

## MaineDOT's Standard Operating Procedures

### For Identification of Historic Properties

As described in MaineDOT Environmental Office's Standard Operating Procedures for Section 106 of the National Historic Preservation Act process, the following procedure was followed to identify historic properties (36 CFR 800.4):

The Historic Coordinator (HC) will determine the Area of Potential Effect (APE) and then conduct an Above Ground Cultural Resource Survey or assign projects to the consultant(s) and/or the MHPC archaeological staff. The identification and evaluation of historic properties must be performed by professionals who meet the professional standards established by the Secretary of the Interior [§ 800.2(a)(1)]. The Professional Qualification Standards are published in 36 CFR 61. The HC will provide topographic maps with the APE clearly identified and a written project scope of work. The HC will enter dates into ProjEx under Schedule/Approval/Section 106 architectural survey and Section 106 archaeological survey for when the surveys were assigned and completed. The HC will also enter the name of the surveyor in the permit number section. If there is no PIN number, then the information will be filed in the CPD Non- PIN Regional e-file and archives database.

All above ground surveys will be entered into the web-based historic properties database and GIS layer by the Historic Coordinator or the consultant. All surveys and determinations of eligibility and effects will meet the requirements of the MHPC Survey Guidelines.

The following is a breakdown of responsibility for 800.4:

§800.4 (a) (1) - MaineDOT/HC

§800.4 (a) (2) - MaineDOT/HC consultant, MHPC archaeological staff, and Tribes

§800.4 (a) (3) - MaineDOT/HC

§800.4 (a) (4) - MaineDOT/HC and the lead federal agency

§800.4 (b), (c) and (d) - MaineDOT/HC, consultant, MHPC archaeological staff, and Tribes.

The Historic Coordinator, and/or consultant, and/or the MHPC archaeological staff, and/or the THPO (as appropriate) in accordance with 36 CFR § 800.4 (c) and MHPC Survey Guidelines, will evaluate and recommend whether properties within the APE are eligible for and/or listed on the National Register of Historic Places. The HC will make a final determination of eligibility for the SHPO's concurrence.

**A.** If there are no National Register eligible or listed properties within the APE, a survey report with eligibility recommendations will be supplied to the HC by the architectural consultant, and/or the MHPC archaeological staff, and/or the THPO (see MHPC Survey Guidelines for Architectural Survey Report guidelines). The report will include all properties surveyed and indicate (property by property) why they are not eligible for the National Register. The HC will make a final determination and forward the supporting documentation with a detailed cover memo and finding of **No historic properties affected** to the SHPO/THPO for concurrence. In accordance with § 800.4(d), all participating consulting parties will be notified and the documentation will be made available subject to confidentiality provisions of 800.11(c). Documentation will be in accordance with 36 CFR § 800.4(d) and § 800.11(d). All documentation will be filed in the CPD e-file and dates will be entered into ProjEx under Schedule/Approval/Section 106 SHPO concurrence. If there is no PIN number, then the information will be filed in the CPD Non- PIN Regional e-file and archives database.

i. If the SHPO/THPO does not object within 30 days of receipt of an adequately documented finding, a memo will be forwarded from the SHPO/THPO to the HC stating so. If no response is received after 30 days from the SHPO/THPO, concurrence will be assumed [see §800.4(d)(1)(i)]. This will complete Section 106. All documentation will be filed in the CPD e-file and dates will be entered into ProjEx under Schedule/Approvals/Section 106 SHPO concurrence. If there is no PIN number, then the information will be filed in the CPD Non-PIN Regional e-file and archives database.

ii. If the SHPO/THPO objects to the finding of no historic properties affected, then the HC, the lead federal agency, and/or the SHPO will follow §800.4(d)(1)(ii) by meeting to resolve the disagreement, or the lead federal agency will forward the finding and supporting documentation to the Advisory Council on Historic Preservation (ACHP) and request that the ACHP review the finding pursuant to §800.4(d)(1)(iv)(C).

**B.** If there are National Register eligible or listed properties identified within the APE, a survey report with eligibility recommendations will be supplied to the HC by the architectural consultant, and/or the MHPC archaeological staff, and/or the THPO (see MHPC Survey Guidelines for Architectural Survey Report guidelines). The report will indicate under which National Park Service National Register Criteria (Criteria A, B, C or D) the property is eligible and which of the seven aspects of integrity (Location, Design, Setting, Materials, Workmanship, Feeling, and/or Association) the property retains to convey its significance. The HC will make a final determination of eligibility for the SHPO's concurrence. For nearly all projects, the determination of National Register boundaries will automatically default to the modern-day parcel boundaries. The need for more refined and individual assessments of boundaries beyond that will be assessed on a case-by-case basis.

i. If the SHPO/THPO objects to the finding of National Register eligibility, then the HC, the lead federal agency, and the SHPO will meet to resolve the disagreement, or the lead federal agency will forward the finding and supporting documentation to the Secretary of

the Interior (specifically the Keeper of the National Register within the U.S. Dept of Interior/National Park Service) pursuant to 36 CFR § 63 requesting a determination of eligibility. The Keeper of the National Register will respond within 45 days with a determination.

