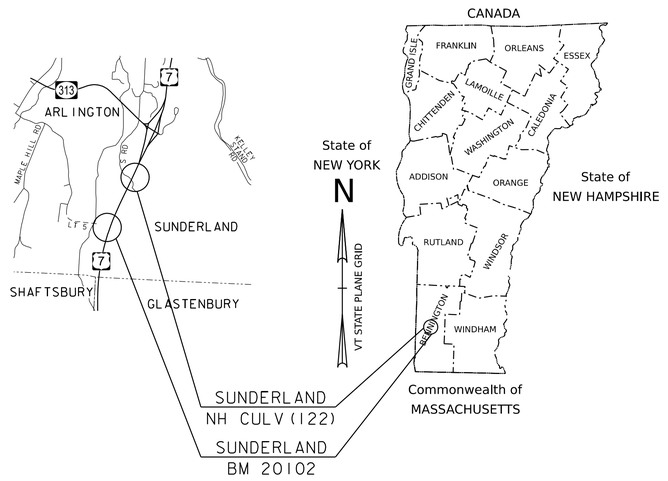
REVIEWER NOTES:

1. NO ROW IMPACTS ARE ANTICIPATED.
2. DUE TO CHALLENGES IN PROCURING SAND FOR CONSTRUCTION, NO SAND IS REQUIRED FOR THE ROADWAY BASE. DENSE GRADED CRUSHED STONE SHALL BE CONSTRUCTED TO THE LIMIT OF THE DESIGN FROST DEPTH AS INDICATED ON THE TYPICAL SECTIONS.
3. FOR BM 20102, THE PROJECTED AREA OF DISTURBANCE WITHIN THE SLOPE LIMITS IS 0.6 AC. THE PROJECTED AREA OF DISTURBANCE INCLUDING TEMPORARY CONSTRUCTION CONSIDERATION IS 0.8 AC.
4. FOR NH CULV(122), THE PROJECTED AREA OF DISTURBANCE WITHIN THE SLOPE LIMITS IS 0.7 AC. THE PROJECTED AREA OF DISTURBANCE INCLUDING TEMPORARY CONSTRUCTION CONSIDERATION IS 0.9 AC.
5. FOR NH CULV(122) GUARDRAIL DESIGN ASSUMES MATCH TO EXISTING 29" RAIL TO THE SOUTH.
6. REFER TO TRAFFIC MEMORANDUM FOR DETOUR SUPPORTING INFORMATION. DETOUR PLAN, AND/OR OVERSIZE VEHICLE ADVANCE SIGNING TO BE FINALIZED AT PRELIMINARY WITH CONCURRENCE.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF SUNDERLAND
COUNTY OF BENNINGTON



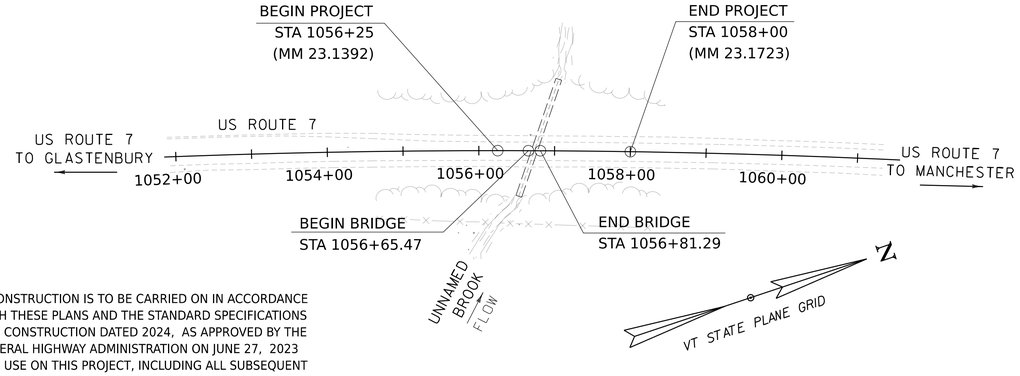
SUNDERLAND BM 20102

ROUTE NO : US ROUTE 7 PRINCIPAL ARTERIAL
BRIDGE NO : 19-5

PROJECT LOCATION: 1.10 MILE SOUTH OF VT ROUTE 313, AT UNNAMED BROOK.

