNECTION EXCEEDS THAT GIVEN IN THE TABLE, A BOSS SHALL BE PROVIDED OR TAPPED SADDLE.



NOTES:

1. ALL WATER SERVICES AND CURB STOPS SHALL BE REPLACED UP TO THE RIGHT OF WAY OR AS DIRECTED BY THE ENGINEER.
2. ALL NEW WATER SERVICES, CORPORATIONS & CURBSTOPS SHALL BE 1" IN DIAMETER UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. ALL GATE VALVES AND CURB STOPS SHALL BE OPEN "LEFT".

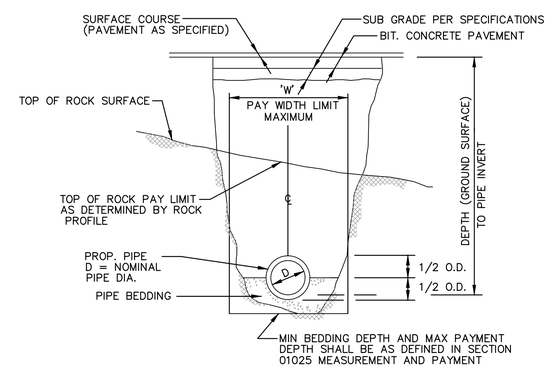
WATER SERVICE CONNECTION
NTS



NOTES:

ALL TRENCHES SHALL BE SAW CUT. NO OTHER METHOD OF CUTTING THE EXISTING PAVEMENT SHALL BE ACCEPTABLE. THIS WORK SHALL BE PAID FOR UNDER THE ASSOCIATED PIPE ITEM. NO SEPARATE PAYMENTS SHALL BE MADE FOR THIS ITEM.

TYPICAL WATER TRENCH DETAIL
NTS

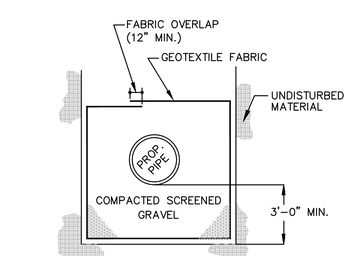


NOTES:

1. THE PAY LIMIT FOR ROCK REMOVAL OUTSIDE MANHOLES SHALL BE WITHIN A VERTICAL LINE OFFSET ONE FOOT (1') OUTSIDE THE WIDEST DIMENSION OF THE STRUCTURE OR SHALL BE THE MAXIMUM CONNECTING TRENCH WIDTH, WHICHEVER IS GREATER.

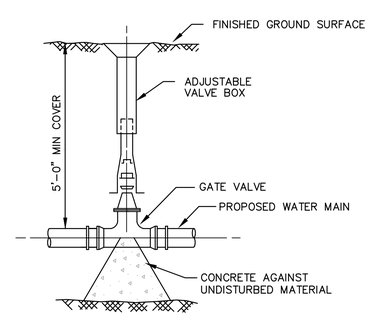
MAXIMUM PAYMENT FOR ROCK EXCAVATION CHART		
DEPTH FROM GROUND SURFACE TO INVERT OF PIPE	MAXIMUM PAY WIDTH 'W' NOMINAL PIPE DIA.	
	0"–24"	OVER 24"
DEPTH ≤ 12'	5'–0"	D+3'–0"
12'< DEPTH ≤ 20'	7'–0"	D+5'
DEPTH > 20'	9'–0"	D+7'

TRENCH IN ROCK PAYMENT LIMITS
NTS



NOTE:
PLACEMENT OF GEOTEXTILE FABRIC SHALL EXTEND 5' ON EITHER SIDE OF POOR SUBGRADE CONDITIONS.

TRENCH EXCAVATION WITH UNSUITABLE SOIL CONDITIONS
NOT TO SCALE



NOTES:
ALL GATE VALVES AND CURB STOPS SHALL BE OPEN "LEFT".

WATER VALVE DETAIL
NTS

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

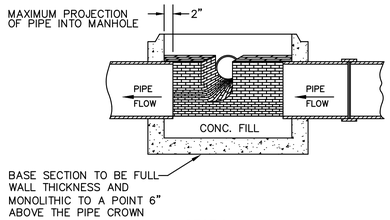
MISCELLANEOUS DETAILS I

COMMONWEALTH OF MASSACHUSETTS MICHAEL J. CARTER CIVIL No. 39907 REGISTERED PROFESSIONAL ENGINEER
02/24/2021

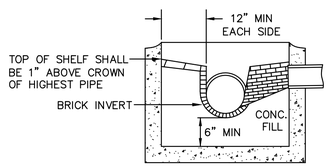
GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: NOT TO SCALE | DATE: FEBRUARY 24, 2021

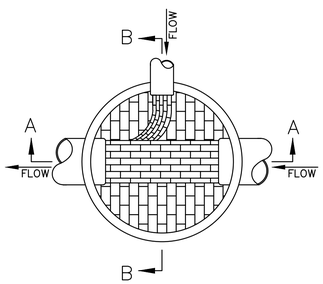
JOB NO.\FILE NAME: 2118–BID.DWG
DESIGNED BY: W.R.H.
DRAWN BY: W.R.H.
CHECKED BY: M.J.C.
PLAN NO. 13 OF 19



SECTION A–A

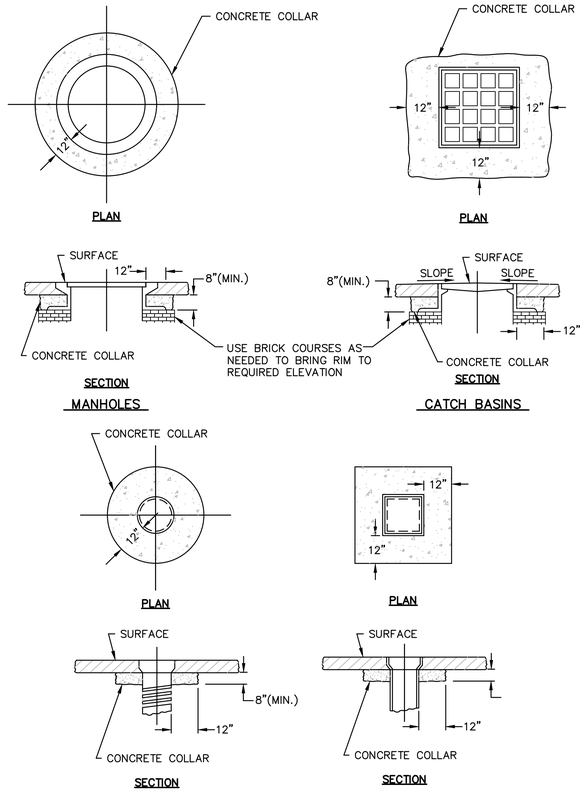


SECTION B–B



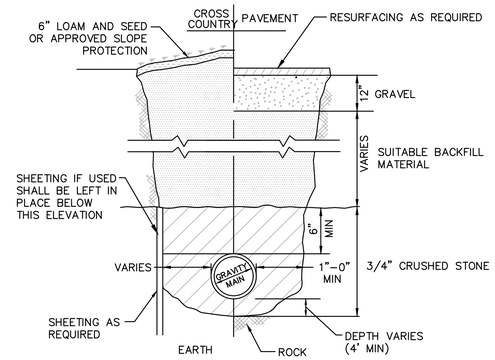
NOTES:
1. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.

SEWER INVERT DETAIL
N.T.S.

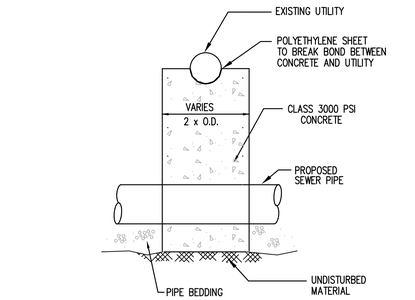


WATER & GAS SERVICE BOXES

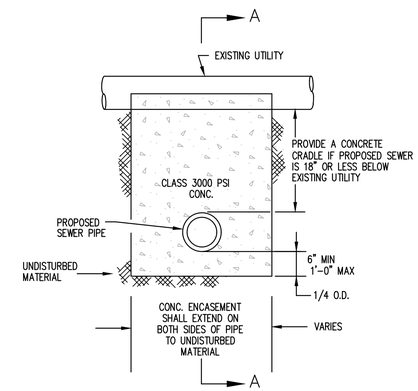
DETAILS FOR ADJUSTING CASTINGS
N.T.S.



