STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLAN LEGEND

Town, County, State	Centerline-Existing
Property Lines	Centerline-Proposed 10+00
R/W Lines-Existing	Travelway-Existing
R/W Lines-Proposed	Travelway-Proposed
Culvert-Existing	Railroad
Culvert Proposed	Catch Basins Existing Proposed
Curbing Existing Proposed	Manholes Existing Proposed
Type 1	Proposed Underdrain
Type 3	Proposed Ditch
Type 5	Existing Ditch
Outline of Bodies of Water	Utlity Poles Existing Proposed
Ledge	Fire Hydrants Existing Proposed
Buildings	Existing Water Line
Trees Conifer Deciduous	Existing San. Sewer
Tree Line	Existing San. Sewer Manhole
Clearing Limit Line CLL	Guardrail-Existing
	Guardrail-Proposed
	Guardrail-Cable, Other

BIDDEFORD
YORK COUNTY
FIVE POINTS

PROJECT NO. AC-STP-1900(400)X

PROJECT LENGTH : 0.31 MILES
AND 2 TRAFFIC SIGNALS
(3 TRAFFIC SIGNALS WITH APPROVED BID OPTION)

INDEX OF SHEETS

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Traffic Signal Plans	7-8
Interconnect Plan	9
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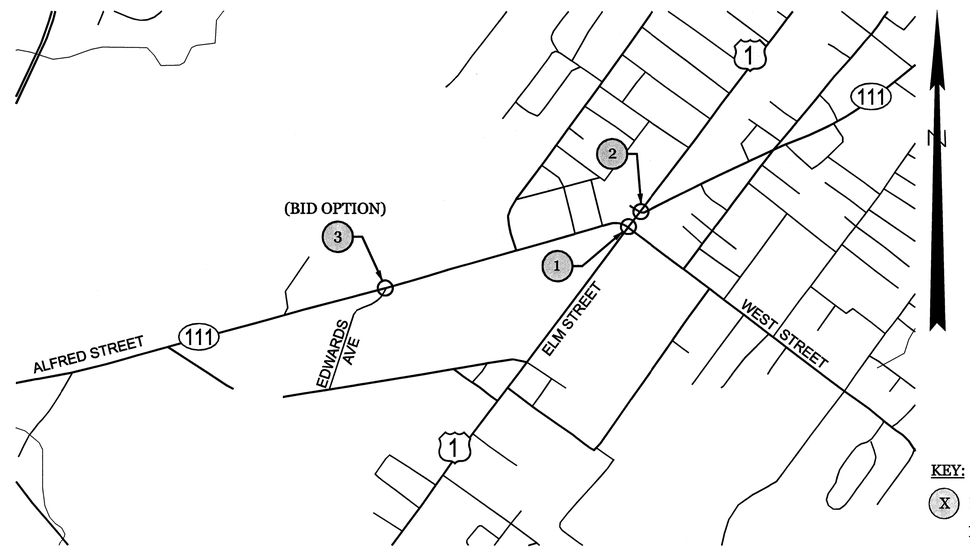
Bid Option #2	13-16



KEY:
X Project Intersection Number
Note: Intersections 1 and 2 are operated by one traffic signal controller

LAYOUT SCALE
750 0 750 1500
Scale in Feet

TRAFFIC DATA

	ME ROUTE 111 (ALFRED STREET)	US ROUTE 1 (ELM STREET)
Current (2010) AADT	10,800	14,900
Future (2030) AADT	11,900	16,400
DHV - % of AADT	12%	9%
Design Hour Volume	1,350	1,400
% Heavy Trucks (AADT)	n/a	n/a
% Heavy Trucks (DHV)	n/a	n/a
Directional Distribution (DHV)	n/a	n/a
18 kip Equivalent P 2.0	n/a	n/a
18 kip Equivalent P 2.5	n/a	n/a
Design Speed (mph)	35	35
Functional Class:	Principal Urban Arterial	Principal Urban Arterial

VHB
Vanasse Hangen Brustlin, Inc.

PROJECT LOCATION:	US Route 1 at the intersection of Route 111 (Alfred Street) (Five-Points Intersection) extending to the intersection of Route 111 at Edwards Avenue in Biddeford, ME.
PROGRAM AREA:	Highway Safety and Spot Improvements / Traffic
OUTLINE OF WORK:	Rehabilitation, Traffic Signal Interconnection, and other incidental work

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED DATE
COMMISSIONER: 8/24/13
CHIEF ENGINEER: 8-24-13

STATE OF MAINE Christopher M. Bobey 9374 LICENSED PROFESSIONAL ENGINEER
SIGNATURE 9374
P.E. NUMBER 7/31/2013
DATE

PROJECT INFORMATION

PROGRAM	TRAFFIC
PROJECT MANAGER	B. KEEZER
DESIGNER	M. GRAHAM
CONSULTANT	VHB
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

BIDDEFORD
ROUTE 111
TITLE SHEET

WIN 19004.00 AC-STP-1900(400)X

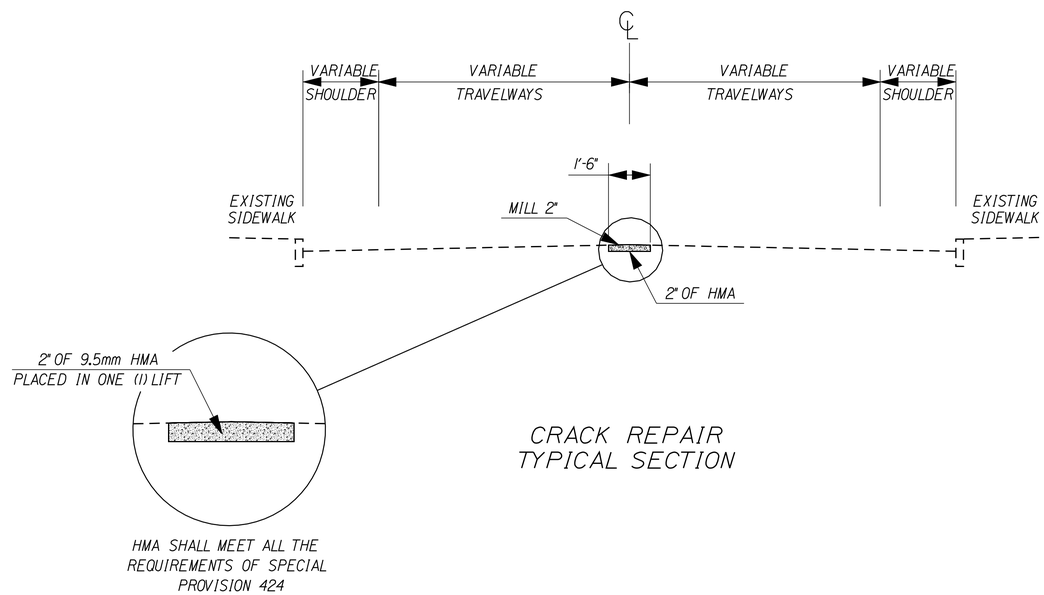
SHEET NUMBER
1
OF 16

Filename: ...\te\planset\001_TitleSheet.DGN Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

NOTE:

1. ALL CRACK REPAIR AREAS THAT ARE MILLED IN ANY PORTION OF THE EXISTING ROADWAY SHALL BE PAVED IN ON THE SAME DAY. SEE GENERAL PLANS FOR AREAS OF REPAIR.

2. PAVEMENT FOR CRACK REPAIR SHALL BE COMPACTED INTO THE CRACK BELOW THE MILLED SURFACE PRIOR TO PLACING HMA IN ONE (1) LIFT.



CRACK REPAIR TYPICAL SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	F. KOCZALKA	J. ROBERT	02-2013
CHECKED-REVIEWED	T. GRANDE	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

TYPICAL SECTIONS

SHEET NUMBER

2

OF 16

Filename: ...\cad\te\planset\002_Typical.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR FINDING EXACT LOCATIONS OF EXISTING UTILITES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT DIG-SAFE AND APPROPRIATE AUTHORITIES PRIOR TO ANY SUBSURFACE ACTIVITIES.

2. THE UTILITIES INVOLVED IN THIS CONTRACT ARE AS FOLLOWS:
BIDDEFORD & SACO WATER COMPANY
CITY OF BIDDEFORD
CENTRAL MAINE POWER COMPANY
GWI/BIDDEFORD INTERNET CORP.
GRANITE STATE GAS TRANSMISSIONS, INC.
MAINECOM SERVICES
OXFORD NETWORKS
TIME WARNER CABLE (PORTLAND OFFICE)
UNITIL CORP.

3. ALL UTILITY FACILITIES SHALL BE ADJUSTED OR RELOCATED BY THE RESPECTIVE UTILITIES UNLESS OTHERWISE NOTED IN COORDINATION WITH THE WORK OF THE CONTRACTOR.

4. THE CONTRACTOR SHALL MEET ALL UTILITY REQUIREMENTS FOR NEW SERVICE CONNECTIONS.

5. THE CONTRACTOR SHALL PROVIDE THE ENGINEER, MAINEDOT, AND THE CITY OF BIDDEFORD WITH A SCHEDULE OF WORK AND WORK ZONE CONTROL PLANS FOR CONSTRUCTING THE TRAFFIC IMPROVEMENTS AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF WORK.

6. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.

7. EXISTING CONDITIONS BASED ON EXISTING AND PROPOSED INFORMATION FROM PREVIOUSLY CONSTRUCTED PROJECTS STP-7492(10)X AND STP-1158(40)X

8. PLANS OF PREVIOUSLY CONSTRUCTED PROJECTS ARE AVAILABLE UPON REQUEST. THESE PROJECTS ARE: STP-7492(10)X AND STP-1158(40)X

9. "UNDETERMINED LOCATIONS" SHALL BE DETERMINED BY THE RESIDENT.

10. STATIONS REFERENCED ARE APPROXIMATE.

11. THE ENGINEER AND MAINEDOT SHALL HAVE THE RIGHT AND AUTHORITY TO DETERMINE THE ACCEPTABILITY OF WORK AND MATERIALS IN PROGRESS OR COMPLETED AND SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIALS WHICH DO NOT CONFORM, IN ITS SOLE OPINION, TO THE PLANS OR SPECIFICATIONS.

12. TRAFFIC SIGNAL WORK SHALL BE COMPLETED IN A MANNER AND ORDER THAT WILL CAUSE THE MINIMUM DISRUPTION TO TRAFFIC.

13. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY STREET/SIDEWALK OCCUPANCY OR OPENING PERMITS.

14. ALL EXISTING DRIVEWAY ACCESSES SHALL BE MAINTAINED AT ALL TIMES.

15. ALL SIGNING, SIGNAL AND STRIPING MATERIALS AND PLACEMENT SHALL CONFORM TO THE MAINEDOT STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND STANDARD DETAILS AND WITH THE FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) DATED 2009, AS AMENDED.

16. ANY NECESSARY CLEANING OF EXISTING PAVEMENT PRIOR TO PAVING SHALL BE INCIDENTAL TO THE RELATED PAVING ITEMS.

17. ALL SPLICES WILL BE MADE IN THE CABINETS OR SPLICE ENCLOSURES MEETING MAINEDOT SPECIFICATIONS AND SPECIAL PROVISION 718 OF THIS CONTRACT.

18. FOR POLE MOUNTED SIGNAL HEADS, THE BOTTOM OF THE HOUSING SHALL BE MOUNTED AT LEAST 8 FEET BUT NOT MORE THAN 19 FEET ABOVE THE SIDEWALK, OR IF THERE IS NO SIDEWALK, ABOVE THE PAVEMENT GRADE AT THE HIGH POINT OF THE ROAD.

19. TWO COPIES OF AS-BUILT PLANS SHALL BE LEFT IN EACH OF THE CONTROLLER CABINETS.

20. ALL WASTE MATERIAL NOT USED ON THE PROJECT SHALL BE DISPOSED OF OFF THE PROJECT IN WASTE AREAS APPROVED BY THE RESIDENT.

21. ALL NON-PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE LOAMED AND SEEDED, UNLESS OTHERWISE DIRECTED BY THE OWNER. ALL PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR. COSTS FOR REPAIR OF DISTURBED AREAS SHALL BE INCIDENTAL TO OTHER CONTRACT ITEMS.

22. EQUIPMENT

CONTRACTOR FURNISHED EQUIPMENT - THE TRAFFIC SIGNAL CONTROLLERS AND VARIOUS OTHER EQUIPMENT ITEMS SHOWN ON THE PLANS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. PER PORTLAND AREA COMPREHENSIVE TRANSPORTATION SYSTEMS (PACTS) REGIONAL SPECIFICATIONS, THE TRAFFIC SIGNAL CONTROLLERS SUPPLIED UNDER THIS CONTRACT SHALL BE NAZTEC NEMA TS-2, TYPE 1 OR 2 AND SHALL HAVE THE CAPABILITY OF SUPPORTING NTCIP PROTOCOLS PER THE PACTS SYSTEM. TRAFFIC SIGNAL CONTROLLERS SHALL SUPPORT DIRECT ETHERNET COMMUNICATIONS FROM A PROPOSED ETHERNET SWITCH TO THE CONTROLLER'S ETHERNET PORT. THE COMMUNICATION SYSTEM SHALL BE CAPABLE OF INTEGRATION WITH THE ETHERNET COMMUNICATIONS SYSTEM BACK TO THE GREATER PORTLAND (MAINE MALL) TRAFFIC SIGNAL SYSTEM CONTROL COMPUTER.

THE SYSTEM SHALL EMPLOY AN IP-BASED COMMUNICATIONS NETWORK TO AND FROM THE CENTRAL SYSTEM CONTROL COMPUTER. THE EQUIPMENT SUPPLIED AND INSTALLED SHALL BE CAPABLE OF UPLOAD TO AND DOWNLOAD FROM EACH OF THE SYSTEM'S TRAFFIC SIGNAL CONTROLLER DATABASES, REMOTELY ACCESS LOCAL INTERSECTION REPORTS, REMOTELY ACCESS PROCESSED VEHICLE DETECTOR DATA, AND PROVIDE REAL TIME INTERSECTION STATUS TO SUPPORT GRAPHICAL LOCAL AND SYSTEM MAPS.

22. EQUIPMENT (cont.)

THE CONTRACTOR SHALL INSTALL AND SPLICE NEW FIBER OPTIC CABLE AS INDICATED ON THE PLANS. AT LEAST THREE DAYS PRIOR TO BEGINNING WORK ON/AT THE CITY'S INFRASTRUCTURE, THE CONTRACTOR SHALL CONTACT WILLIAM GOOCH AT 207-571-1626 TO SCHEDULE THE PROPOSED CONSTRUCTION. THE NEW FIBER OPTIC CABLE SHALL BE SPLICED INTO THE EXISTING MUNICIPAL FIBER OPTIC CABLE BETWEEN THE FIRE STATION AND THE POLICE STATION AT UTILITY POLE J22. CONTRACTOR SHALL VERIFY THAT THE EXISTING FIBERS IDENTIFIED FOR SPLICING ARE NOT LIT PRIOR TO CUTTING ANY FIBERS. CONTRACTOR SHALL NOT CUT ANY FIBERS CURRENTLY IN USE BY THE CITY OF BIDDEFORD. IF INTERRUPTIONS IN THE CITY'S NETWORK IS REQUIRED, INTERRUPTIONS SHALL BE LIMITED TO OFF-PEAK HOURS AND SHALL BE SCHEDULED WITH THE CITY'S IT DEPARTMENT.

