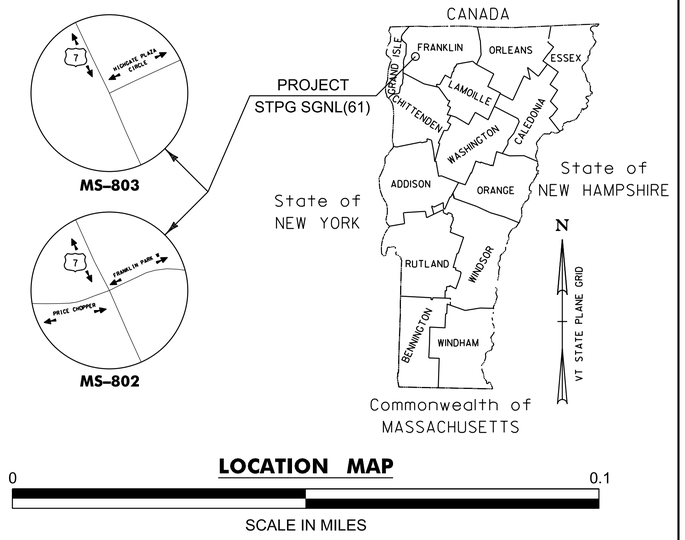
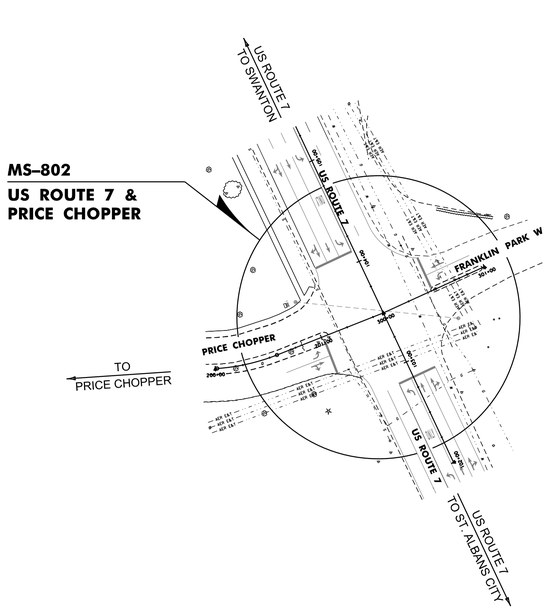
STATE OF VERMONT
AGENCY OF TRANSPORTATION

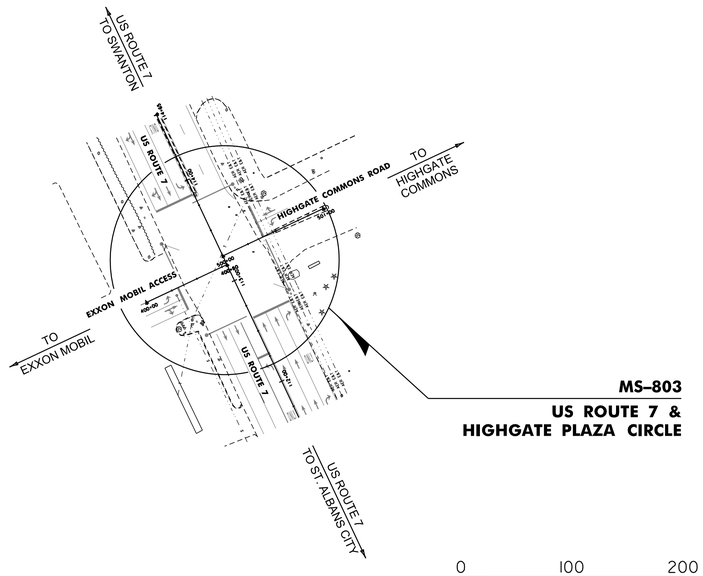
PROPOSED IMPROVEMENT
TOWN OF ST. ALBANS
COUNTY OF FRANKLIN
US ROUTE 7 (MAJOR COLLECTOR) (NHS)



PROJECT LOCATION: IN THE TOWN OF ST. ALBANS AT THE INTERSECTIONS OF US ROUTE 7 & FRANKLIN PARK WEST (MS-802) AND US ROUTE 7 & HIGHGATE COMMONS ROAD (MS-803).

PROJECT DESCRIPTION: WORK SHALL CONSIST OF THE REPLACEMENT AND REHABILITATION OF EXISTING TRAFFIC SIGNAL SYSTEMS.





PRELIMINARY PLANS
OCTOBER 10, 2023

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 1
SURVEYED BY : VTRANS SURVEYED DATE : MARCH 2021
DATUM VERTICAL : NAVD 88 HORIZONTAL : NAD 83 (2011)

APPROVED _____ DATE _____
PROJECT MANAGER : TAYLOR SISSON, P.E.
PROJECT NAME : ST. ALBANS TOWN PROJECT NUMBER : STPG SGNL(61) SHEET 01 OF 21 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

INDEX OF SHEETS

VTRANS STANDARDS LIST

E-175	POWER DROP STANCHIONS	6/8/2009
T-1	TRAFFIC CONTROL GENERAL NOTES	4/25/2016
T-2	TRAFFIC SIGN GENERAL NOTES	4/7/2020
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	8/6/2012

HIGHWAY SAFETY DESIGN DETAILS LIST

HSD-678.03	HEAVY DUTY JUNCTION BOXES	2/23/2023

GENERAL NOTES

1. ALL ROADWAY WORK WILL BE COMPLETED AS PART OF ST. ALBANS TOWN-SWANTON STP PS25(7) RESURFACING PROJECT. THESE PLANS INCLUDE MATERIALS RELATED TO THE TRAFFIC SIGNAL IMPROVEMENT PROJECT ONLY.
2. ANY DISCREPRENCIES BETWEEN THESE DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITIES WITHIN AND ADJACENT TO THE LIMITS OF WORK. IN THE EVENT OF DAMAGE TO THESE SYSTEMS THE REPAIRS OR REPLACEMENT SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE AS APPROVED BY THE ENGINEER.
4. THE CONTRACTOR SHALL PROVIDE EROSION PREVENTION AND SEDIMENT CONTROL IN ACCORDANCE WITH SUBSECTIONS 105.23 THRU 105.28 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

SEEDING FORMULA

VAOT URBAN LAWN MIX

% WEIGHT	LBS/AC BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM %	PURITY %
42.50%	34	68	CREEPING RED FESCUE	FESTUCA RUBRA X RUBRA	85%	98%
20.00%	16	32	PERENNIAL RYE GRASS	LOLIUM PERENNE	90%	95%
32.50%	26	52	KENTUCKY BLUE GRASS	POA PRATENSIS	85%	85%
5.00%	4	8	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100.00%	**60**	**120**				

GENERAL AMENDMENT GUIDANCE

FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION NOTES:

1. SEED MIX: USE ONLY AS INDICATED IN THE PLANS.
2. SEED MIX: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
3. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
4. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
5. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE, THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
6. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME, AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

TRAFFIC DATA

US ROUTE 7 & FRANKLIN PARK WEST

APPROACH	AADT		DHV-30		PM %T		PM %D		ADTT	
	2022	2043	2021	2043	2021	2043	2022	2043	2022	2043
US 7 (S)	6,500	7,200	1,480	1,640	2.0	2.2	54	54	130	160
US 7 (N)	7,000	7,700	1,390	1,540	2.0	2.2	53	53	140	171
PRICE CHOPPER	1,600	1,800	400	440	1.0	1.1	55	55	16	20
FRANKLIN PRK W	1,500	1,700	240	270	4.0	4.4	52	52	60	75

US ROUTE 7 & HIGHGATE COMMONS ROAD

APPROACH	AADT		DHV-30		PM %T		PM %D		ADTT	
	2022	2043	2021	2043	2022	2043	2022	2043	2022	2043
US 7 (S)	6,500	7,200	1,440	1,600	1.0	1.1	55	55	65	80
US 7 (N)	7,000	7,700	1,480	1,640	1.0	1.1	54	54	70	85
HIGHGATE RD	3,000	3,300	820	910	1.0	1.1	52	52	30	37
EXXON	1,500	1,700	180	200	2.0	2.2	-	-	30	38

PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: pi.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
PRELIMINARY INFORMATION SHEET

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE

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
◎	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 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

- CLEAR ZONE (CZ)
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH LC
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PROJECT DEMARCATION FENCE (PDF)
- BARRIER FENCE (BF)
- 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 PROPERTY BOUNDARY
- 4f — 4F PROPERTY BOUNDARY
- 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

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)
FILE NAME: symb.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M.KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
CONVENTIONAL SYMBOLOGY SHEET	SHEET 3 OF 21

NETWORK CONTROL

HVCTRL#1
DESIGNATION: TOTAL HOME CTR
PID: DN6992
NORTHING: 855399.32
EASTING: 1490466.82
ELEVATION: 382.86

DESCRIPTION:
SAINT ALBANS, VT. TO REACH FROM THE INTERSECTION OF US ROUTE 7 (SWANTON ROAD) AND VT ROUTE 207 (HIGHGATE ROAD) NEAR INTERSTATE 89 EXIT 20, GO EAST ALONG VT ROUTE 207 FOR 0.4 MI (0.6 KM) TO THE INTERSECTION OF MAYOR HANDY DRIVE RIGHT AND HUBBARD LANE LEFT AND THE SITE OF THE MARK ON THE LEFT IN A GRASS LAWN IN THE SOUTHWEST QUADRANT OF THE INTERSECTION.
THE MARK IS SET 5 CM (2 INCHES) BELOW GROUND SURFACE IN THE TOP OF A 30 CM (12 INCH) DIAMETER CONCRETE MONUMENT POURED 1.5 M (4.9 FT) DEEP. IT IS 10.0 M (32.8 FT) NORTH-NORTHWEST OF AND ABOUT 1.3 M (4.3 FT) LOWER THAN THE NORTHWEST EDGE OF PAVEMENT OF VT ROUTE 207, 22.5 M (73.8 FT) WEST-SOUTHWEST OF THE CENTERLINE OF HUBBARD LANE, 19.1 M (62.7 FT) SOUTHEAST OF THE CENTERLINE OF THE ENTRANCE DRIVE LEADING TO TOTAL HOME CENTER, 26.5 M (86.9 FT) EAST OF THE NORTHEAST CORNER OF TOTAL HOME CENTER, 12.1 M (39.7 FT) SOUTH OF A 40 CM (16 INCH) RED PINE AND 13.5 M (44.3 FT) WEST-SOUTHWEST OF POLE NO 84B AND A FIBERGLASS WITNESS POST.

HVCTRL#2
DESIGNATION: TOTAL HOME CTR AZ MK
PID: DN6993
NORTHING: 853684.54
EASTING: 1489167.44
ELEVATION: 373.52

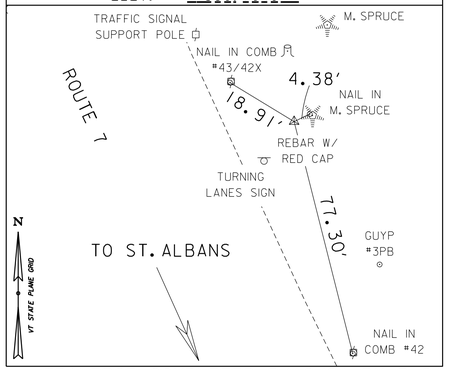
DESCRIPTION:
SAINT ALBANS, VT. TO REACH FROM THE INTERSTATE 89 BRIDGES OVER VT ROUTE 207 (HIGHGATE ROAD) AT EXIT 20 GO WEST ALONG VT ROUTE 207 FOR 0.3 MI (0.5 KM) TO THE T-INTERSECTION OF US ROUTE 7 (SWANTON ROAD) AND THE SITE OF THE MARK ON THE LEFT IN A GRASS TRIANGLE SOUTHEAST OF THE INTERSECTION. THE MARK IS SET IN THE TOP OF A 0.7 M (2.3 FT) X 0.5 M (1.6 FT) ROCK OUTCROP WHICH PROJECTS 10 CM (4 INCHES) ABOVE GROUND SURFACE. IT IS 6.8 M (22.3 FT) EAST OF AND ABOUT LEVEL WITH THE EAST EDGE OF PAVEMENT OF US ROUTE 7, 11.0 M (36.1 FT) SOUTH OF THE SOUTH EDGE OF PAVEMENT OF VT ROUTE 207, 1.7 M (5.6 FT) NORTHEAST OF THE NORTHEAST CORNER OF A 0.6 M (2.0 FT) X 0.6 M (2.0 FT) SQUARE METAL UTILITY BOX COVER AND 10.3 M (33.8 FT) NORTHWEST OF POLE NO 43/45 AND A FIBERGLASS WITNESS POST.

HVCTRL#5
DESIGNATION: I 89 EXIT 20 AZ MK
PID: BBCT41
NORTHING: 852200.04
EASTING: 1490338.89
ELEVATION: 411.951

DESCRIPTION:
SAINT ALBANS, VT.
THE MARK IS A 5 CM DIAMETER ALUMINUM CAP SET IN THE TOP OF A 1.5 CM DIAMETER REBAR WHICH PROJECTS 6 CM ABOVE GROUND SURFACE. IT IS 12.0 M SOUTHWEST OF AND ABOUT 0.4 M HIGHER THAN THE CENTERLINE OF FRANKLIN PARK WEST ROAD, 8.1 M SOUTHEAST OF POLE NO 43/35/2/63 WITH GUY, 8.0 M NORTH OF THE NORTHWEST CORNER OF THE PAQUIN FORD PARKING LOT, 17.4 M NORTHEAST OF POLE NO 34X/2/62 1/2 AND 0.1 M WEST OF A 5 CM DIAMETER METAL PIPE WHICH PROJECTS 1.5 M ABOVE GROUND SURFACE.

