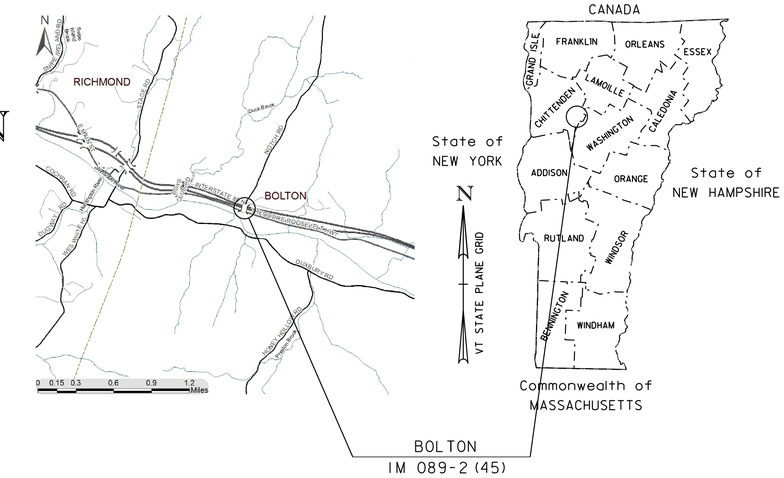
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

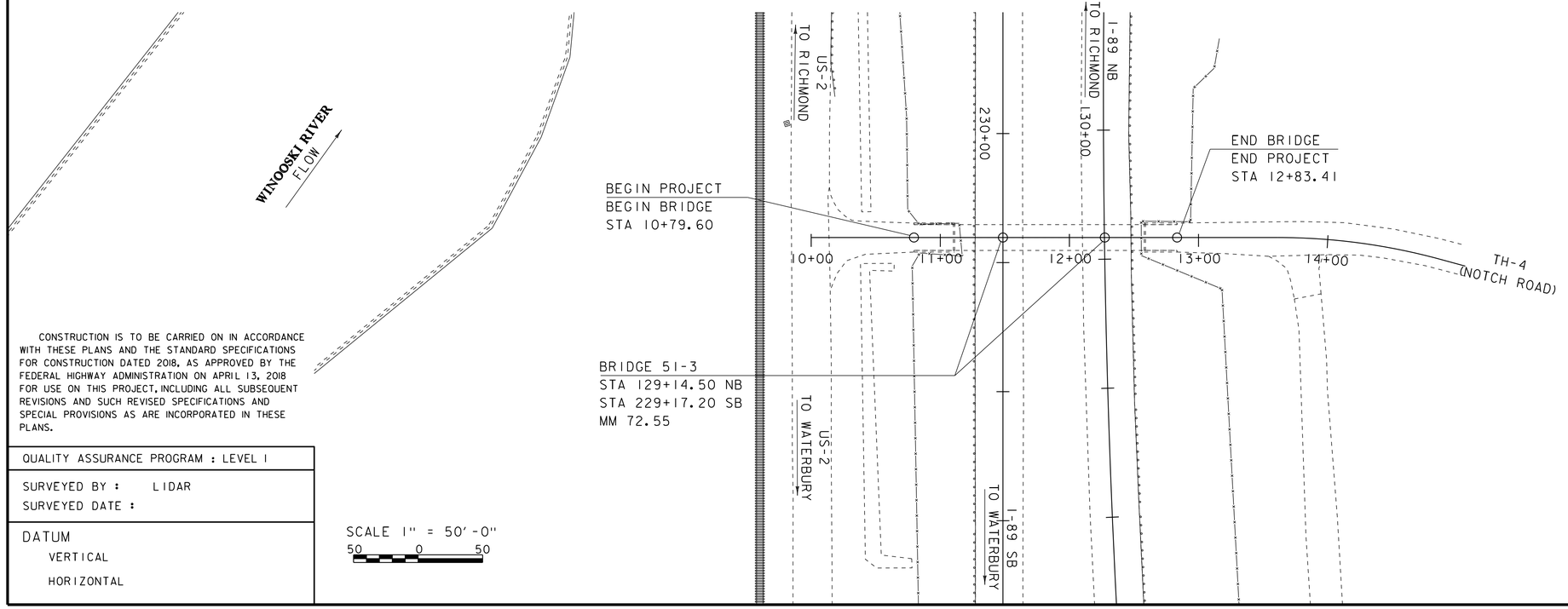
TOWN OF BOLTON
COUNTY OF CHITTENDEN

ROUTE NO : TH 4, NOTCH ROAD BRIDGE NO : I-89 (51-3)

PROJECT LOCATION: INTERSTATE 89, OVER TH-4, APPROXIMATELY 25 FEET NORTH OF THE INTERSECTION OF TH-4 AND US ROUTE 2

PROJECT DESCRIPTION: REHABILITATION OF THE EXISTING CONCRETE BOX, INCLUDING NEW LIGHTING.

LENGTH OF STRUCTURE: 203.81 FEET
LENGTH OF ROADWAY: 0.00 FEET
LENGTH OF PROJECT: 203.81 FEET



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018 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 I

SURVEYED BY : LIDAR
SURVEYED DATE :

DATUM
VERTICAL
HORIZONTAL

SCALE 1" = 50'-0"
50 0 50

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED Wayne Symonds, PE DATE Dec 11, 2019

PROJECT MANAGER : J.B. MCCARTHY

PROJECT NAME : BOLTON
PROJECT NUMBER : IM 089-2(45)

SHEET 1 OF 15 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

PLAN SHEETS

DETAIL SHEETS

STANDARDS LIST

A-76	STANDARDS FOR TOWN & DEVELOPMENT ROADS	03-03-2003
T-1	TRAFFIC CONTROL GENERAL NOTES	04-25-2016
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012

FINAL HYDRAULIC REPORT

DRY CROSSING - NO HYDRAULICS TO REPORT

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		---
2. FUTURE PAVEMENT	d_p:	---
3. DESIGN SPAN	L:	20'X12'-9" FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. CONCRETE, HIGH PERFORMANCE CLASS PCD	f'_c:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
16. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
18. PILE RESISTANCE FACTOR	ϕ:	---
19. LATERAL PILE DEFLECTION	Δ:	---
20. BASIC WIND SPEED	V_{3s}:	---
21. MINIMUM GROUND SNOW LOAD	p_g:	---
22. SEISMIC DATA — PGA: ---	S_s:	---
	S_1:	---
23.		
24.		---
25.		---
26.		---

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2015	600	70	80	2.6	170
2035	640	70	80	3.7	260

20 year ESAL for flexible pavement from 2015 to 2035 : N/A

40 year ESAL for flexible pavement from 2015 to 2055 : N/A

Design Speed : 35 mph

AS BUILT "REBAR" DETAIL

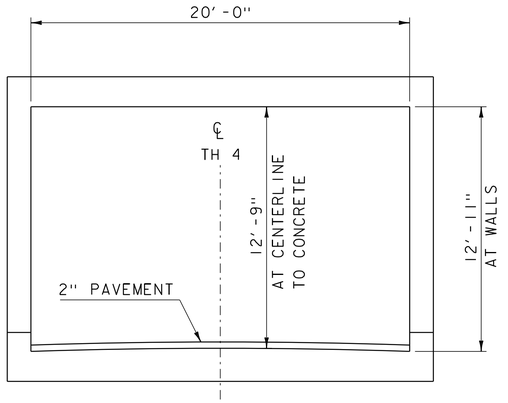
LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

PROJECT NAME: **BOLTON**

PROJECT NUMBER: **IM 089-2(45)**

FILE NAME: **13a090/s13a090forms.dgn**
PROJECT LEADER: **J.B.MCCARTHY**
DESIGNED BY: **H.I.SALLS**
PRELIMINARY INFORMATION SHEET 1

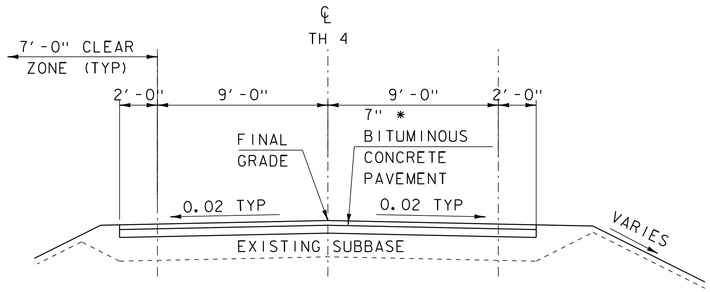
PLOT DATE: 12/12/2019
DRAWN BY: **D.D.BEARD**
CHECKED BY: **G SWEENY**



TH-4 EXISTING TYPICAL SECTION THROUGH TUNNEL

N.T.S.

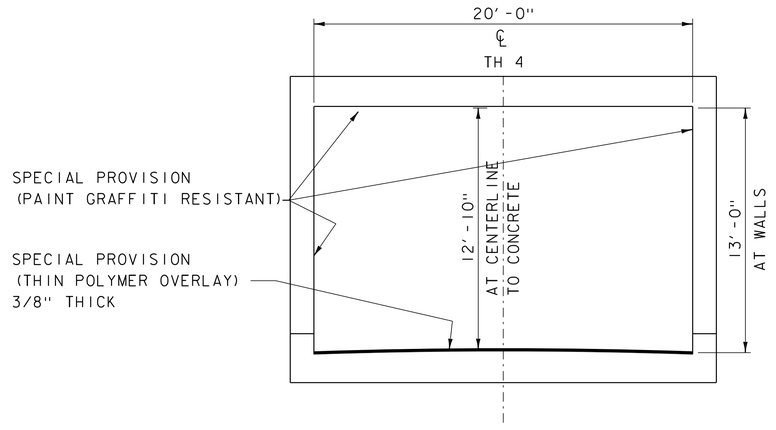
(SEE ORIGINAL DWGS, THIS SET)



TH-4 TYPICAL ROADWAY SECTION

N.T.S.