CONTRACTOR SHALL PROVIDE A NEW FIBER ETHERNET SWITCH, ROUTER AND BATTERY BACK-UP SYSTEM (UPS) AT THE POLICE STATION NETWORK ROOM. THE ETHERNET SWITCH SHALL BE CONNECTED TO A PUBLIC ACCESS INTERNET SERVICE EXTERNAL TO THE SECURE POLICE NETWORK HAVING A RAW INTERNET FEED AND PUBLIC IP ADDRESS (PORT) ASSIGNED BY THE CITY OF BIDDEFORD. THE CONTRACTOR SHALL INSTALL A COMPUTER WORK STATION (DESKTOP PC) WITH PUBLIC INTERNET ACCESS AT THE POLICE STATION AT A LOCATION AS DIRECTED BY THE CITY OF BIDDEFORD. CONTRACTOR SHALL ESTABLISH VIRTUAL PRIVATE NETWORK (VPN) ACCESS TO THE MAINE MALL TRAFFIC SIGNAL SYSTEM CONTROL COMPUTER. THE WORK STATION SHALL BE LOADED WITH APPLICABLE PACTS SOFTWARE, CONFIGURED FOR REMOTE VPN ACCESS TO THE MAINE MALL TRAFFIC SIGNAL SYSTEM AND TESTED FOR REMOTE MONITORING OF THE BIDDEFORD TRAFFIC SIGNALS.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING THE PROJECT WITH WORKING AND FULLY CONFIGURED CONTROLLERS FOR EACH INTERSECTION, DELIVERY AND INTEGRATION OF THE NEW INTERSECTIONS INTO THE EXISTING CENTRAL SYSTEM, INSTALLATION OF THE CENTRAL AND LOCAL INTERSECTION COMMUNICATIONS INTERFACE, AND COORDINATION WITH THE INFORMATION TECHNOLOGY (IT) PERSONNEL AT THE CITY OF BIDDEFORD (CONTACT WILLIAM GOOCH 207-571-1626). THE CONTRACTOR IS FURTHER RESPONSIBLE FOR ANY LOCAL WIRING AT THE CITY OF BIDDEFORD'S SYSTEM COMPUTER LOCATION, SYSTEM START-UP AND SYSTEM LOADING, ACCEPTANCE TESTING, TRAINING AND SYSTEM MAINTENANCE.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FURNISHING AND INSTALLING ALL EQUIPMENT NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL TRAFFIC SIGNAL SYSTEMS. THE CONTRACTOR SHALL BE AWARE OF AND CONFORM TO ALL DETAILS FOR THE MATERIAL SPECIFICATIONS IN SPECIAL PROVISION 718.

23. START-UP AND SYSTEM LOADING

THE SYSTEM SUPPLIER SHALL INITIATE COMPLETE SYSTEM OPERATION FROM THE CONTROLLER AND SYSTEM TIMING SCHEDULES SHOWN ON THE PLANS OR DATA SUPPLIED BY THE ENGINEER AND SHALL INITIATE STOPLINE DETECTORS LOGGING OPERATION AT THE DIRECTION OF THE ENGINEER. AFTER THE SUPPLIER HAS INITIATED SYSTEM OPERATION AND DETECTOR LOGGING, THE SYSTEM SHALL BE RUN FOR A CONTINUOUS 7-DAY INITIAL OPERATIONAL TESTING PERIOD. IF ANY MAJOR FUNCTIONS OF THE SYSTEM FAIL TO OPERATE DURING THIS TESTING PERIOD, AS DETERMINED BY THE ENGINEER, THE SUPPLIER SHALL CORRECT OR REPAIR THE SYSTEM AND THE CONTINUOUS 7-DAY TESTING PERIOD SHALL BE RESTARTED. AT THE COMPLETION OF A SUCCESSFUL 7-DAY TESTING PERIOD, THE SUPPLIER SHALL ADVISE THE ENGINEER THAT THE SYSTEM IS READY FOR THE START-UP PHASE. WITHIN 7 DAYS OF COMPLETION OF THE INITIAL TESTING PERIOD, AND NOTIFICATION TO THE ENGINEER WITH ON-SITE ASSISTANCE FROM THE SUPPLIER'S ENGINEER, THE CONTRACTOR SHALL BEGIN LOADING THE SYSTEM FOR FULL COORDINATED OPERATIONS AS APPLICABLE. AFTER COORDINATION HAS BEEN INITIATED AND RUN FOR APPROXIMATELY TWO WEEKS, THE ENGINEER SHALL EVALUATE SYSTEM OPERATION AND MAKE ADJUSTMENTS AS NECESSARY. THE SUPPLIER'S ENGINEER DOES NOT NEED TO BE ON-SITE DURING THIS PERIOD, BUT MUST BE AVAILABLE BY TELEPHONE OR BY DEMAND ON-SITE AS NEEDED. ANY MAJOR SYSTEM MALFUNCTIONS ENCOUNTERED DURING THIS TESTING PERIOD SHALL BE CORRECTED BY THE SUPPLIER, AND THE TEST RESTARTED. DURING THIS PERIOD THE ENGINEER MAY MAKE MODIFICATIONS TO THE SYSTEM TIMING PARAMETERS, BUT THIS WILL NOT CAUSE RESTARTING OF THE TESTING PERIOD. AT THE COMPLETION OF THE COORDINATION TESTING PERIOD THE SYSTEM WILL BE DEEMED READY FOR FINAL ACCEPTANCE TESTING AS DESCRIBED BELOW. TESTING OF CONTROLLERS PER SECTION 718.07 IS NOT REQUIRED.

24. ACCEPTANCE TESTING

UPON COMPLETION OF THE 14-DAY COORDINATION TESTING PERIOD, THE ENGINEER SHALL EVALUATE SYSTEM OPERATION. IT IS EXPECTED THAT THE COMPLETE SYSTEM SHALL OPERATE FULLY FUNCTIONAL AT THE CITY OF BIDDEFORD AND THE REMOTE LOCATIONS FOR A PERIOD OF 30 CONSECUTIVE DAYS WITHOUT MALFUNCTION. MINOR MALFUNCTIONS OF INOPERABILITY NOT THE FAULT OF THE CONTRACTOR, AS JUDGED BY THE ENGINEER, ARE NOT INCLUDED IN THE 30-DAY PERIOD. IF THE SYSTEM FAILS TO OPERATE AS INTENDED OR THE SUPPLIER'S CLAIMS, THE MALFUNCTION SHALL BE CORRECTED BY THE CONTRACTOR AT ITS COST AND A NEW 30-DAY TESTING PERIOD SHALL BEGIN. THIS PROCESS SHALL CONTINUE UNTIL A COMPLETELY OPERABLE SYSTEM IS DEMONSTRATED FOR A CONSECUTIVE 30-DAY PERIOD.

ACCEPTANCE TESTING MUST DEMONSTRATE TO THE ENGINEER'S REASONABLE SATISFACTION THAT THE HARDWARE AND LICENSED SOFTWARE FUNCTION IN ACCORDANCE WITH THE SPECIFICATIONS, REQUIREMENTS, THROUGH-PUTS, FUNCTIONALITIES, PERFORMANCE CRITERIA OR OTHER BENEFITS STATED IN DOCUMENTATION, PROMOTIONAL MATERIALS, PROPOSALS, AND/OR DEMONSTRATIONS GIVEN TO MAINEDOT AND THE CITY OF BIDDEFORD.

25. TRAINING

THE CONTRACTOR SHALL PROVIDE A 2 DAY (12 HOUR MINIMUM) HANDS-ON SYSTEM TRAINING CLASS, WHICH SHALL COVER THE GENERAL OPERATIONS AND MAINTENANCE OF THE MAINE MALL TRAFFIC SIGNAL SYSTEM AS IT RELATES TO THE INTEGRATION OF THE BIDDEFORD TRAFFIC SIGNALS. THE TRAINING SHALL BE DESIGNED FOR THE PRIMARY LOCAL JURISDICTION PERSONNEL AND SUPPLEMENTAL PERSONNEL WHO WILL USE AND MONITOR THE SYSTEM. THE CONTRACTOR SHOULD BUDGET FOR UP TO 6 ATTENDEES.

DOCUMENTATION SHALL BE PROVIDED EXPLAINING THE OPERATION OF ALL SYSTEM FEATURES. HARD COPIES OF ALL HANDOUTS USED DURING TRAINING SHALL BE DISTRIBUTED. THE CONTRACTOR IS EXPECTED TO PRESENT CLEAR AND ORGANIZED INSTRUCTION. THE INITIAL TRAINING SHALL CONSIST MINIMALLY OF THE FOLLOWING:

- SYSTEM OPERATION, SYSTEM PERFORMANCE ANALYSIS, AND REVISION OF SYSTEM OPERATING PARAMETERS BASED ON THE ANALYSIS.
- FAMILIARITY WITH CONSTRUCTION DETAILS OF CENTRAL OFFICE EQUIPMENT (DISCONNECT LOCATIONS, CABLE ROUTING ETC.).
- HOW TO ENTER SYSTEM RELATED COMMANDS.
- OPERATION OF ALL DEVICES.
- GENERATION AND EDITING OF INTERSECTION CONTROLLERS.
- UPLOADING/DOWNLOADING OF INTERSECTION CONTROLLER DATABASES.
- PROCEDURE FOR ENABLING DYNAMIC DISPLAYS.
- EXPLANATION OF THE COMMUNICATION SYSTEM.
- BASIC TROUBLESHOOTING PROCEDURES TO ISOLATE MALFUNCTIONS.
- THE CONTRACTOR SHALL SUPPLY A COURSE SYLLABUS FOR EACH PROPOSED TRAINING DAY FOR APPROVAL BY THE ENGINEER AT LEAST 7 BUSINESS DAYS PRIOR TO THE SCHEDULED COURSE. THE SYLLABUS SHALL INCLUDE A DESCRIPTION OF THE TOPICS COVERED, THE LEVEL OF DETAIL TO BE COVERED IN THE CLASS, AND THE NUMBER OF TEACHING HOURS INCLUDED IN THE CLASS. THE CONTRACTOR SHALL ALSO SUPPLY A LIST OF EQUIPMENT, SOFTWARE, AND MANUALS TO BE PROVIDED FOR THE TRAINING AT LEAST 5 BUSINESS DAYS PRIOR TO THE SCHEDULED COURSE. ALL TRAINING CLASSES SHALL MAKE USE OF THE SYSTEM DATA COLLECTED DURING THE START-UP PHASE OF THE PROJECT.

26. SYSTEM MAINTENANCE

THE SYSTEM MUST COME WITH A MINIMUM FIVE (5) YEAR SOFTWARE MAINTENANCE AGREEMENT TO BECOME EFFECTIVE WHEN THE PROPOSED SYSTEM HAS BEEN ACCEPTED, IN WRITING, BY MAINEDOT AND THE CITY OF BIDDEFORD.

SOFTWARE UPDATES SHALL BE PROVIDED FREE OF CHARGE FOR FIVE (5) YEARS FROM DATE OF SYSTEM ACCEPTANCE. SOFTWARE CORRECTIONS OR REQUIRED MODIFICATIONS FOR PROPER SYSTEM OPERATION PER THESE SPECIFICATIONS SHALL BE FURNISHED TO MAINEDOT AND THE CITY OF BIDDEFORD AT NO ADDITIONAL COST DURING THE WARRANTY PERIOD.

HARDWARE EQUIPMENT SHALL BE WARRANTED FOR THREE (3) YEARS, EFFECTIVE WHEN THE INSTALLED AND FUNCTIONAL SYSTEM HAS BEEN ACCEPTED, IN WRITING, BY MAINEDOT AND THE CITY OF BIDDEFORD.

THIRD PARTY HARDWARE AND SOFTWARE LICENSES AND WARRANTIES SHALL BE PASSED TO MAINEDOT AND THE CITY OF BIDDEFORD.

27. UNDER BID OPTION #2 AT THE INTERSECTION OF ROUTE 111 AND EDWARDS AVENUE, THE CONTRACTOR SHALL REPLACE ANY EXISTING LOCAL INTERSECTION WIRE LOOP DETECTORS THAT ARE NOT FUNCTIONING PRIOR TO SYSTEM START-UP AND LOADING. THE CONTRACTOR SHALL ALSO RE-INSPECT THE SIGNALIZED INTERSECTION DURING THE ACCEPTANCE TESTING PERIOD AND REPLACE EACH NON-FUNCTIONING LOOP DETECTOR AND CERTIFY THAT ALL LOOP DETECTORS ARE FUNCTIONING PROPERLY BEFORE FINAL ACCEPTANCE IS GRANTED. THE CONTRACTOR SHALL NOTIFY AND RECEIVE AUTHORIZATION FROM THE ENGINEER BEFORE REPLACING ANY MALFUNCTIONING LOOP DETECTOR.

28. SALVAGE RIGHTS: THE CITY OF BIDDEFORD SHALL HAVE FIRST RIGHTS TO ALL EQUIPMENT REMOVED OR REPLACED BY THE PROJECT (CONTACT POLICE CHIEF BEAUPRE AT 207-282-5127). ADDITIONALLY, ANY MUNICIPAL CABLE REMOVED FROM UTILITY POLES SHALL BE SALVAGED BACK TO THE CITY OF BIDDEFORD FIRE DEPARTMENT. THE CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ALL EQUIPMENT CLAIMED BY THE CITY OF BIDDEFORD AT A CENTRAL LOCATION ON SITE FOR RETRIEVAL BY THE CITY. THE STORAGE AREA SHALL BE SECURE AND ALL CONTROL EQUIPMENT REMOVED THAT HAS COMPUTER CHIP TECHNOLOGY SHALL BE STORED IN AN INTERIOR HEATED ENVIRONMENT.

ANY EQUIPMENT NOT CLAIMED BY THE CITY OF BIDDEFORD FOR SALVAGE SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF IN A MANNER ACCEPTABLE TO THE ENGINEER.

29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING RED-LINE AS-BUILT DRAWINGS OF THE FINAL WORK TO THE ENGINEER. THOSE DRAWINGS SHALL BE ON A CLEAN SET OF PLANS SHOWING ALL CHANGES OR MODIFICATIONS TO THE BID PLANS.

30. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE RELOCATION OF POWER METERS IF REQUIRED. THIS WORK WILL BE INCIDENTAL TO ITEM 643.71 AS APPLICABLE TO THE LOCATION OF THE WORK.

31. THE CONTRACTOR SHALL PERFORM THE WORK IN A MANNER THAT WILL REQUIRE THE LEAST AMOUNT OF DOWNTIME TO THE TRAFFIC SIGNAL OPERATIONS. THE CONTRACTOR MUST PROVIDE UNIFORMED TRAFFIC OFFICERS IF DEEMED NECESSARY BY THE RESIDENT. ANY CHARGES WILL BE PAID FOR UNDER ITEM 652.381.

32. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MAINE DEPARTMENT OF TRANSPORTATION'S BEST MANAGEMENT PRACTICES FOR EROSION CONTROL & SEDIMENT CONTROL, FEBRUARY, 2008.

33. THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION (MDEP) HAS REPORTED SPILLS AND RELEASES INVOLVING PETROLEUM PRODUCTS ADJACENT TO THE PROJECT. BASED ON THE SCOPE OF WORK PRESENTED, AVAILABLE DATA SUGGESTS THAT THIS CONTRAMINATION MAY ONLY BE ADJACENT TO THE IMMEDIATE AREAS OF ANY EXCAVATION PROPOSED BY MAINEDOT. HOWEVER, IN LIGHT OF MDEP'S FINDINGS, THE CONTRACTOR SHALL EMPLOY APPROPRIATE HEALTH AND SAFETY MEASURES TO PROTECT ITS WORKERS AGAINST HAZARDS ASSOCIATED WITH WORKING NEAR PETROLEUM-IMPACTED SOILS. FURTHERMORE, THE CONTRACTOR SHALL REMAIN ALERT FOR ANY ADDITIONAL EVIDENCE OF CONTAMINATION. IF THE CONTRACTOR ENCOUNTERS EVIDENCE OF SOIL OR GROUNDWATER CONTAMINATION, THE CONTRACTOR SHALL SECURE THE EXCAVATION, STOP WORK IN THE CONTAMINATED AREA, AND IMMEDIATELY NOTIFY THE RESIDENT. THE RESIDENT SHALL CONTACT THE HYDROGEOLOGIST IN MDOT'S ENVIRONMENTAL OFFICE AT 207-624-3100 AND THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION AT (800) 482-0777. WORK MAY ONLY CONTINUE WITH AUTHORIZATION FROM THE RESIDENT.

34. THE CONTRACTOR IS DIRECTED TO PROJECT SPECIAL PROVISION 718 FOR ADDITIONAL INFORMATION RELATED TO THE FOLLOWING:

- 718.12 TRAFFIC SIGNAL CONTROL SYSTEM
- 718.13 SINGLE MODE FIBER OPTIC CABLE
- 718.14 FIBER OPTIC SPLICE ENCLOSURES
- 718.15 TWELVE (12) POSITION FIBER OPTIC PATCH PANEL
- 718.16 ETHERNET SWTICH WITH FIBER OPTIC INTERFACES
- 718.17 MESSENGER WIRE
- 718.18 PEDESTRIAN CROSSING SYSTEM
- 718.19 EMERGENCY VEHICLE PREEMPTION SYSTEM (BID OPTION #1)
- 718.20 VIDEO BASED 360 DEGREE DETECTION DEVICES

SPECIAL PROVISION 718 EXPANDS UPON THE INFORMATION FOUND IN THESE GENERAL NOTES. AS SUCH, THE MORE RESTRICTIVE LANGUAGE BETWEEN THESE GENERAL NOTES AND SPECIAL PROVISION 718 SHALL GOVERN THE WORK TO BE PERFORMED UNDER THIS PROJECT.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SLENNEN	C. BOBAY	02-2013
DESIGN2-DETAILED2	-----	-----	-----
DESIGN3-DETAILED3	-----	-----	-----
REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	-----		-----
REVISIONS 4	-----		-----
FIELD CHANGES	-----		-----

SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

GENERAL NOTES

SHEET NUMBER

3

OF 16

Filename: ...\planset\003_GeneralNotes.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/27/2013

SUMMARY OF QUANTITIES (ESTIMATE)

THIS INFORMATION IS FOR BIDDING PURPOSES ONLY

BASE PROJECT

BASE PROJECT

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY
203.20	COMMON EXCAVATION	CY	2.0
403.209	HOT MIX ASPHALT 9.5mm NOMINAL (SIDEWALK)	T	3.0
424.37	CRACK REPAIR	LF	4500.0
608.08	REINFORCED CONCRETE SIDEWALK	SY	6.0
608.26	CURB RAMP DETECTABLE WARNING FIELDS	SF	30.0
626.21	METALLIC CONDUIT	LF	75.0
626.22	NON-METALLIC CONDUIT	LF	145
626.31	18-INCH FOUNDATION (PEDESTAL POLE)	EA	8
627.18	12" SOLID WHITE PAVEMENT MARKING LINE	LF	230.0
627.407	REFLECTORIZED PLASTIC WHITE OR YELLOW PAVEMENT MARKING	SF	680.0
627.733	4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	LF	8950.0
627.744	6" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	LF	1050.0
629.05	HAND LABOR - STRAIGHT TIME	MH	20.0
631.12	ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	HR	10.0
631.172	TRUCK, LARGE (INCLUDING OPERATOR)	HR	10.0
643.60	FLASHING BEACON: ALFRED STREET AT MIDBLOCK CROSSING	LS	1
643.71	TRAFFIC SIGNAL MODIFICATION: US ROUTE 1 & ALFRED STREET	LS	1
643.81	TRAFFIC SIGNAL CONTROL SYSTEM	LS	1
643.83	VIDEO DETECTION SYSTEM: US ROUTE 1 & ALFRED STREET	LS	1
643.90	INTERCONNECT WIRE BETWEEN: WEST STREET & FIRE DEPT	LS	1
643.92	PEDESTAL POLE (10')	EA	5
643.92	PEDESTAL POLE (4')	EA	3
643.94	DUAL PURPOSE POLE	EA	1
652.33	DRUM	EA	100
652.34	CONE	EA	100
652.35	CONSTRUCTION SIGNS	SF	400
652.36	MAINTENANCE OF TRAFFIC CONTROL DEVICES	CD	80
652.381	TRAFFIC OFFICER	HR	240
652.41	PORTABLE CHANGEABLE MESSAGE SIGN	EA	5
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	1
659.10	MOBILIZATION	LS	1

BASE PROJECT

EQUIPMENT AND WORK ITEMS (643.71)	QUANTITY
FURNISH AND INSTALL NEW NAZTEC NEMA TS2, TYPE 2 ETHERNET EQUIPPED CONTROLLER	1
FURNISH AND INSTALL NEW ETHERNET EQUIPPED ENHANCED CONFLICT MONITOR/MALFUNCTION MANAGEMENT UNIT (MMU)	1
FURNISH AND INSTALL ONE-WAY, 3-SECTION 12-INCH POST MOUNTED FEDERAL YELLOW SIGNAL HEADS WITH VISORS	1
FURNISH AND INSTALL ONE-WAY, 3-SECTION 12-INCH BRACKET MOUNTED FEDERAL YELLOW SIGNAL HEADS WITH VISORS	1
FURNISH AND INSTALL RETROREFLECTIVE LOUVERED BACKPLATES ON EXISTING AND PROPOSED SIGNAL HEADS	23
FURNISH AND INSTALL ONE-WAY, 16 X 18 INCH LED POST MOUNTED COUNTDOWN PEDESTRIAN SIGNAL HEAD PAINTED BLACK	1
FURNISH AND INTALL ONE-WAY, 16 X 18 INCH LED BRACKET MOUNTED COUNTDOWN PEDESTRIAN SIGNAL HEADS PAINTED BLACK	13
FURNISH AND INSTALL ADA COMPLIANT ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSH BUTTON WITH R10-3e INFORMATIONAL SIGN	14
FURNISH AND INSTALL ENVIRONMENTALLY HARDENED FIBER ETHERNET SWITCH	1
FURNISH AND INSTALL DUAL USE SPLICE ENCLOSURE AND 12-POSITION PATCH PANEL	1
FURNISH AND INSTALL MAST ARM, BRACKET AND POST MOUNTED SIGNS	24
FURNISH AND INSTALL MAST ARM MOUNTED LED SIGN	1
REMOVE/ADJUST EXISTING SIGNS	14

BASE PROJECT

EQUIPMENT AND WORK ITEMS (643.71)	QUANTITY
FURNISH AND INSTALL ADA COMPLIANT PEDESTRIAN 2-INCH MUSHROOM TYPE PUSH BUTTON WITH R10-25 INFORMATIONAL SIGN	2
FURNISH AND INSTALL SOLAR POWERED RAPID FLASHING WIRELESS ASSEMBLY	2
2 SETS OF BOX PRINTS AND EQUIPMENT MANUALS IN CONTROLLER CABINET	1
NEW SIGNAL CABLES	-
IMPLEMENT LOCAL AND SYSTEM TIMING	-

BASE PROJECT

EQUIPMENT AND WORK ITEMS (643.60)	QUANTITY
FURNISH AND INSTALL POST MOUNTED SIGNS	8
FURNISH AND INSTALL ADA COMPLIANT PEDESTRIAN 2-INCH MUSHROOM TYPE PUSH BUTTON WITH R10-25 INFORMATIONAL SIGN	2
FURNISH AND INSTALL SOLAR POWERED RAPID FLASHING WIRELESS ASSEMBLY	4

BID OPTIONS

BID OPTION #1 - INSTALL INTERCONNECT WIRE AT ALFRED STREET AND EDWARDS AVENUE

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY
643.90	INTERCONNECT WIRE BETWEEN: WEST STREET & EDWARDS AVENUE	LS	1

BID OPTION #2 - SIGNAL MODERNIZATION AND INTERCONNECTION AT ALFRED STREET AND EDWARDS AVENUE

ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY
203.20	COMMON EXCAVATION	CY	2.0
403.209	HOT MIX ASPHALT 9.5mm NOMINAL (SIDEWALK)	T	2.0
608.08	REINFORCED CONCRETE SIDEWALK	SY	4.0
608.26	CURB RAMP DETECTABLE WARNING FIELDS	SF	20.0
626.21	METALLIC CONDUIT	LF	45.0
626.22	NON-METALLIC CONDUIT	LF	80
626.31	18-INCH FOUNDATION (PEDESTAL POLE)	EA	1
627.407	REFLECTORIZED PLASTIC WHITE OR YELLOW PAVEMENT MARKING	SF	50.0
627.77	REMOVING PAVEMENT MARKINGS	SF	50.0
629.05	HAND LABOR - STRAIGHT TIME	MH	4.0
643.71	TRAFFIC SIGNAL MODIFICATION: ME ROUTE 111 & EDWARDS AVENUE	LS	1
643.92	PEDESTAL POLE (4')	EA	1
652.381	TRAFFIC OFFICER	HR	8

BID OPTION #2

EQUIPMENT AND WORK ITEMS (643.71)	QUANTITY
FURNISH AND INSTALL NEW NAZTEC NEMA TS2, TYPE 1 ETHERNET EQUIPPED CONTROLLER	1
FURNISH AND INSTALL NEW ETHERNET EQUIPPED ENHANCED CONFLICT MONITOR/MALFUNCTION MANAGEMENT UNIT (MMU)	1
FURNISH AND INSTALL ONE-WAY, 5-SECTION 12-INCH FEDERAL YELLOW SIGNAL HEADS WITH VISORS ON MAST ARM WITH ASTRO-BRACKET	1
FURNISH AND INSTALL RETROREFLECTIVE LOUVERED BACKPLATES ON EXISTING AND PROPOSED SIGNAL HEADS	10
FURNISH AND INSTALL ONE-WAY, 16 X 18 INCH LED POST MOUNTED COUNTDOWN PEDESTRIAN SIGNAL HEAD PAINTED BLACK	1
FURNISH AND INSTALL ONE-WAY, 16 X 18 INCH LED BRACKET MOUNTED COUNTDOWN PEDESTRIAN SIGNAL HEAD PAINTED BLACK	1
FURNISH AND INSTALL ADA COMPLIANT ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSH BUTTON WITH R10-3e INFORMATIONAL SIGN	2
FURNISH AND INSTALL ENVIRONMENTALLY HARDENED FIBER ETHERNET SWITCH	1
FURNISH AND INSTALL DUAL USE SPLICE ENCLOSURE AND 12-POSITION PATCH PANEL	1
FURNISH AND INSTALL MAST ARM MOUNTED SIGNS	8
FURNISH AND INSTALL 4-CHANNEL PREEMPTION PHASE SELECTOR WITH SYSTEM CHASSIS	1
FURNISH AND INSTALL OPTICAL PREEMPTION RECEIVERS WITH DETECTOR CABLE	4
FURNISH AND INSTALL PREEMPTION CONFIRMATION RED STROBE WITH CABLE	1
2 SETS OF BOX PRINTS AND EQUIPMENT MANUALS IN CONTROLLER CABINET	1
2-INCH WEATHERHEAD ON POLE RISER	1
FIBER OPTIC SPLICES	2
PULL FIBER OPTIC CABLE FROM UTILITY POLE INTO CONTROLL CABINET	-
NEW SIGNAL CABLES	-
IMPLEMENT LOCAL AND SYSTEM TIMING	-

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SUENNEN	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

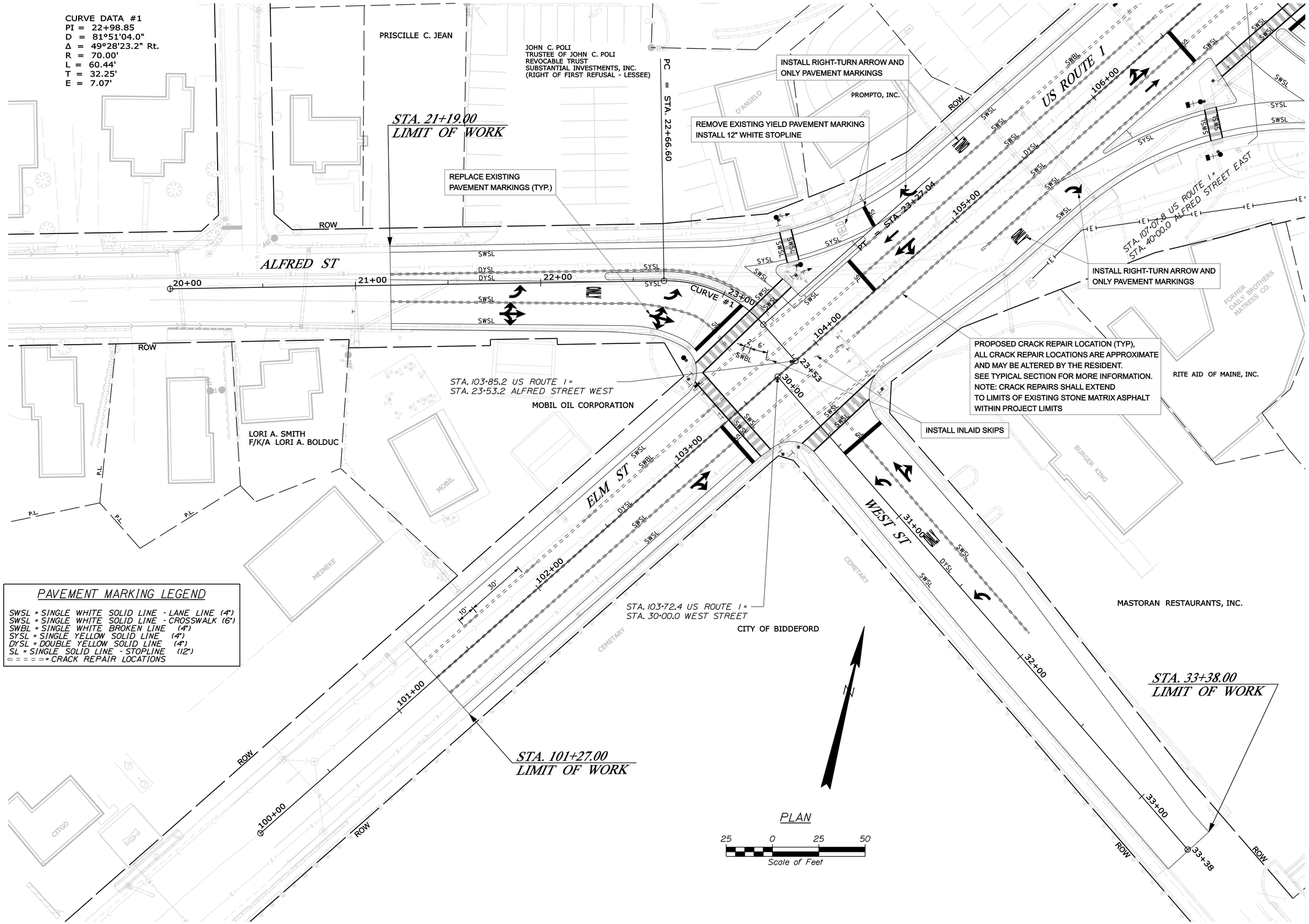
ESTIMATED QUANTITIES

SHEET NUMBER

4

OF 16

Filename: ...\te\planset\004_Quantities.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN
19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	F. KOCZALKA	J. ROBERT	02-2013
CHECKED-REVIEWED	T. GRANDE	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE

P.E. NUMBER

DATE

INTERSECTION 1

BIDDEFORD
ROUTE 111

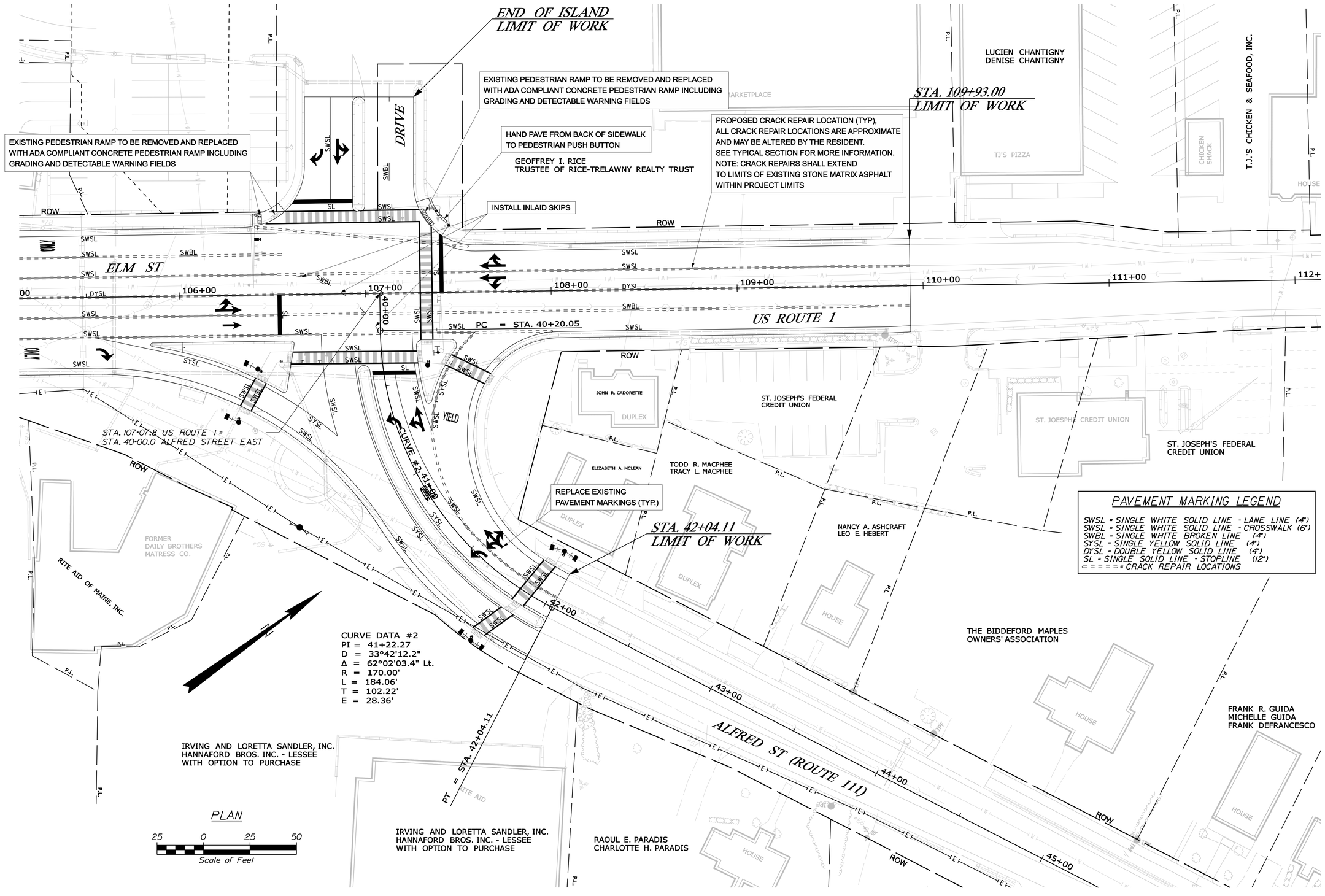
GENERAL PLAN

SHEET NUMBER

5

OF 16

Filename: ...\cad\te\planset\005_HDPlan1.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013



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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	B. KEEZER		
DESIGN-DETAILED	F. KOCZALKA	J. ROBERT	02-2013
CHECKED-REVIEWED	T. GRANDE	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE

P.E. NUMBER

DATE

INTERSECTION 2

BIDDEFORD
ROUTE 111

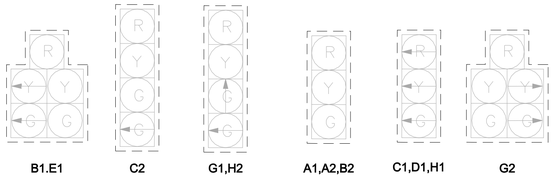
GENERAL PLAN

SHEET NUMBER

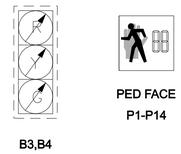
6

OF 16

EXISTING INDICATIONS
(TO BE RETAINED WITH NEW RETROREFLECTIVE BACKPLATES)



PROPOSED INDICATIONS
(WITH NEW RETROREFLECTIVE BACKPLATES)



EMERGENCY VEHICLE PRE-EMPTION OPERATION

ID	PREEMPT ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
R1	3	2	Ø6
R2	4	3	Ø2
R3	5	4	Ø3
R4	6	5	Ø4
R5	7	6	Ø7

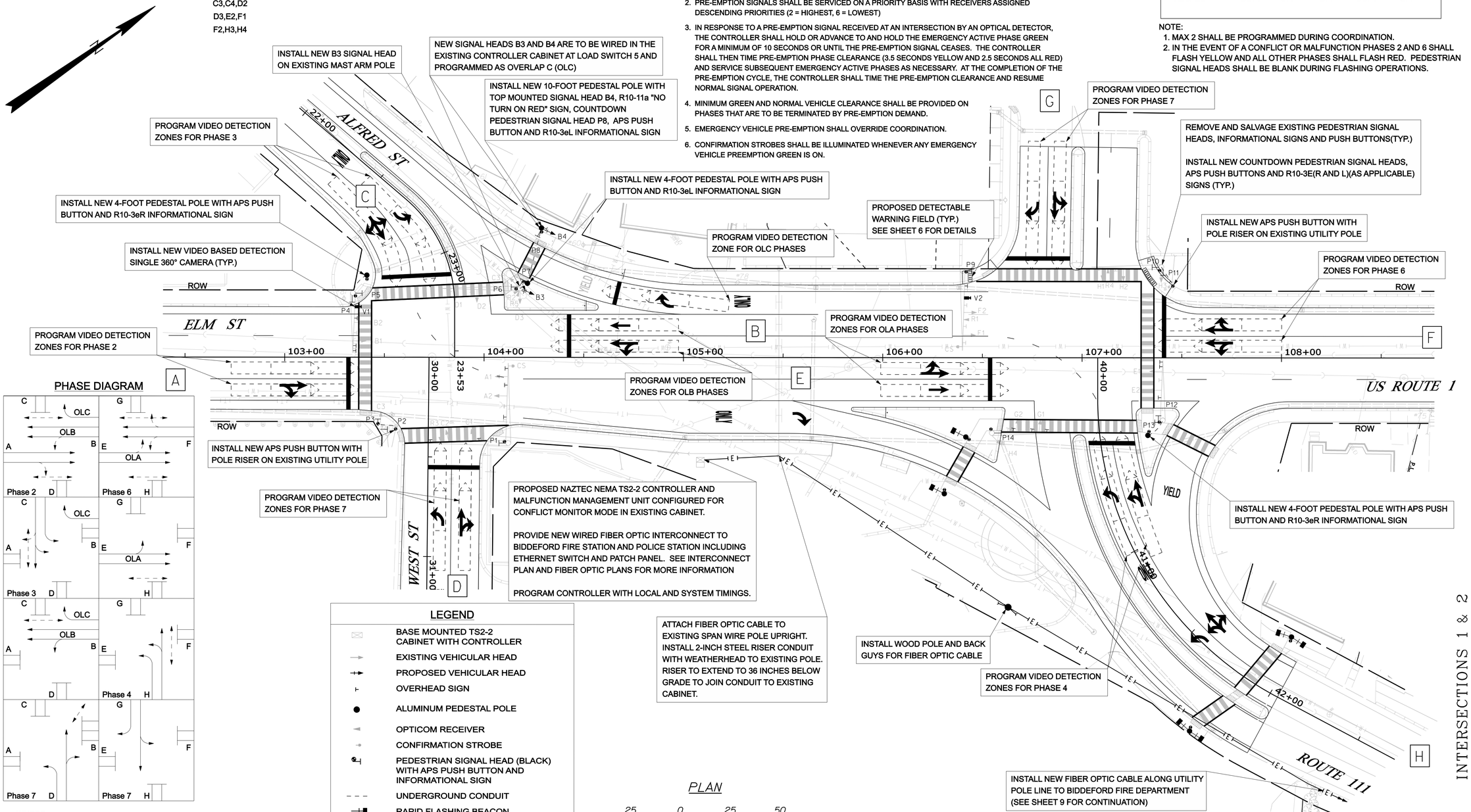
EMERGENCY VEHICLE PRE-EMPTION NOTES:

1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (PROVIDED BY OTHERS) MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
2. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (2 = HIGHEST, 6 = LOWEST)
3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3.5 SECONDS YELLOW AND 2.5 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
4. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
5. EMERGENCY VEHICLE PRE-EMPTION SHALL OVERRIDE COORDINATION.
6. CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PREEMPTION GREEN IS ON.

SIGNAL TIMING

	PHASE 2	PHASE 3	PHASE 4	PHASE 6	PHASE 7
MIN GREEN	10	8	8	10	8
EXTENSION	3.0	3.0	3.0	3.0	3.0
MAX 1	30	25	25	30	15
MAX 2	60	35	30	60	25
VEH CLEAR	3.5	3.5	3.5	3.5	3.5
RED CLEAR	2.5	2.5	2.5	2.5	2.5
WALK	4	4	4	4	-
PED CLEAR	16	13	15	19	-
RECALL	SOFT	OFF	OFF	SOFT	OFF

NOTE:
1. MAX 2 SHALL BE PROGRAMMED DURING COORDINATION.
2. IN THE EVENT OF A CONFLICT OR MALFUNCTION PHASES 2 AND 6 SHALL FLASH YELLOW AND ALL OTHER PHASES SHALL FLASH RED. PEDESTRIAN SIGNAL HEADS SHALL BE BLANK DURING FLASHING OPERATIONS.



PHASE DIAGRAM

WHERE:
- PROTECTED TRAFFIC MOVEMENT
- PERMISSIVE TRAFFIC MOVEMENT

PHASE 7 SHALL NOT BE PERMITTED TO OPERATE WITH EITHER PHASE 3 OR PHASE 4.

LEGEND

- BASE MOUNTED TS2-2 CABINET WITH CONTROLLER
- EXISTING VEHICULAR HEAD
- PROPOSED VEHICULAR HEAD
- OVERHEAD SIGN
- ALUMINUM PEDESTAL POLE
- OPTICOM RECEIVER
- CONFIRMATION STROBE
- PEDESTRIAN SIGNAL HEAD (BLACK) WITH APS PUSH BUTTON AND INFORMATIONAL SIGN
- UNDERGROUND CONDUIT
- RAPID FLASHING BEACON
- VIDEO DETECTION CAMERA
- VIDEO DETECTION ZONE

PLAN

25 0 25 50
Scale of Feet

INTERSECTIONS 1 & 2

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	B. KEEZER	
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SLENNEN	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
REVISIONS 1	REMOVE OVERLAY	07-2013
REVISIONS 2	MODIFY BID OPTIONS	07-2013
REVISIONS 3	----	----
REVISIONS 4	----	----
FIELD CHANGES	----	----

SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

TRAFFIC SIGNAL PLAN

SHEET NUMBER
7
OF 16

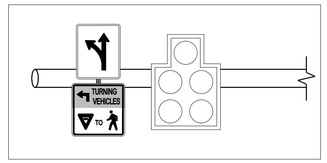
Filename: ...\te\planset\007_Signal_001.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

SIGNAL PLAN NOTES:

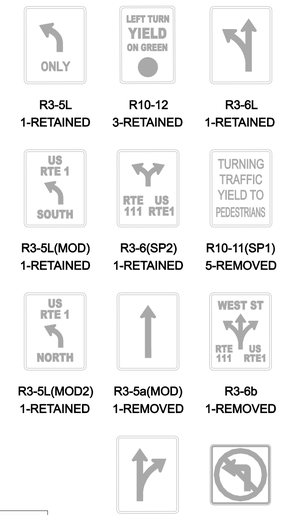
1. THE CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE UTILITY COMPANIES WHEN INSTALLING EQUIPMENT ON THEIR POLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES TO DETERMINE THEIR REQUIREMENTS.
2. THE LOCATIONS OF ALL EQUIPMENT SHOWN ARE APPROXIMATE. FINAL LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE CONSTRUCTION MANAGER.
3. THE COST OF POLE RISERS SHALL BE INCIDENTAL TO ITEM NO. 643.90.
4. THE COST OF OVERHEAD SIGNS SHALL BE INCIDENTAL TO ITEM 643.71.
5. SEE SHEET 4 FOR LIST OF MAJOR ITEMS.