TRAVERSE CONTROL

HVCTRL#3
NORTH = 853031.3385
EAST = 1489493.1825
ELEV. = 380.7640



BM#1126
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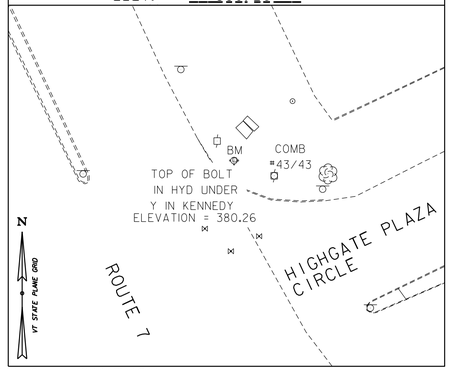
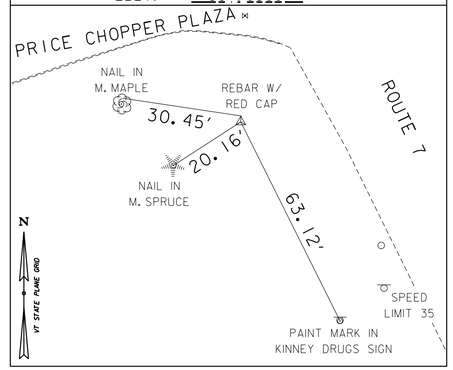
EAST = 1489421.90
ELEV. = 380.26



HVCTRL#4
NORTH = 852122.6623
EAST = 1489791.6431
ELEV. = 391.6800



BM#2056
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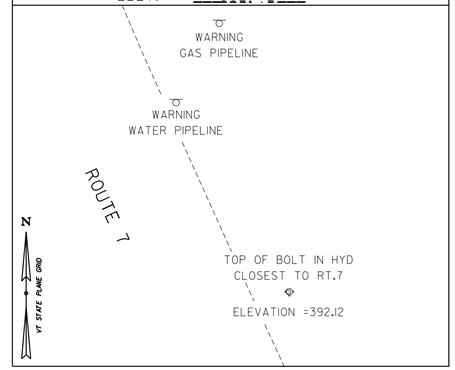
EAST = 1489922.95
ELEV. = 392.12



_____
NORTH = _____
EAST = _____
ELEV. = _____

* TRAVERSE COMPLETED 3/16/21 BY R.GILMAN & J.WANTUCH

TRAVERSE CONTROL

_____
NORTH = _____
EAST = _____
ELEV. = _____

_____
NORTH = _____
EAST = _____
ELEV. = _____

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NORTH = _____
EAST = _____
ELEV. = _____

_____
NORTH = _____
EAST = _____
ELEV. = _____

_____
NORTH = _____
EAST = _____
ELEV. = _____

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83(2011)
ADJUSTMENT COMPASS

PROJECT NAME: ST.ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: x20t301ti.dgn
PROJECT LEADER: E.PARIZO
DESIGNED BY: VTRANS
TIE SHEET

PLOT DATE: 10/10/2023
DRAWN BY: J.WANTUCH
CHECKED BY: R.GILMAN

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PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)

FILE NAME: bor info.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M.KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
BORING INFORMATION SHEET	SHEET 5 OF 21

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PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)

FILE NAME: bor.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M.KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
BORING LOG SHEET	SHEET 6 OF 21

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES	TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
1011 - ROADWAY	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
80	80		CY	TRENCH EXCAVATION OF EARTH	204.2000	-			
1	1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.2200	-			
962	962		LF	TRENCHLESS EXCAVATION, HORIZONTAL DIRECTIONAL DRILLING	209.0100	-			
230	230		LF	SLEEVES FOR UTILITIES, HDPE, 12 INCH	625.1012	-			
1761	1761		LF	WIRED CONDUIT, 3 INCH	625.6003	-			
4	4		EACH	JUNCTION BOX	625.7010	-			
400	400		HR	UNIFORMED TRAFFIC OFFICERS	630.1000	-			
800	800		HR	FLAGGERS	630.1500	-			
1	1		LS	MOBILIZATION/DEMOBILIZATION	635.1100	-			
1	1		LS	TRAFFIC CONTROL, ALL-INCLUSIVE	641.1100	-			
2	2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.1500	-			
100	100		SY	TURF ESTABLISHMENT, GENERAL SEED	651.1500	-			
10	10		CY	TOPSOIL	651.3500	-			
30	30		SF	TRAFFIC SIGN, FLAT SHEET ALUMINUM	675.2000	-			
2	2		EACH	REMOVAL OF EXISTING TRAFFIC CONTROL SIGNAL SYSTEM	678.1000	-			
2	2		EACH	CABINET ASSEMBLY	678.2005	-			
4	4		EACH	MAST ARM POLE FOUNDATION	678.2010	-			
4.	4		EACH	TRAFFIC SIGNAL ASSEMBLY	678.2025	-			
20	20		EACH	TRAFFIC SIGNAL HEAD ASSEMBLY	678.2030	-			
2	2		EACH	VEHICLE DETECTION SYSTEM	678.2040	-			
2	2		EACH	PAN-TILT-ZOOM CAMERA	678.2045	-			
2	2		EACH	EMERGENCY VEHICLE PREEMPTION SYSTEM	678.2050	-			
2	2		EACH	BRACKET ARM	679.4700	-			
4	4		EACH	LUMINAIRE	679.5000	-			

PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

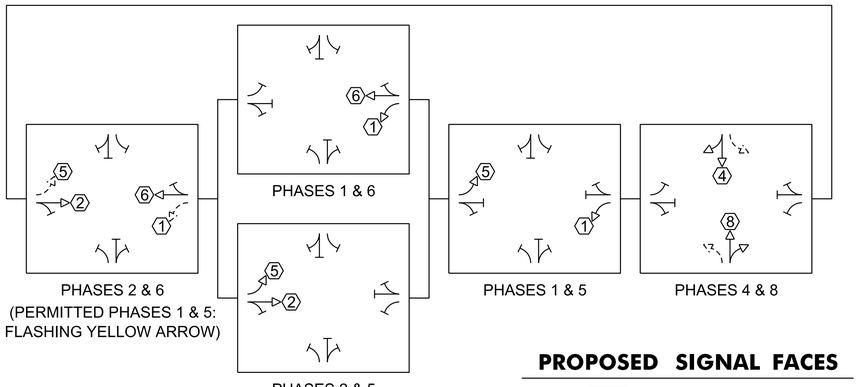
FILE NAME: quant.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
QUANTITY SHEET

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE
SHEET 7 OF 21

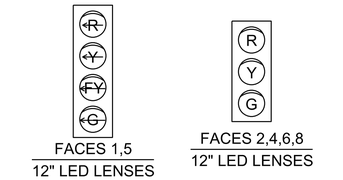
NOTES:

1. CONTRACTOR TO LOCATE EXISTING TRAFFIC SIGNAL CONDUIT AND POTENTIAL UTILITY CONFLICTS PRIOR TO ORDERING SIGNAL EQUIPMENT. WORK REQUIRED TO PERFORM THIS ACTIVITY SHALL BE PAID INCIDENTAL TO CONTRACT ITEM 678.2010 MAST ARM POLE FOUNDATION.
2. TRAFFIC ITEMS LISTED ARE APPROXIMATE LOCATIONS AND MAY BE MODIFIED BY THE ENGINEER IN THE FIELD.
3. POWER DROP STANCHION SHALL BE CONSTRUCTED SUCH THAT THE METER FACE IS ORIENTED FACING AWAY FROM THE ROADWAY.
4. NEW CURB INSTALLATION SHALL TIE INTO EXISTING CURB WHERE APPLICABLE.
5. VEHICLE DETECTION EQUIPMENT AND CABINET SYSTEMS SHALL BE SALVAGED AND RETURNED TO VTRANS.

PHASING DIAGRAM



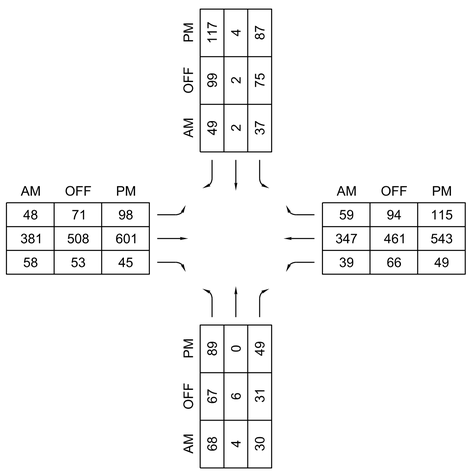
PROPOSED SIGNAL FACES



NOTE: FLASHING YELLOW ARROW SHALL NOT BE DISPLAYED WHEN OPERATING IN PROTECTED ONLY MODE.

2021 PEAK HOUR VOLUMES

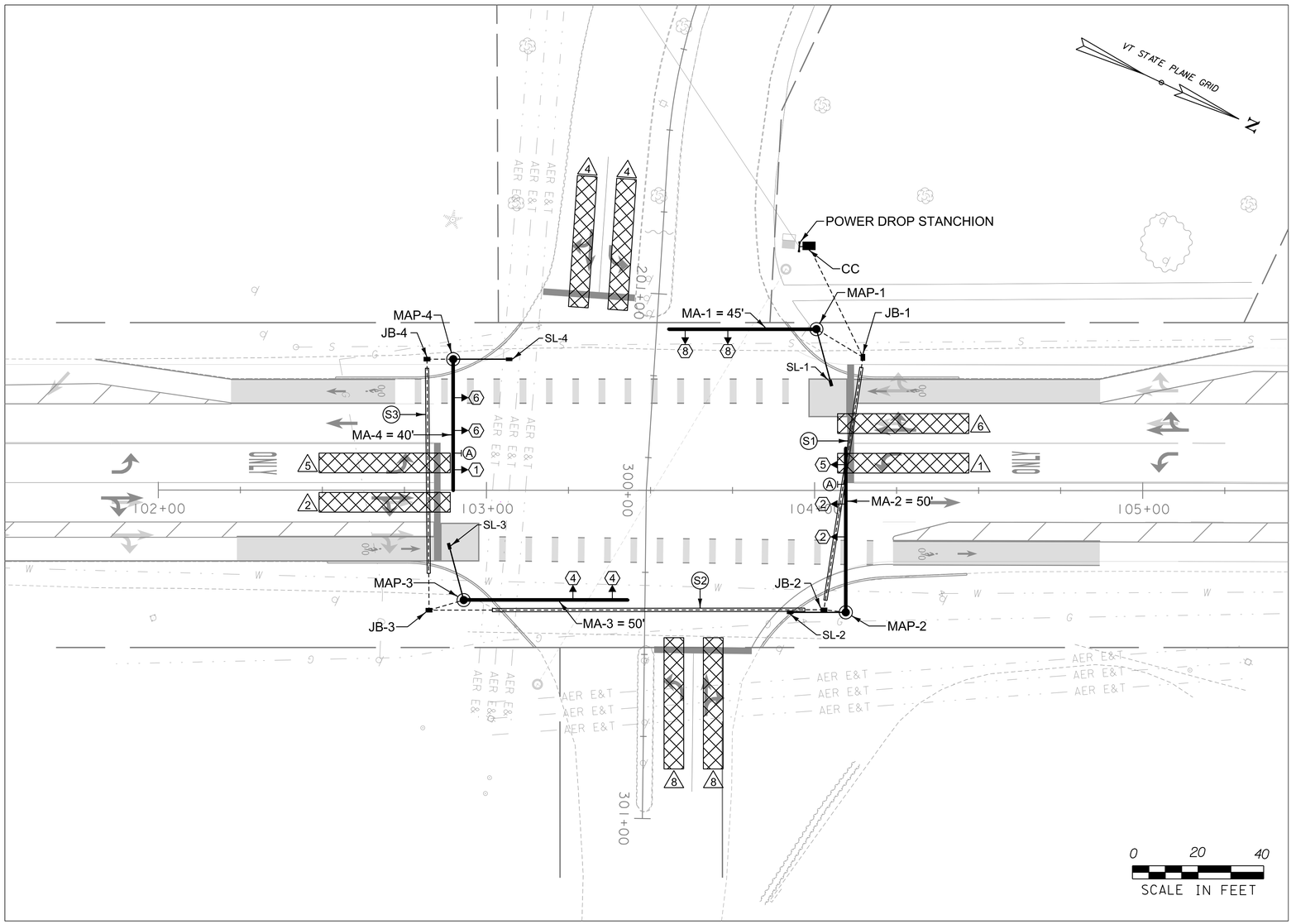
US ROUTE 7 & FRANKLIN PARK WEST



LEGEND

- MAST ARM & POLE (MAP)
- CC — CONTROLLER CABINET
- JB — JUNCTION BOX, HEAVY DUTY
- (2) — SIGNAL HEAD WITH PHASE NO.
- (A) — MAST ARM MOUNTED SIGN & LABEL
- WIRED CONDUIT
- WIRED CONDUIT IN ELECTRICAL CONDUIT SLEEVE
- STOP BAR DETECTION AREA & LABEL
- SL — LUMINAIRE & BRACKET ARM

SEE DETAIL SHEET
R10-101
MAST ARM MOUNTED



TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION
(US ROUTE 7 & FRANKLIN PARK WEST)

SEE LIST OF MAJOR EQUIPMENT
(TRAFFIC SIGNAL INFORMATION SHEET 1)

CONTROLLER CABINET (GROUND-MOUNTED)
STA. M 103+98.24, RT. 74.50'

MAST ARM POLES
MAP-1 = STA. M 104+00.53, LT. 49.14'
MAP-2 = STA. M 104+09.53, RT. 37.13'
MAP-3 = STA. M 102+93.08, RT. 33.47'
MAP-4 = STA. M 102+89.85, LT. 39.91'

POWER DROP STANCHION
STA. 103+95.29, LT. 74.21'

ELECTRICAL CONDUIT SLEEVE (12") (HDPE)
(S1) STA. M 104+14.24, LT. 37.47' - STA. M 104+03.32, RT. 33.45'
(S2) STA. M 103+01.80, RT. 36.52' - STA. M 103+97.05, RT. 36.35'
(S3) STA. M 102+81.87, LT. 37.15' - STA. M 102+82.43, RT. 25.32'

REMOVAL OF EXISTING PAVEMENT
(US ROUTE 7 & FRANKLIN PARK WEST)
STA. M 100+53.13, RT. 25.84' - STA. M 103+11.64, RT. 43.99'
STA. M 101+81.81, LT. 39.90' - STA. M 103+10.90, LT. 51.08'
STA. M 103+90.88, LT. 51.13' - STA. M 105+33.83, LT. 44.03'

CAST-IN-PLACE CONCRETE CURB, TYPE B
STA. M 102+51.55, RT. 21.72' - STA. M 103+15.24, RT. 47.92'
STA. M 102+54.01, LT. 33.95' - STA. M 103+10.96, LT 51.04'
STA. M 103+90.88, LT. 51.13' - STA. M 104+44.00, LT 33.74'
STA. M 103+83.48, RT. 47.87' - STA. M 104+46.42, RT 25.30'

REMOVAL OF EXISTING TRAFFIC CONTROL SYSTEM
(US ROUTE 7 & FRANKLIN PARK WEST)
SEE NOTES 1 & 5, THIS SHEET

WIRED CONDUIT
SEE CONDUIT SCHEDULE
(TRAFFIC SIGNAL INFORMATION SHEET 1)

JUNCTION BOX
JB-1 = STA. M 104+14.72, LT. 40.58'
JB-2 = STA. M 104+02.88, RT. 36.36'
JB-3 = STA. M 102+82.53, RT. 36.56'
JB-4 = STA. M 102+81.85, LT. 39.91'

BRACKET ARM
STA. M 104+00.53, LT. 49.14' (MAP-1)
STA. M 104+09.53, RT. 37.13' (MAP-2)
STA. M 102+93.08, RT. 33.47' (MAP-3)
STA. M 102+89.85, LT. 39.91' (MAP-4)