**STATE OF MAINE**  
**Memorandum**

Date: September 19, 2016

To: Kirk F. Mohny, MHPC  
From: Megan M. Hopkin, Maine DOT/ENV  
Subject: Section 106 request for concurrence  
Project: Yarmouth 18238.00  
Scope: Bridge rehabilitation

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The Maine DOT has reviewed this project pursuant to the Maine Programmatic Agreement (PA) and Section 106 of the National Historic Preservation Act of 1966, as amended.

The project consists of replacement of the Main Street Bridge (#5230) over Route 115 located 0.03 of a mile southerly of the York Street Ramp. The Federal action for this project is Federal funding. The cultural review is scheduled to be completed by November 1, 2016.

In accordance with 36 CFR Part 800.4, the following identification efforts of historic properties were made:

800.4(a) (1) - The Area of Potential Effect (APE) includes properties/structures adjacent to the bridge and within the project limits. Properties/structures adjacent to the project limits are considered to be within the APE. The APE is shown as a red polygon on the attached map.

800.4(a) (2) – Review of existing information consisted of researching the National Register database. The Maine Historic Preservation Commission Archaeological staff has also reviewed the undertaking.

800.4(a) (3) – The town of Yarmouth was contacted via letter and asked to comment on knowledge of, or concerns with, historic properties in the area, and any issues with the undertaking’s effect on historic properties. The town was also requested to provide information regarding local historic societies or groups. The town replied on May 20, 2016 with no concern. A second letter was sent to the town to notify them of eligible properties within the APE.

800.4(a) (4) – Letters obtaining project location and scope were sent to the 4 federally recognized Tribes in Maine. The Tribes have not replied to date.

800.4(c) – The Maine DOT conducted historic architectural surveys within the APE to determine if properties met National Register criteria. Several properties were determined eligible for the National Register either individually or as part of a proposed Historic District, including the Main Street Bridge. Maine Historic Preservation Commission Archaeological staff also reviewed this undertaking and recommended ‘no archaeological properties affected’.

In accordance with 36 CFR Part 800.4(d), ***the Maine DOT has determined that no historic or prehistoric archaeological properties will be adversely affected by the undertaking but historic architectural properties will be adversely affected by the undertaking.*** Please see attached supporting documentation.

In accordance with the PA and 36 CFR Part 800, please reply with your concurrence or objection to this determination within 30 days.

MaineDOT will be processing Programmatic 4(f) documentation with FHWA upon concurrence with this finding.

Please contact me at [megan.m.hopkin@maine.gov](mailto:megan.m.hopkin@maine.gov) or at 592-3486 if you have any questions. Thank you.

cc: CPD e-file  
enc: Architectural memo  
Archaeological memo  
Supporting Information for Finding of Effect

## Supporting Information for Determination of Eligibility and Finding of Effect

**Project:** Yarmouth 18238.00

**Scope:** Bridge rehabilitation

**Finding of Effect:** Adverse effect

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### Detailed Scope

The proposed project is a bridge rehabilitation of the Main Street Bridge which carries Main Street over Route 1 in Yarmouth.

The Main Street Bridge #5230, constructed in 1948, carries Route 1 over Main Street (Route 115) in the center of the Town of Yarmouth. Yarmouth Town Hall, Yarmouth Public Library, and parts of the North Yarmouth Academy campus are immediately adjacent to the bridge. The William H. Rowe School and a baseball and two soccer fields are also nearby. The bridge was built in 1948 and a new wearing surface was placed in 1998.

The existing bridge has three spans (50'-70'-50') with a total length of 170'. The superstructure consists of 10 arched concrete T-beams with a concrete deck and a bituminous concrete wearing surface. The superstructure is supported on reinforced concrete stub abutments with u-back wingwalls and reinforced concrete piers, all of which are founded on steel H-piles. Route 1 traffic access to and from Main Street is provided by on and off ramps just north of the bridge. School Street is an off ramp for SB traffic to Main Street and an on ramp for SB traffic from Main Street. York Street is an off ramp for NB traffic to Main Street and an on ramp for NB traffic from Main Street. The horizontal roadway alignment in the immediate vicinity of the bridge is curved and the bridge has 2.8% superelevation. The bridge carries one through lane and either acceleration (SB) or a deceleration (NB) lane in each direction in a 56'-0" curb-to curb width with a 4'-0" median divider. There is a variable width sidewalk on each side. The out-to-out width of the bridge is 64'-5¾". The minimum vertical underclearance over Main Street is approximately 14'-0". Main Street has two travel lanes under the bridge, with parallel parking and sidewalks on both sides.

This project started in early 2012 and VHB completed a detailed condition inspection in August 2012. The project then went on hold later that year because the Town was engaged in a comprehensive planning process that, among other things, was considering eliminating the Main Street Bridge and replacing it with an at-grade intersection. In late 2014, the Town decided to keep a bridge at this location and established a Bridge Advisory Committee (BAC) to coordinate with MaineDOT on the development of this project. A Public Involvement Facilitator, Sally Oldham, was added to the project team in January 2015 and work restarted on the project. Since

January 2015, the project team has had several meetings with the BAC and Town officials. A Preliminary Public Meeting was held on March 3, 2015.