* TWO LIFTS OF 1 1/2" BITUM. CONC. PAVEMENT TYPE IVS OVER TWO LIFTS OF 2" BITUM. CONC. PAVEMENT TYPE IIS



PROPOSED TYPICAL SECTION THROUGH TUNNEL

N.T.S.

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: BOLTON
PROJECT NUMBER: IM 089-2(45)

FILE NAME: 13a090/sl3a090typ.dgn
PROJECT LEADER: JB McCarthy
DESIGNED BY: HISALLS
TYPICAL SECTIONS

PLOT DATE: 09-JAN-2020
DRAWN BY: HISALLS
CHECKED BY: G. SWEENY
SHEET 3 OF 16

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
	BF	BARRIER FENCE
	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
	PDF	PROJECT DEMARCATION FENCE
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	R.T.& I.	RIGHT, TITLE, AND INTEREST
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⧈	BNDNS	BOUND TO BE SET
◎	IPNF	IRON PIN FOUND
●	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 RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE
CB	CHORD BEARING

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+TELEPHONE
- 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+TELEPHONE
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

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 — 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
- Ⓗ 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

PROJECT NAME: BOLTON
PROJECT NUMBER: IM 089-2(45)

FILE NAME: l3a090/sl3a090forms.dgn
PROJECT LEADER: J.B.MCCARTHY
DESIGNED BY: HI SALLS
SYMBOLOGY LEGEND SHEET

PLOT DATE: 09-JAN-2020
DRAWN BY: M.LONGSTREET
CHECKED BY: HI SALLS
SHEET 4 OF 16

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES		TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	BRIDGE	FULL CE ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
20			20		CY	COMMON EXCAVATION	203.15				
30			30		CY	EXCAVATION OF SURFACES AND PAVEMENTS	203.28				
1			1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
370			370		SY	COARSE-MILLING, BITUMINOUS PAVEMENT	210.10				
20			20		CY	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	301.26				
5			5		CWT	EMULSIFIED ASPHALT	404.65				
1			1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
	200		200		LB	REINFORCING STEEL, LEVEL I	507.11				
	450		450		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
	135		135		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10				
	225		225		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11				
120			120		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
600			600		HR	FLAGGERS	630.15				
		1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
		1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
		1	1		LS	TESTING EQUIPMENT, GROUT	631.19				
		3000	3000		DL	FIELD OFFICE COMMUNICATIONS (N.A.B.I.)	631.26				
2			2		EACH	CPM SCHEDULE	633.10				
1			1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
1			1		LS	TRAFFIC CONTROL, ALL-INCLUSIVE	641.11				
5			5		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
550			550		LF	PROJECT DEMARCATION FENCE	653.55				
	50		50		GAL	SPECIAL PROVISION (PRESSURE INJECTION OF POLYURETHANE FOR CRACK SEALING)	900.625				
1			1		LS	SPECIAL PROVISION (SAFETY LIGHTING SYSTEM)	900.645				
1			1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I)	900.650				
1			1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
	760		760		SY	SPECIAL PROVISION (PAINT, GRAFITTI RESISTANT)	900.675				
	450		450		SY	SPECIAL PROVISION (THIN POLYMER OVERLAY)	900.675				
120			120		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: BOLTON
PROJECT NUMBER: IM 089-2(45)

FILE NAME: sl3A090qs.dgn
PROJECT LEADER: JB McCarthy
DESIGNED BY: GSWEENY
QUANTITY SHEET 1

PLOT DATE: 09-JAN-2020
DRAWN BY: GSWEENY
CHECKED BY: HISALLS
SHEET 5 OF 16

GENERAL

1. WORK ON THIS PROJECT CONSISTS OF THE FOLLOWING (IN NO PARTICULAR ORDER), INCLUDES, BUT IS NOT NECESSARILY LIMITED TO:

   REMOVAL OF PAVEMENT FROM THE EXISTING ROADWAY SURFACE WITHIN THE TUNNEL
   PAVEMENT REMOVAL AND COLD PLANING SHORT DISTANCES ON THE TUNNEL APPROACHES
   REMOVAL OF DETERIORATING CONCRETE FROM THE TUNNEL FLOOR SLAB AND WALLS
   CLEANING AND REPAIR OF DEFECTS ON THE TUNNEL FLOOR SLAB AND WALLS
   CLEANING AND SEALANT INJECTION OF EXISTING CRACKS AND JOINTS IN ALL TUNNEL SURFACES
   SURFACE PREPARATION AND PAINTING OF THE TUNNEL WALLS AND CEILING
   REPAIR OF OTHER CONCRETE SURFACES SUCH AS FASCIAS
   CLEANING OF TUNNEL FLOOR SLAB AND APPLICATION OF THIN POLYMER OVERLAY
   MINOR GRADING WORK BETWEEN TUNNEL AND US ROUTE 2
   PAVING OF APPROACHES
   MANAGEMENT OF THE TRAFFIC CONTROL STRATEGIES INCLUDING THE OFF-SITE DETOUR
   INSTALLATION OF NEW INTERIOR LIGHTING AND SAFETY LIGHTING SYSTEM

2. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 2017, AND ITS LATEST REVISIONS.

3. REFER TO PART 1 – PROJECT SPECIAL PROVISIONS, PARAGRAPH 3 NOTICE TO BIDDERS – TUNNEL CLOSURE PERIOD FOR THE REQUIREMENTS FOR TIMING OF THE WORK.

4. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.11, “TRAFFIC CONTROL, ALL INCLUSIVE”.

5. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

6. THERE HAS BEEN NO SURVEY OF THE PROJECT LOCATION AND ONLY LIMITED EXISTING PLANS ARE AVALABLE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADE ELEVATIONS BEFORE ANY CONSTRUCTION ACTIVITIES COMMENCE. ANY CONFLICTS BETWEEN FIELD DIMENSIONS AND THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE RESIDENT ENGINEER PRIOR TO BEGINNING CONSTRUCTION.

TEMPORARY TRAFFIC CONTROL

7. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL TEMPORARY ON- AND OFF-PROJECT SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.11, “TRAFFIC CONTROL, ALL INCLUSIVE”.

8. THE CONTRACTOR SHALL SUBMIT A SCHEDULE FOR IMPLEMENTATION AND MAINTENANCE OF TRAFFIC CONTROL FOR ALL WORK ASSOCIATED WITH THIS PROJECT.

9. PCMS BOARDS SHALL BE IN PLACE AND OPERATING 14 DAYS BEFORE BRIDGE CLOSURE TO WARN OF THE BRIDGE CLOSURE. THEY SHALL BE REMOVED WHEN THE BRIDGE IS REOPENED TO TRAFFIC. PAYMENT FOR THE PCMS SHALL BE UNDER PAY ITEM 641.15 “PORTABLE CHANGEABLE MESSAGE SIGN”.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED. THE PLAN SHALL SPECIFY ALL CONSTRUCTION ACTIVITIES REQUIRING ALTERNATING ONE WAY TRAFFIC, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE, AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. ALL COSTS WILL BE INCLUDED IN ITEM 641.11 “TRAFFIC CONTROL, ALL-INCLUSIVE".

11. THE COSTS FOR ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR’S TRAFFIC CONTROL PLAN; INCLUDING BUT NOT LIMITED TO TEMPORARY TRAFFIC BARRIER, PEDESTRIAN TRANSIT, TEMPORARY PAVEMENT MARKINGS AND CONSTRUCTION SIGNS, WILL BE INCLUDED UNDER ITEM 641.11 “TRAFFIC CONTROL, ALL-INCLUSIVE”.

CONCRETE REPAIRS

12. CRACKS IN THE EXISTING WALLS SHALL BE REPAIRED BY LOW-PRESSURE CRACK INJECTION OF POLYURETHANE SEALER IN ACCORDANCE WITH SPECIAL PROVISION 900.625 (PRESSURE INJECTION OF POLYURETHANE FOR CRACK SEALING). THE AMOUNT OF CRACK REPAIR MATERIAL AND INJECTION REQUIRED (SHOWN AS GALLONS ON THE QUANTITY SHEET) IS AN ESTIMATE ONLY AND WILL NOT BE KNOWN UNTIL CONSTRUCTION BEGINS AND ACCURATE MEANSUREMENTS ARE MADE.

13. THE CONSTRUCTION/EXPANSION JOINTS IN THE FLOOR, WALLS, AND ROOF OF THE TUNNEL SHALL BE CLEANED TO A DEPTH OF 4 INCHES OR TO THE COPPER SEAL (WHICHEVER IS ENCOUNTERED FIRST) USING HIGH PRESSURE WATER, AIR, OR MECHANICAL MEANS. THEN THE JOINT SHALL BE SEALED USING LOW-PRESSURE INJECTION OF POLYURETHANE SEALER IN ACCORDANCE WITH SPECIAL PROVISION 900.625 (PRESSURE INJECTION OF POLYURETHANE FOR CRACK SEALING).

14. REPAIRS TO DEFECTS, POP-OUTS, AND SPALLS IN THE EXISTING CONCRETE BOTTOM SLAB SHALL BE MADE TO THE EXTENT AND AT LOCATIONS DETERMINED OR APPROVED BY THE ENGINEER. REPAIR MATERIAL AND METHODOLOGY, INCLUDING SURFACE PREPARATION CAN BE SEEN IN SECTION 580, “STRUCTURAL CONCRETE REPAIR”. RAPID SETTING CONCRETE SHALL BE USED FOR FLOOR SLAB REPAIR, AND OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL SHALL BE USED ON WALL REPAIRS. SEE SECTION 580.02, “MATERIALS” FOR GUIDANCE ON THE REPAIR MATERIALS REQUIRED.

15. A SMALL QUANTITY OF REINFORCING STEEL HAS BEEN INCLUDED IN THE QUANTITIES TO BE USED FOR AREAS THAT MAY BE LARGE ENOUGH TO REQUIRE, IN THE OPINION OF THE ENGINEER, REINFORCING OF THE CONCRETE REPAIRS.