LUMINAIRE
SL-1 = STA. M 104+04.94, LT. 32.72'
SL-2 = STA. M 103+92.53, RT. 37.14'
SL-3 = STA. M 102+88.67, RT. 17.05'
SL-4 = STA. M 103+06.85, LT. 39.92'

LUMINAIRE MOUNTING ANGLE
MAP-1 = 105° CCW
MAP-2 = 90° CCW
MAP-3 = 105° CCW
MAP-4 = 90° CCW

MS–802: ROUTE 7 & FRANKLIN PARK WEST

PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: sig layout 1.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
TRAFFIC SIGNAL LAYOUT SHEET 1

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE
SHEET 8 OF 21

LIST OF MAJOR EQUIPMENT

TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (ROUTE 7 & FRANKLIN PARK WEST)	QUANTITY	REMARKS
625.7000 - POWER STANCHION	1	
678.2005 - NEMA P44 BASE-MOUNTED CONTROLLER CABINET (NEMA TS2, TYPE 1) WITH 15-INCH EXTENDED BASE ON A CONCRETE FOUNDATION INCLUDING TRAFFIC SIGNAL CONTROLLER, BIU, SMART MALFUNCTIONING MONITORING UNIT (MMU), GPS TIME CLOCK, AND CONTROLLER IDENTIFICATION PLAQUE	1	FLAT BLACK ECONOLITE CABINET ECONOLITE COBALT (NEMA TS2, TYPE 2)
678.2010 - MAST ARM POLE FOUNDATION	4	
678.2025 - TRAFFIC SIGNAL ASSEMBLY MA-1=45' MA-2=50' MA-3=50' MA-4=40'	4	FLAT BLACK
678.2030 - ONE WAY, 4-SECTION, 12-INCH POLYCARBONATE MAST ARM MOUNTED LED TRAFFIC SIGNAL HEAD WITH TUNNEL VISORS AND 5-INCH LOUVERED BACKPLATES WITH 2-INCH RETROREFLECTIVE TAPE BORDER. ALL PIECES TO BE FLAT BLACK.	2	
678.2030 - ONE WAY, 3-SECTION, 12-INCH POLYCARBONATE MAST ARM MOUNTED LED TRAFFIC SIGNAL HEAD WITH TUNNEL VISORS AND 5-INCH LOUVERED BACKPLATES WITH 2-INCH RETROREFLECTIVE TAPE BORDER. ALL PIECES TO BE FLAT BLACK.	8	
678.2040 - STOP BAR DETECTOR ASSEMBLY ADVANCE DETECTOR ASSEMBLY VEHICLE DETECTION PROCESSOR	1	WAVETRONIX SMARTSENSOR MATRIX WAVETRONIX SMARTSENSOR ADVANCE (EXTENDED RANGE) WAVETRONIX CLICK 650
678.2045 - MIOVISION SMARTVIEW 360 MIOVISION SMARTLINK COMMUNICATION DEVICE	1	
678.2050 - OPTICAL PREEMPTION DETECTORS OPTICAL PREEMPTION SIGNAL PROCESS CARD & CAGE PREEMPTION AC STROBE - RED	1	

CONDUIT SCHEDULE

LOCATION	SIZE	DESCRIPTION
	3"	
EX. POWER TO STANCHION	273'	POWER
STANCHION TO CC	17'	POWER
CC TO JB-1	26'	SIGNAL/LIGHTING
CC TO JB-1	26'	DETECTION
CC TO JB-1	26'	FUTURE USE
JB-1 TO MAP-1	23'	SIGNAL/LIGHTING
JB-1 TO MAP-1	23'	DETECTION
JB-1 TO MAP-1	23'	FUTURE USE
JB-1 TO JB-2	84'	SIGNAL/LIGHTING
JB-1 TO JB-2	84'	DETECTION
JB-1 TO JB-2	84'	FUTURE USE
JB-1 TO JB-2	84'	FUTURE USE
JB-2 TO MAP-2	13'	SIGNAL/LIGHTING
JB-2 TO MAP-2	13'	DETECTION
JB-2 TO MAP-2	13'	FUTURE USE
JB-2 TO JB-3	126'	SIGNAL/LIGHTING
JB-2 TO JB-3	126'	DETECTION
JB-2 TO JB-3	126'	FUTURE USE
JB-2 TO JB-3	126'	FUTURE USE
JB-3 TO MAP-3	17'	SIGNAL/LIGHTING
JB-3 TO MAP-3	17'	DETECTION
JB-3 TO MAP-3	17'	FUTURE USE
JB-3 TO JB-4	83'	SIGNAL/LIGHTING
JB-3 TO JB-4	83'	DETECTION
JB-3 TO JB-4	83'	FUTURE USE
JB-3 TO JB-4	83'	FUTURE USE
JB-4 TO MAP-4	14'	SIGNAL/LIGHTING
JB-4 TO MAP-4	14'	DETECTION
JB-4 TO MAP-4	14'	FUTURE USE
SUBTOTAL	**1741'**	
ROUNDING	**20'**	
TOTAL	**1761'**	

CONTROLLER TIMING CHART

PHASE	1	2	3	4	5	6	7	8
IN USE	X	X		X	X	X		X
MOVEMENT	SBLT	NBTR		EBTR	NBLT	SBTR		WBTR
MIN. GREEN	5	8		5	5	8		5
MAX 1 - GREEN	11	42		17	11	42		17
MAX 2 - GREEN	11	37		16	11	37		16
MAX 3 - GREEN	11	39		15	11	39		15
YELLOW	4.0	4.0		4.0	4.0	4.0		4.0
ALL RED	2.0	2.0		2.0	2.0	2.0		2.0
VEHICLE EXT	2.0	3.0		2.0	2.0	3.0		2.0
RECALL MODE	NONE	SOFT		NONE	NONE	SOFT		NONE

DAY PLAN

EVENT	ACTION PLAN	STEP BEGINS
1	1	00:00
2	2	06:00
3	1	10:00
4	3	15:00
5	1	18:00

ACTION PLAN

PLAN	PATTERN	REFERENCE
1	1	MAX 1
2	2	MAX 2
3	3	MAX 3

PREEMPTION TIMINGS

	PREEMPTOR	
	2	6
DIRECTION	NB	WB
HOLD PHASE	8	8
DET LOCK	YES	YES
DURATION TIME	18	18
MIN GREEN	8	8
HOLD GREEN	12	12
HOLD YELLOW	4	4
HOLD RED	2	2

MS-802: ROUTE 7 & FRANKLIN PARK WEST

PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

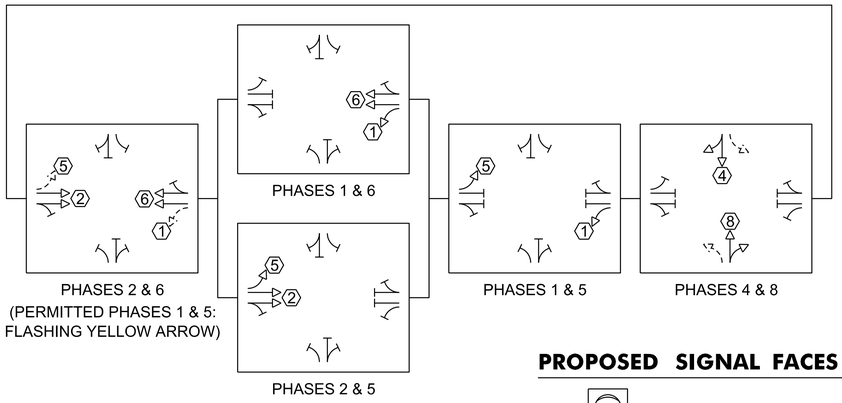
FILE NAME: sig info 1.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
TRAFFIC SIGNAL INFORMATION SHEET 1

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE
SHEET 9 OF 21

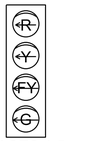
NOTES:

1. CONTRACTOR TO LOCATE EXISTING TRAFFIC SIGNAL CONDUIT AND POTENTIAL UTILITY CONFLICTS PRIOR TO ORDERING SIGNAL EQUIPMENT. WORK REQUIRED TO PERFORM THIS ACTIVITY SHALL BE PAID INCIDENTAL TO CONTRACT ITEM 678.2010 MAST ARM POLE FOUNDATION.
2. TRAFFIC ITEMS LISTED ARE APPROXIMATE LOCATIONS AND MAY BE MODIFIED BY THE ENGINEER IN THE FIELD.
3. POWER DROP STANCHION SHALL BE CONSTRUCTED SUCH THAT THE METER FACE IS ORIENTED FACING AWAY FROM THE ROADWAY.
4. VEHICLE DETECTION EQUIPMENT AND CABINET SYSTEMS SHALL BE SALVAGED AND RETURNED TO VTRANS.

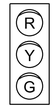
PHASING DIAGRAM



PROPOSED SIGNAL FACES



FACES 1,5
12" LED LENSES

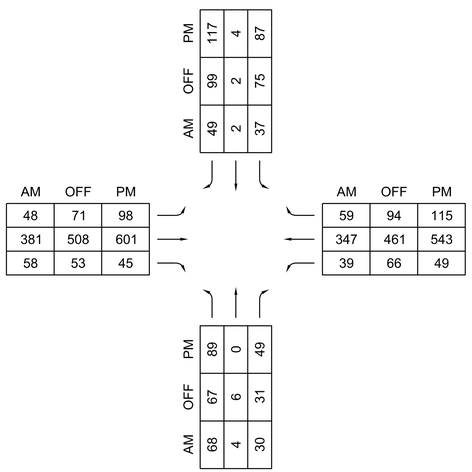


FACES 2,4,6,8
12" LED LENSES

NOTE: FLASHING YELLOW ARROW SHALL NOT BE DISPLAYED WHEN OPERATING IN PROTECTED ONLY MODE.

2021 PEAK HOUR VOLUMES

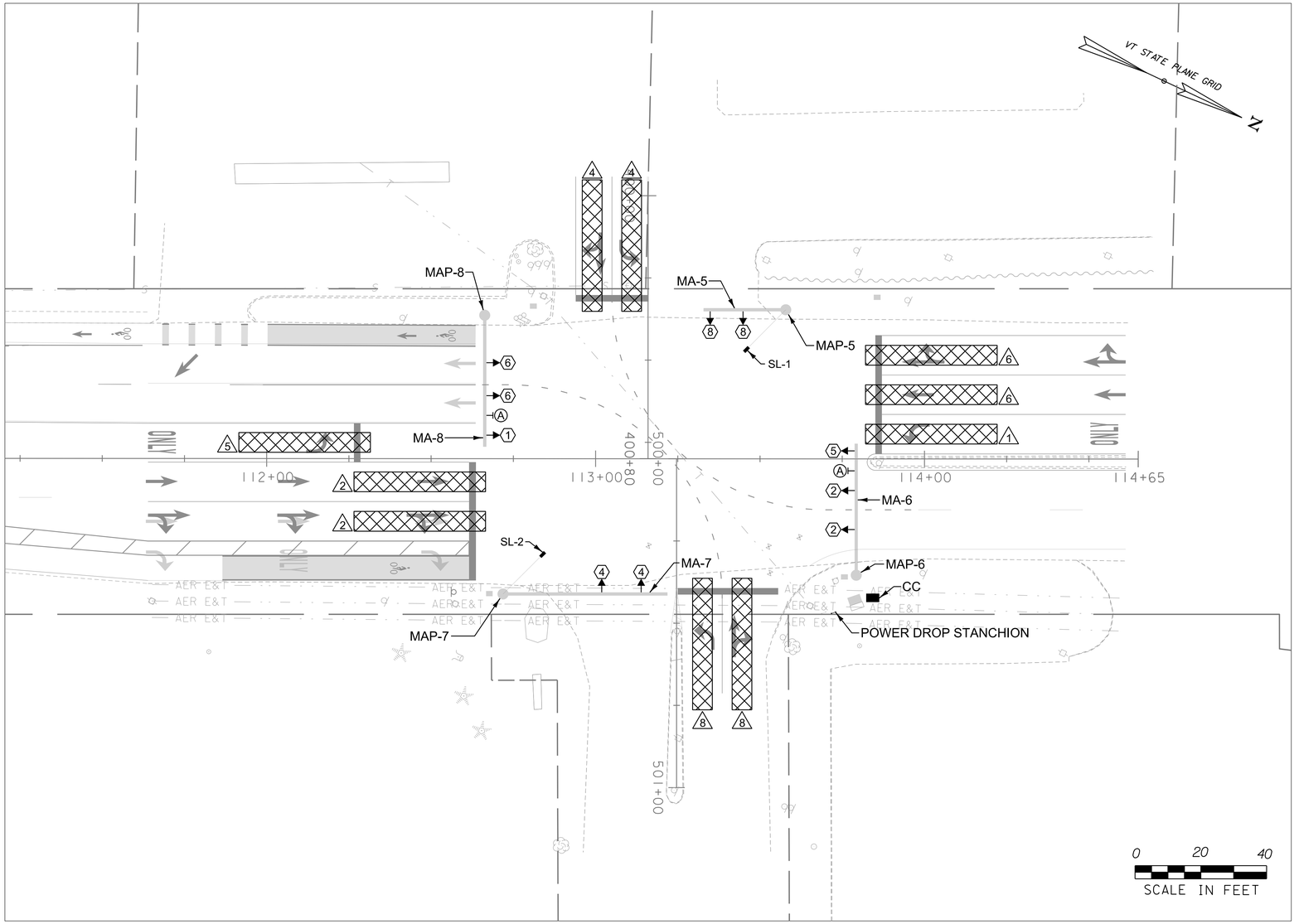
US ROUTE 7 & HIGHGATE COMMONS ROAD



LEGEND

- MAST ARM & POLE (MAP)
- CC — CONTROLLER CABINET
- JB — JUNCTION BOX, HEAVY DUTY
- ② — SIGNAL HEAD WITH PHASE NO.
- Ⓐ — MAST ARM MOUNTED SIGN & LABEL
- WIRED CONDUIT
- WIRED CONDUIT IN ELECTRICAL CONDUIT SLEEVE
- STOP BAR DETECTION AREA & LABEL
- SL — LUMINAIRE & BRACKET ARM

SEE DETAIL SHEET
R10-101
MAST ARM MOUNTED



TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION
(US ROUTE 7 & HIGHGATE COMMONS ROAD)

SEE LIST OF MAJOR EQUIPMENT
(TRAFFIC SIGNAL INFORMATION SHEET 2)

CONTROLLER CABINET (GROUND-MOUNTED)
STA. M 113+84.33, RT. 42.29'

POWER DROP STANCHION
STA. 113+72.38, RT. 46.79'

LUMINAIRE
SL-1 = STA. M 113+46.61, LT. 34.01'
SL-2 = STA. M 112+83.21, LT. 29.85'

REMOVAL OF EXISTING TRAFFIC CONTROL SYSTEM
(US ROUTE 7 & HIGHGATE COMMONS ROAD)