PROJECT DESCRIPTION: REPLACEMENT OF EXISTING BRIDGE STRUCTURE (BRIDGE 19-5) WITH A NEW STRUCTURE WITH RELATED APPROACH ROADWAY AND CHANNEL WORK.

PROJECT LENGTH:
LENGTH OF ROADWAY: 325 FT
LENGTH OF STRUCTURE: 15.82 FT
LENGTH OF PROJECT: 175 FT



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2024, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 27, 2023 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : R. GILMAN
SURVEYED DATE : 6-20-2022

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (2011)

SCALE: 1" = 100'-0"
0 100 200
SCALE

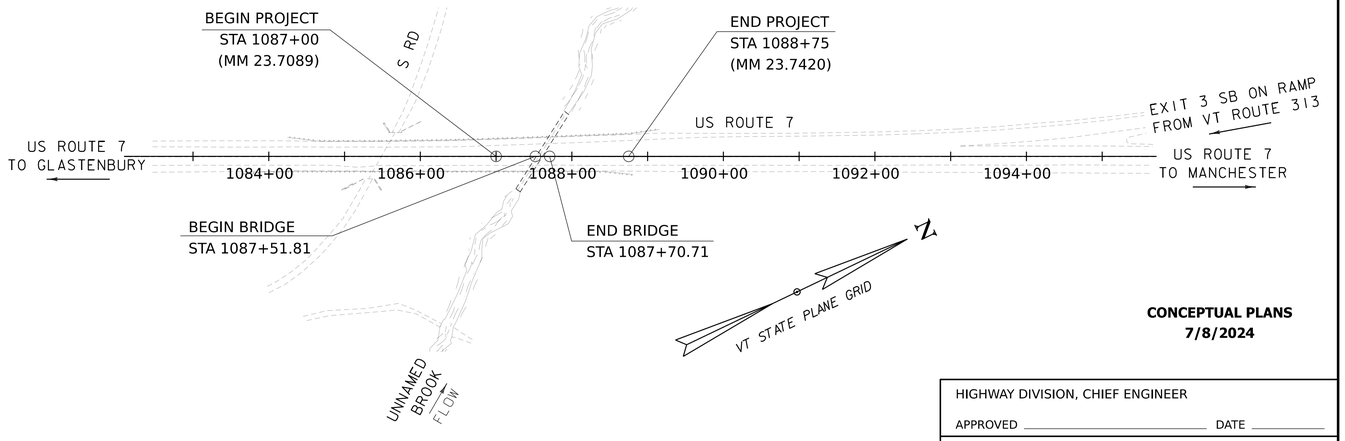
SUNDERLAND NH CULV(122)

ROUTE NO : US ROUTE 7 PRINCIPAL ARTERIAL
BRIDGE NO : 19-7

PROJECT LOCATION: 0.52 MILE SOUTH OF VT ROUTE 313 AT UNNAMED BROOK

PROJECT DESCRIPTION: REPLACEMENT OF EXISTING BRIDGE STRUCTURE (BRIDGE 19-7) WITH A NEW STRUCTURE WITH RELATED APPROACH ROADWAY AND CHANNEL WORK.

PROJECT LENGTH:
LENGTH OF ROADWAY: 325 FT
LENGTH OF STRUCTURE: 18.90 FT
LENGTH OF PROJECT: 175 FT



CONCEPTUAL PLANS
7/8/2024

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED _____ DATE _____

PROJECT MANAGER : G. LAROCHE P.E.

PROJECT NAME : SUNDERLAND
PROJECT NUMBER : BM 20102 & NH CULV(122)