During the 2014 bridge inspection, the existing bridge was determined to be structurally deficient due to the poor condition of the deck and fair condition of the superstructure; however, the substructure is in satisfactory condition.

The purpose of this project is to achieve at least a rating of good for the superstructure based on the 2014 inspection that shows structural deficiency, poor condition of the deck and fair condition of the superstructure.

### **Federal Action**

Federal funding.

### **Definition of APE**

The study area includes a portion of Route 1, Main Street, and the surrounding area. The Area of Potential Effects is defined as the area in which the project may cause alterations to the visual setting or characteristics of properties in the vicinity of the project. This definition is illustrated as a red polygon on the topographic map submitted with the survey package.

### **Historic Properties**

#### **1) Lower Falls Village Historic District, (bridge serves as Western Boundary, Main Street East to Off Project plans)**

##### **NR-eligible, Criteria A and C**

The Lower Falls Village Historic District is eligible for the National Register. The historic district contains the central core of what was known as the Lower Falls area of Yarmouth. The area is centered on a small downtown composed of nineteenth-century frame commercial buildings and elaborate Italianate-style churches at Portland Street and Main Street (Route 115), which is surrounded by residential properties located on Portland, Main, and High Streets. North Yarmouth Academy is located to the northwest, which greatly influenced the development of the Lower Falls Village. Other important structures located outside of the commercial area include the Casco Lodge, American Legion, and Yarmouth Post Office. Residential structures in the area vary from the Federal style to Greek Revival, Gothic Revival, and vernacular. (The historic district encompasses the National Register-listed Russell Hall and Academy Hall.) The construction of the Route 1 overpass provides a physical boundary between the district and the governmental and commercial development to the northwest and is the traditional northern end of the Lower Falls Village. The Lower Falls Village Historic District is eligible for the National

Register under Criterion A and C for Architecture, Commerce, Community Planning and Development, and Education. The period of significance is c.1790-c.1940. By the early 1800s Yarmouth had evolved into two distinct villages, the Upper Village and the Lower Falls Village. The Upper Village was centered on the original town meetinghouse and another commercial area, while the Lower Falls Village developed as a result of commercial activity along the Royal River. By the 1860s the Lower Falls had become the wealthier section of town as a result of shipbuilding, manufacturing, and commercial endeavors. The village also boasts two elaborate nineteenth-century churches, the First Parish and Central Parish (both churches are individually listed in the National Register). The importance of the Lower Falls was also buoyed by the establishment of the North Yarmouth Academy and Casco Lodge. In the early twentieth century, with the development of the Brickyard Hollow (the current site of the Memorial Park, Merrill Memorial Library, and formerly town schools) to unify the two villages, the Lower Falls gained the Yarmouth Post Office and American Legion.

## **2) Academy Hall and Russell Hall, North Yarmouth Academy, Outside of Project**

### **Limits**

#### **NR Listed**

The North Yarmouth Academy is listed in the National Register. Two buildings are included in this listing: Russell Hall and Academy Hall. Both buildings are Greek Revival in style. Russell Hall, built 1847, is three stories tall and has a pedimented gable front. The metal roof includes seven brick chimneys. The brick structure has six-over-six wood windows with stone lintels and sills. Each corner has a brick pilaster and the front entry is flanked by sidelights and surmounted by a stone lintel. Academy Hall is also brick and retains a pedimented gable front. It also bears a square open belfry. Four brick pilasters grace the front elevation with entries between the first and second and between the third and fourth. The windows are twelve-over-twelve with stone sills and lintels. Academy Hall was built in 1847. Russell Hall was constructed as a dormitory, while Academy Hall held classrooms. The North Yarmouth Academy is listed in the National Register under Criteria A and C under Architecture and Education. The North Yarmouth Academy is significant as a surviving example of a small local academy typical in New England and Maine. The academy also retains excellent Greek Revival-style architecture. The period of significance is 1841 and 1847.

### **3) Yarmouth Post Office, Stations 201+00 Right**

#### **NR Eligible, Criteria A and C**

The Yarmouth Post Office is eligible for the National Register. The building is a side-gabled, one-story structure with a center square cupola. The building is designed in the 20th-Century Revival style. It has a brick façade, which includes brick quoins on the side-gable portion. The gabled-ends are pedimented and accented with a plain cornice. A simple stylized classical door surround accents the front entry. The one-over-one windows have slim brick sills. The building has a long rear ell that is one story with a flat roof. The building sits on a concrete foundation. The Yarmouth Post Office is eligible for the National Register under Criterion A and C for Architecture and Politics/Government. The period of significance is 1965 for its date of construction. The post office is an excellent representation of the 20th-Century Revival style, which was a popular choice for post offices in the 1960s. The 1960s variation of this style retains simplified classical features, as found on the post office.