SEE NOTES 1 & 4, THIS SHEET

MS–803: ROUTE 7 & HIGHGATE COMMONS ROAD

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)

FILE NAME: sig layout 2.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M. KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
TRAFFIC SIGNAL LAYOUT SHEET 2	SHEET 10 OF 21

LIST OF MAJOR EQUIPMENT

TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (ROUTE 7 & HIGHGATE COMMONS ROAD)	QUANTITY	REMARKS
625.6000 - ELECTRICAL WIRING	1000'	
625.7000 - POWER STANCHION	1	
678.2005 - NEMA P44 BASE-MOUNTED CONTROLLER CABINET (NEMA TS2, TYPE 1) WITH 15-INCH EXTENDED BASE ON A CONCRETE FOUNDATION INCLUDING TRAFFIC SIGNAL CONTROLLER, BIU, SMART MALFUNCTIONING MONITORING UNIT (MMU), GPS TIME CLOCK, AND CONTROLLER IDENTIFICATION PLAQUE	1	FLAT BLACK ECONOLITE CABINET ECONOLITE COBALT (NEMA TS2, TYPE 2)
678.2030 - ONE WAY, 4-SECTION, 12-INCH POLYCARBONATE MAST ARM MOUNTED LED TRAFFIC SIGNAL HEAD WITH TUNNEL VISORS AND 5-INCH LOUVERED BACKPLATES WITH 2-INCH RETROREFLECTIVE TAPE BORDER. ALL PIECES TO BE FLAT BLACK.	2	
678.2030 - ONE WAY, 3-SECTION, 12-INCH POLYCARBONATE MAST ARM MOUNTED LED TRAFFIC SIGNAL HEAD WITH TUNNEL VISORS AND 5-INCH LOUVERED BACKPLATES WITH 2-INCH RETROREFLECTIVE TAPE BORDER. ALL PIECES TO BE FLAT BLACK.	8	
678.2040 - STOP BAR DETECTOR ASSEMBLY ADVANCE DETECTOR ASSEMBLY VEHICLE DETECTION PROCESSOR	1	WAVETRONIX SMARTSENSOR MATRIX WAVETRONIX SMARTSENSOR ADVANCE (EXTENDED RANGE) WAVETRONIX CLICK 650
678.2045 - MIOVISION SMARTVIEW 360 MIOVISION SMARTLINK COMMUNICATION DEVICE	1	
678.2050 - OPTICAL PREEMPTION DETECTORS OPTICAL PREEMPTION SIGNAL PROCESS CARD & CAGE PREEMPTION AC STROBE - RED	1	

CONTROLLER TIMING CHART

PHASE	1	2	3	4	5	6	7	8
IN USE	X	X		X	X	X		X
MOVEMENT	SBLT	NBTR		EBTR	NBLT	SBTR		WBTR
MIN. GREEN	5	8		5	5	8		5
MAX 1 - GREEN	14	30		26	14	30		26
MAX 2 - GREEN	20	24		16	20	24		16
MAX 3 - GREEN	14	30		21	14	30		21
YELLOW	4.0	4.0		4.0	4.0	4.0		4.0
ALL RED	2.0	2.0		2.0	2.0	2.0		2.0
VEHICLE EXT	2.0	3.0		2.0	2.0	3.0		2.0
RECALL MODE	NONE	SOFT		NONE	NONE	SOFT		NONE

PREEMPTION TIMINGS

	PREEMPTOR	
	2	6
DIRECTION	NB	WB
HOLD PHASE	8	8
DET LOCK	YES	YES
DURATION TIME	18	18
MIN GREEN	8	8
HOLD GREEN	12	12
HOLD YELLOW	4	4
HOLD RED	2	2

DAY PLAN

EVENT	ACTION PLAN	STEP BEGINS
1	1	00:00
2	2	06:00
3	1	10:00
4	3	15:00
5	1	18:00

ACTION PLAN

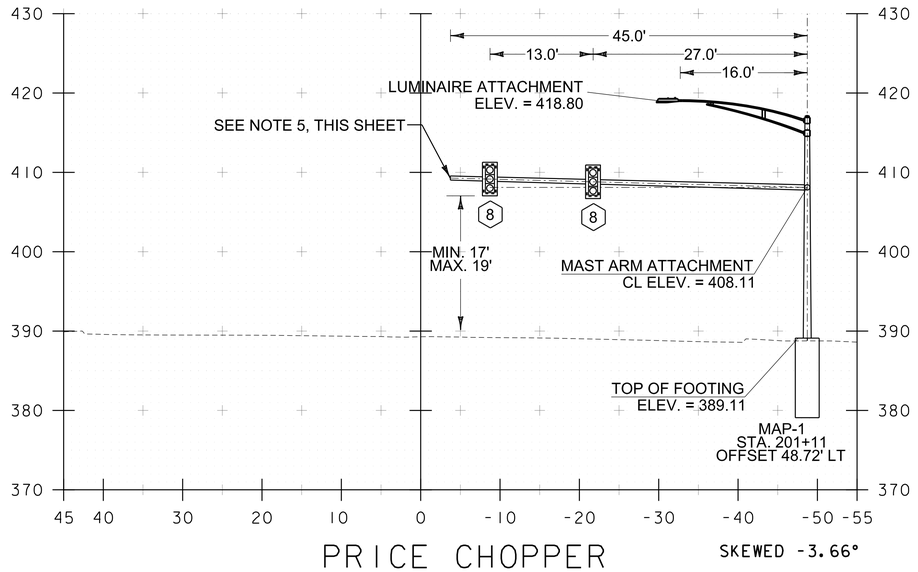
PLAN	PATTERN	REFERENCE
1	1	MAX 1
2	2	MAX 2
3	3	MAX 3

MS–803: ROUTE 7 & HIGHGATE COMMONS ROAD

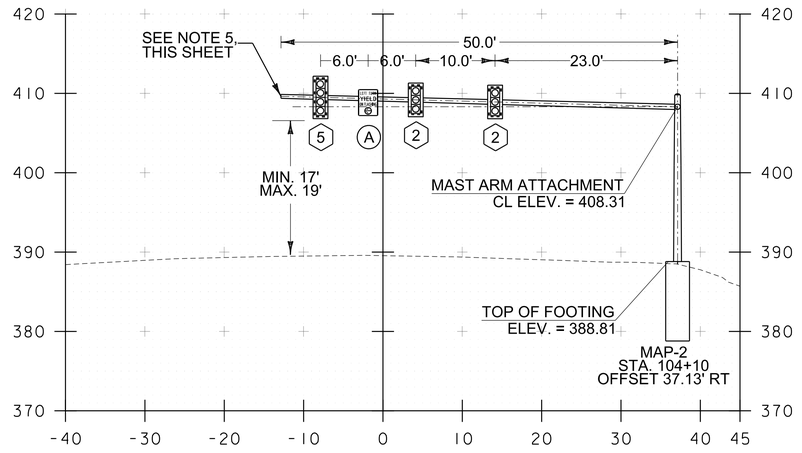
PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: sig info 2.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
TRAFFIC SIGNAL INFORMATION SHEET 2

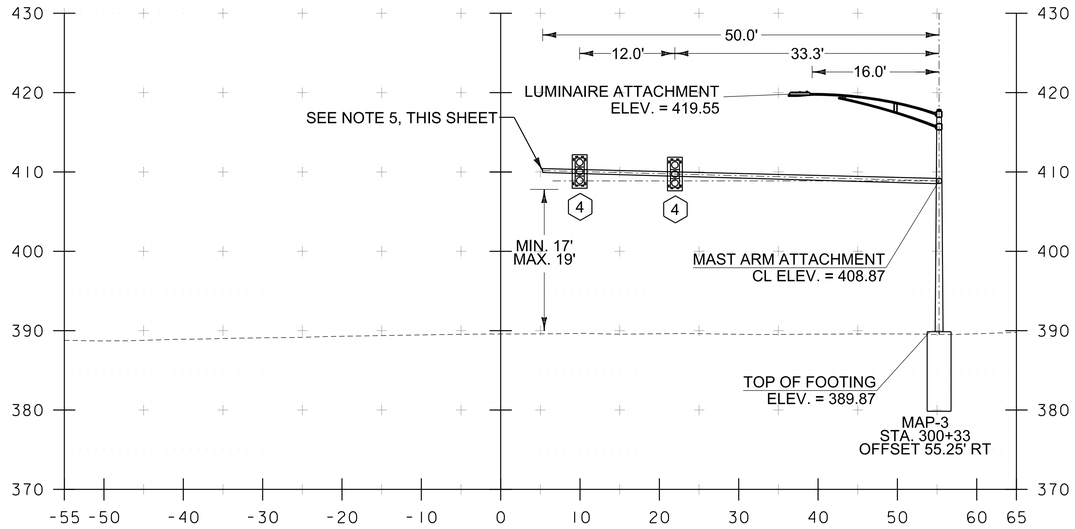
PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE
SHEET 11 OF 21



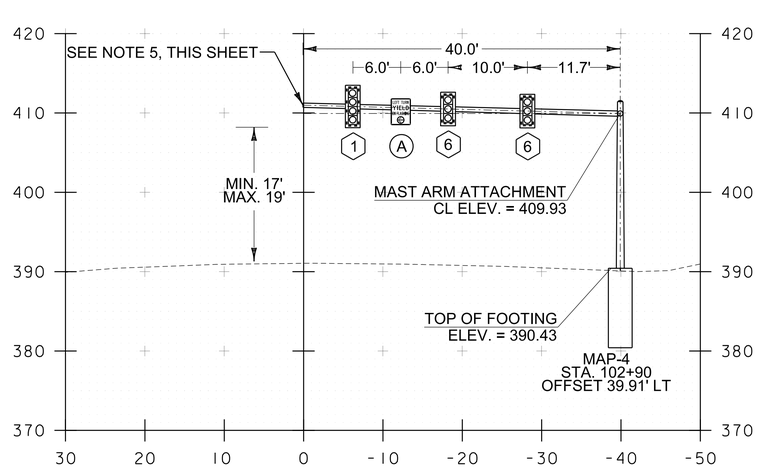
PRICE CHOPPER
MAP-1 STA. 201+11
FACING WEST



US ROUTE 7
MAP-2 STA. 104+10
FACING NORTH



FRANKLIN PARK WEST
MAP-3 STA. 300+33
FACING EAST

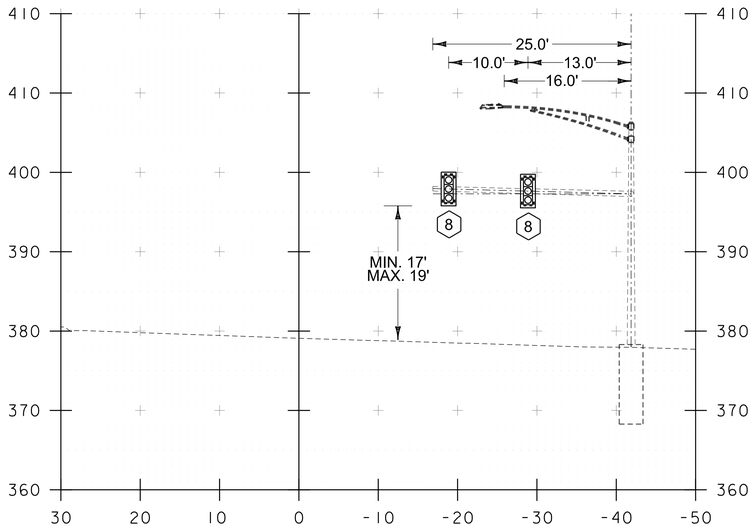


US ROUTE 7
MAP-4 STA. 102+90
FACING SOUTH

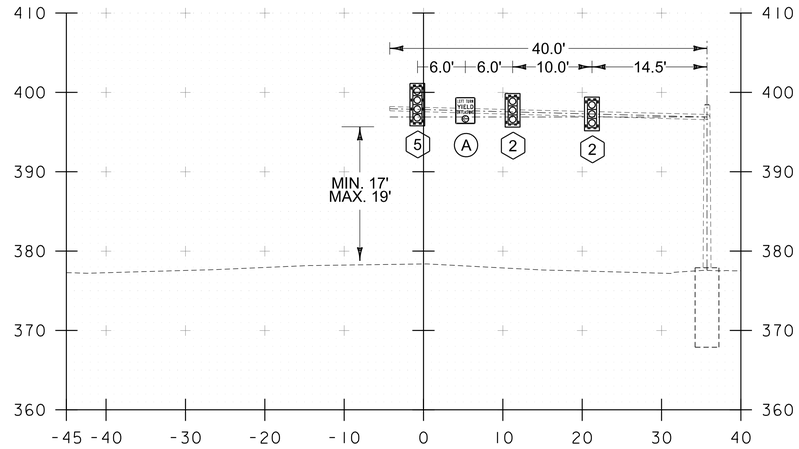
NOTES:

1. ALL MAST ARM FOOTINGS SHALL INCLUDE A FOUR INCH REVEAL. ELEVATIONS SHOWN IN CROSS SECTIONS ARE APPROXIMATE FINAL GRADE ELEVATIONS FOR CONTRACTOR BIDDING PURPOSES ONLY. ACTUAL FOOTING ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR.
2. MAST ARM FOOTING SIZES ARE APPROXIMATE. FOOTING DESIGNS SHALL BE DETERMINED BY THE FABRICATOR IN ACCORDANCE WITH SOIL CONDITIONS AND ACTUAL MAST ARM LOADINGS TRANSMITTED TO THE TOP OF THE FOOTINGS.
3. REFER TO BORING LOG SHEETS FOR BORING INFORMATION.
4. SIGNAL HEADS SHALL BE MOUNTED ON THE VERTICAL CENTER OF THE MAST ARM
5. SEE NOTE L6 OF TRAFFIC SIGNAL GENERAL NOTES SHEET REGARDING THE LOADING AT THE END OF THE MAST ARMS.
6. TO APPROXIMATE LOADED CONDITION DEFLECTION, MAST ARMS 40' IN LENGTH AND SHORTER ARE DRAWN AT 2.0° CAMBER AND MAST ARMS LONGER THAN 40' IN LENGTH ARE DRAWN AT 1.5° CAMBER. THE MAST ARM DESIGNER/MANUFACTURER IS RESPONSIBLE FOR CONFIRMING THAT UNDER LOADED CONDITIONS MAST ARM DEFLECTION DOES NOT GO BELOW 0°.