16. FOLLOWING THE REPAIRS TO THE BOTTOM SLAB DESCRIBED ABOVE, A THIN POLYMER OVERLAY SHALL BE APPLIED TO THE BOTTOM CONCRETE SLAB OF THE TUNNEL. OVERLAY MATERIALS, PREPARATION OF THE CONCRETE SURFACE, INCLUDING REPAIRED AREAS, PLACEMENT OF THE OVERLAY, AND CURING SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION 900.675 (THIN POLYMER OVERLAY).

17. FOLLOWING REPAIRS, THE INTERIOR WALLS AND CEILING OF THE TUNNEL SHALL BE PAINTED WITH A GRAFFITI-RESISTANT PAINT ACCORDING TO SPECIAL PROVISION 900.675 (PAINT, GRAFITTI RESISTANT). PAINT SHALL BE APPLIED BEFORE THE INSTALLATION OF ANY LIGHTING, CONDUITS, OR OTHER ITEMS BEING INSTALLED ON THE INTERIOR OF THE TUNNEL. CONCRETE SURFACE PREPARATIONS FOR PAINTING SHALL BE AS RECOMMEDED BY THE PAINT MANUFACTURER AND SHALL BE PAID AS INCIDENTAL TO SPECIAL PROVISION 900.675 (PAINT, GRAFFITI RESISTANT).

PROJECT NAME: BOLTON	
PROJECT NUMBER: IM 089-2(45)	
FILE NAME: sl3b256gnotes.dgn	PLOT DATE: 09-JAN-2020
PROJECT LEADER: JB McCarthy	DRAWN BY: G SWEENY
DESIGNED BY: G SWEENY	CHECKED BY: HI. SALLS
PROJECT NOTES SHEET	SHEET 6 OF 16

US ROUTE 2
TO RICHMOND

I-89 NORTHBOUND
TO RICHMOND

ALL SIGNS SHOWN ARE EXISTING AND
THE LOCATIONS ARE APPROXIMATE

VT STATE PLANE GRID

EXISTING SIGNS/BEACONS SHOWN.
SIGNS TO REMAIN, BEACONS TO
BE REPLACED

EXISTING R.O.W. (APPROX.)

EXISTING CURVE 1
DELTA = 15°12'11"
D = 12°00'00"
R = 477.46'
T = 63.72'
L = 126.69'
E = 4.23'

POB
STA 9+99.98

NEW LOCATION FOR PUSH BUTTON AND
POLE. REPLACE BASE IN-KIND. PAID
INCIDENTAL TO 900.645 SPECIAL
PROVISION (SAFETY LIGHTING SYSTEM)

END APPROACH
BEGIN PROJECT
BEGIN BRIDGE
STA 10+79.60

END OF CONCRETE SLAB
AND OVERLAY

PAVEMENT IN THIS
AREA TO BE REMOVED
AND REPLACED, FULL
DEPTH. MINOR REGRADING
REQUIRED

AREA OF COLD PLANING
AND RESURFACING

PT
STA 14+25.10

EXISTING R.O.W. (APPROX.)

TH 4
(BOLTON NOTCH ROAD)

10+00 11+00 12+00 13+00 14+00 15+00

BEGIN APPROACH
STA 10+14.00

PUSH BOTTON FOR
FLASHING LIGHT SYSTEM
(EXISTING TO BE
RELOCATED)

Notch Rd

EXISTING R.O.W. (APPROX.)

END APPROACH
STA 14+00.00

EXISTING R.O.W. (APPROX.)

PT
STA 14+88.07

PC
STA 13+61.38

END OF CONCRETE SLAB
AND OVERLAY

END BRIDGE
END PROJECT
BEGIN APPROACH
STA 12+83.41

PUSH BOTTON
FOR FLASHING
LIGHT SYSTEM
(EXISTING)

EXISTING R.O.W. (APPROX.)

PRIVATE ROAD
(MOUNTAIN VIEW DRIVE)
NO OUTLET

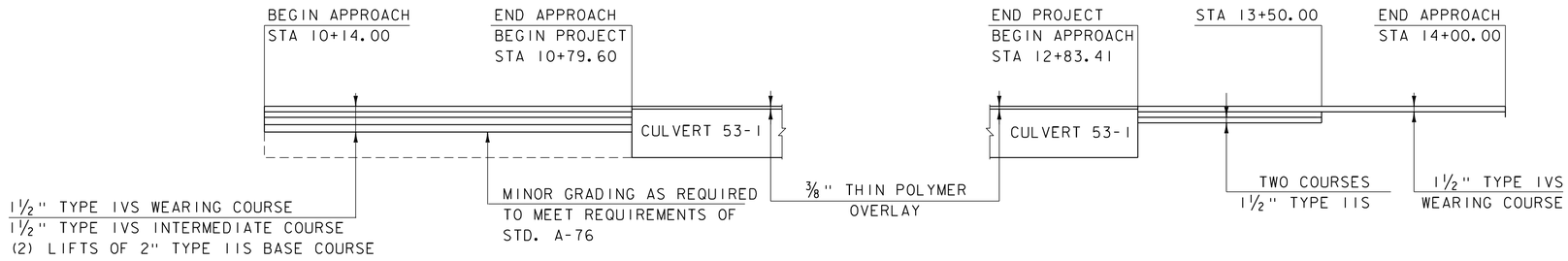
EXISTING SIGNS/BEACONS SHOWN.
SIGNS TO REMAIN, BEACONS TO
BE REPLACED

I-89 SOUTHBOUND
TO WATERBURY

US ROUTE 2
TO WATERBURY

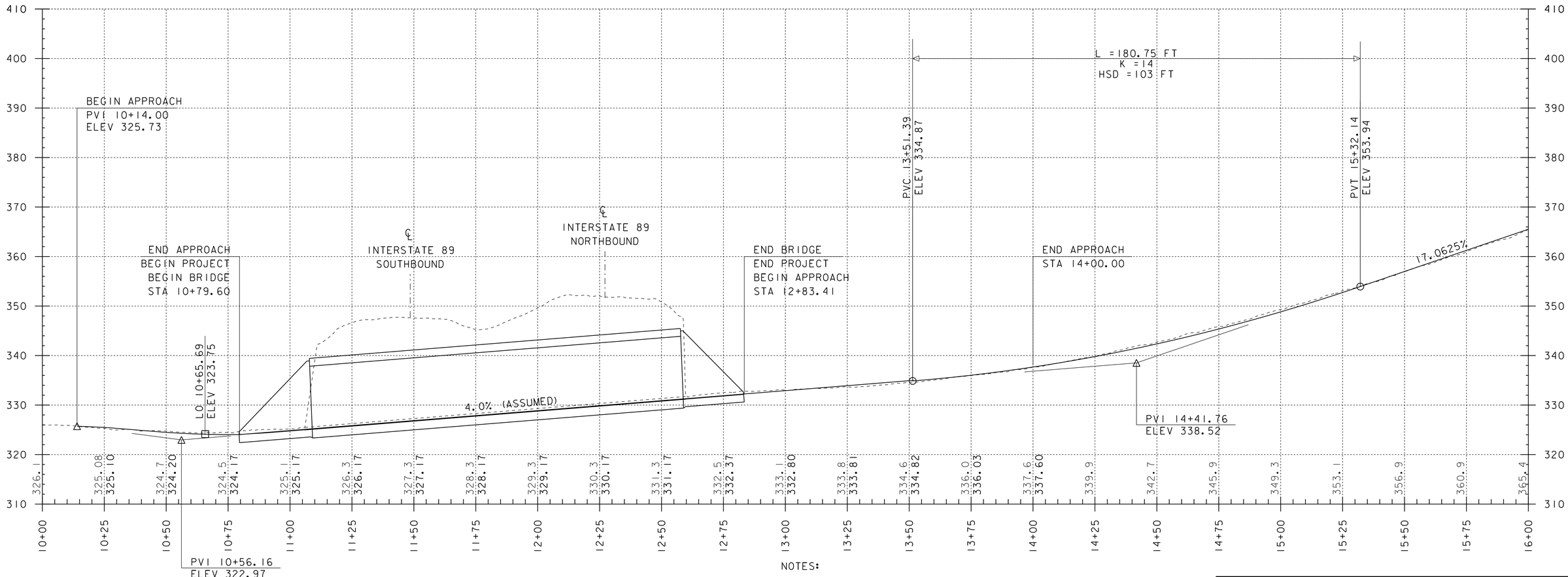
LAYOUT SHEET
SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	BOLTON
PROJECT NUMBER:	IM 089-2(45)
FILE NAME:	I3a090/sl3a090border.dgn
PROJECT LEADER:	J.B.MCCARTHY
DESIGNED BY:	H.I.SALLS
LAYOUT SHEET	
PLOT DATE:	09-JAN-2020
DRAWN BY:	D.D.BEARD
CHECKED BY:	G. SWEENY
SHEET	7 OF 16



MATERIAL TRANSITION DETAIL

N.T.S.