### **4) Merrill Memorial Library, Stations 201+00 Left**

#### **NR Eligible, Criteria A and C**

The Merrill Memorial Library is eligible for listing in the National Register. The 20th-Century Revival-style building features a side-gabled roof with a central projecting gable-front. The roofline features cornice returns and heavy modillions. The side-gabled ends feature large three-part rounded arched windows with stone sills and keystones and double-hung and fixed pane windows. The projecting gable front section features the front entry which is situated in a stone classical door surround with entablature and pilasters. The entablature is topped with a large rounded arch window with keystone and brick surround. The arched window is composed of six-parts. The library is brick and has a stone water table course. Brickwork under the water table features a striped pattern. The front elevation features paired six-over-six windows with six-light transoms in detailed brick and stone window surrounds. The same windows are found on the north and south elevations. The rear ell is a 2014 addition that compliments the original structure. The rear ell is brick with a hipped roof that sits at the same height of the original roof. The library was originally designed by A. W. Longfellow of Boston. It dates to 1904. The Merrill Memorial Library is eligible for the National Register under Criterion A and C for Architecture and Education. The period of significance is 1904. The library is an excellent example of 20th-Century Revival style architecture and retains excellent classical details, such as heavy modillions, detailed stone accents, and symmetrical design. The library was designed by Boston

architect, A. W. Longfellow, who designed several buildings for Harvard University and Radcliffe College. The library was funded by Joseph E. Merrill, who was born in Yarmouth and attended North Yarmouth Academy. When the town acquired land for a library site (donated by Forest Paper Company owners S. D. Warren and John Coombs), Merrill donated money for the library. He had long wanted to see a public library in Yarmouth. Much of the original library included books from Merrill's personal collection and a collection started by in the 1890s by George Hammond, an agent of the Forest Paper Company. The Merrill Memorial Library is part of the great Progressive-era movement in the early twentieth century and an increased awareness in the role a local library in public education.

#### **5) Main Street Bridge #5230, Stations 1409+50-1411+25**

##### **NR Eligible, Criterion C**

Main Street Bridge No. 5230 is eligible for listing in the National Register. The bridge is a continuous reinforced concrete T-beam bridge. It has three spans and is 175 feet long with an 84 feet wide deck. Its piers are rounded at the corners with Art Moderne-style elements. The bridge has a metal pipe railing with stylized concrete piers. The bridge was constructed in 1948 as part of a larger project to relocate Route 1 to bypass downtown Yarmouth. Main Street Bridge No. 5230 is eligible for listing in the National Register under Criterion C for Engineering. The bridge retains excellent Art Moderne style elements and is the only example in Maine that is a continuous T-beam bridge with haunched beams. Its period of significance is 1948.

#### **Impacts to Properties**

##### **1) Lower Falls Village Historic District, (bridge serves as Western Boundary, Main Street East to Off Project plans)**

##### **NR-eligible, Criteria A and C**

All of the work will be completed within the existing ROW limits. This work will include a bridge superstructure replacement with a substructure rehabilitation of Main Street Bridge. The proposed bridge will be of similar materials and style compared to the existing bridge. No direct impacts or takes on the properties within the Historic District due to the project be completed within the existing ROW limits. The replacement of the superstructure and rehabilitation of the substructure will cause minimal visual effects to the property; therefore, the proposed project will have **no adverse effect** on this property.

**2) Academy Hall and Russell Hall, North Yarmouth Academy, Outside of Project  
Limits**

**NR Listed**

All of the work will be completed within the existing ROW limits. This work will include a bridge superstructure replacement with a substructure rehabilitation of Main Street Bridge. The proposed bridge will be of similar materials and style compared to the existing bridge. No direct impacts or takes on the properties due to the project be completed within the existing ROW limits. The replacement of the superstructure and rehabilitation of the substructure will cause minimal visual effects to the property; therefore, the proposed project will have **no adverse effect** on this property.

**3) Yarmouth Post Office, Stations 201+00 Right**

**NR Eligible, Criteria A and C**

All of the work will be completed within the existing ROW limits. This work will include a bridge superstructure replacement with a substructure rehabilitation of Main Street Bridge. The proposed bridge will be of similar materials and style compared to the existing bridge. No direct impacts or impacts or takes on the property due to the project be completed within the existing ROW limits. The replacement of the superstructure and rehabilitation of the substructure will cause minimal visual effects to the property; therefore, the proposed project will have **no adverse effect** on this property.

**4) Merrill Memorial Library, Stations 201+00 Left**

**NR Eligible, Criteria A and C**

All of the work will be completed within the existing ROW limits. This work will include a bridge superstructure replacement with a substructure rehabilitation of Main Street Bridge. The proposed bridge will be of similar materials and style compared to the existing bridge. No direct impacts or takes on the property due to the project be completed within the existing ROW limits. The replacement of the superstructure and rehabilitation of the substructure will cause minimal visual effects to the property; therefore, the proposed project will have **no adverse effect** on this property.

**5) Main Street Bridge #5230, Stations 1409+50-1411+25**

### **NR Eligible, Criterion C**

All of the work will be completed within the existing ROW limits. This work will include a bridge superstructure replacement with a substructure rehabilitation of Main Street Bridge. The proposed bridge will be of similar materials and style compared to the existing bridge. The replacement of the superstructure and rehabilitation of the substructure will diminish the integrity of materials, design and workmanship of the bridge; therefore, the proposed project will have **adverse effect** on this property.