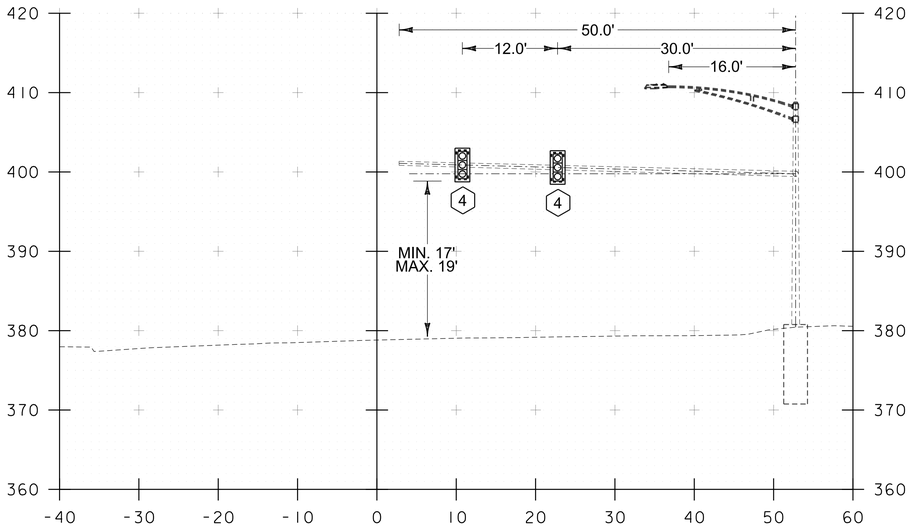
PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)
FILE NAME: mast arm x-sec 1.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M. KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
MAST ARM CROSS SECTIONS SHEET 1	SHEET 12 OF 21



EXXON MOBIL
MAP-5 STA. 400+35
FACING WEST



US ROUTE 7
MAP-6 STA. 113+79
FACING NORTH



HIGHGATE COMMONS ROAD
MAP-7 STA. 500+41
FACING EAST

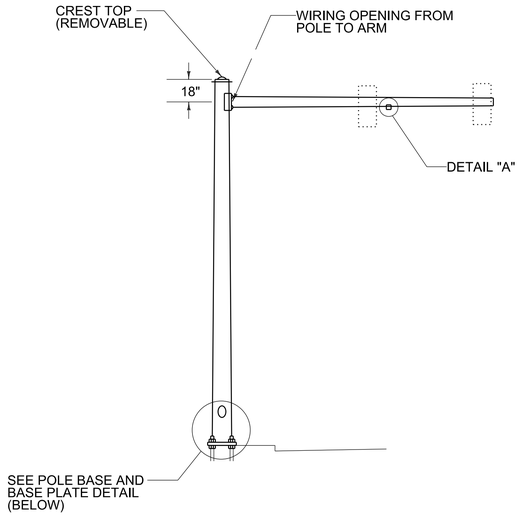
US ROUTE 7
MAP-8 STA. 112+66
FACING SOUTH

NOTES:

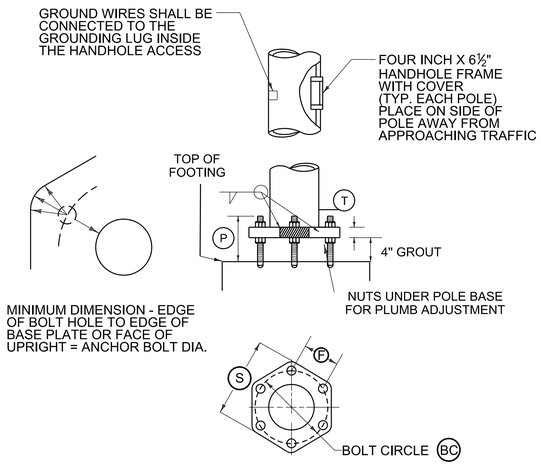
1. ALL MAST ARM FOOTINGS SHALL INCLUDE A FOUR INCH REVEAL. ELEVATIONS SHOWN IN CROSS SECTIONS ARE APPROXIMATE FINAL GRADE ELEVATIONS FOR CONTRACTOR BIDDING PURPOSES ONLY. ACTUAL FOOTING ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR.
2. MAST ARM FOOTING SIZES ARE APPROXIMATE. FOOTING DESIGNS SHALL BE DETERMINED BY THE FABRICATOR IN ACCORDANCE WITH SOIL CONDITIONS AND ACTUAL MAST ARM LOADINGS TRANSMITTED TO THE TOP OF THE FOOTINGS.
3. REFER TO BORING LOG SHEETS FOR BORING INFORMATION.
4. SIGNAL HEADS SHALL BE MOUNTED ON THE VERTICAL CENTER OF THE MAST ARM
5. SEE NOTE L6 OF TRAFFIC SIGNAL GENERAL NOTES SHEET REGARDING THE LOADING AT THE END OF THE MAST ARMS.
6. TO APPROXIMATE LOADED CONDITION DEFLECTION, MAST ARMS 40' IN LENGTH AND SHORTER ARE DRAWN AT 2.0° CAMBER AND MAST ARMS LONGER THAN 40' IN LENGTH ARE DRAWN AT 1.5° CAMBER. THE MAST ARM DESIGNER/MANUFACTURER IS RESPONSIBLE FOR CONFIRMING THAT UNDER LOADED CONDITIONS MAST ARM DEFLECTION DOES NOT GO BELOW 0°.

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)
FILE NAME: mast arm x-sec 2.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M. KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
MAST ARM CROSS SECTIONS SHEET 2	SHEET 13 OF 21

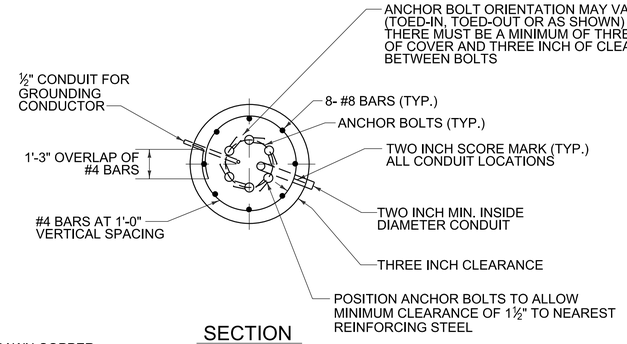
MAST ARM, POLE, & FOOTING DETAILS



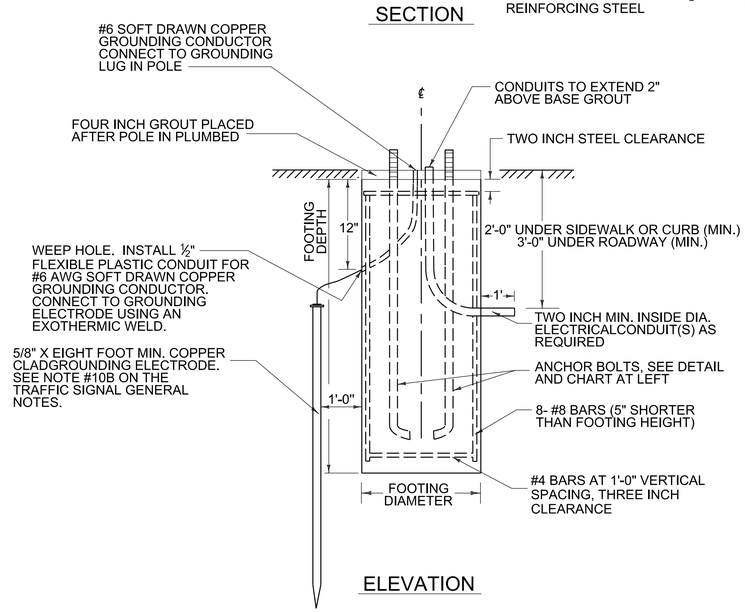
TYPE A MAST POLE & ARM DETAIL



POLE BASE AND BASE PLATE DETAIL



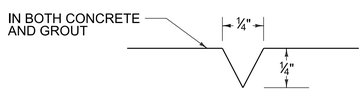
SECTION



ELEVATION

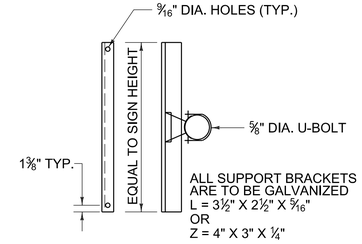
MAST POLE FOOTING DETAIL

(SPREAD FOOTINGS OR PILES ARE OPTIONAL)



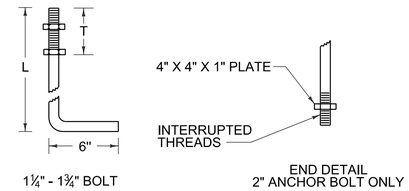
2" SCORE MARK DETAIL

USED TO SHOW CONDUIT LOCATION. SEE MAST POLE FOOTING DETAIL, SECTION VIEW (ABOVE).



SIGN ON SINGLE MAST ARM

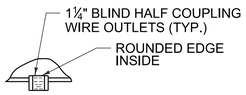
SIGN BRACKET DETAILS



ANCHOR BOLT DETAIL

NOTE:

SEE TRAFFIC SIGNAL GENERAL NOTE 3C FOR MORE INFORMATION REGARDING BOLT TIGHTENING.



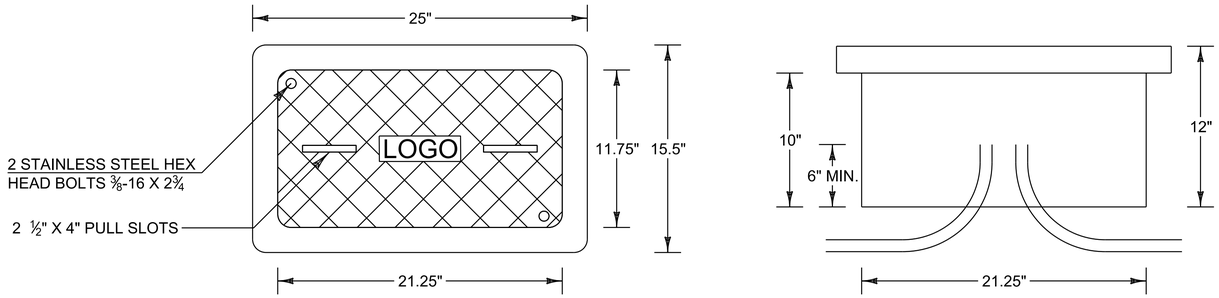
DETAIL "A"

NOTES:

1. SEE TRAFFIC SIGNAL GENERAL NOTES FOR ADDITIONAL INFORMATION.
2. MANUFACTURER TO DETERMINE TYPE OF STRUCTURE REQUIRED.
3. MONOTUBES SHALL NOT BE USED FOR SIGNS OVER 10' HIGH.
4. MINIMUM CLEARANCE FROM SIGNS TO ANY TRAVEL LANE SHALL BE 17'.
5. CONTRACTOR SHALL VERIFY ALL GROUND ELEVATIONS.

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)
FILE NAME: mast arm details.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M. KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
MAST ARM, POLE, & FOOTING DETAILS SHEET	SHEET 14 OF 21

DETAIL SHEET

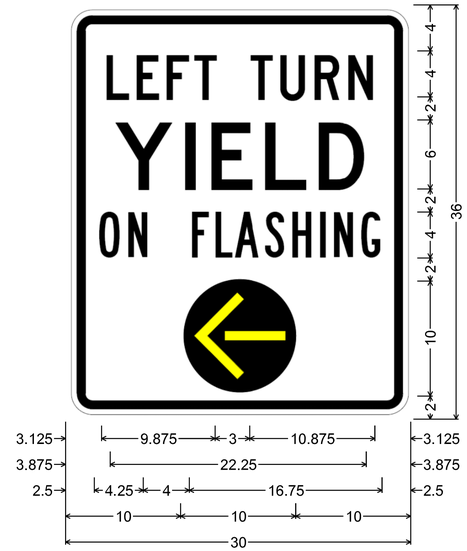


HEAVY DUTY JUNCTION BOX DETAIL

NOT TO SCALE

JUNCTION BOX NOTES:

1. JUNCTION BOX SHALL BE CONSTRUCTED WITH PRECAST MONOLITHIC POLYMER CONCRETE.
2. CONDUIT SIZE SHALL BE AS SHOWN ON THE PLANS.
3. EXCAVATION FOR JUNCTION BOX SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE JUNCTION BOX. ONE FOOT OF GRANULAR MATERIAL THAT MEETS THE REQUIREMENTS OF SUBSECTION 703.04, SHALL BE PLACED IN THE EXCAVATED AREA AND PROPERLY COMPACTED PRIOR TO INSTALLATION. COMPACTION SHALL MEET REQUIREMENTS OF SUBSECTION 301.06. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE PIPE (MINIMUM 3" PERFORATED PVC) SHALL BE PROVIDED FROM THE JUNCTION BOX TO THE NEAREST APPROPRIATE OUTLET. ANY EXCAVATION AND DRAINAGE SHALL BE INCIDENTAL TO 625.7010 JUNCTION BOX.
4. A SUFFICIENT COVER GASKET SHALL BE PROVIDED TO REDUCE THE INFLOW OF FLUIDS.
5. WHEN INSTALLING ON SLOPES, JUNCTION BOXES SHALL BE TIPPED TO MATCH THE EXISTING SLOPE UP TO A 1 ON 4 SLOPE. EXCAVATED MATERIAL SHALL BE USED TO SHAPE AROUND THE LOW SIDE OF THE BOX TO THE SATISFACTION OF THE ENGINEER AND SHALL BE MOWABLE. IF SUFFICIENT MATERIAL IS NOT AVAILABLE, MATERIAL MEETING THE REQUIREMENTS OF EARTH BORROW (SUBSECTION 703.02) SHALL BE USED. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO 625.7010 JUNCTION BOX.
6. ALL COVERS SHALL BE FLUSH WITH THE BOXES AND FRAMES.
7. ALL JUNCTION BOX COVERS SHALL BE SKID RESISTANT.
8. ALL COVERS SHALL HAVE THE LOGO PUNCHED, FORMED OR STAMPED INTO A FLAT RECTANGULAR AREA. MINIMUM LETTER HEIGHT IS ½". MINIMUM DEPTH IS 1/16". THE LOGO ON THE COVERS SHALL READ TRAFFIC SIGNAL UNLESS OTHERWISE NOTED ON THE PLANS.
9. DIMENSIONS SHOWN ARE MINIMUM SIZE REQUIRED. EQUIVALENT JUNCTION BOX OF LARGER DIMENSIONS MAY BE USED.
10. ALL JUNCTION BOX SHALL BE INSTALLED IN ACCORDANCE WITH SUBSECTION 625.04(e).
11. ALL JUNCTION BOXES SHALL MEET THE ANSI/SCTE 77-2007, TIER 22 SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY.
12. ALL CONDUIT SHALL BE FILLED WITH STEEL WOOL AND DUCT SEALED.



1.875" Radius, 0.750" Border, 0.500" Indent,
Black on White;
[LEFT] C 2K specified length;
[TURN] C 2K specified length;
[YIELD] D 2K specified length;
[ON] B 2K specified length;
[FLASHING] B 2K specified length;
Rounded Rectangle 5.000" Radius;

R10-101

NOT TO SCALE

LEFT TURN YIELD ON FLASHING YELLOW NOTE:

1. ARROW LINES SHALL BE YELLOW.

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)
FILE NAME: detail.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M. KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
DETAIL SHEET	SHEET 15 OF 21

STREET LIGHTING GENERAL NOTES

1. BRACKET ARMS SHALL BE TRUSS-STYLE TYPE AND SHALL BE DESIGNED IN ACCORDANCE WITH THE 2013 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.