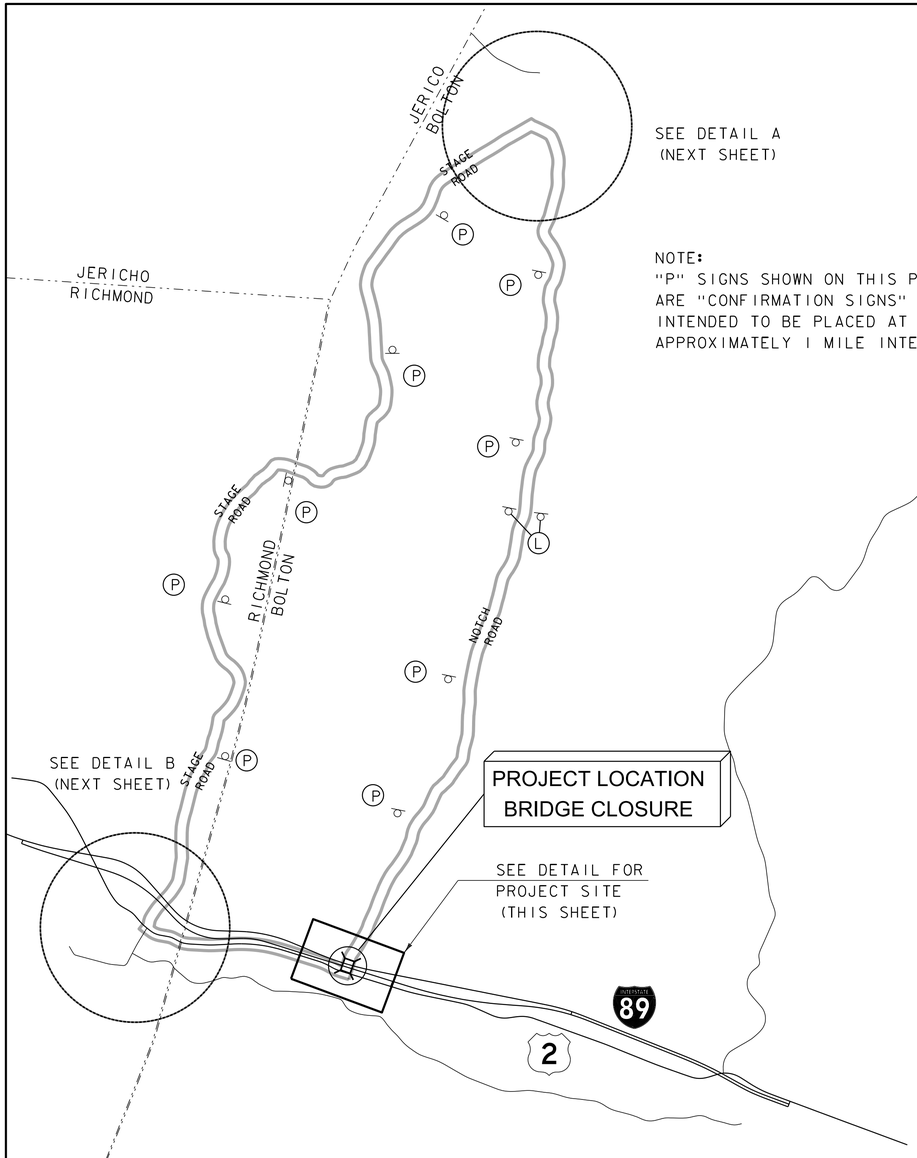
TOWN HIGHWAY 4 PROPOSED PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

NOTES:

1. GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄. GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄.
2. THERE IS NO SURVEY OF THIS SITE. PAVEMENT DEPTH IS UNKNOWN. MATCH IN TO EXISTING GRADES TO SATISFACTION OF THE ENGINEER.

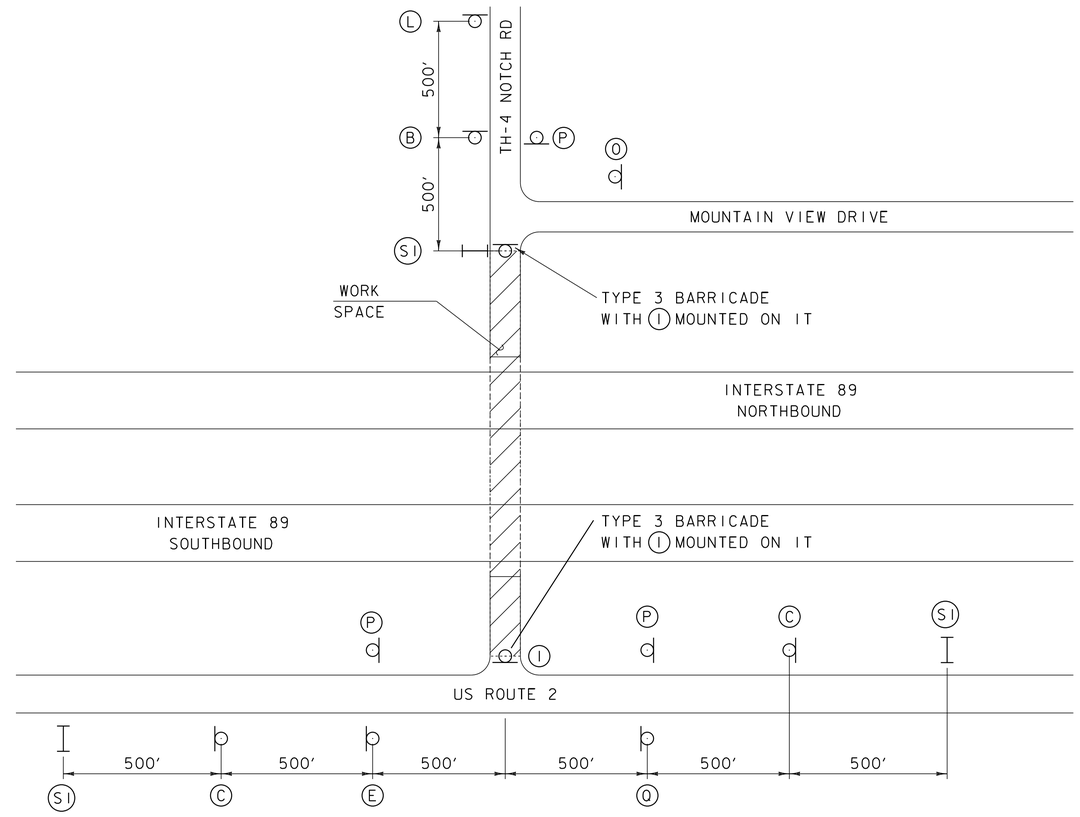
PROJECT NAME: BOLTON	
PROJECT NUMBER: IM 089-2(45)	
FILE NAME: I3a090/sI3a090profile.dgn	PLOT DATE: 09-JAN-2020
PROJECT LEADER: J.B.MCCARTHY	DRAWN BY: D.D.BEARD
DESIGNED BY: HISALLS	CHECKED BY: HISALLS
TOWN HIGHWAY 4 PROFILE SHEET	SHEET 8 OF 16



SEE DETAIL A
(NEXT SHEET)

NOTE:
"P" SIGNS SHOWN ON THIS PLAN VIEW ARE "CONFIRMATION SIGNS" AND ARE INTENDED TO BE PLACED AT APPROXIMATELY I MILE INTERVALS

DETOUR ROUTE



PROJECT SITE
N. T. S.

Ⓐ ROAD WORK AHEAD — W20-1

Ⓑ ROAD WORK 500 FT — W20-1

Ⓒ SIDE ROAD WORK AHEAD — VC-869

Ⓔ SIDE ROAD WORK LEFT — VC-869

Ⓗ END ROAD WORK — G20-2

Ⓘ ROAD CLOSED — R11-2

Ⓛ ROAD CLOSED AHEAD — W20-3

Ⓝ NOTCH RD DETOUR ← — M4-9

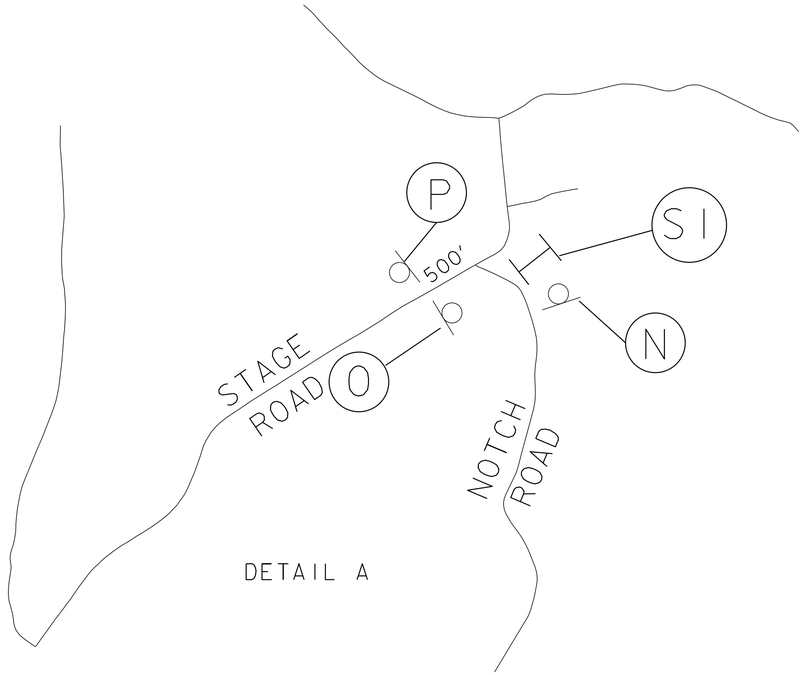
Ⓞ NOTCH RD DETOUR → — M4-9

Ⓟ NOTCH RD DETOUR ↑ — M4-9

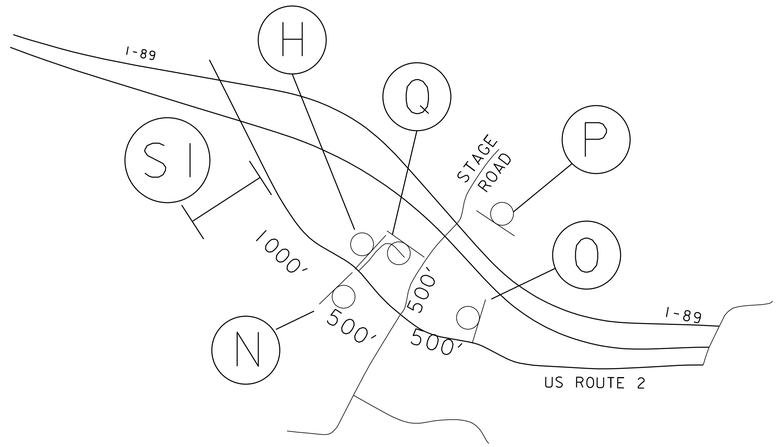
Ⓞ END DETOUR — M4-8a

LEGEND

PROJECT NAME:	BOLTON
PROJECT NUMBER:	IM 089-2(45)
FILE NAME: I3a090/sI3a090detour.dgn	PLOT DATE: 09-JAN-2020
PROJECT LEADER: J.B.MCCARTHY	DRAWN BY: D.D.BEARD
DESIGNED BY: D.D.BEARD	CHECKED BY: G.SWEENY
TRAFFIC CONTROL SHEET I	SHEET 9 OF 16