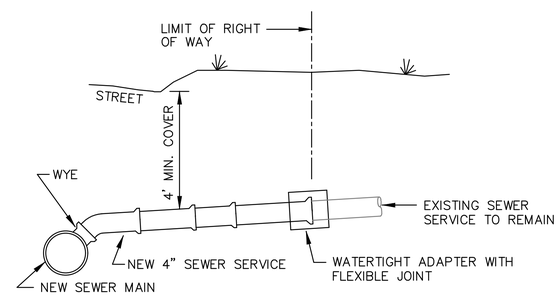
TYPICAL GRAVITY SEWER TRENCH DETAIL
N.T.S.



SECTION A–A



CONCRETE UTILITY SUPPORT
N.T.S.



NOTE:
1.) SERVICES SHALL BE 4" DIA. SDR 35 PVC UNLESS OTHERWISE NOTED.
2.) MINIMUM SERVICE SLOPE SHALL BE 1/4" PER FOOT.
3.) REPLACE ALL EXISTING SEWER SERVICES TO THE RIGHT OF WAY.
4.) ALL SEWER SERVICE CONNECTIONS AT THE MAIN SHALL BE MADE WITH A WYE FITTING.
5.) ALL SERVICE TO MAIN CONNECTIONS SHALL BE WATERTIGHT.

SEWER SERVICE DETAIL
N.T.S.

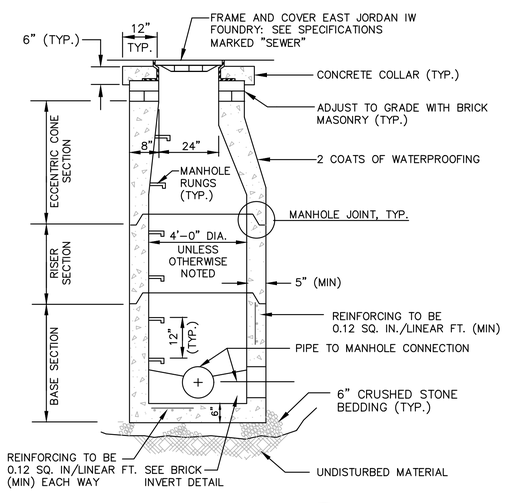
OFFSET TOP FOR ALL MANHOLES & CATCH BASINS
NOT TO SCALE

MANHOLE GENERAL NOTES:

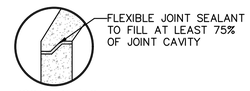
1. ALL PRECAST CONCRETE MANHOLES SHALL CONFORM TO THE LATEST A.S.T.M. SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE SECTIONS (A.S.T.M. C478). CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 P.S.I. REINFORCING STEEL SHALL CONFORM TO THE LATEST A.S.T.M. A185 SPECIFICATIONS.
2. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION, THE INVERT SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTERLINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF 3000 P.S.I. CONCRETE FILL AND BRICK MASONRY. BRICK INVERT SHALL BE SLOPED TO PROVIDE SMOOTH TRANSITION FROM INLET TO OUTLET.
3. WHEN THE DIFFERENCE IN ELEVATION BETWEEN THE INLET AND OUTLET PIPE ELEVATIONS IS GREATER THAN 2 FEET AT MANHOLES, INSIDE OR OUTSIDE MAHNOLE DROPS ARE REQUIRED.
4. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H–20 LOADS.
5. CONCRETE COLLARS TO BE CLASS 3000 P.S.I. CEMENT CONCRETE MASONRY OR BITUMINOUS CONCRETE AS APPROVED.
6. ALL MANHOLES SHALL BE DAMPPROOFED WITH BITUMASTIC COATING.
7. COMMONWEALTH OF MASSACHUSETTS DEP STANDARDS REQUIRE 10 FEET HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS, HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATER MAIN RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FEET HORIZONTALLY FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICABLE TO RELOCATE THE SEWER THE FOLLOWING METHODS OF PROTECTION MUST BE EMPLOYED.

   THE SEWER WILL BE LAID IN A SEPARATE TRENCH AND THE ELEVATION OF THE TOP (CROWN) OF THE SEWER SHALL BE AT LEAST 18 INCHES BELOW THE BOTTOM (INVERT) OF THE WATER MAIN.

   IF THE ABOVE SEPARATION CANNOT BE ACHIEVED, THE WATER MAIN SHALL BE ENCASED IN CONCRETE.

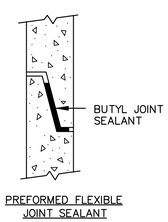


NOTES:
1. TOP SLABS MAY BE USED IF CONDITIONS PREVENT THE USE OF ECCENTRIC CONE SECTION.
2. MATCH PROPOSED GRADE OR PAVEMENT UNLESS OTHERWISE INDICATED (TYP.)

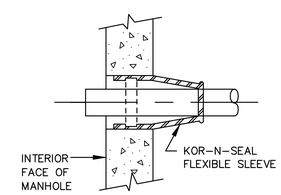


JOINT DETAIL

4'–0" PRECAST SEWER MANHOLE
N.T.S.



MANHOLE JOINT DETAILS
N.T.S.



PIPE CONNECTION DETAILS
NOT TO SCALE

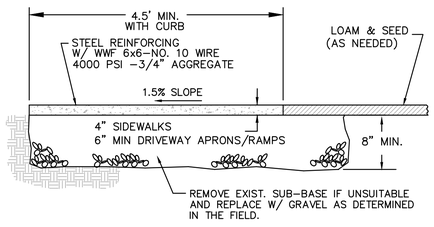
TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

MISCELLANEOUS DETAILS II

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 33907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

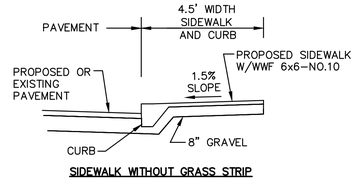
GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED	DATE: FEBRUARY 24, 2021	
JOB NO.\FILE NAME: 2118–BID.DWG	DESIGNED BY: W.R.H. DRAWN BY: W.R.H. CHECKED BY: M.J.C.	PLAN NO. 14 OF 19



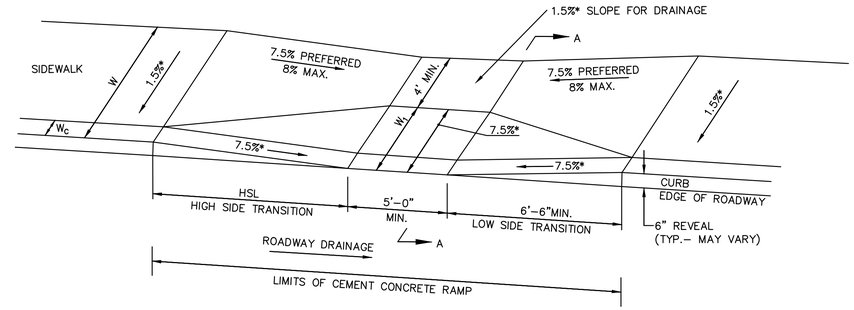
SIDEWALK DETAIL

N.T.S.

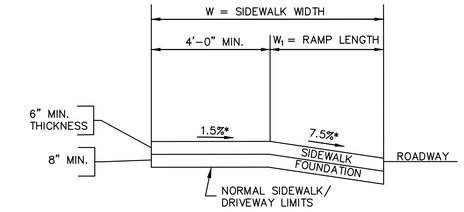


TYPICAL SIDEWALK CROSS SECTION

N.T.S.