2. STREET LIGHT ASSEMBLIES SHALL BE PAINTED FLAT BLACK AND HAVE FLAT BLACK HOUSINGS. FINISHES SHALL BE PER SECTION 679 OF THE LATEST SPECIFICATIONS FOR CONSTRUCTION.

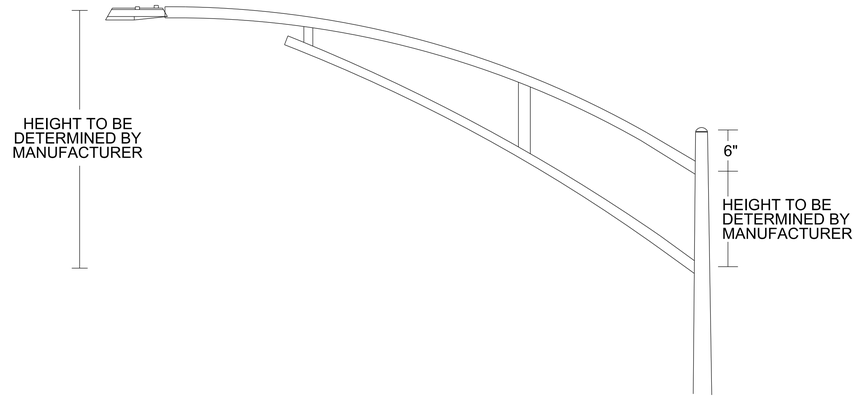
3. LUMINAIRES
   - A. LUMINAIRES SHALL BE CREE LEDWAY IP-SERIES ONLY.
   - B. NO SUBSTITUTIONS FOR LUMINAIRES SHALL BE ALLOWED.
   - C. ALL LUMINAIRE HOUSINGS SHALL BE EQUIPPED WITH BIRD SPIKES.

4. ANCHOR BOLTS
   - A. THE MAXIMUM DISTANCE BETWEEN THE TOP OF FOUNDATION AND BOTTOM OF BASE PLATE SHALL EQUAL THE NUT HEIGHT PLUS THE DIAMETER OF THE ANCHOR BOLT.
   - B. GALVANIZED ANCHOR BOLTS WITH TWO HEXAGON NUTS AND TWO WASHERS PER BOLT SHALL BE FURNISHED WITH EACH POLE. ANCHOR BOLT PLATES, WHEN USED, SHALL ALSO BE GALVANIZED.
   - C. AFTER INSTALLATION, A MINIMUM OF TWO THREADS ON THE TOP OF THE BOLT SHALL BE EXPOSED ABOVE THE NUT.

5. WIRING AND GROUNDING
   - A. CIRCUIT CONDUCTORS SHALL BE CLEARLY INDENTIFIED BY CORROSION RESISTANT TAGS INDICATING CIRCUIT NUMBER AND PANEL SOURCES AT EVERY LIGHT POLE AND HANDHOLE.
   - B. ALL CONDUIT MUST INCLUDE A GROUNDING CONDUCTOR. RIGID STEEL CONDUIT SHALL BE PROPERLY CONNECTED AT THE JOINTS SO AS TO BE WATERTIGHT AND MAINTAIN ELECTRICAL CONTINUITY AND HAVE GROUNDING BUSHINGS SO AS TO ACT AS A GROUNDING CONDUCTOR.
   - C. THE GROUNDING CONDUCTOR SHALL BE CONTINUOUS.
   - D. ALUMINUM WIRE SHALL NOT BE USED FOR GROUND WIRE.

6. STREET LIGHTING CONTROL DEVICE
   - A. STREET LIGHTING CONTROL DEVICE SHALL BE A PHOTOCELL MOUNTED ON THE SIDE OF THE POWER STANCHION, FACING NORTH.
   - B. STREET LIGHTING EQUIPMENT SHALL BE WIRED SUCH THAT ONE CONTROL DEVICE COMMANDS THE FUNCTIONS ASSOCIATED WITH POWERING UP AND DOWN ALL LUMINAIRES.
   - C. THE RELAY SHALL HAVE A TIME DELAY TO AVOID OPERATION DUE TO LIGHTNING AND TRANSIENT LIGHT.
   - D. IN THE EVENT OF FAILURE, THE RELAY SHALL FAIL SAFE, THAT IS, THE LIGHTS ARE LEFT ON IN THE EVENT OF ANY FAILURE IN THE ELECTRONIC CIRCUIT.
   - E. A LIGHTNING ARRESTER SHALL BE INCLUDED AS PART OF THE DEVICE.

7. SEE STANDARD DRAWINGS T-133 AND T-134 FOR ADDITIONAL INFORMATION.



LUMINAIRE BRACKET ARM DETAIL
NOT TO SCALE

PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: lighting notes.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
STREET LIGHTING GENERAL NOTES

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE
SHEET 16 OF 21

TRAFFIC SIGNAL SYSTEM NOTES

A. NEW TRAFFIC SIGNAL EQUIPMENT

1. ALL SIGNAL HEADS SHALL HAVE RED, YELLOW, AND GREEN L.E.D. INDICATORS WITH A VISIBLE SPREAD OF 80 DEGREES.
2. ALL SIGNAL HEADS SHALL BE MOUNTED ON THE BRACKET SUCH THAT THE MIDDLE ONE-THIRD OF THE SIGNAL HEAD ALIGNS WITH THE MAST ARM.
3. THE TRAFFIC SIGNAL CONTROLLER SHALL BE AN ECONOLITE COBALT (NEMA TS2, TYPE 2) WITH A CONNECTED VEHICLE COPROCESSOR (CVCP) MODULE IN AN ECONOLITE NEMA P44 TRAFFIC SIGNAL CONTROL CABINET.
4. NEW CONCRETE CABINET FOUNDATION SHALL HAVE A 18"X12"OPENING FOR SIGNAL CONDUIT LOCATED IN THE CENTER.
5. NEW TRAFFIC SIGNAL CONTROL CABINETS SHALL BE ORIENTED SUCH THAT THE DOOR FACES AWAY FROM THE ROADWAY.
6. RELATED TRAFFIC SIGNAL EQUIPMENT SUCH AS THE BUS INTERFACE UNIT (BIU) AND THE MALFUNCTION MANAGEMENT UNIT (MMU) SHALL BE ECONOLITE BRAND.
7. ALL SIGNAL EQUIPMENT AND SIGNS MOUNTED ON CANTILEVERED MAST ARMS SHALL HAVE SAFETY CABLES.

B. TRAFFIC SIGNAL OPERATIONS

1. SIGNAL TIMINGS SHOWN ON THE PLANS MAY REQUIRE FINE-TUNING IN THE FIELD BASED ON TRAFFIC OBSERVATIONS AND/OR ADDITIONAL FIELD STUDIES.
2. SWITCH-OVER TO INSTALLED SIGNAL SYSTEM SHALL NOT OCCUR DURING PEAK TRAFFIC PERIODS. UNIFORMED TRAFFIC OFFICES SHALL CONTROL TRAFFIC DURING THE SWITCH-OVER.
3. ALL SIGNALS SHALL DWELL ON US ROUTE 7 UNLESS OTHERWISE NOTED.
4. THE US ROUTE 7 THRU PHASE SHALL BE USED FOR THE START-UP PHASE FOLLOWING FLASH OPERATIONS.

C. VEHICLE DETECTION

1. STOP BAR AND ADVANCE VEHICLE DETECTOR LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH THE MANUFACTURER'S GUIDANCE FOR THE TYPE OF DETECTOR SUPPLIED. THE CONTRACTOR SHALL SUBMIT PROPOSED MOUNTING LOCATIONS AND DOCUMENTATION OF CONFORMANCE WITH THE MANUFACTURER'S GUIDANCE TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
2. ALL VEHICLE DETECTORS SHALL BE PLACED SUCH THAT OCCLUSION IS MINIMIZED AND PHASING IS NOT NEGATIVELY AFFECTED.
3. STOP BAR VEHICLE DETECTION ZONES SHALL EXTEND 5 FEET PAST THE FINAL, PERMANENT STOP BAR.
4. ADVANCED VEHICLE DETECTION ZONES SHALL BE A MINIMUM OF 350 FEET UPSTREAM OF THE FINAL, PERMANENT STOP BAR.
5. DILEMMA ZONE DETECTION BY THE ADVANCED VEHICLE DETECTION SYSTEM SHALL PROVIDE DETECTION OF RANGE, SPEED AND ESTIMATED TIME OF ARRIVAL OF APPROACHING VEHICLES IN A CONTINUOUS RANGE OF 200 TO 900 FT FROM THE FINAL LOCATION OF THE DETECTOR UNIT.
6. THERE SHALL BE NO WIRING SPLICES BETWEEN THE VEHICLE DETECTORS AND THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT UNLESS IN A MANUFACTURER RECOMMENDED JUNCTION BOX.
7. THE VEHICLE DETECTION SYSTEM SHALL BE WAVETRONIX SMARTSENSOR MATRIX AND WAVETRONIX SMARTSENSOR ADVANCE (EXTENDED RANGE).

D. MAST ARM POLE FOUNDATIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOUNDATION DESIGN. FOUNDATIONS SHALL BE DESIGNED IN ACCORDANCE WITH THE MREI 10-01 GUIDELINES. IN ADDITION TO FABRICATION DRAWINGS, THE BORING LOGS DESIGN CRITERIA, AND DESIGN CALCULATIONS SHALL BE SUBMITTED AS WORKING DRAWINGS IN ACCORDANCES WITH SECTION 105.06. ADDITIONAL REQUIREMENTS CAN BE FOUND IN THE TRAFFIC SIGNAL GENERAL NOTES.

E. TRAFFIC SIGNAL CONDUIT

1. WHEN CONDUIT IS PLACED BELOW THE ROADWAY OR ACROSS SIDE ROADS, IT SHALL BE PLACED IN A STEEL OR HDPE SLEEVE. SIZE AND PAYMENT METHOD ARE SHOWN IN THE LAYOUT SHEETS.
2. ALL CONDUIT SHALL BE FILLED WITH STEEL WOOL PRIOR TO BEING CAPPED.

F. COMMUNICATION EQUIPMENT

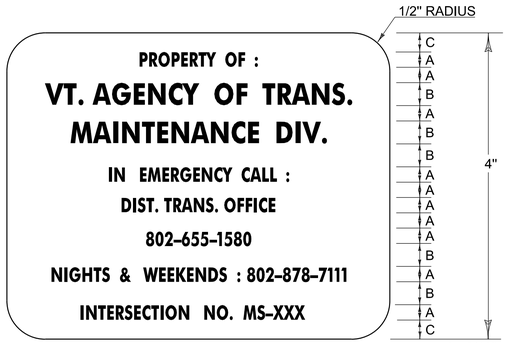
1. THE CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER FOR THE CONFIGURATION AND INSTALLATION OF THE SMARTLINK AND SMARTVIEW 360.

G. EMERGENCY PRE-EMPTION

1. EMERGENCY PRE-EMPTION RECEIVER AND STROBE LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH THE MANUFACTURER'S GUIDANCE, IF AVAILABLE. THE CONTRACTOR SHALL SUBMIT PROPOSED MOUNTING LOCATIONS AND DOCUMENTATION OF CONFORMANCE WITH THE MANUFACTURER'S GUIDANCE TO THE ENGINEER.
2. THE CONTRACTOR SHALL COORDINATE WITH LOCAL EMERGENCY RESPONDERS TO FIELD TEST AND VERIFY THAT EQUIPMENT WORKS PROPERLY. VERIFICATION OF EQUIPMENT WILL BE REQUIRED BEFORE THE END OF THE 30-DAY TEST PERIOD FOR EACH INTERSECTION.
3. EMERGENCY PREEMPTION EQUIPMENT SHALL BE OPTICOM GTT BRAND OR APPROVED EQUAL.

H. GENERAL

1. A UNIFORMED TRAFFIC OFFICER WITH A BLUE LIGHT SHALL BE PRESENT DURING ALL LANE CLOSURES, WHEN THE SIGNAL IS IN FLASH OPERATION, AND WHEN THE SIGNAL IS DARK.
2. WHERE WORK WOULD LEAVE HOLES IN EXISTING SIGNAL EQUIPMENT, INCLUDING POLES, THOSE HOLES SHALL BE PLUGGED/REPAIRED USING METHODS APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID INCIDENTAL TO ALL OTHER SIGNAL ITEMS.

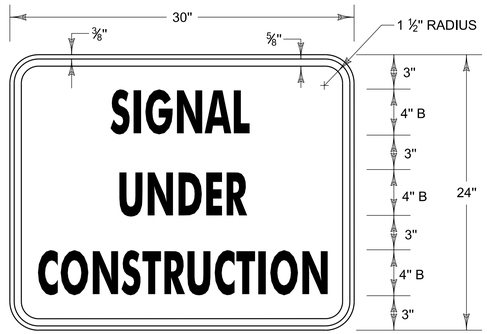


LEGEND: - BLACK (NON-REFL.) - STAMPED PRIOR TO PAINTING
BACKGROUND: NATURAL ALUMINUM OR BRASS SURFACE

CONTROLLER IDENTIFICATION PLAQUE
NOT TO SCALE

NOTES:

1. THE PLAQUE SHALL BE MOUNTED ON ALL TRAFFIC SIGNAL CONTROLLER CABINETS. IT SHALL BE FASTENED TO THECONTROLLER CABINET IN SUCH A MANNER AS TO BE NOT EASILY REMOVED, SUCH AS WELDED, RIVETED OR BOLTED WITH VANDAL PROOF BOLTS.
2. THE LETTERS SHALL BE PUNCHED OR STAMPED; SUCH STAMPING SHALL PENETRATE AT LEAST ½ THE BASE MATERIAL THICKNESS.
3. THE BASE MATERIAL FOR THE PLAQUE SHALL BE BRASS OR ALUMINUM WITH A MINIMUM THICKNESS OF $\frac{1}{10}$".
4. THE FOLLOWING LOCATIONS WILL REQUIRE A CONTROLLER PLAQUE:
   - MS-403 (US ROUTE 5 & NORTH MAIN ST)
   - MS-406 (US ROUTE 5 & WORCESTER AVE / HIGHLAND AVE)
   - MS-406A (HANOVER ST & HIGHLAND AVE)



MATERIALS: SEE STD. T-30
BACKGROUND - ORANGE (RETROREFLECTIVE SHEETING)
COLORS: TEXT & BORDER - BLACK

CONSTRUCTION SIGN DETAIL
NOT TO SCALE

NOTES:

1. TO BE INSTALLED ON ROAD WORK AHEAD SIGN POSTS.

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)
FILE NAME: system notes.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M. KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
TRAFFIC SIGNAL SYSTEM NOTES SHEET	SHEET 17 OF 21

TRAFFIC SIGNAL GENERAL NOTES

A. DESIGN GUIDANCE

1. OVERHEAD SIGNAL SUPPORTS SHALL CONFORM TO AASHTO'S "SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", DATED 2013.