DETAIL A



DETAIL B

PHASE A

N	O	T	C	H		R	D
C	L	O	S	E	D		
A	T		I	-	8	9	

PHASE B*

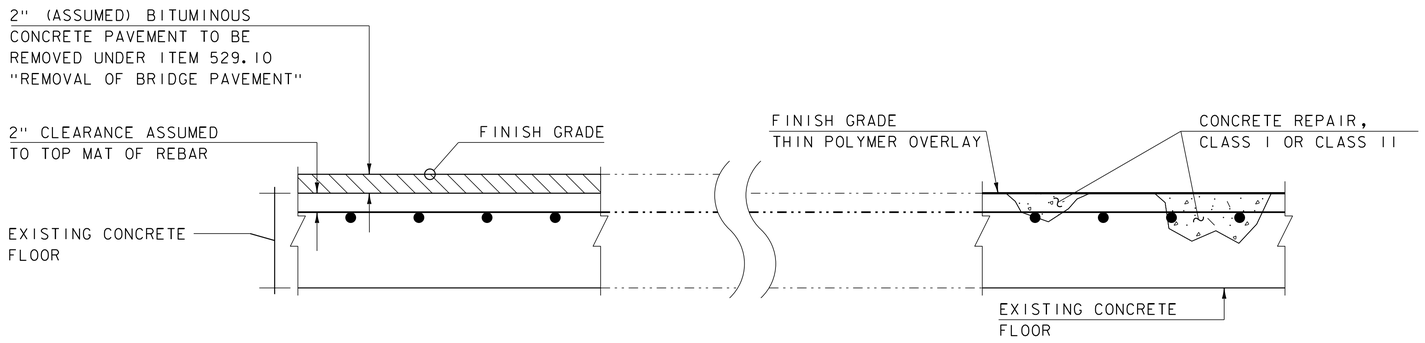
7	P	M		-	5	A	M
M	M	/	D	D		T	O
M	M	/	D	D			

* MM: MONTH, DD: DAY

PORTABLE CHANGABLE MESSAGE SIGNS

PROJECT NAME:	BOLTON
PROJECT NUMBER:	IM 089-2(45)

FILE NAME: I3a090/sI3a090detour.dgn	PLOT DATE: 09-JAN-2020
PROJECT LEADER: J.B.MCCARTHY	DRAWN BY: D.D.BEARD
DESIGNED BY: D.D.BEARD	CHECKED BY: G.SWEENY
TRAFFIC CONTROL SHEET 2	SHEET 10 OF 16



EXISTING CONDITIONS
FLOOR SLAB

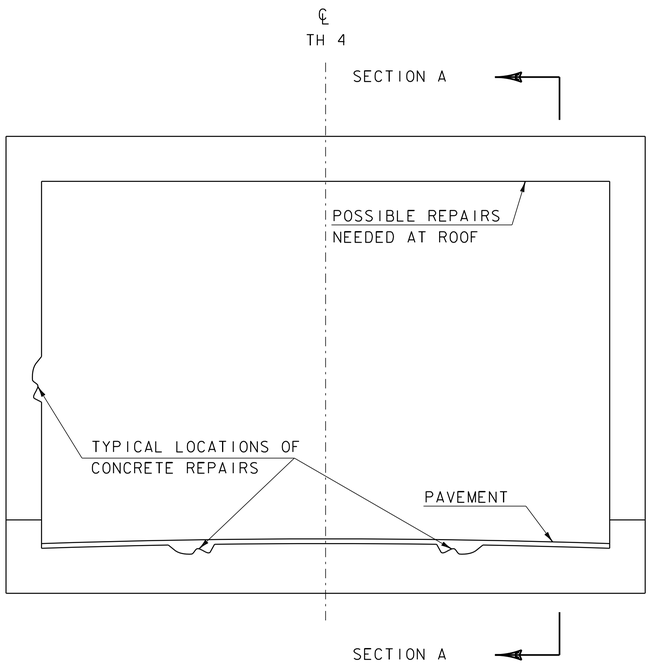
N.T.S.

CONCRETE REPAIR
PAY LIMIT DETAIL

N.T.S.

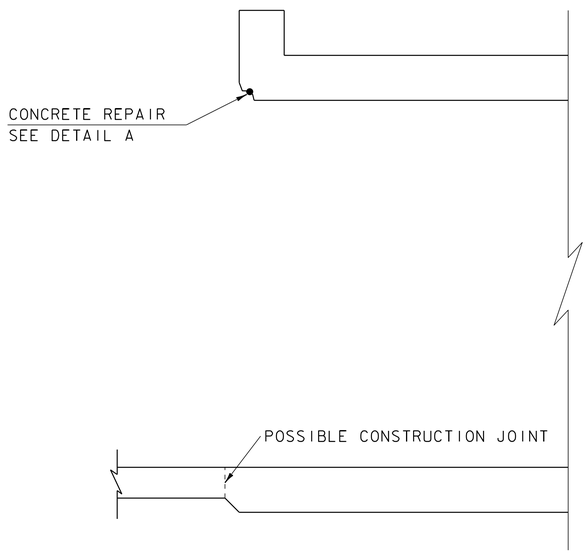
NOTES:

1. ALL EDGES OF REPAIR AREAS ARE TO BE SAWCUT SQUARE AND A MINIMUM OF 1" DEEP. EXCEPT AT THE WALLS WHERE THE EDGE WILL BE CHIPPED.
2. CONCRETE FLOOR REPAIRS WILL BE EITHER CLASS I OR CLASS II.
3. THE ENGINEER WILL DETERMINE THE EXTENT OF CONCRETE REPAIR REQUIRED.



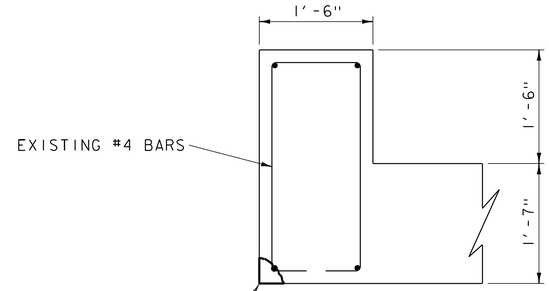
TH-4 EXISTING TYPICAL SECTION THROUGH TUNNEL

N.T.S.



SECTION A

N.T.S.



REMOVAL OF DETERIORATED SURFACE TO SOUND CONCRETE AND REPAIR SHALL MEET THE REQUIREMENTS OF SECTION 580 "STRUCTURAL CONCRETE REPAIR", CLASS I OR II AS DIRECTED BY THE ENGINEER. OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL SHALL BE UTILIZED AS REQUIRED BY SECTION 580.

DETAIL A

N.T.S.

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: BOLTON
PROJECT NUMBER: IM 089-2(45)

FILE NAME: 08c218typ.dgn
PROJECT LEADER: JB McCarthy
DESIGNED BY: HISALLS
TYPICAL SECTIONS DAMAGE

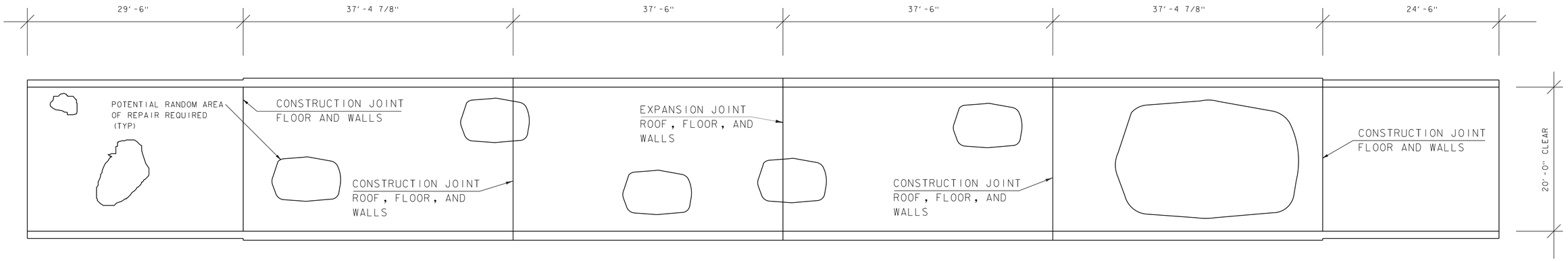
PLOT DATE: 09-JAN-2020
DRAWN BY: HISALLS
CHECKED BY: G. SWEENY
SHEET 11 OF 16

NOTES:

1. THE TOTAL AREA OF CONCRETE REPAIRS REQUIRED IS UNKNOWN. THE INDICATIONS SHOWN ON THIS DRAWING ARE SCHEMATIC ONLY.

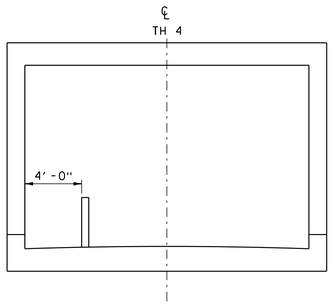
2. CRACKS AND CONSTRUCTION JOINTS SHALL BE SEALED ACCORDING TO ITEM 900.625 SPECIAL PROVISION (PRESSURE INJECTION OF POLYURETHANE FOR CRACK SEALING). THE ENGINEER SHALL DETERMINE THE EXTENT OF CRACK SEALING REQUIRED.