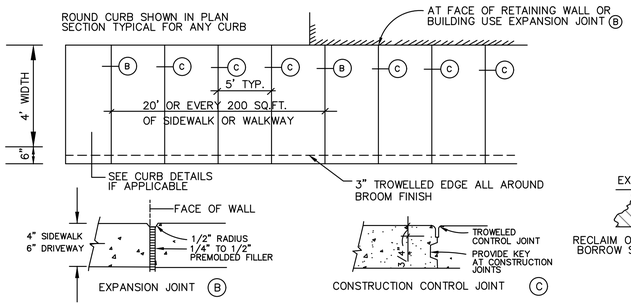


PLAN



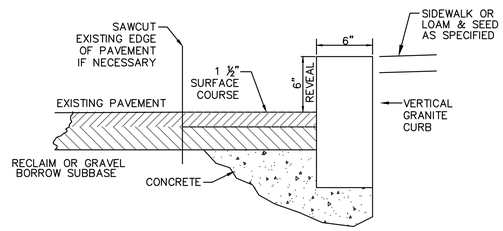
* = TOLERANCE FOR CONSTRUCTION ±0.5%
USEABLE SIDEWALK WIDTH PER ABB = $W-W_c$
RAMP LENGTH, $W_1 = W - (4'-0")$ MIN.

SECTION A–A



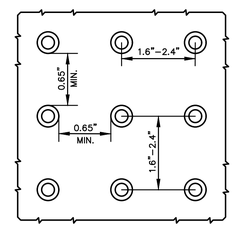
TYPICAL CEMENT CONCRETE SIDEWALK PLAN

N.T.S.



GRANITE CURB DETAIL

N.T.S.



ROADWAY PROFILE GRADE %	*HIGH SIDE TRANSITION LENGTH
0	6'–6"
> 0 – 1	7'–8"
> 1 – 2	9'–0"
> 2 – 3	11'–0"
> 3 – 4	14'–0"
> 4	15'–0" MAX.

* BASED ON DESIGN SLOPE = 7.5% AND A CURB REVEAL OF 6".

CURB TRANSITION LENGTH FOR WHEELCHAIR RAMPS

N.T.S.

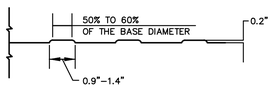
NOTES:

1. THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.
2. RAMP CROSS SECTION TO BE SAME AS ADJACENT SIDEWALK; e.g DEPTH OF SURFACES.
3. PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
4. IN NO CASE ARE THE RAMPS TO BE PLACED BEHIND THE STOP LINE.
5. SIDEWALKS THAT CROSS DRIVEWAYS SHALL BE RAMPED TO MEET THE GRADE OF THE DRIVEWAY.

* THESE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE.

TYPICAL WHEELCHAIR RAMP CONDITION

N.T.S.



DETECTABLE WARNING PANEL DOME LAYOUT

N.T.S.

WHEELCHAIR RAMP NOTES

1. ROADWAY SIDEWALK CROSS SLOPES, FOR BRICK, CEMENT CONCRETE, AND BITUMINOUS CONCRETE, AS INDICATED IN THE STANDARD SPECIFICATIONS, WILL BE 1.5%. A CONSTRUCTION TOLERANCE OF ±0.5% IS ACCEPTABLE ON ROADWAY SIDEWALKS. SIDEWALKS ON BRIDGES WILL BE CONSTRUCTED TO A CROSS SLOPE OF 1.0% IN ACCORD WITH BRIDGE POLICY. (REFER TO STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, SECTION 700.) IN ACCORDANCE WITH 521 CMR THE RULES AND REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD (AAB), THE SIDEWALK CROSS SLOPE CANNOT EXCEED 2.0%.

2. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 3'–0" SHALL BE MAINTAINED PAST ALL OBSTRUCTIONS (UTILITY POLES, SIGNS, SIGNAL FOUNDATIONS AND MASTS, MAILBOXES, ALONG DRIVE OPENINGS, ETC.).

3. THE WHEELCHAIR RAMP SLOPES AND SIDE SLOPES (TRANSITIONS) WILL BE 7.5% WITH A CONSTRUCTION TOLERANCE OF ±0.5%. HOWEVER, THESE SLOPES MAY BE FLATTER WHEN WARRANTED BY SURROUNDING CONDITIONS.

4. WHERE THE ROAD PROFILE EXCEEDS 4%, THE HIGH SIDE TRANSITION LENGTH UNDER ANY CONDITIONS NEED NOT EXCEED 4.57m (15').

5. IN NO CASE WHERE A STOP LINE IS WARRANTED, SHALL A RAMP BE PLACED ON THE TRAFFIC APPROACH SIDE OF THAT STOP LINE.

6. FIXED OBJECTS (I.E. UTILITY POLES, HYDRANTS, SIGNS, SIGNAL FOUNDATIONS, ETC.) MUST NOT ENCROACH ON ANY PART OF THE WHEELCHAIR RAMP INCLUDING TRANSITION SLOPES.

7. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING CURB TRANSITIONS, TO BE LOCATED OUTSIDE THE CROSSWALK. THE WHEELCHAIR RAMP ENTRANCE IS TO BE CENTERED IN THE CROSSWALK WHENEVER POSSIBLE.

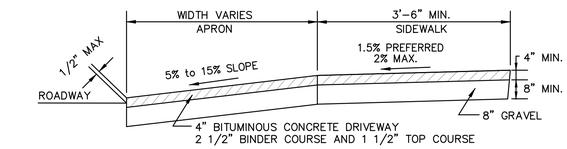
8. CATCH BASINS WHICH ARE IN THE VICINITY OF A WHEELCHAIR RAMP SHALL BE LOCATED UPGRADE OF THE RAMP ENTRANCE.

9. THE ENTRANCE OF A WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.

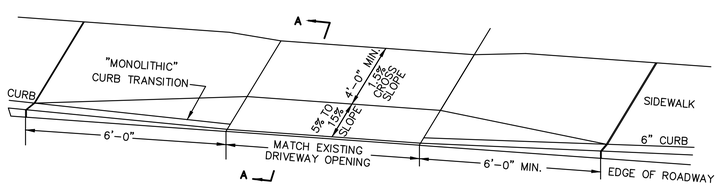
10. TESTING SURFACE: WHEN TESTING WITH A STRAIGHTEDGE PLACED PARALLEL TO THE LINE OF THE SLOPE THERE SHALL BE NO DEVIATION FROM A TRUE SURFACE IN EXCESS OF 1/4" (6 mm).

11. SIDEWALK CONSTRUCTION SHALL BE IN CONFORMANCE WITH MASS HIGHWAY CONSTRUCTION STANDARD FOR WHEELCHAIR RAMPS.

12. EACH WHEELCHAIR RAMP SHALL HAVE A POURED INPLACE, ADS DETECTABLE WARNING PANEL. PANELS SHALL BE ALIGNED TO THE BACK OF THE PROPOSED CURB RADIUS AS REQUIRED.

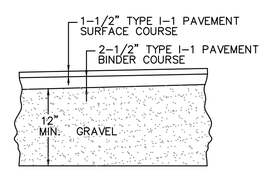


SECTION A–A



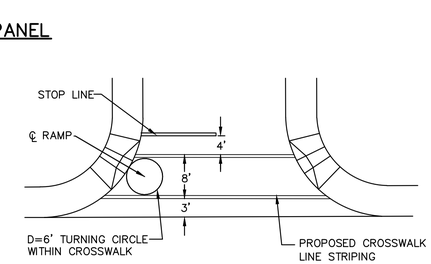
TYPICAL DRIVEWAY

N.T.S.



TYPICAL ROADWAY PAVEMENT SECTION

N.T.S.

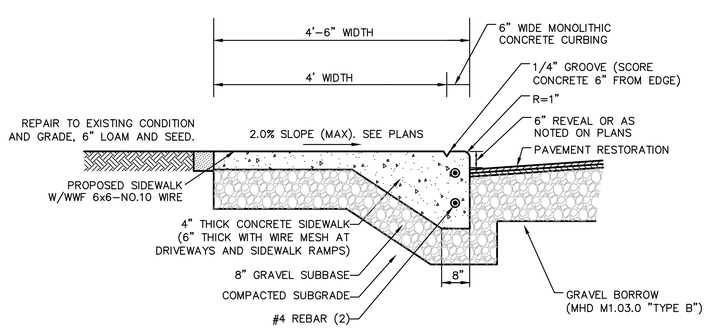


NOTES:

1. CROSSWALKS SHALL BE PAINTED AT ALL PAIRED WHEELCHAIR RAMP LOCATIONS WITHIN THE LIMITS OF WORK.
2. THE CROSSWALKS AND STOP LINES SHALL BE PAINTED WITH 12" WIDE, WHITE REFLECTORIZED, EPOXY PAINT IN THE PATTERN SHOWN.