B. DESIGN CALCULATION CRITERIA

1. THE DESIGN CALCULATIONS SHALL TAKE INTO ACCOUNT THE FOLLOWING CRITERIA:
   a. STRUCTURE CRITERIA
      - DESIGN LIFE AND RECURRANCE INTERVAL: 50 YEARS
      - WIND LOAD: 90 M.P.H.; REFER TO ASCE 7-05 TO VERIFY IF THE SITE IS WITHIN THE SPECIAL WIND REGION AND IF CONFIRMED, USE A WIND LOAD OF 120 MPH

   b. FATIGUE CRITERIA
      - FATIGUE CATEGORY: 2 FOR STRUCTURES LOCATED ON ROADWAYS WITH A SPEED LIMIT GREATER THAN 35 MPH, 3 FOR STRUCTURES LOCATED ON ROADWAYS WITH A SPEED LIMIT LESS THAN OR EQUAL TO 35 MPH.
      - VORTEX SHEDDING: NOT REQUIRED
      - NATURAL WIND GUSTS: INCLUDE
      - TRUCK INDUCED WIND GUSTS: INCLUDE FOR ROADWAYS WHERE THE POSTED SPEED LIMIT FOR THE MAINLINE APPROACHES ARE 40 M.P.H. OR GREATER
      - GALLOPING: DO NOT INCLUDE

   c. FOUNDATION CRITERIA
      - CONCRETE: CONCRETE, CLASS B, VTrans' "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2018, SECTION 541.
      - REINFORCING STEEL: REINFORCING STEEL, LEVEL I VTrans' "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2018, SECTION 507.
      - GEOTECHNICAL SOIL RESISTANCES TO BE DETERMINED BY CONTRACTOR.

C. ANCHOR BOLTS

1. GALVANIZED ANCHOR BOLTS WITH TWO HEXAGON NUTS AND TWO WASHERS PER BOLT SHALLBE FURNISHED WITH EACH POLE. ANCHOR BOLT PLATES, WHEN USED, SHALL ALSO BE GALVANIZED.

2. A MINIMUM OF SIX ANCHOR BOLTS SHALL BE PROVIDED AT EACH SINGLE UPRIGHT POLE FOUNDATION. ANCHOR BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 677.03.

3. ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF SUBSECTION 714.09

D. STEEL FOR SIGNAL STRUCTURES

1. PIPE AND TUBES SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING

   SPECIFICATIONS:

   a. CANTILEVER MAST ARM STRUCTURE:
      - ASTM A595, GRADE A: WELDED, ROUND, TAPERED STEEL TUBE
      - ASTM A1011, GRADE 50: WELDED, ROUND, TAPERED STEEL TUBE

   b. NON-CANTILEVERED OVERHEAD SIGNAL STRUCTURES
      - ASTM A500, GRADE B: WELDED AND SEAMLESS STEEL PIPE (ROUNDS ONLY)
      - API 5L GRADE X42: AMERICAN PETROLIUM INSTITUE SPECIFICAITON 5L

E. PROTECTIVE COATING

1. ALL STEEL COMPONENTS, EXCEPT CONCRETE REINFORCING, ARE TO BE HOT DIPPED GALVANIZED AND POWDER COATED AFTER FABRICATION. THE ASSEMBLIES SHALL BE DESIGNED AND FABRICATED TO PERMIT GALVANIZING ON ALL INTERIOR AND EXTERIOR SURFACES AND SHALL BE FREE OF POCKETS AND OTHER STRUCTURAL OBSTRUCTIONS THAT WILL NOT PERMIT PROPER DEPOSITION OF ZINC COATING.

2. GALVANIZING SHALL BE IN ACCORDANCE WITH SECTION 726.06. POWDER COATING SHALL BE IN ACCORDANCE WITH SECTION 708.02.

F. FOUNDATIONS

1. FOOTINGS SHALL BE DESIGNED IN ACCORDANCE WITH VTRANS MATERIALS & RESEARCH ENGINEERING INSTRUCTIONS (MREI) 10-01 "GEOTECHNICAL DESIGN PROCEDURES FOR MAST ARM AND OVERHEAD SIGN SUPPORT FOUNDATIONS" AVAILABLE ON THE AGENCY'S WEBSITE AT THE FOLLOWING ADDRESS:
   https://outside.vermont.gov/agency/vtrans/external/docs/construction/03GeotechEng/Engineering/Mast%20Arm%20and%20Overhead%20Sign%20Support%20Foundations%20MREI%2010-01%20Engineering.pdf

2. FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING NOTES:

   a. CONCRETE FOR THE FOUNDATION SHALL CONFORM TO THE REQUIREMENTS OF SECTION 541. IF DRILLED SHAFT FOUNDATIONS ARE REQUIRED, THE CONCRETE SPECIFICATIONS MAY NEED TO BE ADJUSTED FOR CONSTRUCTABILITY ISSUES. HOWEVER, IF REQUIRED, THE CONTRACTOR SHALL SUBMIT ANY CHANGES TO THE CONCRETE SPECIFICATION FOR REVIEW BY THE VTRANS PROJECT MANAGER.
   b. WHEN THE DESIGN DEPTH OF A FOUNDATION CANNOT BE OBTAINED DUE TO UNFORSEEN FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR THE MANUFACTURER TO OBTAIN A REVISED FOUNDATION DESIGN. SUCH A REVISION SHALL BE SUBMITTED TO THE VTRANS PROJECT MANAGER AND MAY REQUIRE UP TO A FOUR-WEEK REVIEW PERIOD BY VTRANS.

G. POLE DETAILS

1. HORIZONTAL MEMBERS SHALL BE CAMBERED AND THE VERTICAL POLES BACK RAKED, WHERE APPLICABLE, TO THE ANTICIPATED DEAD LOAD DEFLECTION PLUS THE CAMBER, IF ANY, SPECIFIED ON THE PLANS.

L. DESIGN CALCULATION SUBMITTALS

1. AN EQUIVALENT ALTERNATE DESIGN MAY BE SUBSTITUED FOR THE DETAILS AND MATERIALS SHOWN.

2. THE DETAILS OF DESIGN FOR THE STRUCTURE AND FOUNDATION ARE TO BE SUPPLIED BY THE CONTRACTOR AND/OR BY THE MANUFACTURER, THE STRUCTURE SHALL BE DESIGNED TO RESIST THE MAXIMUM LOADING AS OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS LISTED. ALL DESIGN CALCULATIONS FOR THE STRUCTURE AND THE FOUNDATION SHALL BE CHECKED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT PRIOR TO SUBMITTAL OF THE FABRICATION DRAWINGS TO VTRANS.

3. THE CONTRACTOR SHALL SUBMIT ONE DIGITAL VERSION OF THE DESIGN CALCULATIONS TO VTRANS PROJECT MANAGER SHOWING THE FOLLOWING INFORMATION FOR EACH OF THE VERTICAL AND HORIZONTAL COMPONENTS OF THE STRUCTURE AND FOUNDATION:

   a. THE DESIGN AXIAL AND SHEAR FORCES AND BENDING AND TORSIONAL MOMENTS ACTING AT THE TOP OF THE FOUNDATION.
   b. THE DESIGN AXIAL, BENDING AND SHEAR STRESSES AND THE COMBINED STRESS RATIO.
   c. VIBRATION AND FATIGUE CALCULATIONS AS SET FORTH IN SECTION 11 OF THE AASHTO STANDARD LISTED.
   d. THE ALLOWABLE AXIAL, BENDING AND SHEAR STRESSES.
   e. ITEMS a, b AND d SHALL BE SHOWN FOR EACH OF THE GROUP LOADINGS (I, II, III) AND FOR THE BASIC WIND LOAD APPLIED TO THE TOW CASES OUTLINED IN THE AASHTO STANDARD LISTED, SECTION 1.2.5(D)(4)

4. FAILURE TO SUPPLY THE PROPER INFORMATION SHALL BE CAUSE FOR REJECTION OF THE STRUCTURE.

5. A MINIMUM OF TWO WEEKS SHALL BE REQUIRED FOR REVIEW BY VTRANS.

6. EVERY MEMBER AND CONNECTION IN A CANTILEVERED OVERHEAD TRAFFIC SIGNAL SUPPORT SHALL BE DESIGNED TO PROVIDE ADDITIONAL RESIDUAL CAPACITY FOR FUTURE MODIFICATION EQUIVALENT TO A 5-SECTION TRAFFIC SIGNAL HEAD WITH A 5-INCH LOUVERED BACKPLATE LOCATED ON THE OUTERMOST EXTENT OF THE MAST ARM. OVERHEAD SIGN STRUCTURES AND NON-CANTILEVERED TRAFFIC SIGNAL STRUCTURES SHALL BE DESIGNED TO A MAXIMUM DESIGN RATIO OF 85% FOR EVERY MEMBER AND CONNECTION.

M. FABRICATION DRAWING SUBMITTALS

1. FABRICATION DRAWINGS IN A DIGITAL FORMAT SHALL BE SUBMITTED TO VTRANS PROJECT MANAGER FOR APPROVAL PRIOR TO FABRICATION. THE FABRICATION DRAWINGS SHALL INCLUDE THE FOLLOWING INFORMATION:

   a. DETAILED DRAWING OF EACH COMPONENT OF THE STRUCTURE.
   b. MATERIAL SPECIFICATION FOR EACH COMPONENT OF THE STRUCTURE, EITHER BY COMPLETE SPECIFICATION OR REFERENCE TO THE APPLICABLE ASTM STANDARDS.
   c. NOTATION OF PROJECT NAME, PROJECT NUMBER, ROUTE NUMBER AND STRUCTURE STATIONING TO BE INCLUDED ON EACH SHEET.
   d. DETAILS FOR LOCATION OF SIGNS/SIGNALS AND ATTACHMENT HARDWARE FOR THE SUPPORT STRUCTURE.
   e. ALL ELEVATION AND DIMENSIONS NECESSARY TO PROVIDE A COMPLETE SET OF RECORD PLANS.
   f. DEAD LOAD DEFLECTION AND CAMBER INFORMATION.
   g. WELDING DETAILS AND PROCEDURES ARE REQUIRED FOR ALL WELDS. PROCEDURES SHALL BE SUBMITTED FOR APPROVAL WITH REFERENCE TO EACH WELD IDENTIFIED ON THE FABRICATION DRAWINGS. SEE SUBSECTION 506.10 FOR MORE INFORMATION.
   h. BOLT TENSIONING REQUIREMENTS.

N. ADDITIONAL INFORMATION

1. THE TRAFFIC SIGNALS SHALL BE MOUNTED TO THE ARM OR POLE USING A FIXED MOUNT SYSTEM, UNLESS OTHERWISE NOTED ON THE CROSS SECTION SHEET.

2. BASE PLATES SHALL BE STAMPED WITH POLE INFORMATION INCLUDING: POLE DIAMETER, HEIGHT, YIELD STRENGTH, AND GAUGE; ARM INFORMATION SHALL INCLUDE: HORIZONTAL MEMBER DIAMETER, LENGTH, YIELD STRENGTH, AND GAUGE. THE INFORMATION SHALL BE STAMPED ON A METAL TAG RIVETED TO THE POLE NEAR THE HAND HOLE.

PROJECT NAME:	ST. ALBANS TOWN
PROJECT NUMBER:	STPG SGNL(61)
FILE NAME: generalnotes.dgn	PLOT DATE: 10/10/2023
PROJECT LEADER: T. SISSON	DRAWN BY: M. KEMERER
DESIGNED BY: M. KEMERER	CHECKED BY: B. TIETZE
TRAFFIC SIGNAL GENERAL NOTES SHEET	SHEET 18 OF 21

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS			NEW & SALVAGED SIGNS				EXIST POST		NO. OF POSTS	NEW SIGN POSTS																REMARKS	SIGN DETAIL		
		EA	WIDTH (in)	HEIGHT (in)	"A"	"B"	SALV SIGN	SALV TIS	RETAIN	SALVAGE		FLANGED CHANNEL lb/ft			SQUARE STEEL (in) lb/ft			ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft			TUBULAR STEEL Ø (in) FOUND-ATION lb/ft					W-SHAPE STEEL FTG. SIZE		WEIGHT	POST SIZE	SIGN FRAME REQUIRED		SHSM	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
															1.75	2.0	2.5			3.0	4.0	4.0 MOD		3.0	3.5	4.0	5.0	24"	30"						
												1.12	2.0	3.0	1.88	2.42	3.35			1.3	1.7	1.7		7.6	9.0	10.8	14.6								
MAST ARM MOUNTED												OPTION ITEMS																							
MAST ARM 2		1	30	36	7.5																											BRACKET REQUIRED R10-101		4	
MAST ARM 4		1	30	36	7.5																											BRACKET REQUIRED R10-101		4	
MAST ARM 6		1	30	36	7.5																											BRACKET REQUIRED R10-101		4	
MAST ARM 8		1	30	36	7.5																											BRACKET REQUIRED R10-101		4	

SHSM = 2004 FHWA STANDARD HIGHWAY SIGNS & MARKINGS/2012 SUPP.

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE."

	SF								FT	FT	FT	FT	FT	FT		EA	LB	LB	LB		LB	LB	LB	LB											
	30																																		
SHEET TOTALS	SF	SF	EA	SF		FT		FT									LB		EA		LB				EA	EA	LB								
	30																																		

PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: tsss.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
TRAFFIC SIGN SUMMARY SHEET

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE
SHEET 19 OF 21

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL SUBMIT A SITE-SPECIFIC TRAFFIC CONTROL PLAN PER SUBSECTION 105.06 TO THE ENGINEER. CONSTRUCTION OPERATIONS SHALL NOT COMMENCE UNTIL THE PLAN HAS BEEN ACCEPTED BY THE ENGINEER. THE COST OF PREPARING THIS PLAN (AND MAKING CHANGES IF NECESSARY) WILL NOT BE PAID SEPARATELY BUT WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.1100 - TRAFFIC CONTROL, ALL INCLUSIVE. THE TRAFFIC CONTROL PLAN SHALL BE IN COMPLIANCE WITH VTRANS STANDARDS AND 2009 MUTCD. WHERE CONFLICTS EXIST, THE 2009 MUTCD SHALL GOVERN.

2. THE CONTRACTOR SHALL INCLUDE A CONSTRUCTION SIGN APPROACH PACKAGE FOR EXPECTED LANE CLOSURES IN COMPLIANCE WITH THE CONSTRUCTION NOTES AND PART 6 OF THE 2009 MUTCD. PAYMENT FOR PROVIDING THIS PACKAGE WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.1100 - TRAFFIC CONTROL, ALL INCLUSIVE.