SHEET 1 OF 37 SHEETS

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⧈	BNDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
◎	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
	APL	BOUND APPARENT LOCATION
	BM	BENCHMARK
	BND	BOUND
	CB	CATCH BASIN
	COMB	COMBINATION POLE
	DITHR	DROP INLET THROATED DNC
	EL	ELECTRIC POWER POLE
	FPOLE	FLAGPOLE
	GASFIL	GAS FILLER
	GP	GUIDE POST
	GSO	GAS SHUT OFF
	GUY	GUY POLE
	GUYW	GUY WIRE
	GV	GATE VALVE
	H	TREE HARDWOOD
	HCTRL	CONTROL HORIZONTAL
	HVCTRL	CONTROL HORIZ. & VERTICAL
	HYD	HYDRANT
	IP	IRON PIN
	IPIPE	IRON PIPE
	LI	LIGHT - STREET OR YARD
	MB	MAILBOX
	MH	MANHOLE (MH)
	MM	MILE MARKER
	PM	PARKING METER
	PMK	PROJECT MARKER
	POST	POST STONE/WOOD
	RRSIG	RAILROAD SIGNAL
	RRSL	RAILROAD SWITCH LEVER
	S	TREE SOFTWOOD
	SAT	SATELLITE DISH
	SHRUB	SHRUB
	SIGN	SIGN
	STUMP	STUMP
	TEL	TELEPHONE POLE
	TIE	TIE
	TSIGN	SIGN W/DOUBLE POST
	VCTRL	CONTROL VERTICAL
	WELL	WELL
	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UGU — UTILITY (GENERIC-UNKNOWN)
- UT — TELEPHONE
- UE — ELECTRIC
- UC — CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEP.
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- AGU — UTILITY (GENERIC-UNKNOWN)
- T — TELEPHONE
- E — ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- AER E&T — ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEP.
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCH LINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PDF — PDF — PROJECT DEMARCATION FENCE
- BF — BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- P L P L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6f — 6f — 6F PROPERTY BOUNDARY
- 4f — 4f — 4F PROPERTY BOUNDARY
- HAZ — HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- (H) HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

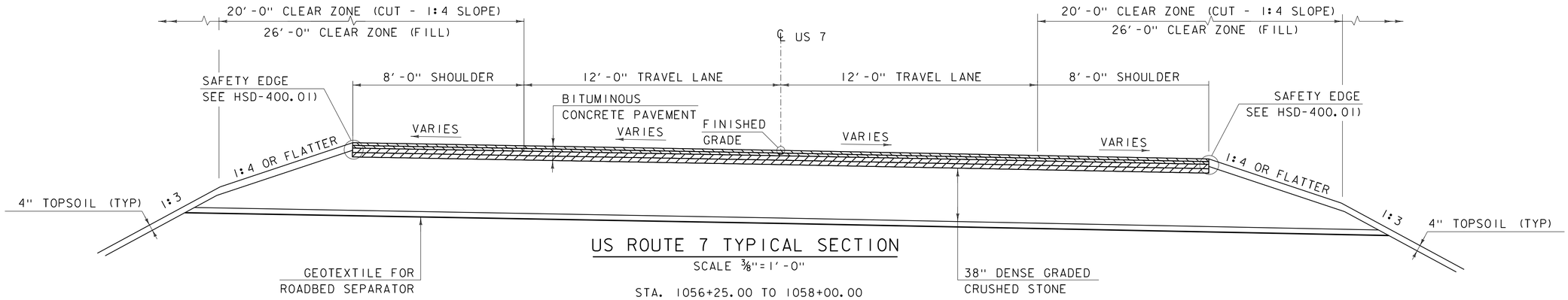
- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

wsp

PROJECT NAME: SUNDERLAND
PROJECT NUMBER: BM 20102 & NH CULV(122)