Alternative 2, the 3-Span Cast-In-Place Concrete Arch Superstructure on Rehabilitated Substructure is recommended. This alternative provides a buried concrete superstructure that is durable and requires minimal maintenance. It can be constructed in phases to accommodate the Town's desire to maintain Route 1 traffic during construction. It includes the reconfigured intersection at School Street, modifications to the Route 1 NB off ramp at York Street, and the multi-usepath and sidewalks on both approaches. This alternative has the second lowest estimated construction cost and is only \$20,000 more than the lowest cost alternative.

In this alternative, the existing abutment piles, and the pier stems, footings and piles will be reused to support the proposed superstructure. Preliminary analysis indicates that existing pier and abutment pile foundations can carry the proposed loads. The concrete portions of the existing abutments, including the footings, need to be replaced because of their condition and the extent of reconfiguration that would be required. The existing pier stems are in good condition and will be modified to accommodate the proposed narrower superstructure. After the modifications are complete, the new and existing piers surfaces will be coated with an anti-graffiti coating to achieve a uniform appearance. The construction of the proposed abutments will require temporary excavation support at the staged construction joint.

The cast-in-place arch is thinnest at mid-span and the abutments, and thicker at the piers. Spandrel walls at each fascia will retain the gravel fill placed on high performance waterproofing membrane over the arch. A temporary spandrel wall will be constructed at the staged construction joint to retain the gravel fill and support the temporary barrier.

### **Summary of Alternatives**

Several bridge alternatives were developed and evaluated. They included alternatives with one span, three spans, precast concrete superstructures, cast-in- place concrete superstructures, steel girder superstructures, completely new substructures, rehabilitated existing substructures, architectural treatments to give the bridge the appearance of an arch, and actual arch

configurations. These various bridge alternatives were evaluated using visualizations and conceptual level cost estimates.

The alternatives considered for the proposed bridge have two through lanes like the existing, but eliminate the existing SB on-ramp acceleration lane and the NB off-ramp deceleration lane. A project goal was to limit the width of the new bridge. Elimination of the acceleration and deceleration lanes from the bridge allows for a narrower and lower cost bridge but requires modification of the School Street and York Street intersection with Route 1. Alternatives with only one 5' sidewalk on the west side were initially considered, but with input from the BAC alternatives with a 10' multi-use path on the west side and a 5' sidewalk on the east side were also considered. MaineDOT is pursuing funding outside of the Bridge Program through the Transportation Alternatives Program for some of the sidewalk and multi-use path components of the project. The Town has agreed to fund its share of these costs that are funded through the Transportation Alternatives Program. The Town has also received a commitment of funding from PACTS to fund part of its share of the sidewalk and multi-use path components of the project. All of the alternatives increase the minimum vertical clearance over Main Street to 15'-6". Those bridge alternatives are:

**Alternative 1 – 3-span Prestressed Concrete NEXT Beam Superstructure with Arched Fascia Panels on Rehabilitated Substructure**

- 3-span (50'-70'-50') precast prestressed concrete New England Extreme Tee (NEXT) 36D beams superstructure on laminated elastomeric bearings
- Architectural precast concrete arched fascia panels
- 30'-0" curb-to-curb width with 6" HMA wearing surface with high performance waterproofing membrane
- Variable width sidewalk (5'-0" min.) on the east side of the bridge
- Variable width multi-use path (10'-0" min.) on the west side of the bridge
- Reinforced concrete abutments founded on the existing abutment H-piles (all existing abutment concrete, including footings, will be removed)
- Rehabilitated existing reinforced concrete piers, modified at the ends to accommodate the new superstructure configuration
- 4-bar steel bridge railing on each fascia with vertical pickets (final railing type selection will occur in final design)
- 2-bar steel bridge railing between the roadway and multi-use path with a handrail on top (final railing type selection will occur in final design)

The estimated construction cost for this alternative is \$4.080 million. This estimated cost includes bridge costs, approach roadway and intersection modifications costs, staged construction maintenance of traffic costs and proposed sidewalk costs.

The advantages of this alternative are:

- Has the appearance of an arch when viewed in elevation
- Lowest estimated construction cost
- Partially reuses existing substructure
- Shorter estimated construction duration than cast-in-place alternatives

The disadvantage of this alternative is not an arch shape inside of the fascia panels and does not provide smooth underside similar to the existing bridge shape and texture.

### **Alternative 2 – 3-Span Cast-In-Place Concrete Arch Superstructure on Rehabilitated Substructure:**

- 3-span (50'-70'-50') cast-in-place concrete arch superstructure with Structural fill on top (6" min., 19" max.)
- 30'-0" curb-to-curb width with 6" HMA wearing surface
- Variable width sidewalk (5'-0" min.) on the east side of the bridge
- Variable width multi-use path (10'-0" min.) on the west side of the bridge
- Reinforced concrete abutments founded on the existing abutment H-piles (all existing abutment concrete, including footings, will be removed)
- Rehabilitated existing reinforced concrete piers, modified at the ends to accommodate the new superstructure configuration
- 4-bar steel bridge railing on each fascia with vertical pickets (final railing type selection will occur in final design)
- 2-bar steel bridge railing between the roadway and multi-use path with a handrail on top (final railing type selection will occur in final design)

The estimated construction cost for this alternative is \$4.100 million. This estimated cost includes bridge costs, approach roadway and intersection modifications costs, staged construction maintenance of traffic costs and proposed sidewalk costs.