SIGN MOUNTING DETAIL

NOT TO SCALE



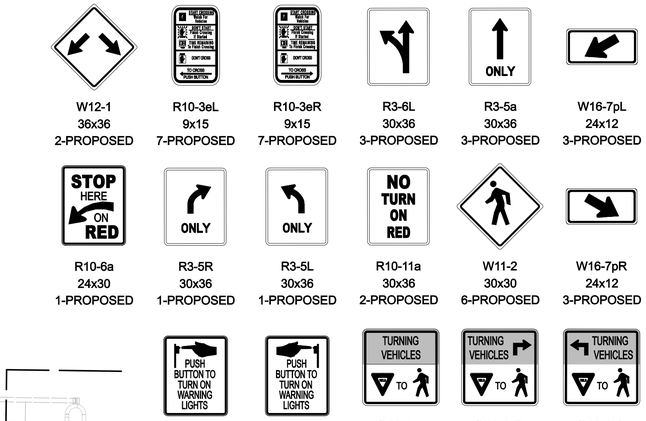
EXISTING MAST ARM SIGNS

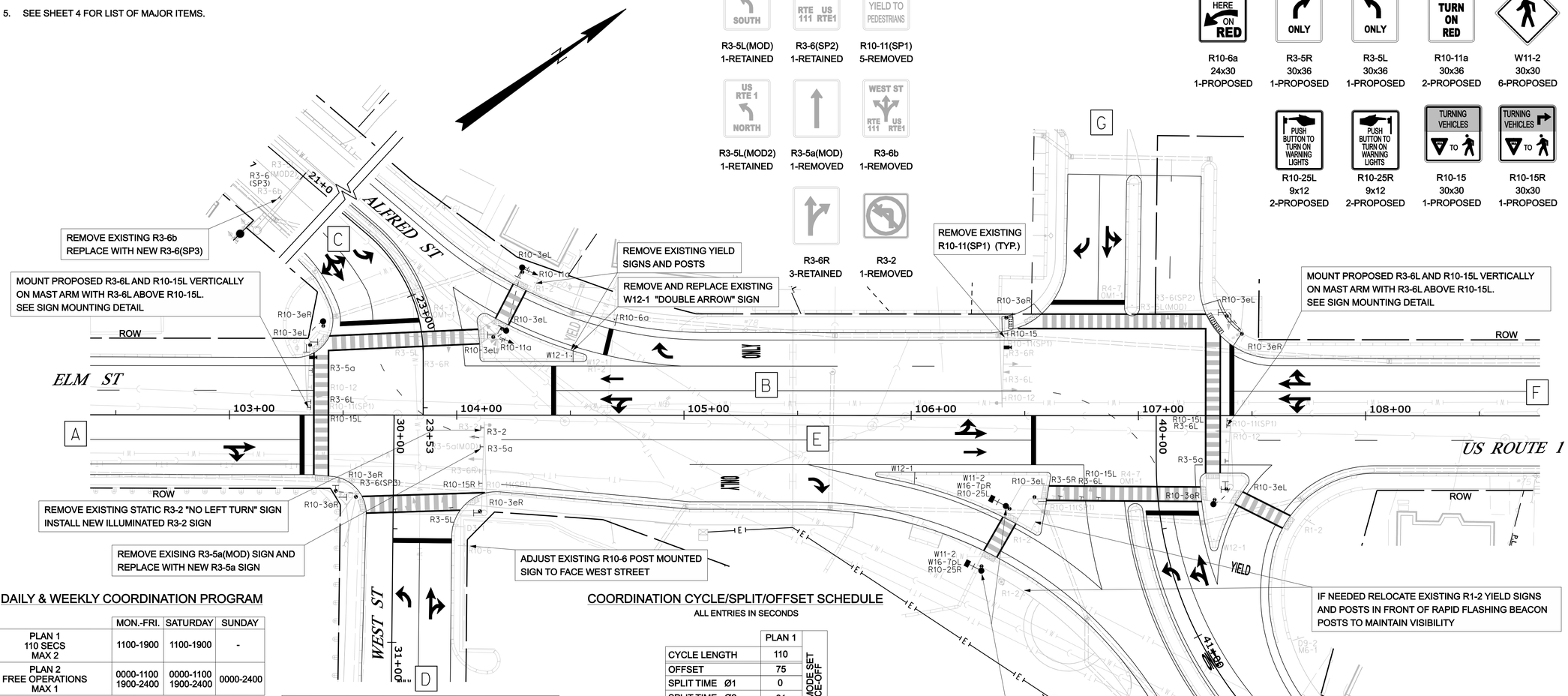


PROPOSED MAST ARM MOUNTED LED SIGN

R3-2
36x36
1-PROPOSED

PROPOSED SIGNS





DAILY & WEEKLY COORDINATION PROGRAM

	MON.-FRI.	SATURDAY	SUNDAY
PLAN 1 110 SECS MAX 2	1100-1900	1100-1900	-
PLAN 2 FREE OPERATIONS MAX 1	0000-1100 1900-2400	0000-1100 1900-2400	0000-2400

LEGEND

- BASE MOUNTED TS2-2 CABINET WITH CONTROLLER
- EXISTING VEHICULAR HEAD
- PROPOSED VEHICULAR HEAD
- OVERHEAD SIGN
- ALUMINUM PEDESTAL POLE
- OPTICOM RECEIVER
- CONFIRMATION STROBE
- PEDESTRIAN SIGNAL HEAD (BLACK) WITH APS PUSH BUTTON AND INFORMATIONAL SIGN
- UNDERGROUND CONDUIT
- RAPID FLASHING BEACON
- VIDEO DETECTION CAMERA
- VIDEO DETECTION ZONE

COORDINATION CYCLE/SPLIT/OFFSET SCHEDULE

ALL ENTRIES IN SECONDS

	PLAN 1	
CYCLE LENGTH	110	COORDINATION MODE SET TO FIXED FORCE-OFF
OFFSET	75	
SPLIT TIME Ø1	0	
SPLIT TIME Ø2	31	
SPLIT TIME Ø3	35	
SPLIT TIME Ø4	28	
SPLIT TIME Ø5	0	
SPLIT TIME Ø6	31	
SPLIT TIME Ø7	16	
SPLIT TIME Ø8	0	

COORDINATION NOTES:

1. OFFSET IS REFERENCED TO THE END OF THE COORDINATED Ø2 & Ø6 PHASE GREEN. NTCIP REFERENCE PHASE 2.
2. COORDINATION TO BE OPERATED BY TIME-OF-DAY.

PLAN

25 0 25 50

Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER			
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013	DATE
CHECKED-REVIEWED	M. SUENNEN	C. BOBAY	02-2013	SIGNATURE
DESIGN2-DETAILED2	----	----	----	P.E. NUMBER
DESIGN3-DETAILED3	----	----	----	DATE
REVISIONS 1	REMOVE OVERLAY		07-2013	
REVISIONS 2	MODIFY BID OPTIONS		07-2013	
REVISIONS 3	----	----	----	
REVISIONS 4	----	----	----	
FIELD CHANGES	----	----	----	

INTERSECTIONS 1 & 2

BIDDEFORD
ROUTE 111

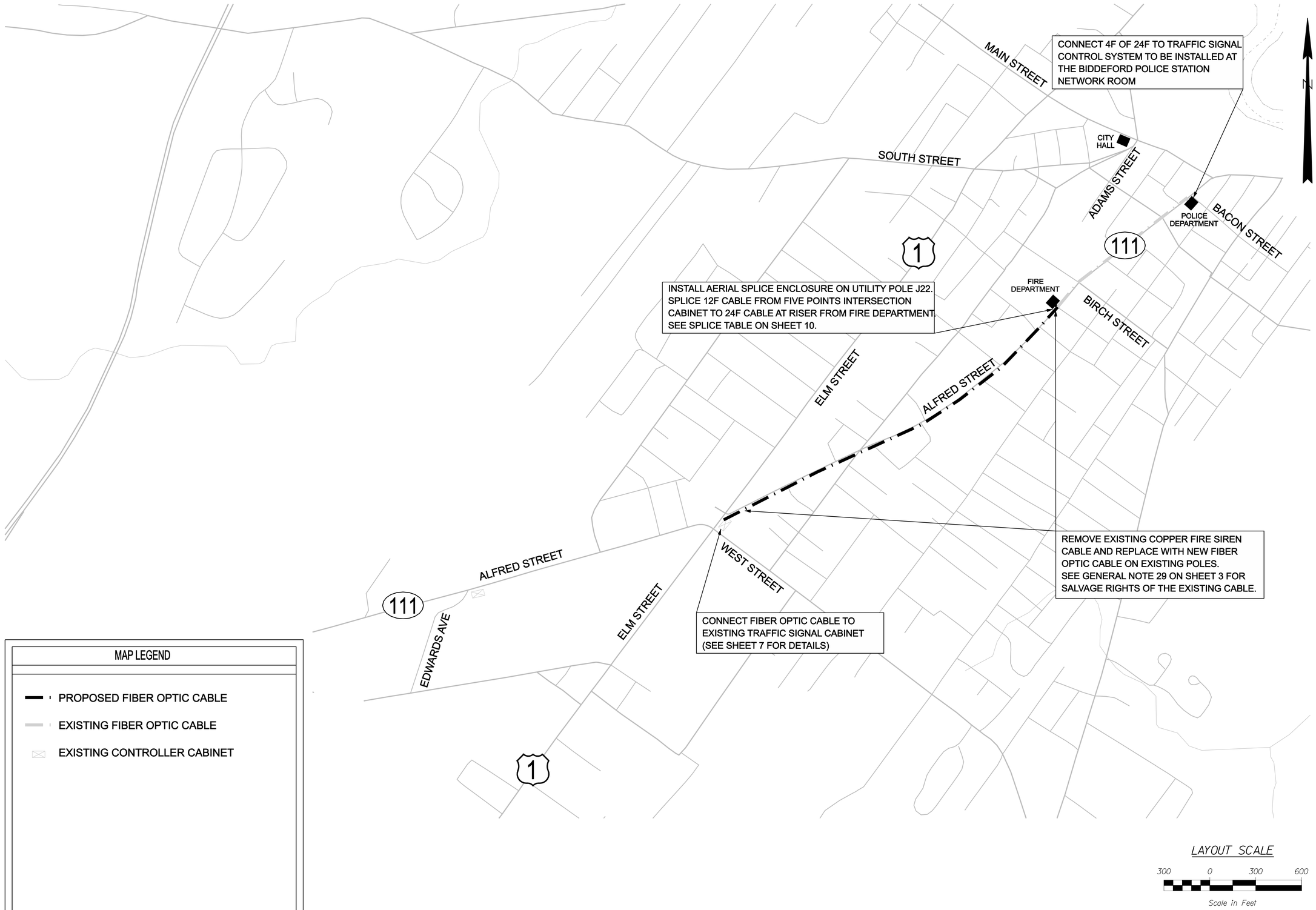
TRAFFIC SIGNAL PLAN

SHEET NUMBER

8

OF 16

Filename: ...\te\planset\008_Signal_002.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013



MAP LEGEND

- PROPOSED FIBER OPTIC CABLE
- EXISTING FIBER OPTIC CABLE
- EXISTING CONTROLLER CABINET

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SUENNEN	C. BOBAY	02-2013
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REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

INTERCONNECT PLAN

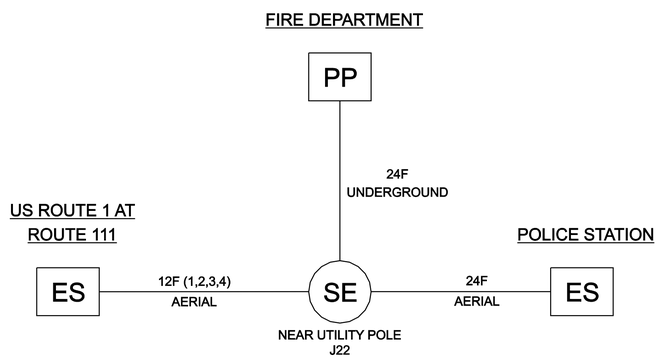
SHEET NUMBER

9

OF 16

Filename: ...\planset\009_Interconnect.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

NETWORK DIAGRAM



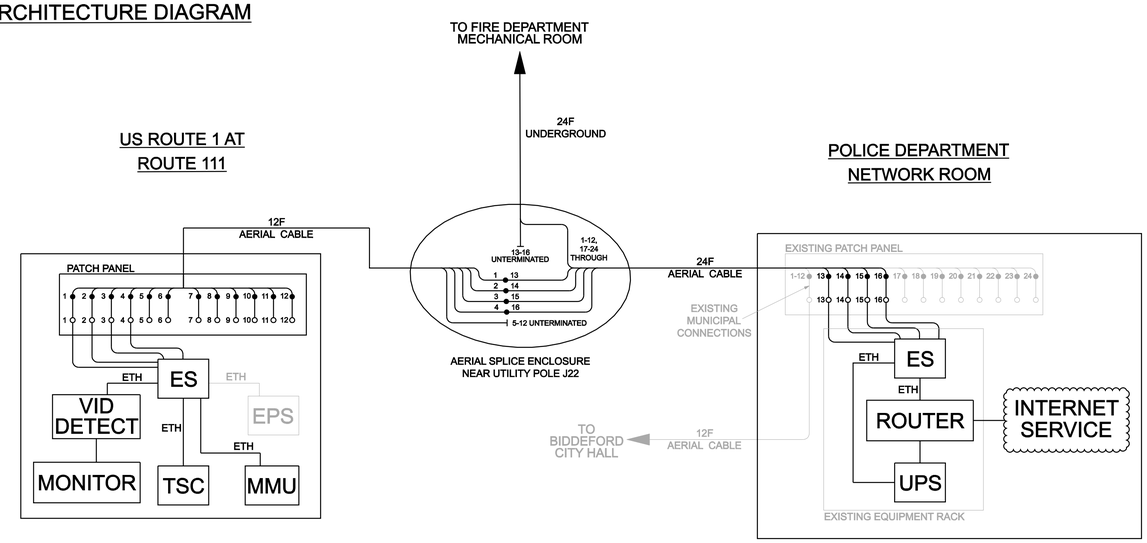
LEGEND

ES -	ETHERNET SWITCH
PP -	PATCH PANEL
SE -	AERIAL SPLICE ENCLOSURE

FIBER OPTIC CABLE CONSTRUCTION NOTES:

1. MANUFACTURED PIGTAILS SHALL BE TERMINATED ON PATCH PANELS.
2. FIBER OPTIC CABLE BENDS SHALL EXCEED THE MINIMUM BENDING RADIUS FOR THE CABLE AT ALL TIMES DURING INSTALLATION, MODIFICATION, REPAIR, SPLICING, OR IN THE PERMANENT CONDITION.
3. FIBER OPTIC CABLE SHALL NOT BE SPLICED EXCEPT AS SHOWN. FIBERS NOT TERMINATED IN A SPLICE ENCLOSURE, PATCH PANEL, OR SHOWN AS THROUGH FIBERS SHALL NOT BE CUT.

SYSTEM ARCHITECTURE DIAGRAM



LEGEND

•—○	FIBER OPTIC PIGTAIL
—•—	FIBER OPTIC SPLICE
ES -	ETHERNET SWITCH
ETH -	ETHERNET CABLE
EPS -	EMERGENCY PREEMPTION SYSTEM
PP -	PATCH PANEL
MONITOR -	VIDEO MONITOR
TSC -	TRAFFIC SIGNAL CONTROLLER
MMU -	MALFUNCTION MANAGEMENT UNIT
UPS -	UNINTERRUPTIBLE POWER SUPPLY
VID DETECT -	VIDEO DETECTION CONTROL UNIT

SPLICE TABLES

FIBER OPTIC SPLICE TABLE
US ROUTE 1 AT ROUTE 111 TRAFFIC SIGNAL CABINET

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
PATCH PANEL AT CONTROLLER CABINET	12F TO J22 SE	1	SPLICE	PIGTAIL	-	ES, PP POSITION 1
	12F TO J22 SE	2	SPLICE	PIGTAIL	-	ES, PP POSITION 2
	12F TO J22 SE	3	SPLICE	PIGTAIL	-	ES, PP POSITION 3
	12F TO J22 SE	4	SPLICE	PIGTAIL	-	ES, PP POSITION 4
	12F TO J22 SE	5	SPLICE	PIGTAIL	-	SPARE, PP POSITION 5
	12F TO J22 SE	6	SPLICE	PIGTAIL	-	SPARE, PP POSITION 6
	12F TO J22 SE	7	SPLICE	PIGTAIL	-	SPARE, PP POSITION 7
	12F TO J22 SE	8	SPLICE	PIGTAIL	-	SPARE, PP POSITION 8
	12F TO J22 SE	9	SPLICE	PIGTAIL	-	SPARE, PP POSITION 9
	12F TO J22 SE	10	SPLICE	PIGTAIL	-	SPARE, PP POSITION 10
	12F TO J22 SE	11	SPLICE	PIGTAIL	-	SPARE, PP POSITION 11
	12F TO J22 SE	12	SPLICE	PIGTAIL	-	SPARE, PP POSITION 12

FIBER OPTIC SPLICE TABLE
SPLICE ENCLOSURE AT UTILITY POLE J22

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
AERIAL SPLICE ENCLOSURE	12F TO ELM STREET	1	SPLICE	24F	13	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	2	SPLICE	24F	14	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	3	SPLICE	24F	15	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	4	SPLICE	24F	16	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	5-12	UNTERMINATED	-	-	SPARE
	24F TO FIRE DEPT	1-12	THROUGH	24F	1-12	THROUGH TO POLICE DEPT
	24F TO FIRE DEPT	13-16	UNTERMINATED	-	-	FIBERS TO BE ABANDONED
	24F TO FIRE DEPT	17-24	THROUGH	24F	17-24	THROUGH TO POLICE DEPT