FILE NAME: z20bl55legend.dgn
PROJECT LEADER: A. STOCKIN
DESIGNED BY: M. GROTE
CONVENTIONAL SYMBOLOGY LEGEND SHEET

PLOT DATE: 7/8/2024
DRAWN BY: B. GEIGER
CHECKED BY: T. HIGGINSON
SHEET 3 OF 37



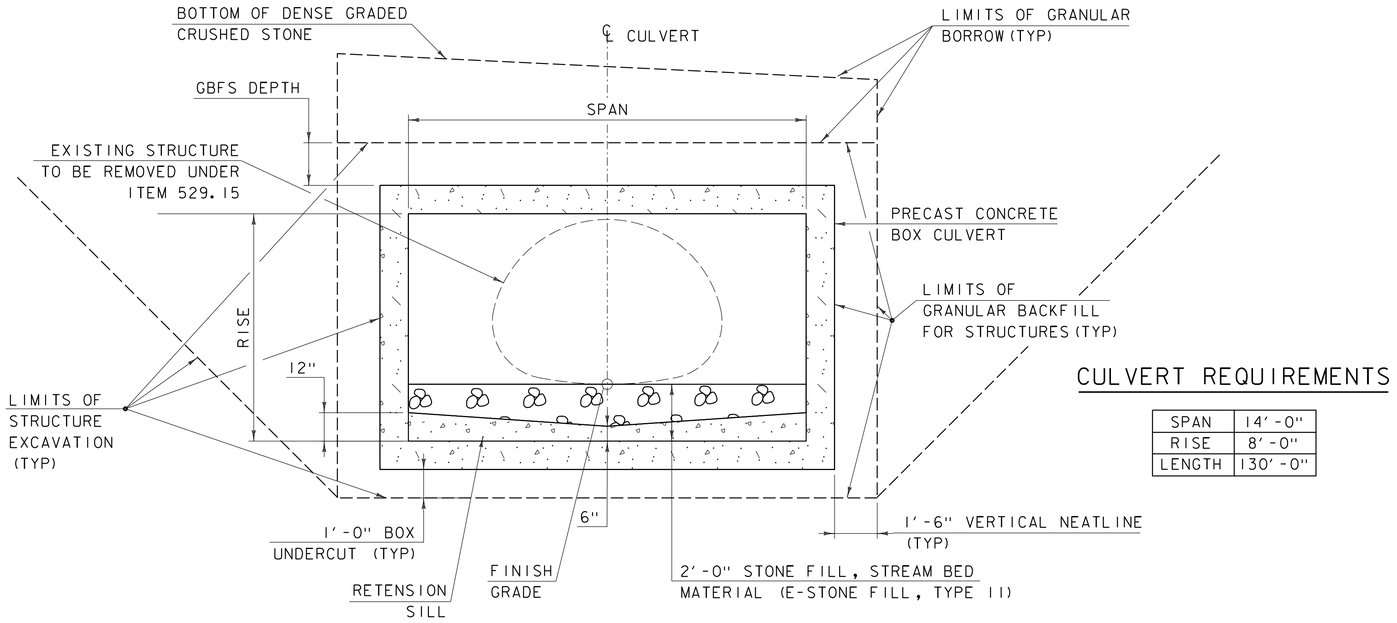
US ROUTE 7 TYPICAL SECTION

SCALE $\frac{3}{8}$"=1'-0"

STA. 1056+25.00 TO 1058+00.00

BITUMINOUS CONCRETE PAVEMENT MATERIAL REQUIREMENTS

	THICKNESS	DESCRIPTION
BINDER	58-28	PERFORMANCE GRADE ASPHALT BINDER
GYRATION	65	DESIGN NUMBER OF GYRATIONS
WEARING COURSE	1½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IVS)
INTERMEDIATE COURSE	1½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IVS)
BASE COURSE #2	2½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IIS)
BASE COURSE #1	2½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IIS)
BASE	38"	DENSE GRADED CRUSHED STONE

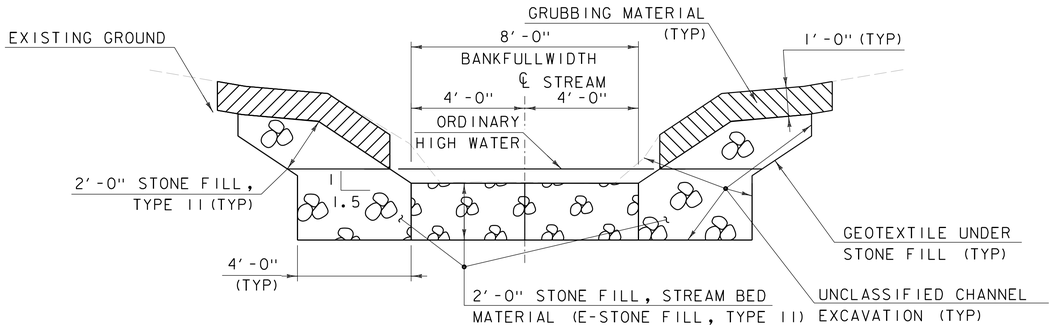


CULVERT REQUIREMENTS

SPAN	14'-0"
RISE	8'-0"
LENGTH	130'-0"

CULVERT TYPICAL SECTION

(NOT TO SCALE)



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

NOTE:

1) WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

2) THE CONTRACTOR SHALL CREATE A LOW FLOW CHANNEL IN THE STREAM BED MATERIAL AS DIRECTED BY THE ENGINEER.