3. DIMENSIONS ARE TAKEN FROM THE RECORD DRAWINGS, ATTACHED TO THIS PACKAGE. VERIFY IN FIELD.



BRIDGE LAYOUT - PLAN VIEW

N.T.S.



TYPICAL SECTION DURING CONSTRUCTION

N.T.S.

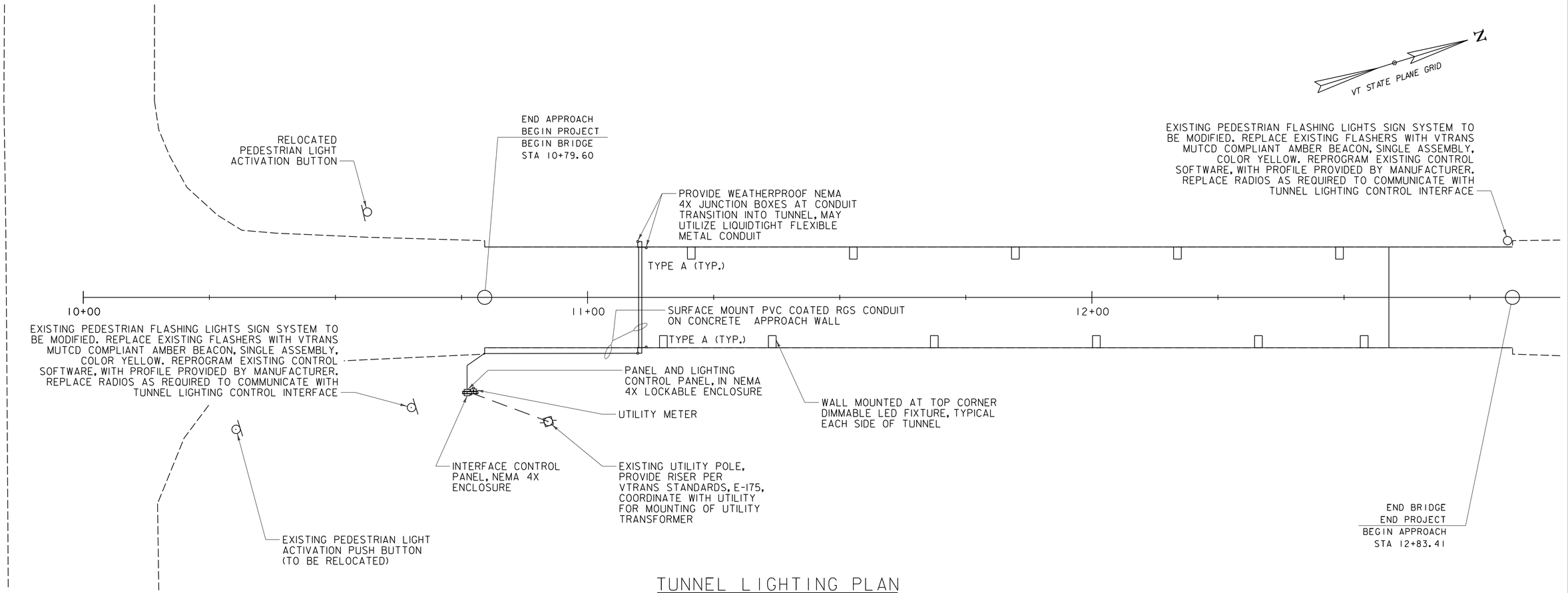
NOTES:

1. DURING CONSTRUCTION A 4' MINIMUM TEMPORARY WALKWAY SHALL BE MAINTAINED AT ALL TIMES. THE WALKWAY MAY BE A MOVABLE ASSEMBLY ACCEPTABLE TO THE ENGINEER

2. SEE NOTICES TO BIDDERS FOR PEDESTRIAN ESCORT REQUIREMENTS

3. AT THE END OF EACH DAY'S WORK, WHEN THE TUNNEL IS REOPENED TO TRAFFIC, THE ROAD SURFACE SHALL BE FREE OF HAZARDS AND OBSTACLES, AND SHALL BE REASONABLY SMOOTH AND APPROPRIATE FOR PEDESTRIANS, BICYCLES AND VEHICLES.

PROJECT NAME: BOLTON	
PROJECT NUMBER: IM 089-2(45)	
FILE NAME: l3a090/sl3a090typ.dgn	PLOT DATE: 09-JAN-2020
PROJECT LEADER: JB McCarthy	DRAWN BY: HISALLS
DESIGNED BY: HISALLS	CHECKED BY: G. SWEENY
BRIDGE LAYOUT	SHEET 12 OF 16

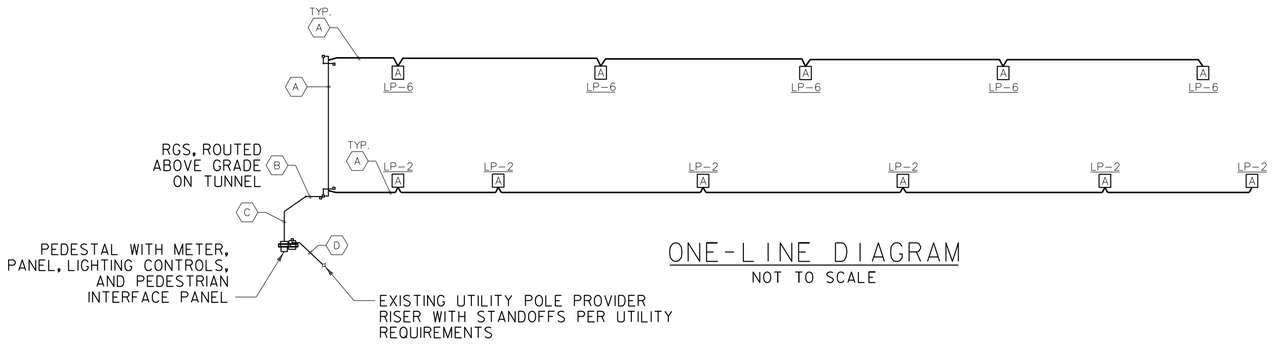


TUNNEL LIGHTING PLAN

SCALE: 1" = 10'-0"

Stantec

PROJECT NAME:	BOLTON
PROJECT NUMBER:	IM 089-2(45)
FILE NAME: Sheets_1_2.dgn	PLOT DATE: 4/23/2019
PROJECT LEADER: J.B. MCCARTHY	DRAWN BY: M. CROWLEY
DESIGNED BY: M. CROWLEY	CHECKED BY: G. BOGUE
TUNNEL LIGHTING PLAN	SHEET 13 OF 15



ONE-LINE DIAGRAM

NOT TO SCALE

MOUNT FOR WALL AND CEILING

LUMINAIRE DESCRIPTION OF COMPONENTS:

ENCLOSURE:
NOMINAL .125 THICK WALL, IMPACT RESISTANT CLEAR LENS.
EXPOSED METALS NOMINAL DIE-CAST ALUMINUM HOUSING, WITH STAINLESS STEEL FASTENERS.
FINISH - MIN. 2.5MIL POLYESTER POWDER COAT WHITE PAINT
UL LISTED FOR WET LOCATIONS WITH MINIMUM IP66 RATING AND 3G VIBRATION RATED.

GASKETING:
EPDM OR NEOPRENE GASKET

ELECTRICAL:
HIGH EFFICIENCY LED/DRIVER COMBINATION WITH 80+ CRI. 4000K COLOR TEMPERATURE
10KV SURGE PROTECTOR, 0-10V DIMMING, THD <10%@120V, 52 WATTS, 5937 LUMENS
PROVIDE WATERTIGHT CONNECTIONS AT FIXTURES

OPTICS:
ADJUSTABLE FIXTURE ANGLE FOR SETTING PRECISE OPTIC DIRECTION.
DIRECT APPLICATION WITH MULTIPLE OPTICS PACKAGES AVAILABLE.

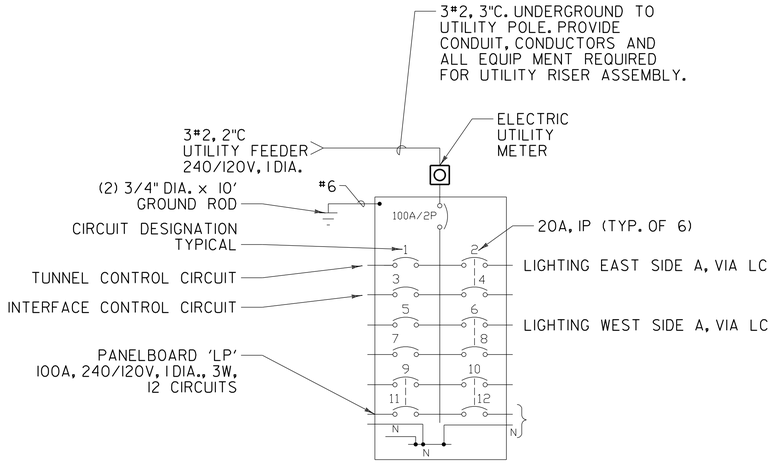
MOUNTING:
STANDARD WALL BRACKET OR LOW PROFILE CEILING MOUNTING, MAY BE USED.
ALL EXTERIOR HARDWARE CONSTRUCTED OF 304 GRADE STAINLESS STEEL.

SUBMITTALS:
PROVIDE SUBMITTALS FOR REVIEW ON ALL EQUIPMENT TO BE PROVIDED.