FIBER OPTIC SPLICE TABLE
POLICE DEPARTMENT NETWORK ROOM

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
existing patch panel	24F TO J22 SE	1-12	existing municipal connections to remain			TO 12F TO CITY HALL
	24F TO J22 SE	13	SPLICE	PIGTAIL	-	ES, PP POSITION 13
	24F TO J22 SE	14	SPLICE	PIGTAIL	-	ES, PP POSITION 14
	24F TO J22 SE	15	SPLICE	PIGTAIL	-	ES, PP POSITION 15
	24F TO J22 SE	16	SPLICE	PIGTAIL	-	ES, PP POSITION 16
	24F TO J22 SE	17-24	existing municipal connections to remain			TO POLICE DEPT NETWORK

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AC-STP-1900(400)X
WIN 19004.00
HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SLENNEN	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE
P.E. NUMBER
DATE

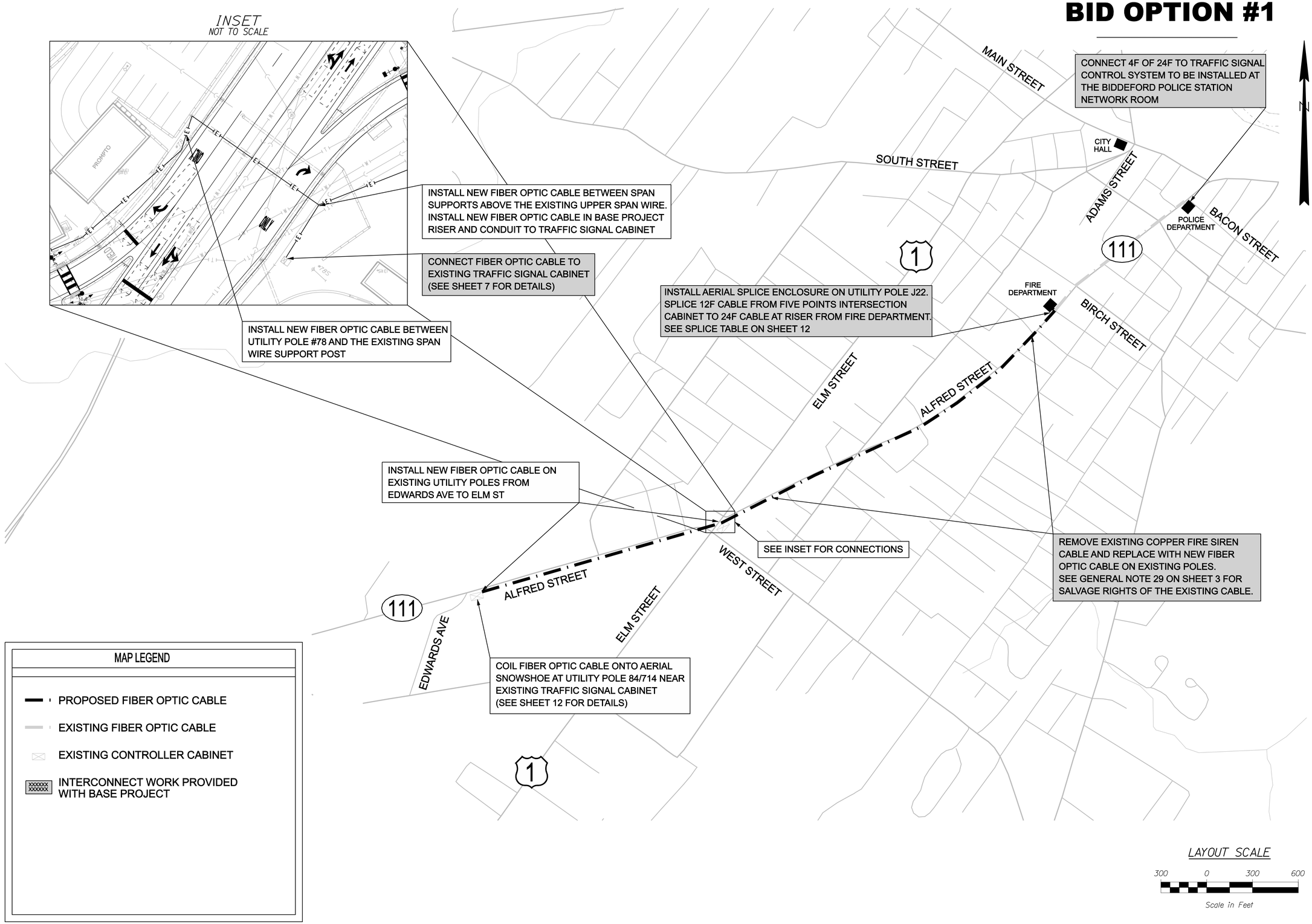
BIDDEFORD
ROUTE 111

FIBER OPTIC PLANS

SHEET NUMBER
10
OF 16

Filename: ...\te\planset\010_FiberPlan.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

BID OPTION #1



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
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REVISIONS 4	----		----
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SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

INTERCONNECT PLAN
BID OPTION #1

SHEET NUMBER

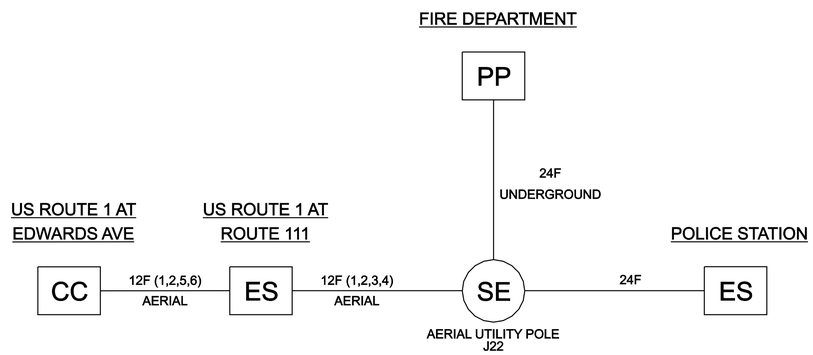
11

OF 16

Filename: ...\011_Interconnect-BA1.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

BID OPTION #1

NETWORK DIAGRAM

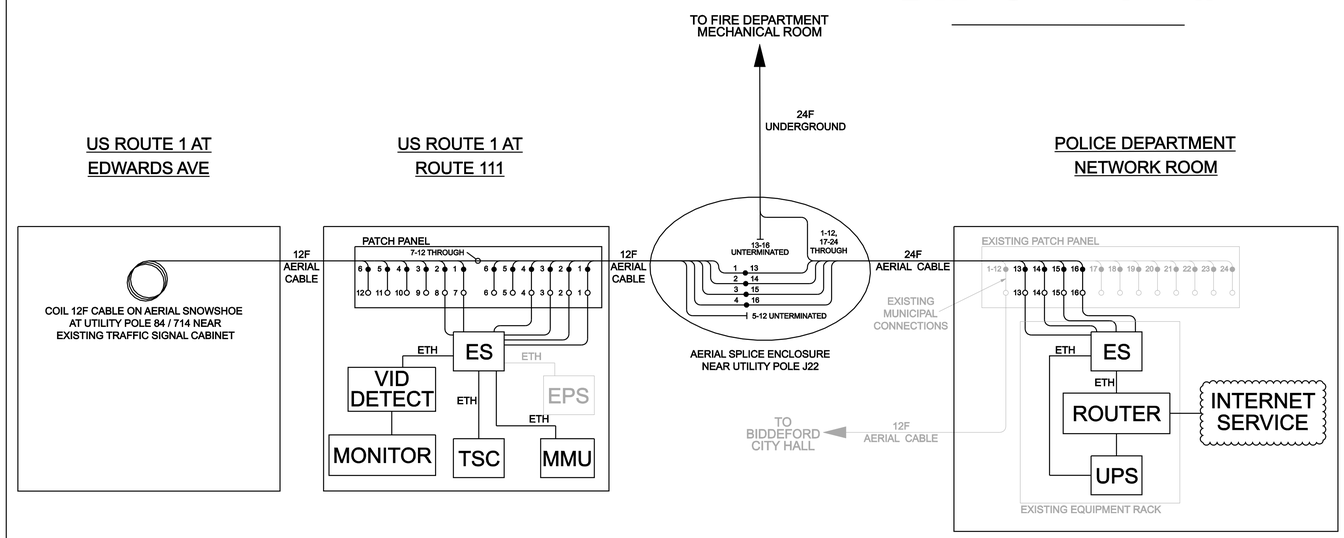


LEGEND	
ES -	ETHERNET SWITCH
PP -	PATCH PANEL
SE -	AERIAL SPLICE ENCLOSURE
CC -	CONTROLLER CABINET

FIBER OPTIC CABLE CONSTRUCTION NOTES:

1. MANUFACTURED PIGTAILS SHALL BE TERMINATED ON PATCH PANELS.
2. FIBER OPTIC CABLE BENDS SHALL EXCEED THE MINIMUM BENDING RADIUS FOR THE CABLE AT ALL TIMES DURING INSTALLATION, MODIFICATION, REPAIR, SPLICING, OR IN THE PERMANENT CONDITION.
3. FIBER OPTIC CABLE SHALL NOT BE SPLICED EXCEPT AS SHOWN. FIBERS NOT TERMINATED IN A SPLICE ENCLOSURE, PATCH PANEL, OR SHOWN AS THROUGH FIBERS SHALL NOT BE CUT.

SYSTEM ARCHITECTURE DIAGRAM



LEGEND	
	FIBER OPTIC PIGTAIL
	FIBER OPTIC SPLICE
ES -	ETHERNET SWITCH
ETH -	ETHERNET CABLE
EPS -	EMERGENCY PREEMPTION SYSTEM
PP -	PATCH PANEL
MONITOR -	VIDEO MONITOR
TSC -	TRAFFIC SIGNAL CONTROLLER
MMU -	MALFUNCTION MANAGEMENT UNIT
UPS -	UNINTERRUPTIBLE POWER SUPPLY
VID DETECT -	VIDEO DETECTION CONTROL UNIT

SPLICE TABLES

FIBER OPTIC SPLICE TABLE
US ROUTE 1 AT ROUTE 111 TRAFFIC SIGNAL CABINET

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
PATCH PANEL AT CONTROLLER CABINET	12F TO J22 SE	1	SPLICE	PIGTAIL	-	ES, PP POSITION 1
	12F TO J22 SE	2	SPLICE	PIGTAIL	-	ES, PP POSITION 2
	12F TO J22 SE	3	SPLICE	PIGTAIL	-	ES, PP POSITION 3
	12F TO J22 SE	4	SPLICE	PIGTAIL	-	ES, PP POSITION 4
	12F TO J22 SE	5	SPLICE	PIGTAIL	-	SPARE, PP POSITION 5
	12F TO J22 SE	6	SPLICE	PIGTAIL	-	SPARE, PP POSITION 6
	12F TO J22 SE	7-12	THROUGH	-	-	12F TO EDWARDS AVE
	12F TO EDWARDS AVE	1	SPLICE	PIGTAIL	-	ES, PP POSITION 7
	12F TO EDWARDS AVE	2	SPLICE	PIGTAIL	-	ES, PP POSITION 8
	12F TO EDWARDS AVE	3	SPLICE	PIGTAIL	-	SPARE, PP POSITION 9
	12F TO EDWARDS AVE	4	SPLICE	PIGTAIL	-	SPARE, PP POSITION 10
	12F TO EDWARDS AVE	5	SPLICE	PIGTAIL	-	SPARE, PP POSITION 11
	12F TO EDWARDS AVE	6	SPLICE	PIGTAIL	-	SPARE, PP POSITION 12

FIBER OPTIC SPLICE TABLE
SPLICE ENCLOSURE AT UTILITY POLE J22

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
AERIAL SPLICE ENCLOSURE	12F TO ELM STREET	1	SPLICE	24F	13	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	2	SPLICE	24F	14	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	3	SPLICE	24F	15	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	4	SPLICE	24F	16	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	5-12	UNTERMINATED	-	-	SPARE
	24F TO FIRE DEPT	1-12	THROUGH	24F	1-12	THROUGH TO POLICE DEPT
	24F TO FIRE DEPT	13-16	UNTERMINATED	-	-	FIBERS TO BE ABANDONED
	24F TO FIRE DEPT	17-24	THROUGH	24F	17-24	THROUGH TO POLICE DEPT

FIBER OPTIC SPLICE TABLE
POLICE DEPARTMENT NETWORK ROOM

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
existing patch panel	24F TO J22 SE	1-12	existing municipal connections to remain			TO 12F TO CITY HALL
	24F TO J22 SE	13	SPLICE	PIGTAIL	-	ES, PP POSITION 13
	24F TO J22 SE	14	SPLICE	PIGTAIL	-	ES, PP POSITION 14
	24F TO J22 SE	15	SPLICE	PIGTAIL	-	ES, PP POSITION 15
	24F TO J22 SE	16	SPLICE	PIGTAIL	-	ES, PP POSITION 16
	24F TO J22 SE	17-24	existing municipal connections to remain			TO POLICE DEPT NETWORK

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AC-STP-1900(400)X
WIN 19004.00
HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SUENNEN	C. BOBAY	02-2013
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DESIGN3-DETAILED3	----	----	----
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REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE
P.E. NUMBER
DATE

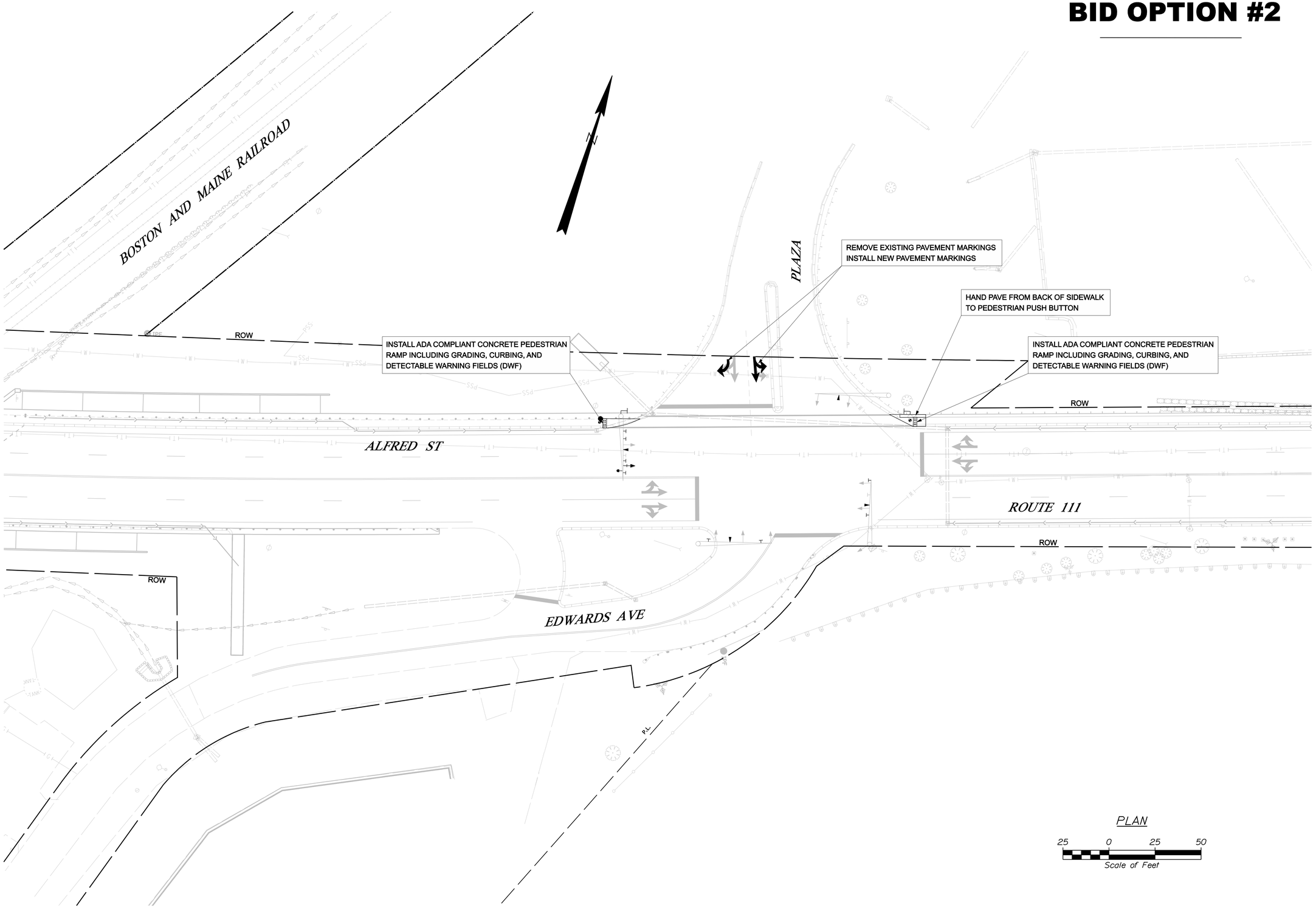
BIDDEFORD
ROUTE 111

FIBER OPTIC PLANS
BID OPTION #1

SHEET NUMBER
12
OF 16

Filename: ...\planset\012_FiberPlan-BA1.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