3. THE CONTRACTOR SHALL POSITION PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) STARTING TWO WEEKS BEFORE CONSTRUCTION WARNING MOTORISTS OF THE EXPECTED ROADWAY CONDITIONS AHEAD. THE MESSAGE TO BE DISPLAYED, AND THEIR PROPOSED LOCATIONS, SHALL BE SUBMITTED TO THE ENGINEER IN ADVANCE FOR APPROVAL. THE PCMS SHOULD BE RELOCATED AS DETERMINED BY THE ENGINEER TO PROVIDE WORK ZONE TRAVEL INFORMATION THAT IS OTHERWISE DIFFICULT TO CONVEY WITH STATIC SIGNS. THE COST OF PROVIDING THESES MESSAGE SIGNS AND THEIR RELOCATION IF NECESSARY WILL BE PAID UNDER ITEM 641.1500 - PORTABLE CHANGEABLE MESSAGE SIGN.

4. THE CONTRACTOR SHALL PROVIDE ACCESS THROUGH THE WORK ZONE FOR EMERGENCY VEHICLES AT ALL TIMES.

5. MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES FOR EMERGENCY VEHICLES. MAINTAIN ACCESS TO ALL COMMERCIAL AND MUNICIPAL PROPERTIES DURING BUSINESS HOURS. ACCESS TO RESIDENTIAL PROPERTIES MAY BE RESTRICTED FOR A SHORT DURATION (A FEW HOURS). THIS WORK SHALL BE COORDINATED WITH THE OWNER. COORDINATE MAJOR WORK ON COMMERCIAL OR MUNICIPAL ACCESSES WITH THE OWNER AT LEAST ONE WEEK PRIOR TO STARTING THE WORK. ALL ACCESSES SHALL ALSO BE KEPT FREE OF WORK AND TRAFFIC CONTROLLED BY UNIFORMED TRAFFIC OFFICERS OR FLAGGERS AS REQUIRED BY THE ENGINEER.

6. TRAFFIC SHALL NOT BE CHANGED FROM ONE TRAFFIC PATTERN TO THE NEXT TRAFFIC PATTERN UNTIL ALL TEMPORARY MARKINGS AND SIGNING WORK ARE COMPLETED. ANY CONFLICTING MARKINGS SHALL BE REMOVED.

7. THE 2009 MUTCD AND ITS LATEST REVISIONS SHALL BE THE STANDARD FOR ALL TRAFFIC CONTROL DEVICES, VALID UNTIL SUCH TIME AS THEY ARE REPLACED OR RECONSTRUCTED. WHEN NEW TRAFFIC CONTROL DEVICES ARE ERECTED OR PLACED OR EXISTING TRAFFIC CONTROL DEVICES ARE REPLACED OR REPAIRED THE EQUIPMENT, DESIGN, METHOD OF INSTALLATION, PLACEMENT OR REPAIR SHALL CONFORM WITH SUCH STANDARDS.

8. CONES SHALL BE USED TO CLEARLY DEFINE THE TRAVEL SPACE AND PROVIDE SEPARATION FROM THE WORK. DRUMS SHALL BE USED TO CHANNELIZE OR DELINEATE ROAD USER FLOW. REFLECTORIZED CONES WILL BE USED TO DELINEATE COMMERCIAL DRIVES WITHIN THE WORK ZONE.

9. NO CONSTRUCTION SIGNS SHALL BE INSTALLED AS TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE, AND CORNER SIGHT DISTANCE FROM DRIVES AND TOWN HIGHWAYS.

10. ALL PERMANENT SIGNS THAT CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE COMPLETELY COVERED. SIGN COVERING SHALL NOT DAMAGE THE RETRO-REFECTIVITY OF THE SIGN FACE AND THE SIGN COVER SHALL NOT DETERIORATE FOR THE DURATION THAT THE SIGN IS COVERED. THE PAYMENT FOR WHICH SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.1100 TRAFFIC CONTROL, ALL INCLUSIVE.

11. CONSTRUCTION SIGNS SHALL BE IN NEW OR LIKE NEW CONDITION PER VTRANS STANDARDS.

12. WHERE TEMPORARY SIGNS ARE PLACED BEHIND GUARDRAIL, THEY SHALL BE ADJUSTED SUCH THAT THE BOTTOM OF THE SIGNS ARE ABOVE THE TOP OF GUARDRAIL.

13. FLAGGERS WILL ONLY HAVE THE AUTHORITY TO STOP AND RELEASE TRAFFIC ONLY REQUIRING FLAGGERS FOR EACH LEG OF THE INTERSECTION. FLAGGERS CANNOT CONTROL AN INTERSECTION.

14. UNIFORM TRAFFIC OFFICERS ARE REQUIRED AT INTERSECTIONS WHERE MULTIPLE TURN LANES ARE PRESENT. UNIFORM TRAFFIC OFFICERS SHALL BE THE ONLY PERSONNEL TO CONTROL AN INTERSECTION. WHEN UNIFORM TRAFFIC OFFICERS CONTROL A SIGNALIZED INTERSECTION, SIGNALS SHALL BE SET TO RED FLASH MODE OR TURNED OFF. A UNIFORM TRAFFIC OFFICER SHALL NOT CONTROL A SIGNALIZED INTERSECTION THAT IS OPERATING UNDER SIGNAL CONTROL. WHEN UNIFORM TRAFFIC OFFICERS ARE DIRECTING TRAFFIC THE FLAGGER SYMBOL SIGN IS REQUIRED TO BE POSTED IN ADVANCE OF THE UNIFORM TRAFFIC OFFICER TO WARN MOTORIST THAT THEY ARE APPROACHING A UNIFORM TRAFFIC OFFICER IN THE HIGHWAY WHOM WILL BE PROVIDING INFORMATION FOR DRIVERS TO FOLLOW. A UNIFORM OFFICER AHEAD SIGN CAN BE SUBSTITUTED FOR THE FLAGGER SYMBOL IF NECESSARY.

15. THE DMV WILL REQUIRE NOTIFICATION FOR WIDTH RESTRICTION TO REROUTE SUPER LOAD PERMITS. IT SHOULD BE NOTED THAT ONCE A PERMIT IS ISSUED THE APPLICANT/HAULER HAS 10 DAYS TO MOVE THEIR LOAD. THIS REQUIRES ADDITIONAL NOTICE TO CAPTURE THAT 10-DAY WINDOW.

16. ACCOMODATIONS FOR POSTAL DELIVERERS, NEWSPAPER ROUTES, TRASH SERVICES AND/OR OTHER DELIVERY SERVICES INTERRUPTED BY THE PROJECT OR DETOUR SHOULD BE COMMUNICATED WITH THE PROPER CONTACTS.

17. A SITE SPECIFIC LIGHTING PLAN WILL BE REQUIRED FOR NIGHT WORK. REFER TO NCHRP REPORT 476 FOR MORE INFORMATION.

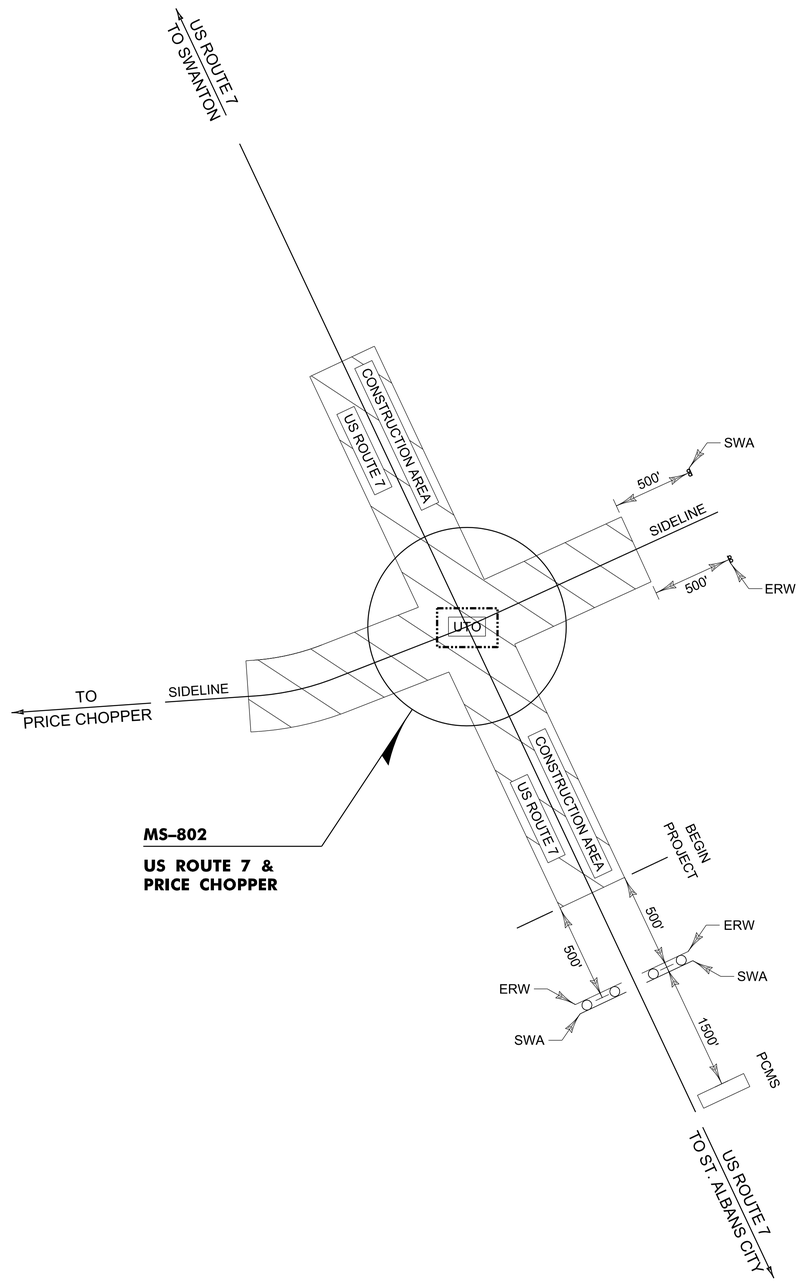
18. ACTIVE CONSTRUCTION IS TO TAKE PLACE DURING NON-PEAK HOURS. FOR THIS PROJECT, PEAK HOURS ARE DEFINED AS 6:00 AM TO 9:00 AM AND 2:00 PM TO 6:00 AT ALL INTERSECTIONS. THIS WILL ENSURE THAT WORK AT EACH INTERSECTION HAS THE LEAST IMPACT ON PEAK TRAFFIC INTERVALS. NIGHT WORK WILL BE OPTIONAL FOR THE CONTRACTOR TO UTILIZE ALLEVIATING THE NEED FOR CLOSING TRAVEL LANES DURING THE DAY IF NECESSARY.

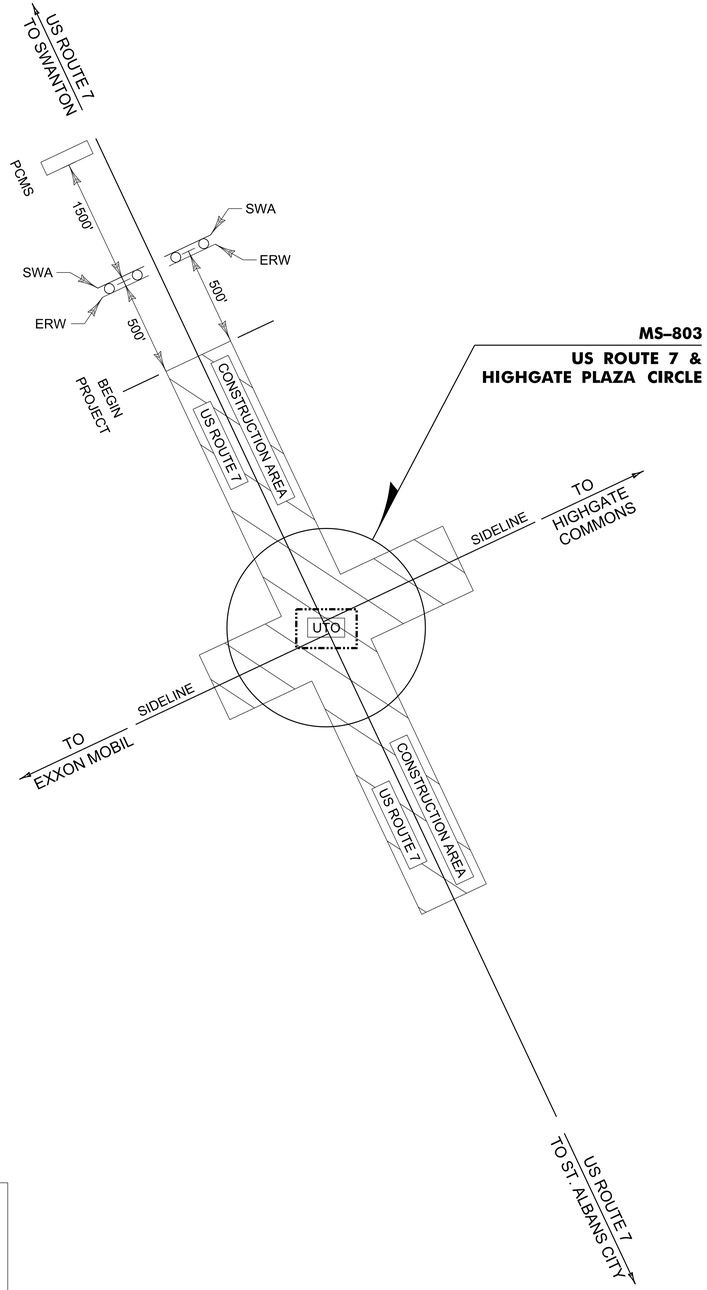
PROJECT NAME: ST. ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: tc notes.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
TRAFFIC CONTROL NOTES SHEET

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
CHECKED BY: B. TIETZE
SHEET 20 OF 21

CONSTRUCTION APPROACH SIGNING





LEGEND

SWA = SIGNAL WORK AHEAD

48" X 48"
FLUORESCENT ORANGE BACKGROUND
BLACK TEXT, LEGEND AND BORDER

ERW = END ROAD WORK

NOT TO SCALE
SEE STD T-10 AND T-11 FOR SIGN PLACEMENT
SIGNS MUST BE COVERED WHEN WORK IS NOT ACTIVE

PROJECT NAME: ST, ALBANS TOWN
PROJECT NUMBER: STPG SGNL(61)

FILE NAME: construction signage.dgn
PROJECT LEADER: T. SISSON
DESIGNED BY: M. KEMERER
CONSTRUCTION APPROACH SIGNING SHEET

PLOT DATE: 10/10/2023
DRAWN BY: M. KEMERER
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SHEET 21 OF 21