CONDUIT & CONDUCTOR SCHEDULE

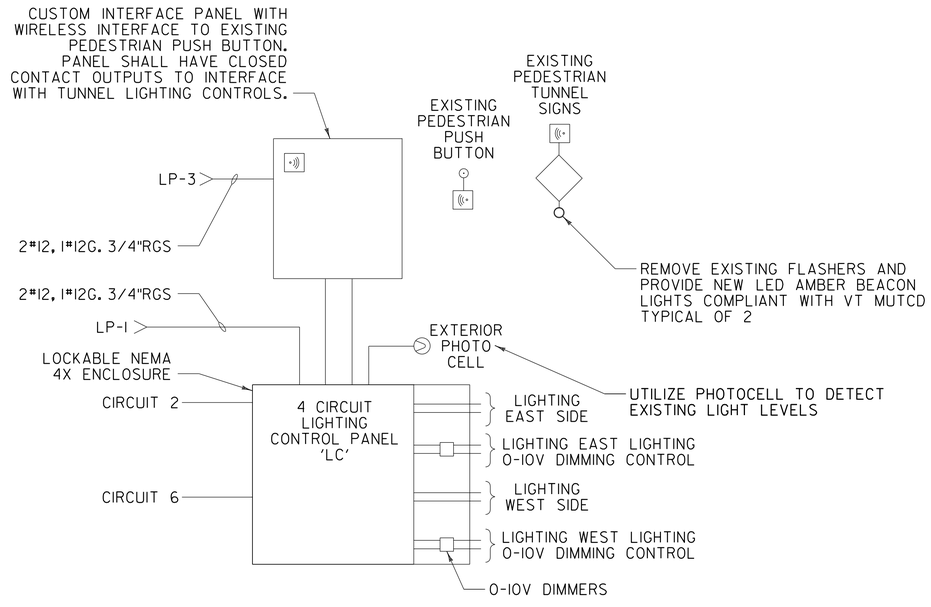
KEY	CONDUIT SIZE	CONDUCTORS		
		FOR FIXTURES	FOR CONTROLS	FOR GROUND
A	1" PVC COAT RGS	2#10	2#12	1#10G
B	(2) 1" PVC COAT RGS	2#10	2#12	1#10G
C	(2) 1" PVC SCH 80	2#10	2#12	1#10G
D	2"	3#2		#2G

GENERAL NOTE:
MAXIMUM OF 270° IN TOTAL BENDS PERMITTED IN SINGLE RUN OF CONDUIT.



ELECTRIC SERVICE AND LIGHTING PANEL 'LP' DIAGRAM

NOT TO SCALE



LIGHTING CONTROL DIAGRAM

NOT TO SCALE

CONTROL OPERATION:

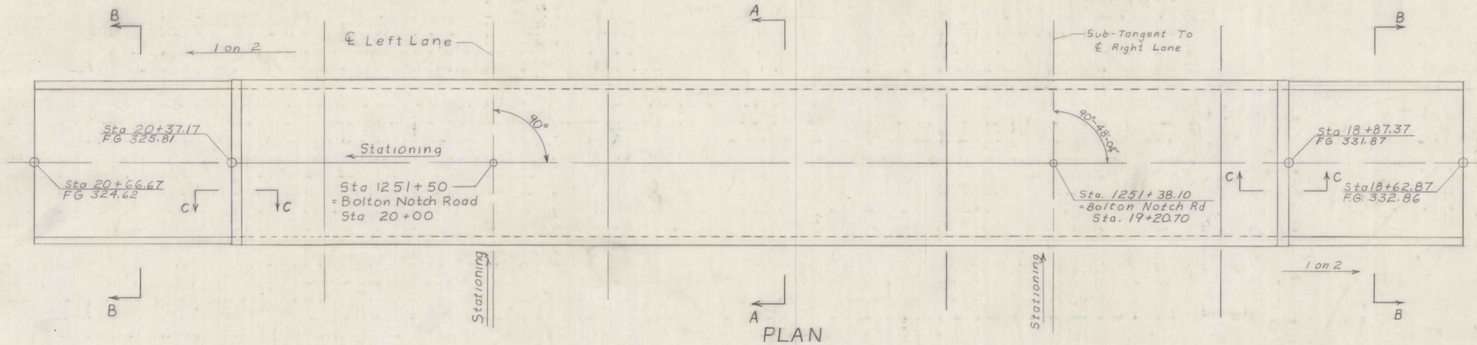
1. TUNNEL LIGHTS SHALL TURN ON WHEN EXISTING PEDESTRIAN PUSH BUTTON IS ACTIVATED.
2. OPERATION AT NIGHT SHALL FUNCTION SAME EXCEPT WITH REDUCED LIGHT LEVELS FOR NIGHTTIME PEDESTRIAN PATH/UNDERPASS, 4FC.

Stantec

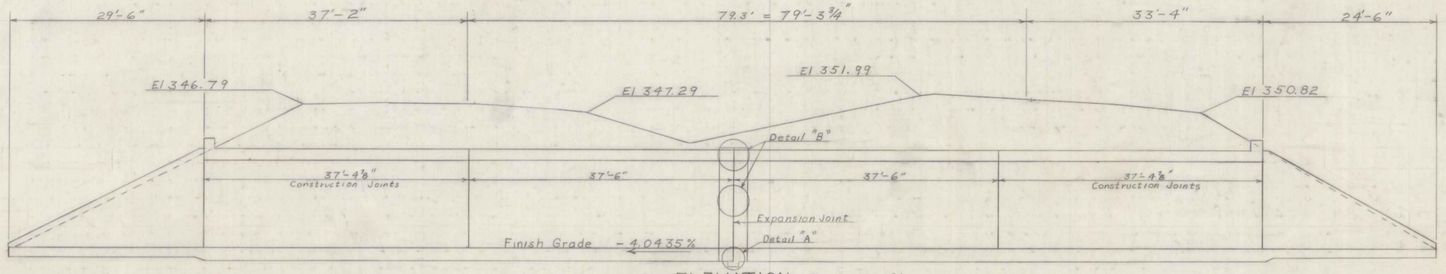
PROJECT NAME: BOLTON
PROJECT NUMBER: IM 089-2(45)

FILE NAME: Sheets_1_2.dgn
PROJECT LEADER: J.B. MCCARTHY
DESIGNED BY: M. CROWLEY
LIGHTING DETAILS

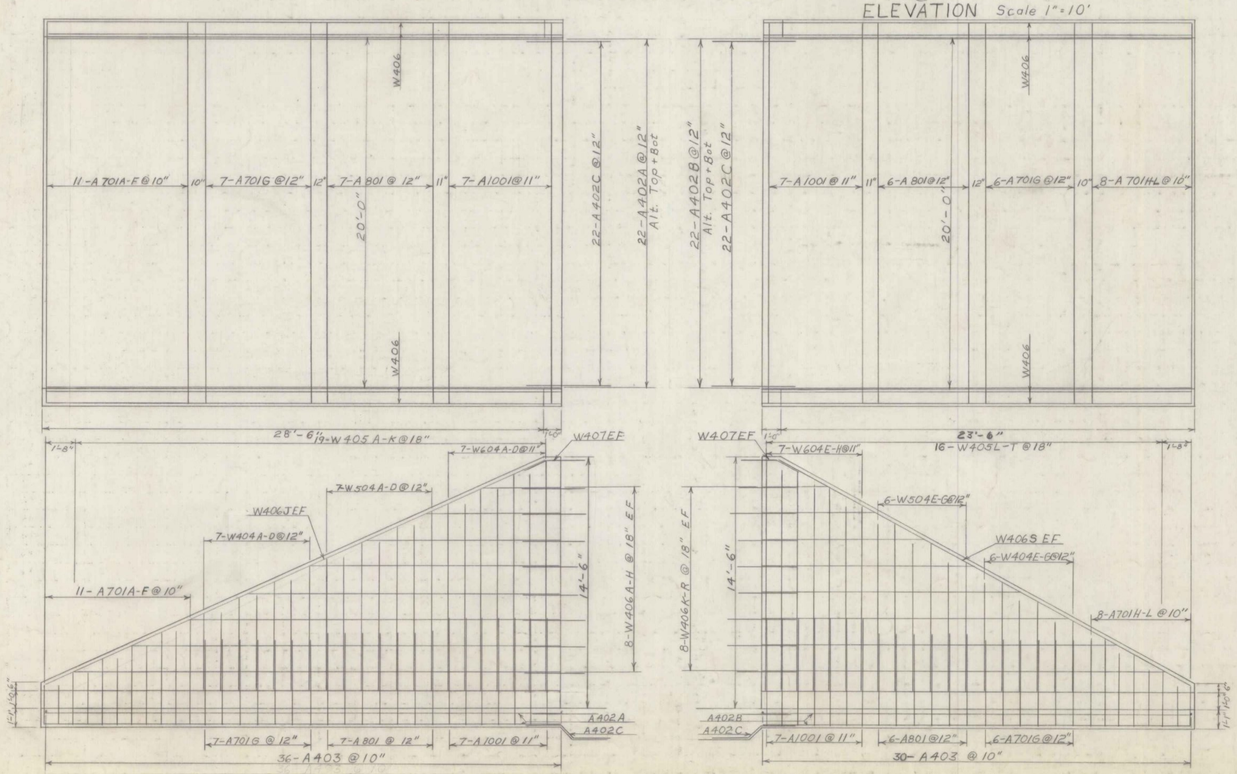
PLOT DATE: 4/23/2019
DRAWN BY: M. CROWLEY
CHECKED BY: G. BOGUE
SHEET 14 OF 15



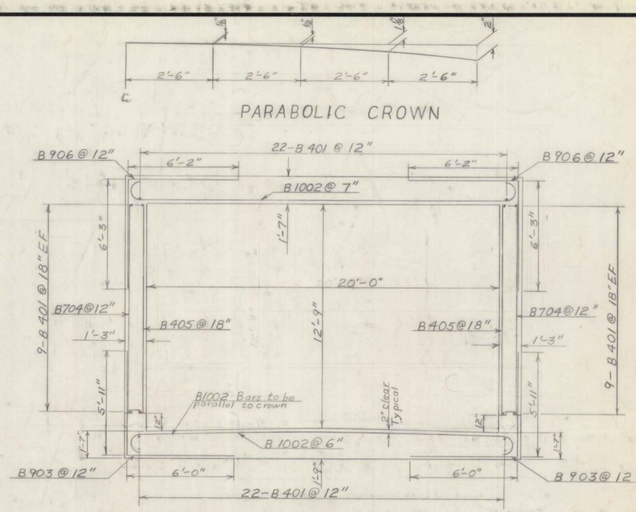
PLAN
Scale 1" = 10'