BID OPTION #2



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	F. KOCZALKA	J. ROBERT	02-2013
CHECKED-REVIEWED	T. GRANDE	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
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REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE

P.E. NUMBER

DATE

INTERSECTION 3

BIDDEFORD
ROUTE 111

GENERAL PLAN
BID OPTION #2

SHEET NUMBER

13

OF 16

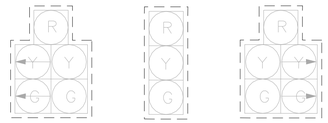
Filename: ...\te\planset\013_HDPlan3-BA2.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

BID OPTION #2

SIGNAL PLAN NOTES:

1. THE CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE UTILITY COMPANIES WHEN INSTALLING EQUIPMENT ON THEIR POLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES TO DETERMINE THEIR REQUIREMENTS.
2. THE LOCATIONS OF ALL EQUIPMENT SHOWN ARE APPROXIMATE. FINAL LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE CONSTRUCTION MANAGER.
3. THE COST OF POLE RISERS SHALL BE INCIDENTAL TO ITEM NO. 643.90.
4. THE COST OF OVERHEAD SIGNS SHALL BE INCIDENTAL TO ITEM 643.71.
5. SEE SHEET 4 FOR LIST OF MAJOR ITEMS.

EXISTING INDICATIONS (TO BE RETAINED WITH NEW RETROREFLECTIVE BACKPLATES)



A1 | A2,B2,C1 C2,D1,D2 D3 | C3

EXISTING MAST ARM SIGNS

R10-12
2-RETAINED

PROPOSED SIGNS

R10-3eL 9x15 1-PROPOSED | R10-3eR 9x15 1-PROPOSED | R3-6L 30x36 3-PROPOSED

W25-1 24x30 1-PROPOSED | R3-5R 30x36 1-PROPOSED | R3-6R 30x36 2-PROPOSED | R10-15R 30x30 1-PROPOSED

PROPOSED INDICATIONS (WITH NEW RETROREFLECTIVE BACKPLATES)

B1

PED FACE
P1-P2

COORDINATION CYCLE/SPLIT/OFFSET SCHEDULE

ALL ENTRIES IN SECONDS

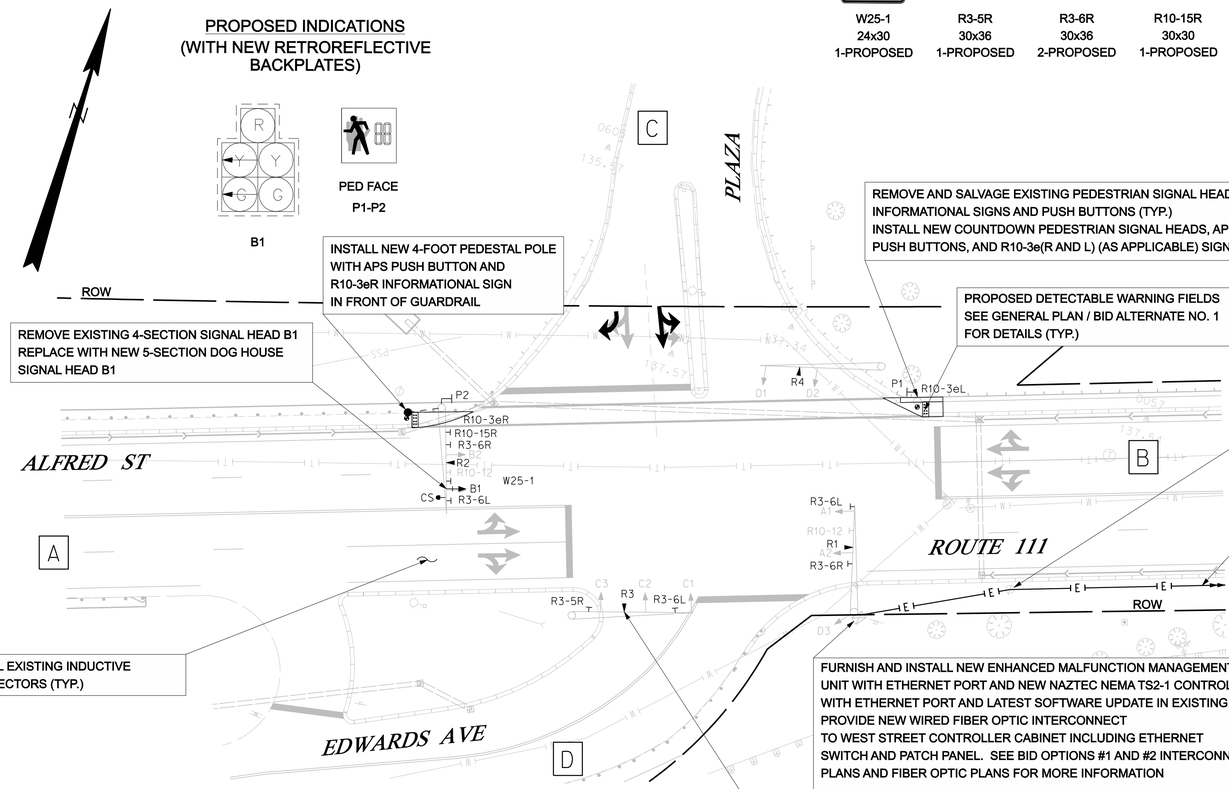
	PLAN 1	
CYCLE LENGTH	110	COORDINATION MODE SET TO FIXED FORCE-OFF
OFFSET	47	
SPLIT TIME Ø1	18	
SPLIT TIME Ø2	71	
SPLIT TIME Ø3	0	
SPLIT TIME Ø4	21	
SPLIT TIME Ø5	16	
SPLIT TIME Ø6	73	
SPLIT TIME Ø7	0	
SPLIT TIME Ø8	21	

COORDINATION NOTES:

1. OFFSET IS REFERENCED TO THE END OF THE COORDINATED Ø2 & Ø6 PHASE GREEN. NTCIP REFERENCE PHASE 2.
2. COORDINATION TO BE OPERATED BY TIME-OF-DAY.

DAILY & WEEKLY COORDINATION PROGRAM

	MON.-FRI.	SATURDAY	SUNDAY
PLAN 1 110 SECS MAX 2	1100-1900	1100-1900	-
PLAN 2 FREE OPERATIONS MAX 1	0000-1100 1900-2400	0000-1100 1900-2400	0000-2400



INSTALL NEW 4-FOOT PEDESTAL POLE WITH APS PUSH BUTTON AND R10-3eR INFORMATIONAL SIGN IN FRONT OF GUARDRAIL

REMOVE EXISTING 4-SECTION SIGNAL HEAD B1 REPLACE WITH NEW 5-SECTION DOG HOUSE SIGNAL HEAD B1

REMOVE AND SALVAGE EXISTING PEDESTRIAN SIGNAL HEADS, INFORMATIONAL SIGNS AND PUSH BUTTONS (TYP.)
INSTALL NEW COUNTDOWN PEDESTRIAN SIGNAL HEADS, APS PUSH BUTTONS, AND R10-3e(R AND L) (AS APPLICABLE) SIGNS (TYP.)

PROPOSED DETECTABLE WARNING FIELDS SEE GENERAL PLAN / BID ALTERNATE NO. 1 FOR DETAILS (TYP.)

INSTALL NEW FIBER OPTIC CABLE ALONG UTILITY POLE LINE TO ELM STREET. INSTALL 2-INCH STEEL RISER CONDUIT WITH WEATHERHEAD TO EXISTING POLE ON WEST SIDE OF UTILITY POLE #84/714. RISER TO EXTEND TO 36 INCHES BELOW GRADE TO JOIN CONDUIT TO EXISTING CABINET.

SEE SHEET 13

RETAIN ALL EXISTING INDUCTIVE LOOP DETECTORS (TYP.)

FURNISH AND INSTALL NEW ENHANCED MALFUNCTION MANAGEMENT UNIT WITH ETHERNET PORT AND NEW NAZTEC NEMA TS2-1 CONTROLLER WITH ETHERNET PORT AND LATEST SOFTWARE UPDATE IN EXISTING CABINET. PROVIDE NEW WIRED FIBER OPTIC INTERCONNECT TO WEST STREET CONTROLLER CABINET INCLUDING ETHERNET SWITCH AND PATCH PANEL. SEE BID OPTIONS #1 AND #2 INTERCONNECT PLANS AND FIBER OPTIC PLANS FOR MORE INFORMATION

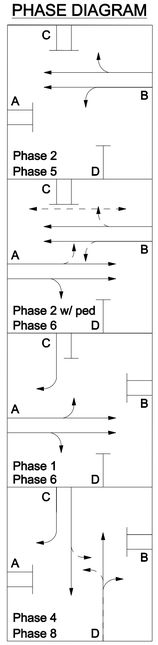
PROGRAM CONTROLLER WITH LOCAL AND SYSTEM TIMINGS

FURNISH AND INSTALL NEW EMERGENCY VEHICLE PRE-EMPTION SYSTEM INCLUDING 4 RECEIVERS, CONFIRMATION STROBE AND 4-CHANNEL PHASE SELECTOR WITH SYSTEM CHASSIS

LEGEND

- POLE MOUNTED TS2-1 CABINET WITH CONTROLLER
- EXISTING VEHICULAR HEAD
- PROPOSED VEHICULAR HEAD
- OVERHEAD SIGN
- ALUMINUM PEDESTAL POLE
- OPTICOM RECEIVER
- CONFIRMATION STROBE
- PEDESTRIAN SIGNAL HEAD (BLACK) WITH APS PUSH BUTTON AND INFORMATIONAL SIGN
- UNDERGROUND CONDUIT
- RAPID FLASHING BEACON

PHASE DIAGRAM



WHERE:

PROTECTED TRAFFIC MOVEMENT

PERMISSIVE TRAFFIC MOVEMENT

PHASE 5 LEADS AND PHASE 1 LAGS

SIGNAL TIMING

	PHASE 1	PHASE 2	PHASE 4	PHASE 5	PHASE 6	PHASE 8
MIN GREEN	5	10	8	5	10	8
EXTENSION	3.0	4.0	3.0	3.0	4.0	3.0
MAX 1	15	40	25	15	40	25
MAX 2	20	60	25	15	60	25
VEH CLEAR	3.0	3.0	3.0	3.0	3.0	3.0
RED CLEAR	3.0	3.0	3.0	3.0	3.0	3.0
WALK	-	4	-	-	-	-
PED CLEAR	-	40	-	-	-	-
RECALL	OFF	SOFT	OFF	OFF	SOFT	OFF

NOTE:

1. MAX 2 SHALL BE PROGRAMMED DURING COORDINATION.
2. IN THE EVENT OF A CONFLICT OR MALFUNCTION PHASES 2 AND 6 SHALL FLASH YELLOW AND ALL OTHER PHASES SHALL FLASH RED. PEDESTRIAN SIGNAL HEADS SHALL BE BLANK DURING FLASHING OPERATIONS.

PROPOSED EMERGENCY VEHICLE PRE-EMPTION OPERATION

ID	PREEMPT ASSIGNMENT	RECEIVER PRIORITY	ACTIVE PHASE
R1	3	1	Ø1 & Ø6
R2	4	2	Ø2 & Ø5
R3	5	3	Ø8
R4	6	4	Ø4

PLAN

25 0 25 50

Scale of Feet

EMERGENCY VEHICLE PRE-EMPTION NOTES:

1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE TRANSMITTED BY OPTICAL EMITTERS (PROVIDED BY OTHERS) MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT THE INTERSECTION.
2. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES (1 = HIGHEST, 4 = LOWEST)
3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD THE EMERGENCY ACTIVE PHASE GREEN FOR A MINIMUM OF 10 SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3.0 SECONDS YELLOW AND 3.0 SECONDS ALL RED) AND SERVICE SUBSEQUENT EMERGENCY ACTIVE PHASES AS NECESSARY. AT THE COMPLETION OF THE PRE-EMPTION CYCLE, THE CONTROLLER SHALL TIME THE PRE-EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION.
4. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
5. EMERGENCY VEHICLE PRE-EMPTION SHALL OVERRIDE COORDINATION.
6. CONFIRMATION STROBES SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PREEMPTION GREEN IS ON.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

		BY	DATE
PROJ. MANAGER	B. KEEZER		
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SLENNEN	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
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FIELD CHANGES	----	----	----

SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

TRAFFIC SIGNAL PLAN
BID OPTION #2

INTERSECTION 3

SHEET NUMBER

14

OF 16

Filename: ...\planset\014_Signal_003-BA2.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

BID OPTION #2

INSET
NOT TO SCALE

INSTALL NEW FIBER OPTIC CABLE BETWEEN SPAN SUPPORTS ABOVE THE EXISTING UPPER SPAN WIRE. INSTALL NEW FIBER OPTIC CABLE IN BASE PROJECT RISER AND CONDUIT TO TRAFFIC SIGNAL CABINET

CONNECT FIBER OPTIC CABLE TO EXISTING TRAFFIC SIGNAL CABINET (SEE SHEET 7 FOR DETAILS)