3) WHENEVER BEDROCK IS ENCOUNTERED DURING EXCAVATION OF THE CHANNEL KEY OR FILL SLOPES, THE ENGINEER WILL COORDINATE WITH THE RIVER MANAGEMENT ENGINEER FOR APPROVAL OF HOW TO CONSTRUCT THE CHANNEL.

4) REUSE OF NATIVE MATERIAL MEETING THE SPECIFICATION OF GRANULAR BORROW IS PERMITTED.

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: SUNDERLAND
PROJECT NUMBER: BM 20102

FILE NAME: z20bl55typ.dgn
PROJECT LEADER: A. STOCKIN
DESIGNED BY: M. GROTE
TYPICAL SECTIONS

PLOT DATE: 7/8/2024
DRAWN BY: B. GEIGER
CHECKED BY: T. HIGGINSON
SHEET 6 OF 37

EXISTING ROW
EXTENDS OFF SHEET

UNNAMED BROOK
FLOW

N

VT STATE PLANE GRID

CURVE (1)
DELTA = 13°15'47"
D = 00°30'00"
R = 11459.16'
T = 1332.27'
L = 2652.62'
E = 77.19'

PI 1057+57.27
N 194877.0971
E 1469796.1483

REMOVE 6" TREE

STONE FILL, STREAM BED
MATERIAL (E-STONE FILL, TYPE II)
(TYP)

TEMPORARY
CONSTRUCTION
LIMIT (TYP)

STONE FILL,
(TYPE II) (TYP)

102+00

N12°27'02.76"E

N25°42'49.95"E

STONE FILL,
(TYPE I) (TYP)

N52°41'50"W

BEGIN APPROACH
US 7 STA 1055+50

BEGIN PROJECT
STA 1056+25

BEGIN BRIDGE
STA 1056+65.47

STA US7 1056+73.38 =
STA 101+11.01 CHANNEL
Δ 71.42°

END PROJECT
STA 1058+00

END APPROACH
US 7 STA. 1058+75

US ROUTE 7
TO GLASTENBURY

1054+00

1055+00

1056+00

1057+00

1058+00

1059+00

US ROUTE 7
TO MANCHESTER

104+00

END BRIDGE
STA 1056+81.29

STONE FILL,
(TYPE I) (TYP)

STONE FILL,
(TYPE II) (TYP)

STONE FILL, STREAM BED
MATERIAL (E-STONE FILL, TYPE II)
(TYP)

APPROX. EXISTING R.O.W.

100+00

MAINTAIN BOULDER
STEP 8"-12"

N/F
BEAVER VALLEY, INC.
C/O JAMES KRON

UNNAMED BROOK
FLOW

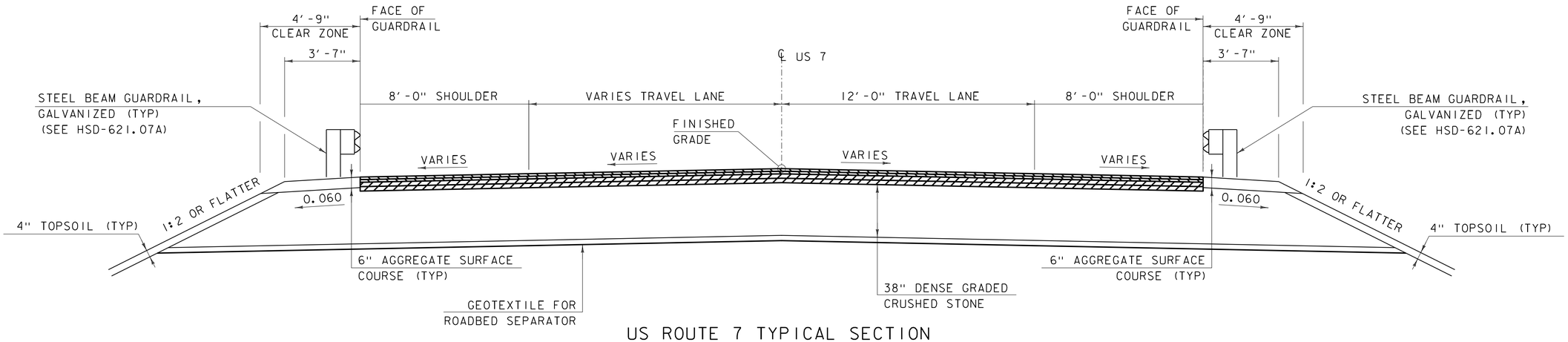
LAYOUT PLAN

0 20 40
SCALE IN FEET

EXISTING BRIDGE INFORMATION:
SPAN 8.2', RISE 5.8', LENGTH 162'-0"
CGMPPA BUILT 1978
13' AVERAGE COVER
48 SF WATERWAY AREA