PAIRED WHEELCHAIR RAMP & CROSSWALK DETAIL

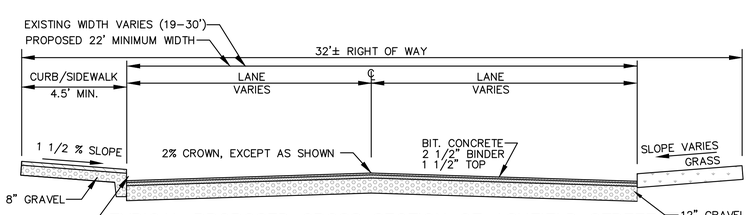
N.T.S.



NOTE:
1. PROVIDE EXPANSION JOINTS 30' O–C (MAX)
2. TOTAL DEPTH OF MONOLITHIC CURB TO BE 20"

SIDEWALK AND MONOLITHIC CURB DETAIL

N.T.S.



TYPICAL PROPOSED CROSS SECTION OF ASHFIELD STREET

N.T.S.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

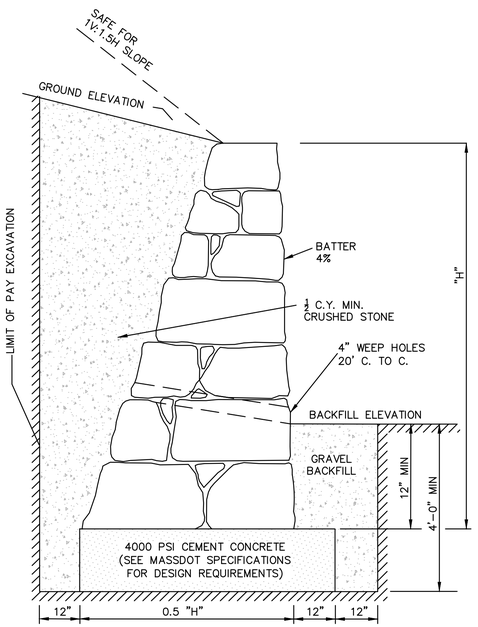
MISCELLANEOUS DETAILS III

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 38907
REGISTERED PROFESSIONAL ENGINEER
02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: NOT TO SCALE | DATE: FEBRUARY 24, 2021

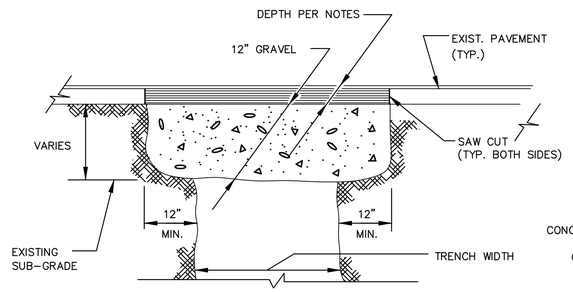
JOB NO.\FILE NAME: 2118–BID.DWG
DESIGNED BY: W.R.H.
DRAWN BY: W.R.H.
CHECKED BY: M.J.C.
PLAN NO. 15 OF 19



NOTES:
1. ALL DIMENSIONS SHOWN ARE MINIMUM.
2. PAYMENT WILL BE BASED ON THE ASSOCIATED PAY ITEM (5F).
3. TO BE FOUNDED ON SUITABLE SOIL.

CEMENTED STONE MASONRY WALL DETAIL

N.T.S.

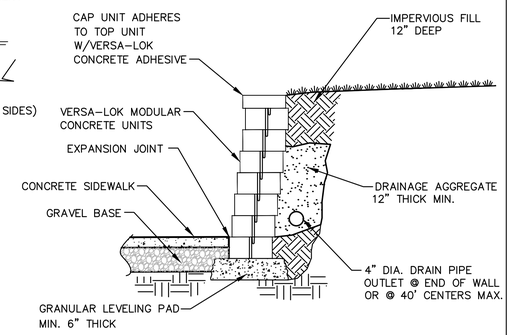


NOTE:
1. TEMPORARY TRENCH PAVING: SHALL BE 2" DEPTH DENSE BINDER, PLACED IN ONE COMPACTED LIFT (IF REQUIRED).

2. PERMANENT TRENCH PAVING AT LOCATION WITHOUT ROADWAY RECONSTRUCTION: SHALL BE 1–1/2" TOP COURSE OVER 2–1/2" DEPTH BINDER COURSE WITH INFRARED JOINT TREATMENT. TOTAL PAVEMENT THICKNESS SHALL MATCH EXISTING PAVEMENT.

TRENCH PAVEMENT DETAIL

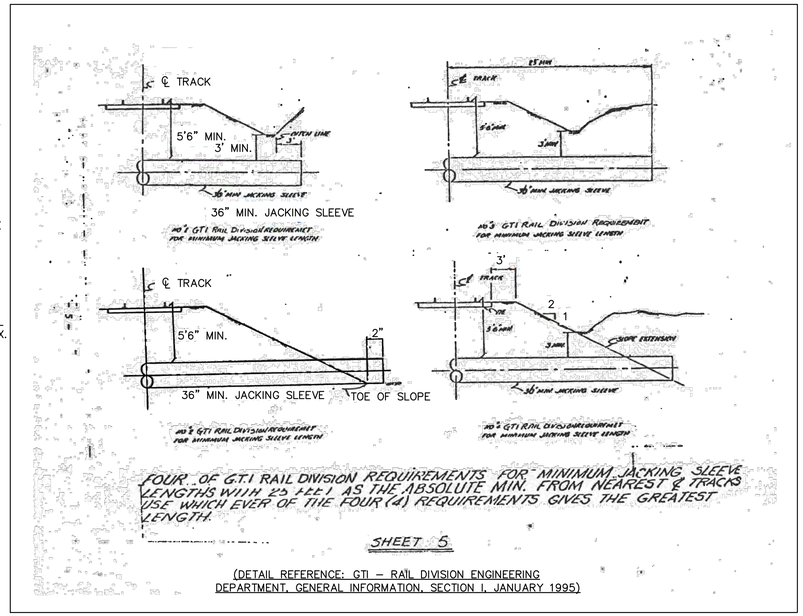
NOT TO SCALE



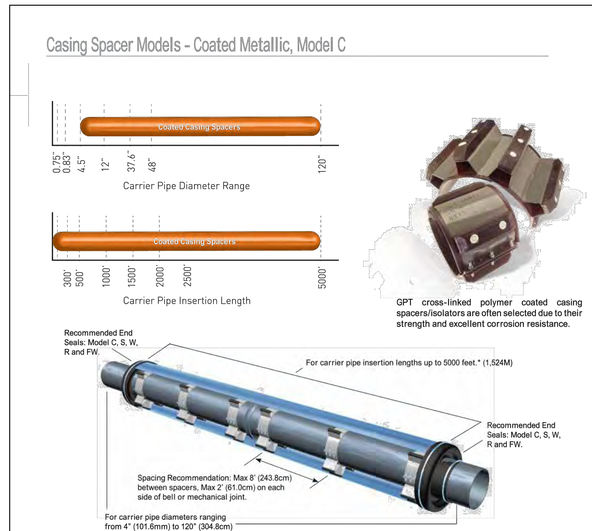
NOTE:
1. LANDSCAPE WALL TO BE VERSA-LOK STANDARD (GRAY) CONCRETE BLOCK WALL OR APPROVED EQUAL.
2. HEIGHT OF WALL NOT TO EXCESS 4 FEET.
3. INSTALLATION PER MANUFACTURER'S SPECIFICATIONS, CONTRACTOR TO SUBMIT SHOP DRAWING FOR APPROVAL.