INSTALL NEW FIBER OPTIC CABLE BETWEEN UTILITY POLE #78 AND THE EXISTING SPAN WIRE SUPPORT POST

CONNECT 4F OF 24F TO TRAFFIC SIGNAL CONTROL SYSTEM TO BE INSTALLED AT THE BIDDEFORD POLICE STATION NETWORK ROOM

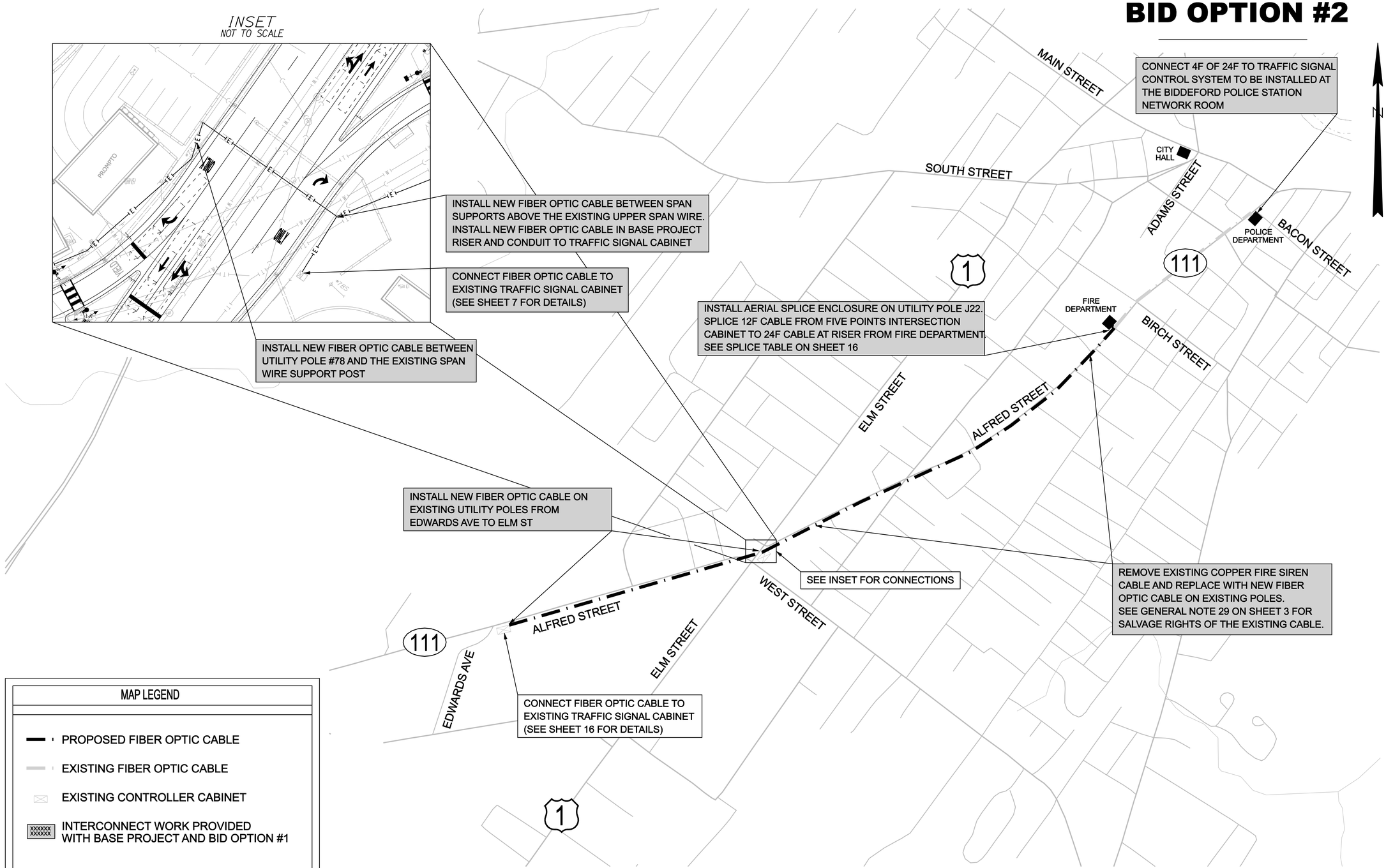
INSTALL AERIAL SPLICE ENCLOSURE ON UTILITY POLE J22. SPLICE 12F CABLE FROM FIVE POINTS INTERSECTION CABINET TO 24F CABLE AT RISER FROM FIRE DEPARTMENT. SEE SPLICE TABLE ON SHEET 16

INSTALL NEW FIBER OPTIC CABLE ON EXISTING UTILITY POLES FROM EDWARDS AVE TO ELM ST

SEE INSET FOR CONNECTIONS

REMOVE EXISTING COPPER FIRE SIREN CABLE AND REPLACE WITH NEW FIBER OPTIC CABLE ON EXISTING POLES. SEE GENERAL NOTE 29 ON SHEET 3 FOR SALVAGE RIGHTS OF THE EXISTING CABLE.

CONNECT FIBER OPTIC CABLE TO EXISTING TRAFFIC SIGNAL CABINET (SEE SHEET 16 FOR DETAILS)



MAP LEGEND

- PROPOSED FIBER OPTIC CABLE
- EXISTING FIBER OPTIC CABLE
- EXISTING CONTROLLER CABINET
- INTERCONNECT WORK PROVIDED WITH BASE PROJECT AND BID OPTION #1

LAYOUT SCALE

300 0 300 600

Scale in Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

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HIGHWAY PLANS

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FIELD CHANGES	----		----

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BIDDEFORD
ROUTE 111

INTERCONNECT PLAN
BID OPTION #2

SHEET NUMBER

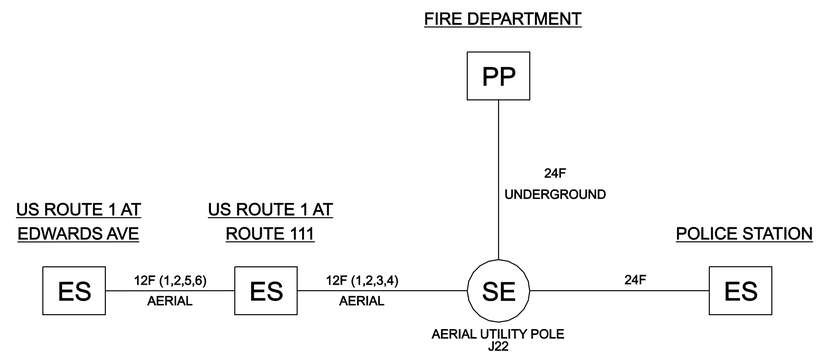
15

OF 16

Filename: ...\015_Interconnect-BA2.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013

BID OPTION #2

NETWORK DIAGRAM



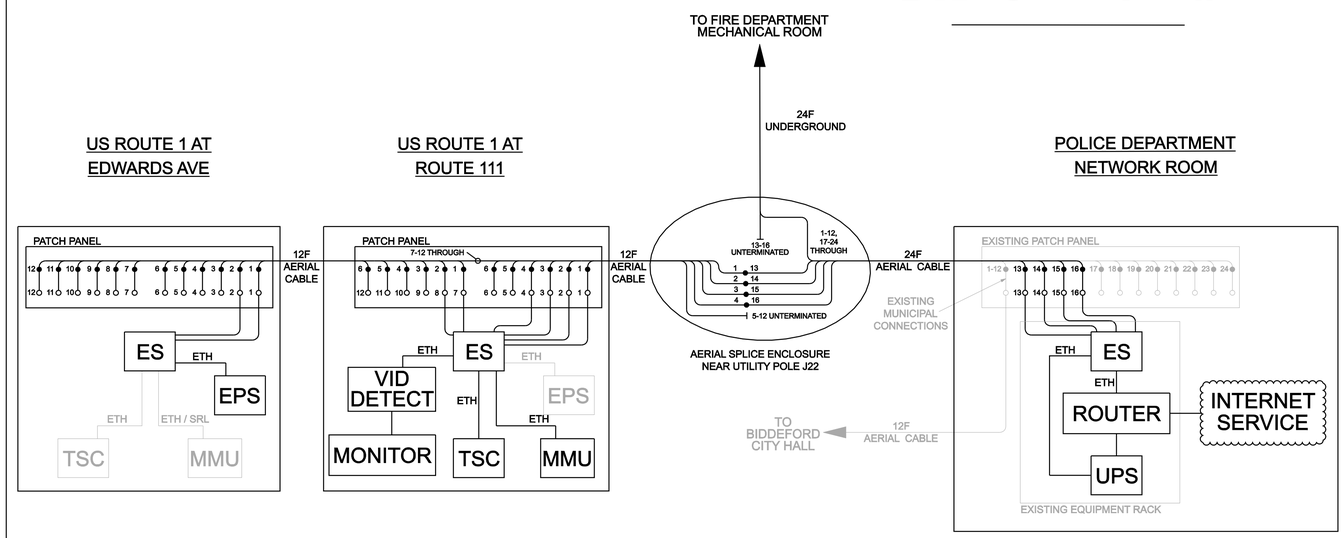
LEGEND

ES -	ETHERNET SWITCH
PP -	PATCH PANEL
SE -	AERIAL SPLICE ENCLOSURE

FIBER OPTIC CABLE CONSTRUCTION NOTES:

1. MANUFACTURED PIGTAILS SHALL BE TERMINATED ON PATCH PANELS.
2. FIBER OPTIC CABLE BENDS SHALL EXCEED THE MINIMUM BENDING RADIUS FOR THE CABLE AT ALL TIMES DURING INSTALLATION, MODIFICATION, REPAIR, SPLICING, OR IN THE PERMANENT CONDITION.
3. FIBER OPTIC CABLE SHALL NOT BE SPLICED EXCEPT AS SHOWN. FIBERS NOT TERMINATED IN A SPLICE ENCLOSURE, PATCH PANEL, OR SHOWN AS THROUGH FIBERS SHALL NOT BE CUT.

SYSTEM ARCHITECTURE DIAGRAM



LEGEND

•—○	FIBER OPTIC PIGTAIL
—•—	FIBER OPTIC SPLICE
ES -	ETHERNET SWITCH
ETH -	ETHERNET CABLE
EPS -	EMERGENCY PREEMPTION SYSTEM
PP -	PATCH PANEL
MONITOR -	VIDEO MONITOR
TSC -	TRAFFIC SIGNAL CONTROLLER
MMU -	MALFUNCTION MANAGEMENT UNIT
UPS -	UNINTERRUPTIBLE POWER SUPPLY
VID DETECT -	VIDEO DETECTION CONTROL UNIT

SPLICE TABLES

FIBER OPTIC SPLICE TABLE
US ROUTE 1 AT EDWARDS AVE TRAFFIC SIGNAL CABINET

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
PATCH PANEL AT CONTROLLER CABINET	12F TO ELM STREET	1	SPLICE	PIGTAIL	-	ES, PP POSITION 1
	12F TO ELM STREET	2	SPLICE	PIGTAIL	-	ES, PP POSITION 2
	12F TO ELM STREET	3	SPLICE	PIGTAIL	-	SPARE, PP POSITION 3
	12F TO ELM STREET	4	SPLICE	PIGTAIL	-	SPARE, PP POSITION 4
	12F TO ELM STREET	5	SPLICE	PIGTAIL	-	SPARE, PP POSITION 5
	12F TO ELM STREET	6	SPLICE	PIGTAIL	-	SPARE, PP POSITION 6
	12F TO ELM STREET	7	SPLICE	PIGTAIL	-	SPARE, PP POSITION 7
	12F TO ELM STREET	8	SPLICE	PIGTAIL	-	SPARE, PP POSITION 8
	12F TO ELM STREET	9	SPLICE	PIGTAIL	-	SPARE, PP POSITION 9
	12F TO ELM STREET	10	SPLICE	PIGTAIL	-	SPARE, PP POSITION 10
	12F TO ELM STREET	11	SPLICE	PIGTAIL	-	SPARE, PP POSITION 11
	12F TO ELM STREET	12	SPLICE	PIGTAIL	-	SPARE, PP POSITION 12

FIBER OPTIC SPLICE TABLE
US ROUTE 1 AT ROUTE 111 TRAFFIC SIGNAL CABINET

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
PATCH PANEL AT CONTROLLER CABINET	12F TO J22 SE	1	SPLICE	PIGTAIL	-	ES, PP POSITION 1
	12F TO J22 SE	2	SPLICE	PIGTAIL	-	ES, PP POSITION 2
	12F TO J22 SE	3	SPLICE	PIGTAIL	-	ES, PP POSITION 3
	12F TO J22 SE	4	SPLICE	PIGTAIL	-	ES, PP POSITION 4
	12F TO J22 SE	5	SPLICE	PIGTAIL	-	SPARE, PP POSITION 5
	12F TO J22 SE	6	SPLICE	PIGTAIL	-	SPARE, PP POSITION 6
	12F TO J22 SE	7-12	THROUGH	-	-	12F TO EDWARDS AVE
	12F TO EDWARDS AVE	1	SPLICE	PIGTAIL	-	ES, PP POSITION 7
	12F TO EDWARDS AVE	2	SPLICE	PIGTAIL	-	ES, PP POSITION 8
	12F TO EDWARDS AVE	3	SPLICE	PIGTAIL	-	SPARE, PP POSITION 9
	12F TO EDWARDS AVE	4	SPLICE	PIGTAIL	-	SPARE, PP POSITION 10
	12F TO EDWARDS AVE	5	SPLICE	PIGTAIL	-	SPARE, PP POSITION 11
	12F TO EDWARDS AVE	6	SPLICE	PIGTAIL	-	SPARE, PP POSITION 12

FIBER OPTIC SPLICE TABLE
SPLICE ENCLOSURE AT UTILITY POLE J22

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
AERIAL SPLICE ENCLOSURE	12F TO ELM STREET	1	SPLICE	24F	13	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	2	SPLICE	24F	14	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	3	SPLICE	24F	15	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	4	SPLICE	24F	16	SPLICE TO 24F TO POLICE DEPT
	12F TO ELM STREET	5-12	UNTERMINATED	-	-	SPARE
	24F TO FIRE DEPT	1-12	THROUGH	24F	1-12	THROUGH TO POLICE DEPT
	24F TO FIRE DEPT	13-16	UNTERMINATED	-	-	FIBERS TO BE ABANDONED
	24F TO FIRE DEPT	17-24	THROUGH	24F	17-24	THROUGH TO POLICE DEPT

FIBER OPTIC SPLICE TABLE
POLICE DEPARTMENT NETWORK ROOM

	CABLE	STRAND	CONNECTION TYPE	CABLE	STRAND	DESCRIPTION
existing patch panel	24F TO J22 SE	1-12	existing municipal connections to remain			TO 12F TO CITY HALL
	24F TO J22 SE	13	SPLICE	PIGTAIL	-	ES, PP POSITION 13
	24F TO J22 SE	14	SPLICE	PIGTAIL	-	ES, PP POSITION 14
	24F TO J22 SE	15	SPLICE	PIGTAIL	-	ES, PP POSITION 15
	24F TO J22 SE	16	SPLICE	PIGTAIL	-	ES, PP POSITION 16
	24F TO J22 SE	17-24	existing municipal connections to remain			TO POLICE DEPT NETWORK

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

AC-STP-1900(400)X

WIN 19004.00

HIGHWAY PLANS

PROJ. MANAGER	B. KEEZER	BY	DATE
DESIGN-DETAILED	M. GRAHAM	J. ROBERT	02-2013
CHECKED-REVIEWED	M. SUENNEN	C. BOBAY	02-2013
DESIGN2-DETAILED2	----	----	----
DESIGN3-DETAILED3	----	----	----
REVISIONS 1	REMOVE OVERLAY		07-2013
REVISIONS 2	MODIFY BID OPTIONS		07-2013
REVISIONS 3	----		----
REVISIONS 4	----		----
FIELD CHANGES	----		----

SIGNATURE

P.E. NUMBER

DATE

BIDDEFORD
ROUTE 111

FIBER OPTIC PLANS
BID OPTION #2

SHEET NUMBER

16

OF 16

Filename: ...\planset\016_FiberPlan-BA2.dgn Division: $(WKGROUP) Username: $(WIN_USERNAME) Date:8/1/2013