The advantages of this alternative are an arch, provides a smooth underside both similar elements to the existing bridge; competitive estimated construction cost and partially reuses existing substructure.

The disadvantages of this alternative are longer estimated construction duration than precast concrete alternatives, vertical clearance for Main Street traffic will be reduced (11'-0" max.) during construction of the center span arch because of falsework.

**Alternative 3 – 3-Span Precast Prestressed Concrete Arched Box Beam Superstructure on Rehabilitated Substructure:**

- 3-span (50'-70'-50') precast prestressed concrete arched box beam superstructure on laminated elastomeric bearings
- 30'-0" curb-to-curb width with 6" HMA wearing surface with high performance waterproofing membrane
- Variable width sidewalk (5'-0" min.) on the east side of the bridge
- Variable width multi-use path (10'-0" min.) on the west side of the bridge
- Reinforced concrete abutments founded on the existing abutment H-piles (all existing abutment concrete, including footings, will be removed)
- Rehabilitated existing reinforced concrete piers, modified at the ends to accommodate the new superstructure configuration
- 4-bar steel bridge railing on each fascia with vertical pickets (final railing type selection will occur in final design)
- 2-bar steel bridge railing between the roadway and multi-use path with a handrail on top (final railing type selection will occur in final design)

The estimated construction cost for this alternative is \$4.780 million. This estimated cost includes bridge costs, approach roadway and intersection modifications costs, staged construction maintenance of traffic costs and proposed sidewalk costs.

The advantages of this alternative are an arch, provides a smooth underside both similar elements to the existing bridge, partially reuses existing substructure and shorter estimated construction duration than cast-in-place alternatives.

The disadvantage of this alternative is highest estimated construction cost.

**Alternative 4 – Single-Span Precast Prestressed Box Beam Superstructure on New Abutments:**

- Single-span (100') precast prestressed concrete box beam superstructure on laminated elastomeric bearings
- Architectural precast concrete arched fascia panels
- 30'-0" curb-to-curb width with 6" HMA wearing surface with high performance waterproofing membrane

- Variable width sidewalk (5'-0" min.) on the east side of the bridge
- Variable width multi-use path (10'-0" min.) on the west side of the bridge
- Reinforced concrete abutments founded on new reinforced concrete footings and new steel H-piles
- 4-bar steel bridge railing on each fascia with vertical pickets (final railing type selection will occur in final design)
- 2-bar steel bridge railing between the roadway and multi-use path with a handrail on top (final railing type selection will occur in final design)

The estimated construction cost for this alternative is \$4.200 million. This estimated cost includes bridge costs, approach roadway and intersection modifications costs, staged construction maintenance of traffic costs and proposed sidewalk costs.

The advantage of this alternative is shorter estimated construction duration than cast-in-place alternatives. The disadvantages of this alternative are reduces the view corridor compared to the existing bridge and the 3-span alternatives, significantly alters the appearance of the bridge compared to the existing and the 3-span alternatives and requires a completely new substructure, including temporary excavation support during staged construction.

#### **Other Alternatives:**

Additional 3-span and single-span superstructure alternatives were considered, but eliminated during the alternatives evaluation because they were not as cost-competitive. The additional single-span alternatives included precast prestressed Northeast Bulb Tee (NEBT) girders and haunched steel girders. The NEBT superstructure alternative was eliminated from further consideration because it was similar to the precast prestressed box beam alternative (Alternative 4) but had more profile grade impacts and a higher estimated cost. The haunched steel girders alternative was eliminated from further consideration because it had a higher estimated cost than the precast prestressed box beam alternative (Alternative 4).

#### **Archaeological Resources**

No archaeological resources will be impacted by this undertaking.

#### **Avoidance, Minimization and Mitigation**

The materials and design of the proposed bridge will be on the same alignment of the existing bridge; thus avoiding and minimizing impacts to the surrounding historic properties. Due to the nature of the project, only the historic bridge will suffer adverse effects from the rehabilitation via

the loss of integrity of design, materials and workmanship. The loss of these aspects of integrity will be mitigated by recordation of the existing Main Street bridge prior to construction.

# STATE OF MAINE

## MEMORANDUM

August 8, 2016

To: Megan M. Hopkin, ENV/Maine Department of Transportation

From: Kirk F. Mohny, State Historic Preservation Officer *KFM*

Subject: 18238.00; bridge replacement, Yarmouth; MHPC #0560-16

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In response to your recent request, I have reviewed the information received July 27, 2016 to continue consultation on the above referenced undertaking pursuant to the Maine Programmatic Agreement and Section 106 of the National Historic Preservation Act of 1966, as amended.