LANDSCAPE CONCRETE WALL DETAIL (ALTERNATE 2)

NOT TO SCALE



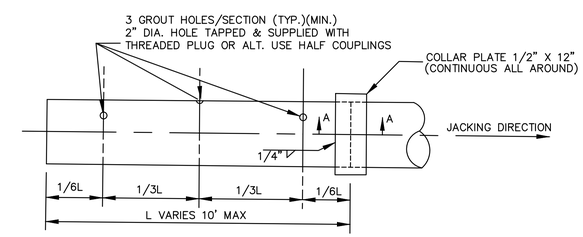
(DETAIL REFERENCE: GTI – RAIL DIVISION ENGINEERING DEPARTMENT, GENERAL INFORMATION, SECTION I, JANUARY 1995)



NOTE:
1. CASING SPACER SHOULD BE MODEL C12GN2 BY GPT INDUSTRIES OR APPROVED EQUAL.
2. CASING END SEALS SHOULD BE MODEL S – STANDARD PULL-ON END SEALS BY GPT INDUSTRIES OR APPROVED EQUAL.
3. INSTALLATION AND SPACING PER MANUFACTURE REQUIREMENTS.
4. ONCE PIPE IS INSTALLED SAND SHALL BE PLACED INSIDE THE STEEL PIPE TO THE TOP OF THE HDPE PIPE.
5. END OF STEEL CASING PIPES SHALL BE BRICKED AND MOTORED TO CLOSE THE PIPE.

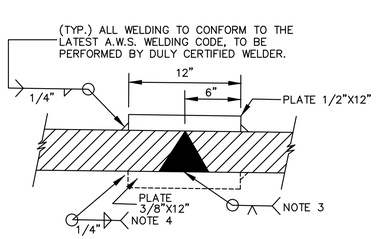
CASING SPACER AND END SEAL

NOT TO SCALE



STEEL JACKING SLEEVE DETAIL

NOT TO SCALE



SECTION A–A

NOTES:
1. STEEL SLEEVE TO BE 36" MIN. DIA.

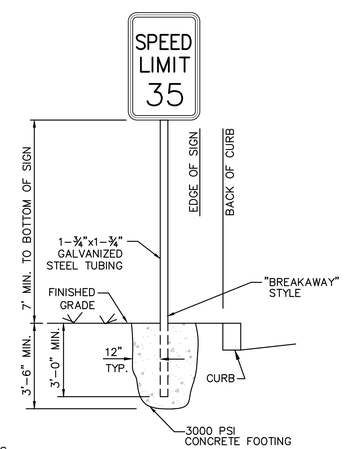
2. STEEL SLEEVE TO BE BEVELED ON THE INTERIOR OF THE PIPE.

3. THE CONTINUOUS BUTT WELD SHALL BE PERFORMED WHEN THE JACKING OPERATION IS FINISHED. (FOR ALTERNATE TO BUTT WELDING, SEE NOTE 4.)

4. AS AN ALTERNATE TO NOTE 3, PROVIDE A CONTINUOUS INTERIOR PLATE 18"X12" WELDED ALL AROUND UPON COMPLETION OF THE JACKING OPERATION.

METHOD OF JACKING & JOINING STEEL SLEEVE SECTIONS
BOSTON & MAINE CORP. DATE: 5/09/90 BY: DGR

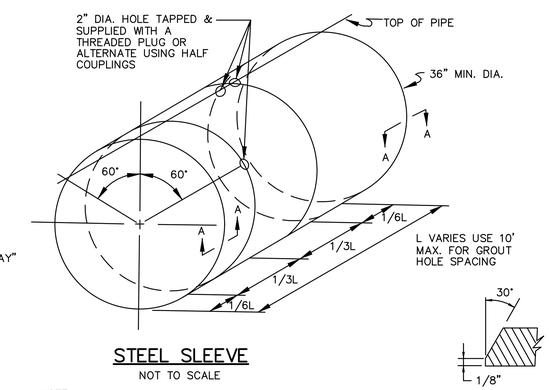
(DETAIL REFERENCE: SECTION III, STANDARD RAILROAD SPECIFICATIONS, PAM AM RAILWAYS/ SPRINGFIELD TERMINAL RAILWAY COMPANY ENGINEERING DEPARTMENT, OFFICE OF VICE PRESIDENT ENGINEERING, N. BILLERICA, MASSACHUSETTS, DATED JANUARY 2011.)



NOTES:
1. ALL SIGN POSTS SHALL BE GALVANIZED STEEL, BREAKAWAY STYLE, 1–3/4"x1–3/4" TUBING.
2. POST SHALL COMPLY WITH MHD STANDARDS.
3. EDGE OF SIGN SHALL NOT OVERHANG BACK OF CURB.

TYPICAL SIGN INSTALLATION DETAIL

N.T.S.



STEEL SLEEVE

NOT TO SCALE

NOTE:
GROUT HOLES WITH THREADED PLUGS SHALL BE PROVIDED IN THE STEEL SLEEVE. A MINIMUM OF 3 GROUT HOLES WILL BE REQUIRED PER A 10 FOOT (MAX) SECTION OF STEEL SLEEVE.

(DETAIL REFERENCE: GTI – RAIL DIVISION ENGINEERING DEPARTMENT, GENERAL INFORMATION, SECTION I, JANUARY 1995)

SECTION A–A

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

MISCELLANEOUS DETAILS IV

COMMONWEALTH OF MASSACHUSETTS MICHAEL J. CARTER CIVIL No. 35907 REGISTERED PROFESSIONAL ENGINEER
02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED		DATE: FEBRUARY 24, 2021
JOB NO.\FILE NAME: 2118–BID.DWG	DESIGNED BY: W.R.H. DRAWN BY: W.R.H. CHECKED BY: M.J.C.	PLAN NO. 16 OF 19

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7. THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS.
8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
11. MINIMUM LANE WIDTH IS TO BE 11 FEET (3.3m) UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
12. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- 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

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES

NUMBER OF LANES		NUMBER OF STUDIES	AVERAGE CAPACITY	
NORMAL (EXISTING)	OPEN (TO TRAFFIC)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,960	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, C., Notes on Work Zone Capacity and Level of Service. Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.

massDOT Massachusetts Department of Transportation Highway Division | Notes for Traffic Management | FIGURE GEN-1 GENERAL GUIDELINES

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.

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

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

Based on: Table 6C-1 MUTCD LATEST EDITION

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

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

massDOT Massachusetts Department of Transportation Highway Division | Notes for Traffic Management | FIGURE GEN-2 NOTES ON WORK ZONE DISTANCES

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.(15 m) 100 FT(30 m) MAX.
DOWNSTREAM TAPER	50 FT MIN.(15 m) 100 FT MAX.(30 m) 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

SPEED LIMIT (S)	TAPER LENGTH (L) Meters
60 KM/H OR LESS	$L = \frac{WS^2}{155}$
70 KM/H OR MORE	$L = \frac{WS}{1.6}$

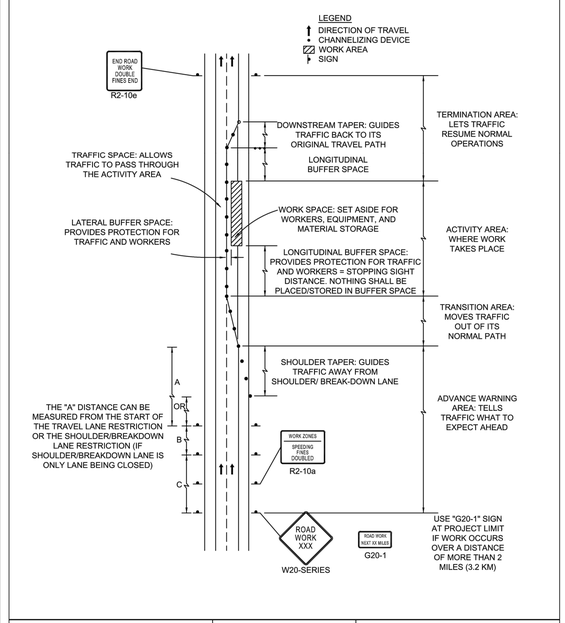
WHERE: L = TAPER LENGTH IN FEET (METERS)

W = WIDTH OF OFFSET IN FEET (METERS)

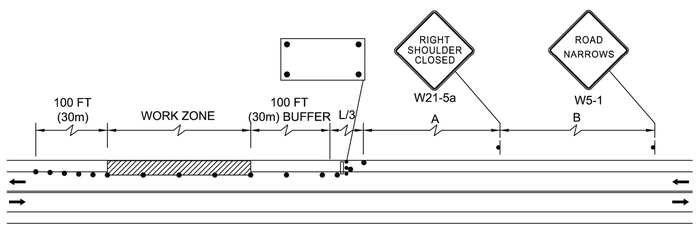
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICAPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 MUTCD LATEST EDITION