PROJECT NAME:	SUNDERLAND
PROJECT NUMBER:	BM 20102
FILE NAME: z20b155bdr.dgn	PLOT DATE: 7/8/2024
PROJECT LEADER: A. STOCKIN	DRAWN BY: B. GEIGER
DESIGNED BY: M. GROTE	CHECKED BY: T. HIGGINSON
LAYOUT PLAN	SHEET 7 OF 37

wsp

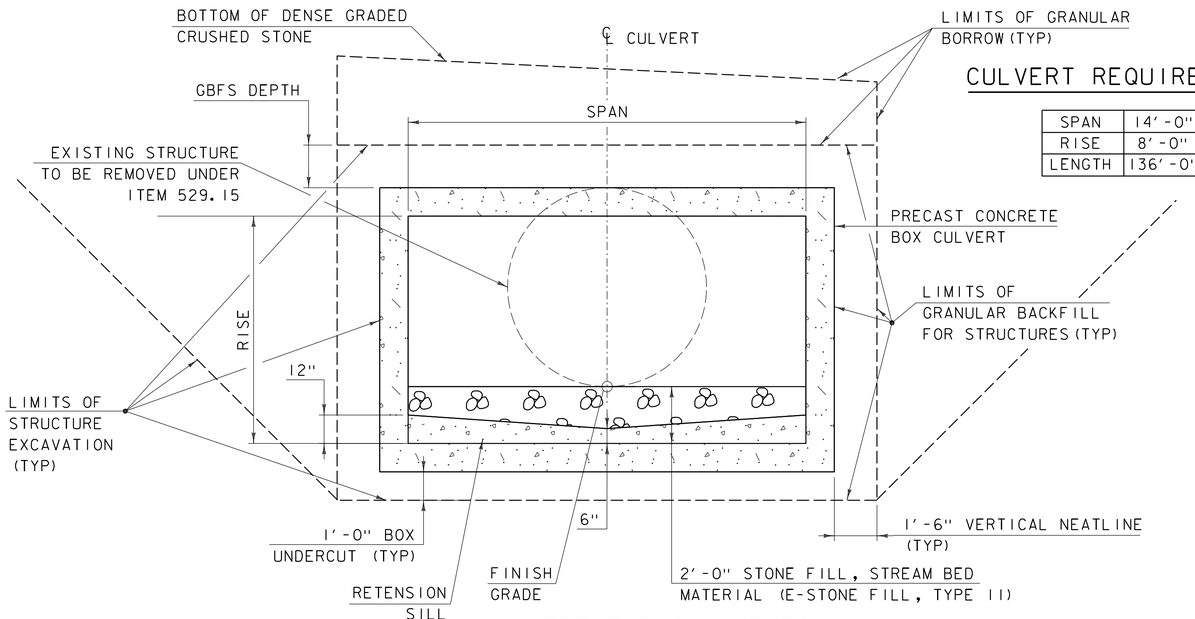


US ROUTE 7 TYPICAL SECTION

SCALE 3/8"=1'
STA. 1087+00.00 TO 1088+75.00

BITUMINOUS CONCRETE PAVEMENT MATERIAL REQUIREMENTS

	THICKNESS	DESCRIPTION
BINDER	58-28	PERFORMANCE GRADE ASPHALT BINDER
GYRATION	65	DESIGN NUMBER OF GYRATIONS
WEARING COURSE	1½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IVS)
INTERMEDIATE COURSE	1½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IVS)
BASE COURSE #2	2½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IIS)
BASE COURSE #1	2½"	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (TYPE IIS)
BASE	38"	DENSE GRADED CRUSHED STONE