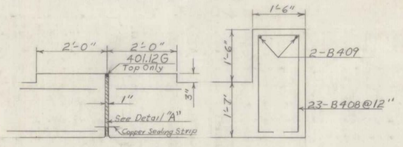
ELEVATION Scale 1"=10'



PLAN AND ELEVATION OF WINGS Scale 1/4" = 1'

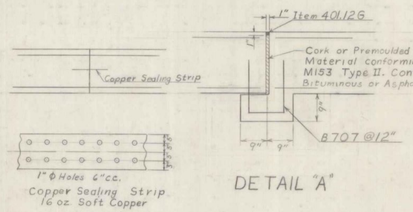


SECTION A-A
Scale 1/4" = 1'



DETAIL "B"

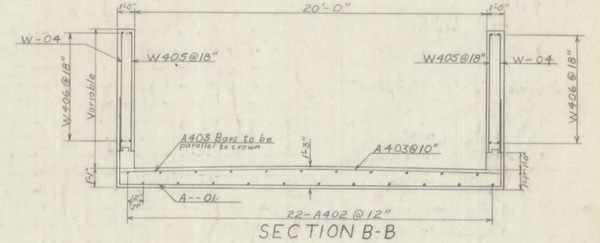
SECTION C-C
Scale 1/2" = 1'



DETAIL "A"

CONSTRUCTION JOINT DETAIL

For additional details of Detail "A" and "B" See Standard Sheet SB-21-56 Detail D



SECTION B-B
Scale 1/2" = 1'

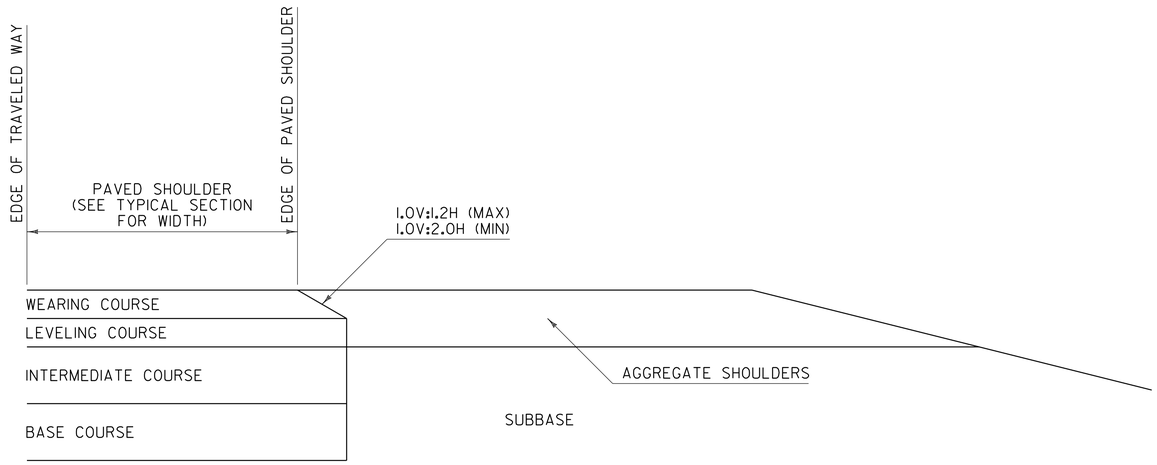
GENERAL NOTES

1. All materials and construction shall conform to the State of Vermont, Department of Highways Standard Specifications for Road and Bridge Construction, dated Jan.1956 and the AASHO Standard Specs, dated 1961 designed for H20-S16-44 loading modified for National System of Interstate Highways applied in accordance with the provision of the AASHO Standard Specification, Article 1.2.8.
2. All reinforcing to have a clear cover of 2".
3. All exposed edges of concrete shall be chamfered 1"x1" unless otherwise noted.
4. Existing ground to be removed to a depth where suitable bearing capacity exists, to be determined by Soils Lab during construction, prior to placing fill. To be paid under Item 101A
5. Rock fill shall be used under the box up to 1 foot below the bottom slab.
6. Fill to be placed 1 foot above bottom of box and removed as Structure Excavation, Item 107

ITEM NO.	ITEM	UNIT	NET	OVERRUN	TOTAL	FINAL
106-A	CHAN. EXCAV. OF EARTH	C. Y.				
106-B	CHAN. EXCAV. OF ROCK	C. Y.				
106-C	UNCLASS. CHAN. EXCAV.	C. Y.				
107	STRUCT. EXCAV.	C. Y.	185			187
401-B	CONC. CLASS B (MOD.)	C. Y.	680			678
402	REINF. STEEL	LBS.	SEE REINF. STEEL SCHEDULE			
407	ASPHALTIC-ASB. COATING	S. Y.				
502-B	TREATED TIMBER PILING	L. F.				
503	SPLICES FOR STEEL PILING	EA.				
504	STEEL PILING	L. F.				
502-A	UNTREATED TIMBER PILING	L. F.				

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

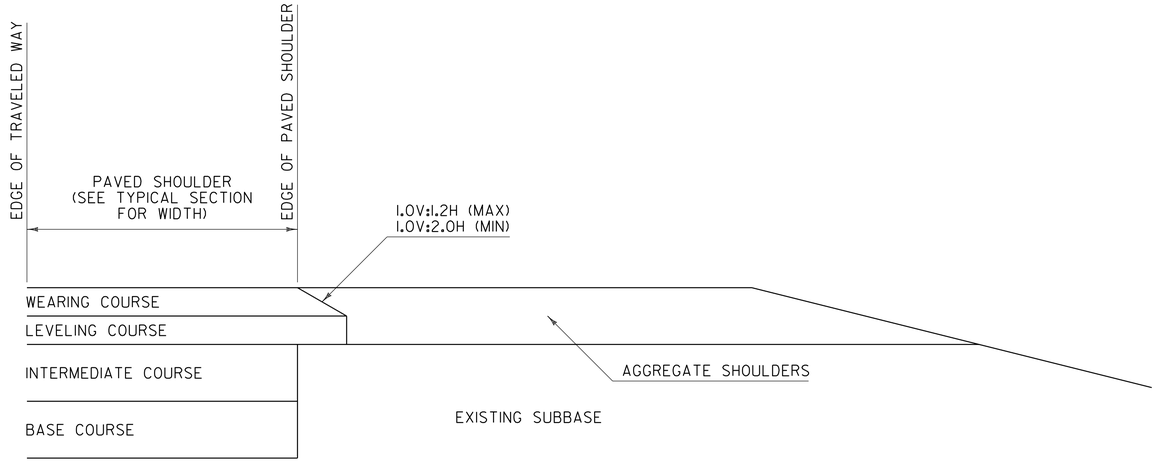
TOWN OF BOLTON - RICHMOND
ROUTE NO. I-89 LOG STA. 1251+50
INTERSTATE OVER
BOLTON NOTCH ROAD
SCALE As Noted
SURVEYED BY
DRAWN BY AGC CHECKED BY ELO
PROJECT NO. I-89-2(8)
SHEET 125A OF 328



SAFETY EDGE DETAIL
FOR PAVING BELOW WEARING COURSE

NOTES:

1. THIS DETAIL IS INTENDED FOR WHEN PAVING EXTENDS BELOW THE WEARING COURSE.
2. PRIOR TO PLACEMENT OF THE LEVELING AND/OR WEARING COURSE, THE SUBBASE LOCATED BENEATH THE AGGREGATE SHOULDERS SHALL BE PREPARED FLUSH WITH THE BOTTOM OF THE LEVELING COURSE.
3. BASE COURSE LIMITS MAY VARY, SEE TYPICAL SECTIONS FOR WIDTH.



SAFETY EDGE DETAIL
FOR PAVING WEARING COURSE ONLY

NOTES:

1. THIS DETAIL IS INTENDED FOR WHEN ONLY THE LEVELING AND/OR WEARING COURSE IS TO BE PLACED.
2. PAVEMENT COURSES MAY VARY, SEE TYPICAL SECTIONS FOR ACTUAL PAVEMENT COURSES REQUIRED.

SAFETY EDGE WIDTH BASED ON WEARING COURSE THICKNESS AND A 1V:1.6H SLOPE	
WEARING COURSE THICKNESS (INCHES)	NOMINAL SAFETY EDGE WIDTH (INCHES)
1.25	2.000
1.50	2.375
1.75	2.750
2.00	3.125
2.25	3.500
2.50	4.000

GENERAL NOTES:

1. PLACEMENT OF THE WEARING COURSE SHALL INCLUDE THE SAFETY EDGE, UNLESS THE FOLLOWING APPLIES:
   - A. THE ADJACENT SLOPE IS STEEPER THAN THE SAFETY EDGE.
   - B. THE EDGE OF PAVEMENT BEING PLACED ABUTS BOUND MATERIAL.
   - C. VEHICLES ARE RESTRICTED FROM LEAVING THE PAVED SURFACE (EXAMPLE: GUARDRAIL).
2. THE SAFETY EDGE SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE SLOPE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
3. THE SAFETY EDGE SHALL NOT BE CONSIDERED PART OF THE PAVED SHOULDER.
4. THIS WORK SHALL BE INCIDENTAL TO THE RESPECTIVE BITUMINOUS CONCRETE PAVEMENT ITEM.

REV.	DATE	DESCRIPTION
0	MAR. 29, 2016	ORIGINAL APPROVAL
1	JAN. 5, 2018	ANNOTATION CORRECTIONS

OTHER DETAILS REQUIRED: NONE

DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

SAFETY EDGE DETAILS

VTrans Working to Get You There
VERMONT AGENCY OF TRANSPORTATION

HIGHWAY SAFETY & DESIGN DETAIL

HSD-400.01