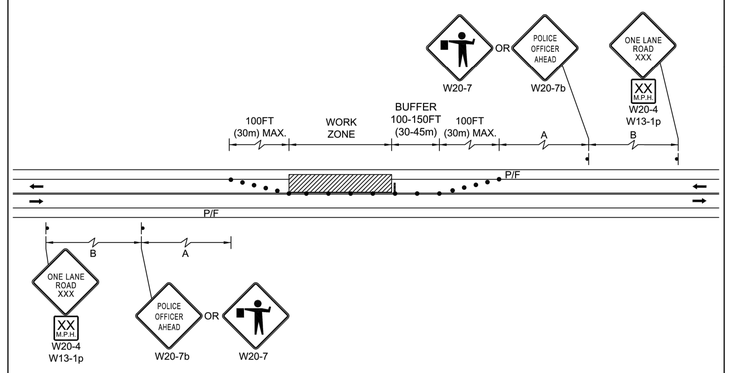
massDOT Massachusetts Department of Transportation Highway Division | Notes for Traffic Management | FIGURE GEN-3 NOTES ON WORK ZONE DISTANCES



massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE GEN-4 COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE TLR-1 TWO LANE ROAD SHOULDER CLOSED NOT TO SCALE



massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE TLR-5 TWO LANE ROAD ONE LANE ALTERNATING TRAFFIC NOT TO SCALE

TEMPORARY CONSTRUCTION PERIOD SIGNS

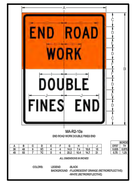
SIGN		WIDTH	HEIGHT
ROAD WORK AHEAD	W20-1 (36"X36")	49"	49"
ONE LANE ROAD AHEAD	W20-4 (36"X36")	49"	49"
POLICE OFFICER AHEAD	MA-W20-7b (36"X36")	49"	49"
CHANGEABLE MESSAGE SIGN	PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)		

(CHANGEABLE MESSAGE SIGN - REFER TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION)

STATIONARY CONSTRUCTION PERIOD SIGNS

SIGN		WIDTH	HEIGHT
ROAD WORK 1000 FT.	W20-1a WITH 1000 FT. DISTANCE (48"X48")	65.4"	65.4"
ROAD WORK 500 FT.	W20-1b WITH 500 FT. DISTANCE (48"X48")	65.4"	65.4"
END ROAD WORK	G20-2	36"	18"

MA-R2-10a



MA-R2-10e

R2-10A AND R2-10E SIGNS SHALL BE PROVIDED ON ALL APPROACHES AND DEPARTURES TO/FROM THE CONSTRUCTION ZONE.

(ADDITIONAL TEMPORARY TRAFFIC MANAGEMENT SIGN REFER TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION AND MassDOT STANDARD SIGNS, LATEST EDITION)

COMMONWEALTH OF MASSACHUSETTS MICHAEL J. CARTER CIVIL No. 33907 REGISTERED PROFESSIONAL ENGINEER
02/24/2021

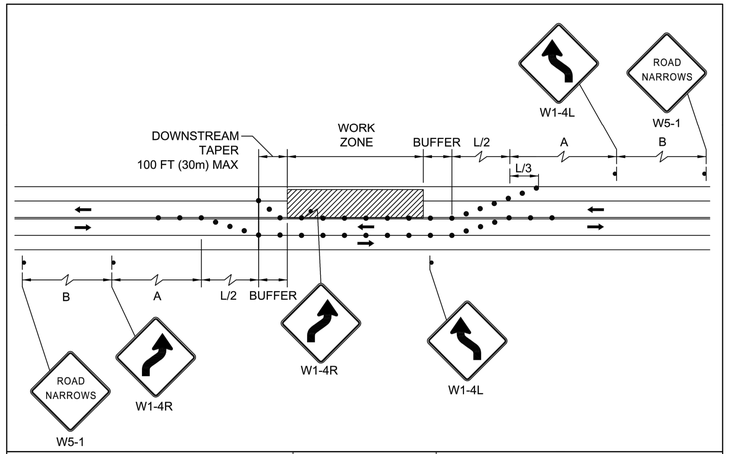
TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

TRAFFIC MANAGEMENT PLAN DETAILS I

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED | DATE: FEBRUARY 24, 2021

JOB NO.\FILE NAME: 2118-Bid.dwg | DESIGNED BY: W.R.H. DRAWN BY: W.R.H. CHECKED BY: M.J.C. | PLAN NO. 17 OF 19



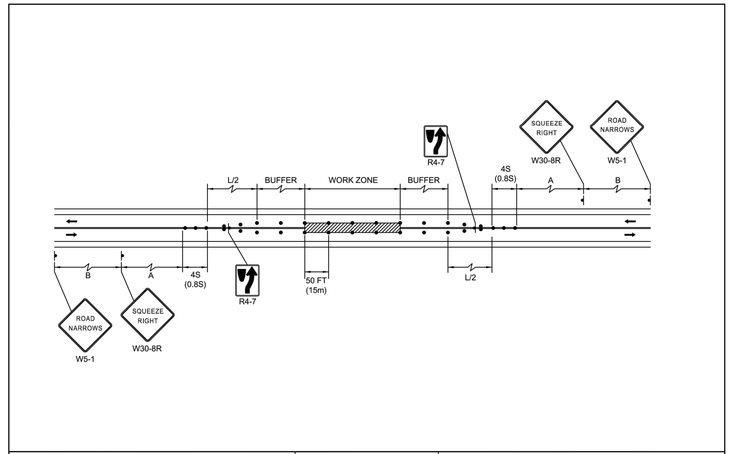
massDOT Massachusetts Department of Transportation Highway Division

Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE TLR-2

TWO LANE ROAD
SHOULDER AND TRAVEL LANE CLOSED

NOT TO SCALE



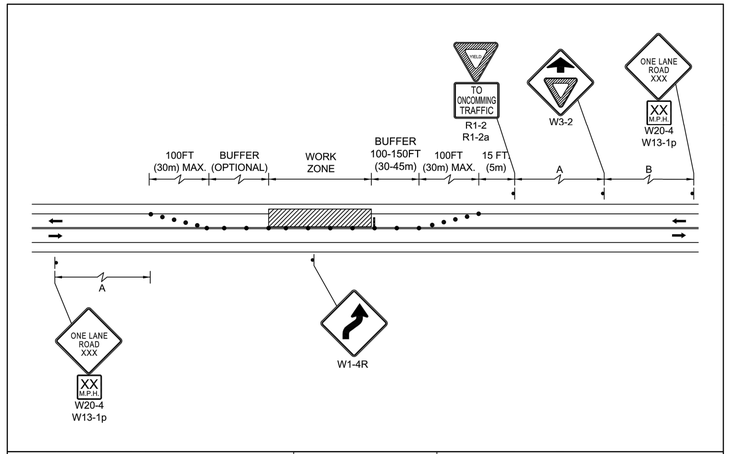
massDOT Massachusetts Department of Transportation Highway Division

Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE TLR-3

TWO LANE ROAD
CENTER OF ROAD CLOSURE

NOT TO SCALE



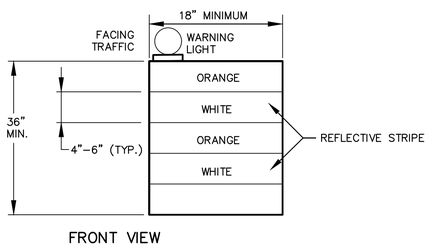
massDOT Massachusetts Department of Transportation Highway Division

Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE TLR-6

TWO LANE ROAD
ONE LANE ALTERNATING TRAFFIC
WITH YIELD

NOT TO SCALE

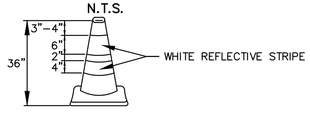


FRONT VIEW

1. TRAFFIC DRUM SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION M.U.T.C.D.
2. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY DRUM DEEMED NOT SUITABLE FOR THE PURPOSE INTENDED.
3. THE ENTIRE AREA OF ORANGE AND WHITE STRIPES SHALL BE FLEXIBLE ENCAPSULATED LENS REFLECTIVE SHEETING.
4. REFLECTORIZED STRIPES SHOULD NOT BE PLACED OVER THE PROTRUDING CIRCUMFERENTIAL RIBS OF THE DRUM.
5. THE SECTIONS OF DRUMS NOT COVERED WITH REFLECTORIZED STRIPED SHALL BE ORANGE.
6. THE DESIGN OF THE DRUMREQUIRES A PHOTO ELECTRIC STEADY BURN (TYPE "C") WARNING LIGHT MOUNTED ON TOP.