### Identification of Historic Properties

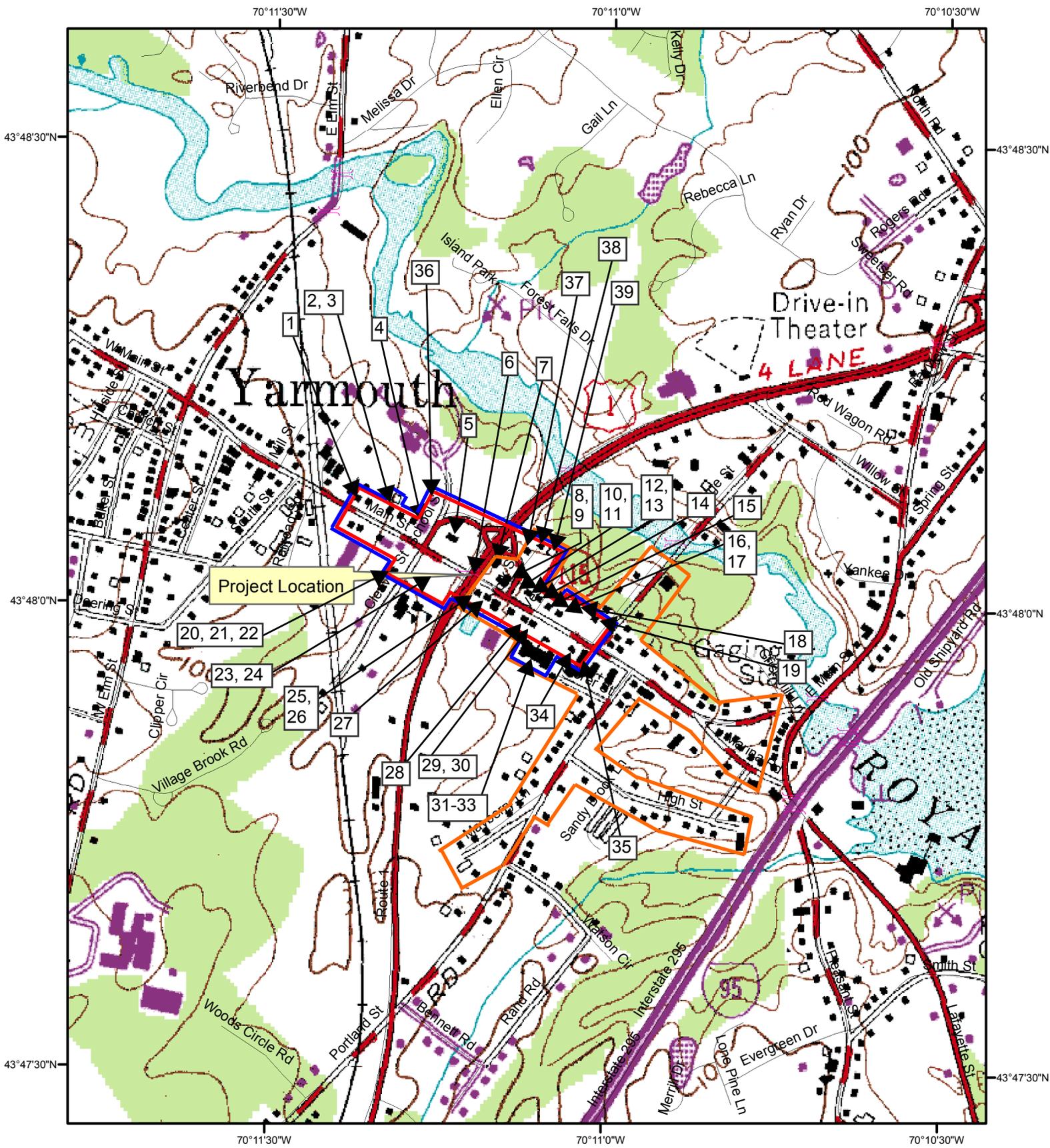
The Commission agrees with the MDOT's conclusion that there is a National Register eligible historic district within and outside the area of potential effect. As shown on the maps included in the Architectural Survey Report, this district is bounded on the west by the Main Street Bridge No. 5230 (SM #6), and includes properties on Main, High, Bridge, Pleasant, York and Portland streets, as well as Mayberry Lane. All of the surveyed resources within the district appear to contribute to its significance. However, additional survey and research will be needed to establish the precise boundaries of the district, identify contributing and non-contributing resources, establish the period of significance, and define the areas of significance.

In addition to the eligible district, the following individual properties in the APE are either listed in or are potentially eligible to be listed in the National Register of Historic Places:

- Academy Hall and Russell Hall, North Yarmouth Academy, 129 and 141 Main Street (SM #s 19, 18), listed
- Yarmouth Post Office, 233 Main Street (SM #4), potentially eligible, Criteria A, C
- Merrill Memorial Library, 215 Main Street (SM #5), eligible, Criteria A, C
- Main Street Bridge No. 5230 (SM #4), eligible, Criterion C

No other properties in the APE appear to be eligible for listing in the National Register.