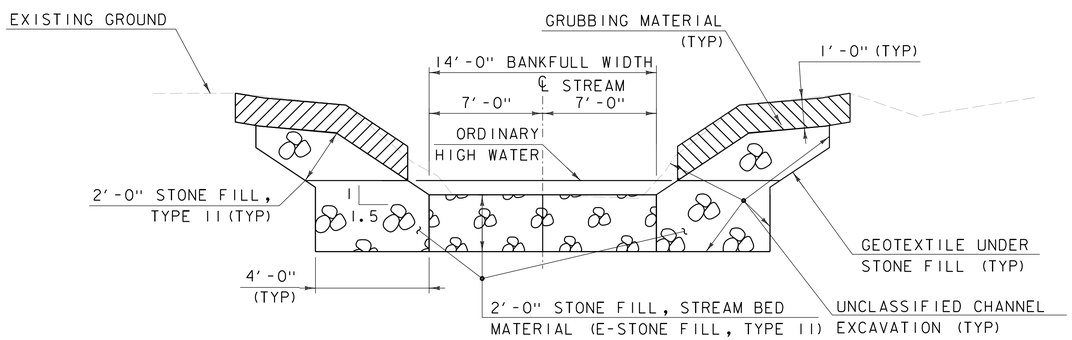


CULVERT REQUIREMENTS

SPAN	14'-0"
RISE	8'-0"
LENGTH	136'-0"

CULVERT TYPICAL SECTION

(NOT TO SCALE)



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

NOTE:

1) WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

2) THE CONTRACTOR SHALL CREATE A LOW FLOW CHANNEL IN THE STREAM BED MATERIAL AS DIRECTED BY THE ENGINEER.

3) WHENEVER BEDROCK IS ENCOUNTERED DURING EXCAVATION OF THE CHANNEL KEY OR FILL SLOPES, THE ENGINEER WILL COORDINATE WITH THE RIVER MANAGEMENT ENGINEER FOR APPROVAL OF HOW TO CONSTRUCT THE CHANNEL.

4) REUSE OF NATIVE MATERIAL MEETING THE SPECIFICATION OF GRANULAR BORROW IS PERMITTED.

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: SUNDERLAND
PROJECT NUMBER: NH CULV(122)

FILE NAME: z23b027typ.dgn
PROJECT LEADER: A. STOCKIN
DESIGNED BY: M. GROTE
TYPICAL SECTIONS

PLOT DATE: 7/8/2024
DRAWN BY: B. GEIGER
CHECKED BY: T. HIGGINSON
SHEET 22 OF 37

EXISTING ROW
EXTENDS OFF SHEET

N

VT STATE PLANE GRID

UNNAMED BROOK FLOW

SOUTH RD

TEMPORARY CONSTRUCTION LIMIT (TYP)

STONE FILL, STREAM BED MATERIAL (E-STONE FILL, TYPE II) (TYP)

STONE FILL, (TYPE II) (TYP)

STONE FILL, (TYPE I) (TYP)

STA US7 1087+61.26 =
STA 201+34.96 CHANNEL
Δ 57.84°

BEGIN BRIDGE
STA 1087+51.81

BEGIN PROJECT
STA 1087+00

END PROJECT
STA 1088+75

MATCH EXISTING GUARDRAIL

BEGIN APPROACH
US 7 STA 1086+25

N32°15'28"W

201+00

US ROUTE 7
TO GLASTENBURY

N25°34'54.93"E

US ROUTE 7
TO MANCHESTER

END APPROACH
US 7 STA. 1091+00

1086+00 1087+00 1088+00 1089+00 1090+00 1091+00

MATCH EXISTING GUARDRAIL

END BRIDGE
STA 1087+70.71

STONE FILL, STREAM BED MATERIAL (E-STONE FILL, TYPE II) (TYP)

STONE FILL, (TYPE I) (TYP)

STONE FILL, (TYPE II) (TYP)

200+00

APPROX. EXISTING R.O.W.

BEAVER VALLEY INC. C/O JAMES KRON

EXISTING BRIDGE INFORMATION:
SPAN 7' DIAMETER, LENGTH 120'-0"
CGMPP BUILT 1979
10' AVERAGE COVER
38 SF WATERWAY AREA

LAYOUT PLAN

0 20 40
SCALE IN FEET

wsp

PROJECT NAME: SUNDERLAND
PROJECT NUMBER: NH CULV(122)

FILE NAME: z23b027bdr.dgn
PROJECT LEADER: A. STOCKIN
DESIGNED BY: M. GROTE
LAYOUT PLAN

PLOT DATE: 7/5/2024
DRAWN BY: B. GEIGER
CHECKED BY: T. HIGGINSON
SHEET 23 OF 37