TRAFFIC DRUM

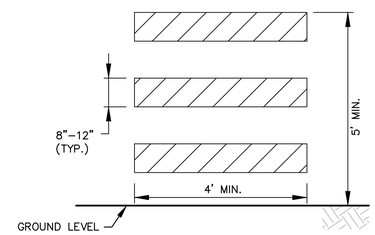
N.T.S.



1. TRAFFIC CONES SHALL BE DESIGN IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CHAPTER VI, SECTION 6C–3, CONE DESIGN.
2. HEIGHT OF THE COMES SHALL BE 36".
3. CONES SHALL BE PREDOMINATELY FEDERAL ORANGE IN COLOR AND WITH REFLECTIVE STRIPS.
4. RUBBER CONES SHALL HAVE INTERIOR RIBS FOR RIGIDITY.
5. PLASTIC CONES SHALL BE COLOR IMPREGNATED.
6. CONES SHALL BE OF A THICKNESS NECESSARY TO WITHSTAND IMPACT WITHOUT DAMAGE TO EITHER CONE OR IMPACTING VEHICLE..
7. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY CONE THE ENGINEER DEEMS NOT SUITABLE FOR PURPOSE INTENDED.

TRAFFIC CONES

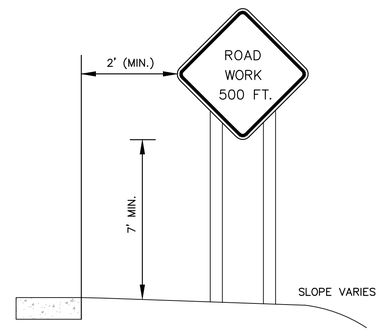
N.T.S.



1. ALUMINUM BARRICADE FACE PANELS SHALL BE MOUNTED ON 3" OR 4" P.V.C. BARRICADE SUPPORT.
2. MARKINGS FOR BARRICADE FACE PANELS SHALL BE 8" TO 12" IN HEIGHT AND ALTERNATE ORANGE AND WHITE STRIPES SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS. 6" WIDE STRIPES AT A 45 DEGREE ANGEL SHALL BE USED.
3. THE ENTIRE AREA OF ORANGE AND WHITE STRIPES SHALL BE REFLECTIVE SHEETING – ENCAPSULATED LENS. BARRICADE FACE PANE;S AS NOTED SHALL BE REFLECTORIZED ON BOTH SIDES. WHERE TRAFFIC PASSES ONLY IN ONE DIRECTION OF TRAVEL, ONLY THE SIDE FACING TRAFFIC SHALL BE REFLECTORIZED.
4. ALUMINUM BARRICADE FACE PANELS SHALL HAVE ROUNDED CORNERS.
5. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY BARRICADE FACE PANEL WHICH THE ENGINEER DEEMS HAZARDOUS, AND NOT IN THE BEST INTEREST OF THE MOTORING PUBLIC, OR NOT SUITABLE FOR PURPOSE INTENDED.

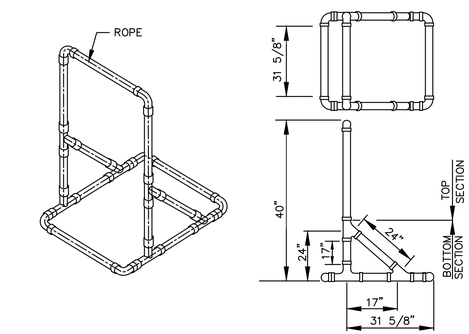
ALUMINUM BARRICADE FACE PANELS

N.T.S.



HEIGHT AND LATERAL LOCATIONS OF STATIONARY CONSTRUCTION PERIOD SIGNS

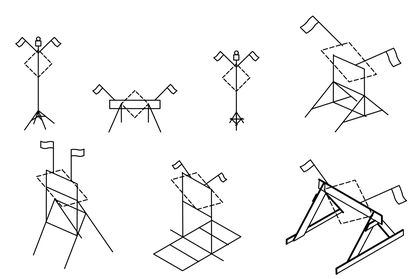
N.T.S.



1. DIMENSIONS ARE APPROXIMATE.
2. BOTTOM SECTION MAY BE FILLED WITH SAND FOR BALLAST.
3. SUPPORT SHALL BE LOOSELY THREADED WITH ROPE, KNOTTED AS REQUIRED.

TYPICAL 3" OR 4" PLASTIC SIGN/BARRICADE SUPPORT

N.T.S.



1. SIGN SUPPORTS SHALL BE CONSTRUCTED OF A SUITABLE MATERIAL. BREAKAWAY AND/OR COLLAPSIBLE FEATURES SHALL BE INCORPORATED IN THE SIGN SO THAT THE SUPPORT WILL NOT CONSTITUTE A HAZARD TO THE MOTORIST AND/OR WORKERS IN THE WORK AREA. SIGNS MUST MEET NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) 350 STANDARDS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND MASSDOT.
2. MOUNTING HEIGHT OF SIGN UTILIZING STRUCTURES DEPICTED ABOVE SHALL BE A MINIMUM OF 12", WITH A RECOMMENDED HEIGHT OF 18" ABOVE PAVEMENT.
3. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY SUPPORT WHICH THE ENGINEER DEEMS A HAZARD, OR NOT IN THE BEST INTEREST OF THE MOTORING PUBLIC.
4. FLAGS AND/OR BARRICADE WARNING LIGHTS SHALL BE USED AS SHOWN ON THE TRAFFIC CONTROL PLANS AND AS REQUIRED BY THE ENGINEER.

TEMPORARY CONSTRUCTION PERIOD PORTABLE SIGN SUPPORTS

N.T.S.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

TRAFFIC MANAGEMENT PLAN DETAILS II

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. CARTER
CIVIL
No. 35907
REGISTERED PROFESSIONAL ENGINEER

02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED DATE: FEBRUARY 24, 2021

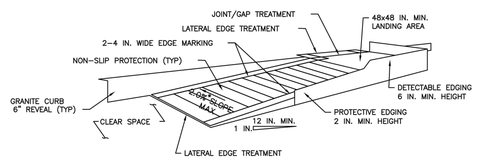
JOB NO.\FILE NAME: 2118–BID.dwg

DESIGNED BY: W.R.H.
DRAWN BY: W.R.H.
CHECKED BY: M.J.C.

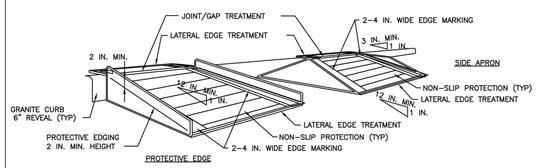
PLAN NO. 18 OF 19

NOTES:

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

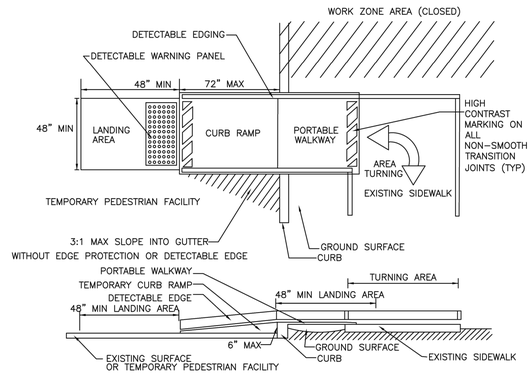


TEMPORARY CURB RAMP-PARALLEL TO CURB



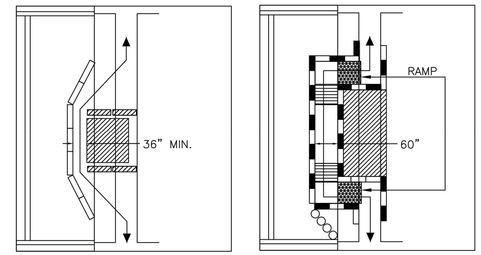
TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE PED-1 PEDESTRIAN DETAILS NOT TO SCALE



TEMPORARY CURB RAMP-TYPE 2

massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE PED-2 PEDESTRIAN DETAILS NOT TO SCALE

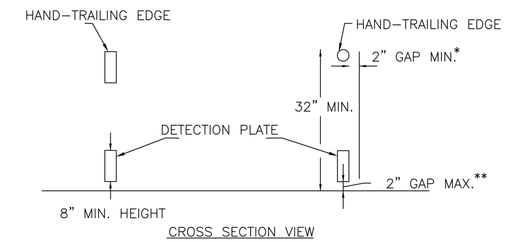


- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, temporary facilities shall be provided and they shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
- A pedestrian channelizing device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
- When used, temporary ramps shall comply with Americans with Disabilities Act (see Figures Ped-1 & Ped-2).
- The alternate pathway should have a smooth continuous hard surface for the entire length of the temporary pedestrian facility.
- The protective requirements of a TTC situation have priority in determining the need for temporary traffic barriers and their use in this situation should be based on engineering judgment.
- Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.

AUDIBLE DEVICES

For long term sidewalk closures (at a minimum overnight) a form of speech messaging for pedestrians with visual disabilities shall be provided. Audible information devices such as detectable barriers or barricades and other passive pedestrian activation (motion activated) devices should be considered for these cases. These audible devices can be mountable or stand alone.

massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE PED-3 PEDESTRIAN DETAILS NOT TO SCALE



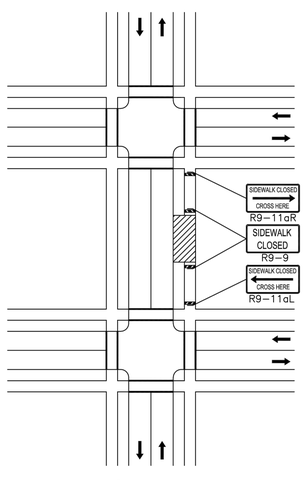
PEDESTRIAN CHANNELIZING DEVICE

NOTES:

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

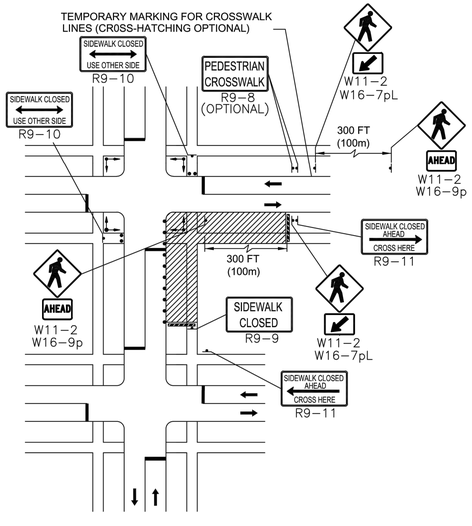
** A MAXIMUM 2 INCH GAP BETWEEN THE BOTTOM OF THE BOTTOM RAIL AND THE SURFACE MAY BE USED TO PROVIDE DRAINAGE.

massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE PED-4 PEDESTRIAN DETAILS NOT TO SCALE



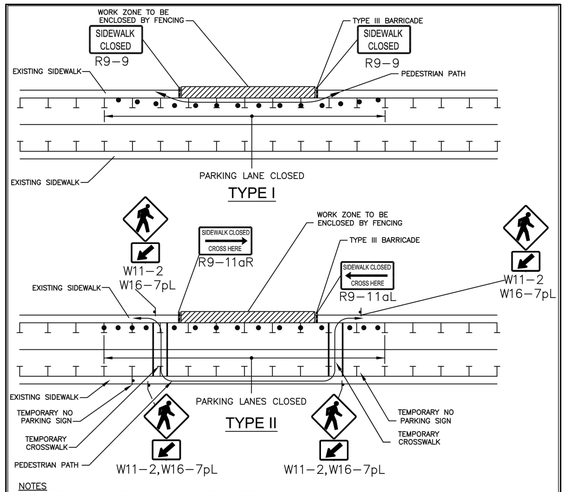
NOTE: IF A MINIMUM WIDTH OF 48" OF SOLID SMOOTH UNOBSTRUCTED SURFACE REMAINS ALONG THE WORK AREA THEN THE DETAIL CAN BE DISREGARDED. DELINEATION OF THE WORK AREA WILL STILL BE REQUIRED. All PEDESTRIAN DETOUR ROUTES SHALL BE ADA/MAAB COMPLIANT IN THEIR ENTIRETY.

massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE PED-5 SIDEWALK CLOSED WITHOUT DETOUR NOT TO SCALE



NOTE:
FOR LONG-TERM STATIONARY WORK, THE DOUBLE YELLOW CENTERLINE AND/OR LANE LINES SHOULD BE REMOVED BETWEEN THE CROSSWALK LINES.

massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE PED-6 PEDESTRIAN DETOUR NOT TO SCALE



NOTES

1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
5. BYPASS IS TO BE USED IN CONJUCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
6. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE. (FOR SHORT TERM SETUPS < 10 HOURS, THIS CONDITION MAY BE WAIVED. A NOTE WOULD NEED TO BE INCLUDED IN THE TTCP THAT STATES HOW THE CONTRACTOR SHOULD ADDRESS THIS ISSUE.)

massDOT Massachusetts Department of Transportation Highway Division | Standard Details and Drawings for the Development of Temporary Traffic Control Plans | FIGURE PED-7 PEDESTRIAN BYPASS NOT TO SCALE

NO.	SIGN	DESCRIPTION	COLOR
3	W20-1	"ROAD WORK AHEAD"	BLACK ON ORANGE
3	W20-1a	"ROAD WORK 1000 FEET"	BLACK ON ORANGE
3	W20-1b	"ROAD WORK 500 FEET"	BLACK ON ORANGE
3	W20-4	"ONE LANE ROAD AHEAD"	BLACK ON ORANGE
3	MA-W20-7b	"POLICE OFFICER AHEAD"	BLACK ON ORANGE
3	G20-2	"END ROAD WORK"	BLACK ON ORANGE
3	MA-R2-10a	"WORK ZONE SPEEDING FINES DOUBLED"	BLACK ON ORANGE & WHITE
3	MA-W20-7b	"END ROAD WORK DOUBLE FINES END"	BLACK ON ORANGE & WHITE
4	R9-9	"SIDEWALK CLOSED"	BLACK ON WHITE
3	PCMS	"PORTABLE CHANGEABLE MESSAGE SIGN"	SEE MUTCD TABLE 2A-5

NOTES:
1. ALL COLORS ARE RETROREFLECTIVE EXCEPT BLACK.
2. ALL SIGNS SHALL COMPLY WITH MUTCD AND MHD REGULATIONS.
3. ALL SIGNS TO BE ALUMINUM WITH REFLECTIVE BACKING.

CONSTRUCTION SIGN SCHEDULE

N.T.S.

PEDESTRIAN TEMPORARY TRAFFIC CONTROL PLAN NOTES:

1. NEW SIDEWALK SHALL BE INSTALLED PRIOR TO REMOVE AND REPLACING EXITING SIDEWALK.
2. EXISTING SIDEWALK REPLACEMENT SHALL HAVE TEMPORARY OR PERMANENT HOT MIX ASPHALT PAVEMENT INSTALLED BY THE END OF THE WORK DAY TO PROVIDE PEDESTRIAN SAFE PASSAGE DURING OFF WORK HOURS.

TOWN OF BUCKLAND, MASSACHUSETTS
ASHFIELD STREET IMPROVEMENT PROJECT

TRAFFIC MANAGEMENT PLAN DETAILS III

COMMONWEALTH OF MASSACHUSETTS MICHAEL J. CARTER CIVIL No. 35907 REGISTERED PROFESSIONAL ENGINEER
02/24/2021

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: AS NOTED | DATE: FEBRUARY 24, 2021

JOB NO.\FILE NAME: 2118-BID.dwg | DESIGNED BY: W.R.H. DRAWN BY: W.R.H. CHECKED BY: M.J.C. | PLAN NO. 19 OF 19