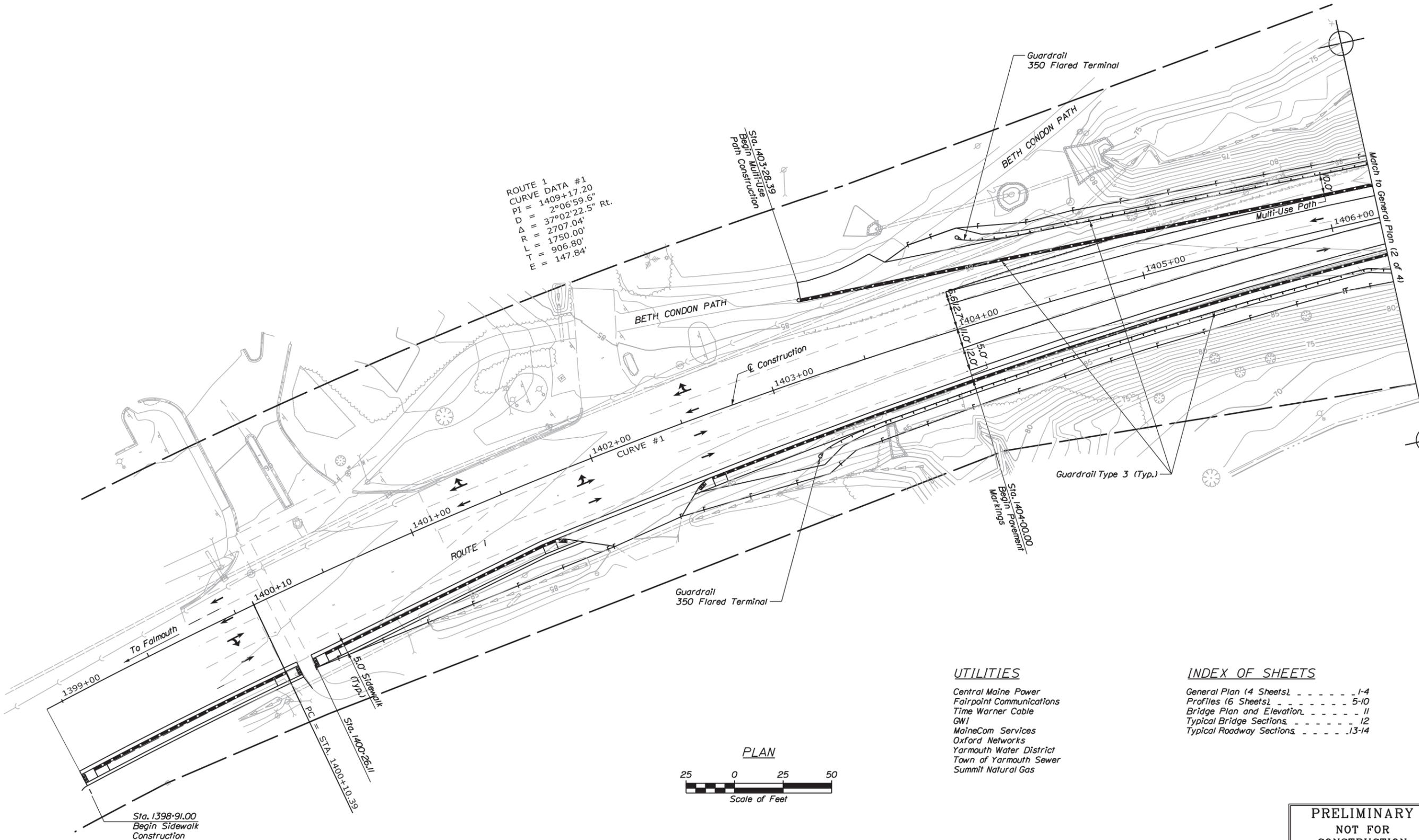
If you have any questions regarding our comments, please do not hesitate to contact me.



— APE   
 — Survey Boundaries   
 — Lower Falls Village HD   
 N

MDOT WIN 18238.00  
 Yarmouth- Main Street Bridge #5230  
 Bridge Replacement





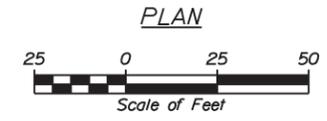
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D = 2°06'59.6"  
Δ = 37°02'22.5" Rt.  
R = 2707.04'  
L = 1750.00'  
T = 906.80'  
E = 147.84'

**UTILITIES**

- Central Maine Power
- Fairpoint Communications
- Time Warner Cable
- GW1
- MaineCom Services
- Oxford Networks
- Yarmouth Water District
- Town of Yarmouth Sewer
- Summit Natural Gas

**INDEX OF SHEETS**

- General Plan (4 Sheets) . . . . . 1-4
- Profiles (6 Sheets) . . . . . 5-10
- Bridge Plan and Elevation . . . . . 11
- Typical Bridge Sections . . . . . 12
- Typical Roadway Sections . . . . . 13-14



VERTICAL DATUM NAVD88

**PRELIMINARY**  
NOT FOR  
CONSTRUCTION  
5/27/2016

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 5230  
WIN  
18238.00  
BRIDGE PLANS

PROJ. MGR.	T. BRYANT	BY	DATE
DESIGN-DETAILED	JAW	JAW/CLC	10/7/2015
CHECKED-REVIEWED	ECF	TSB	10/7/2015
DESIGN-DETAILED2			
DESIGN-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

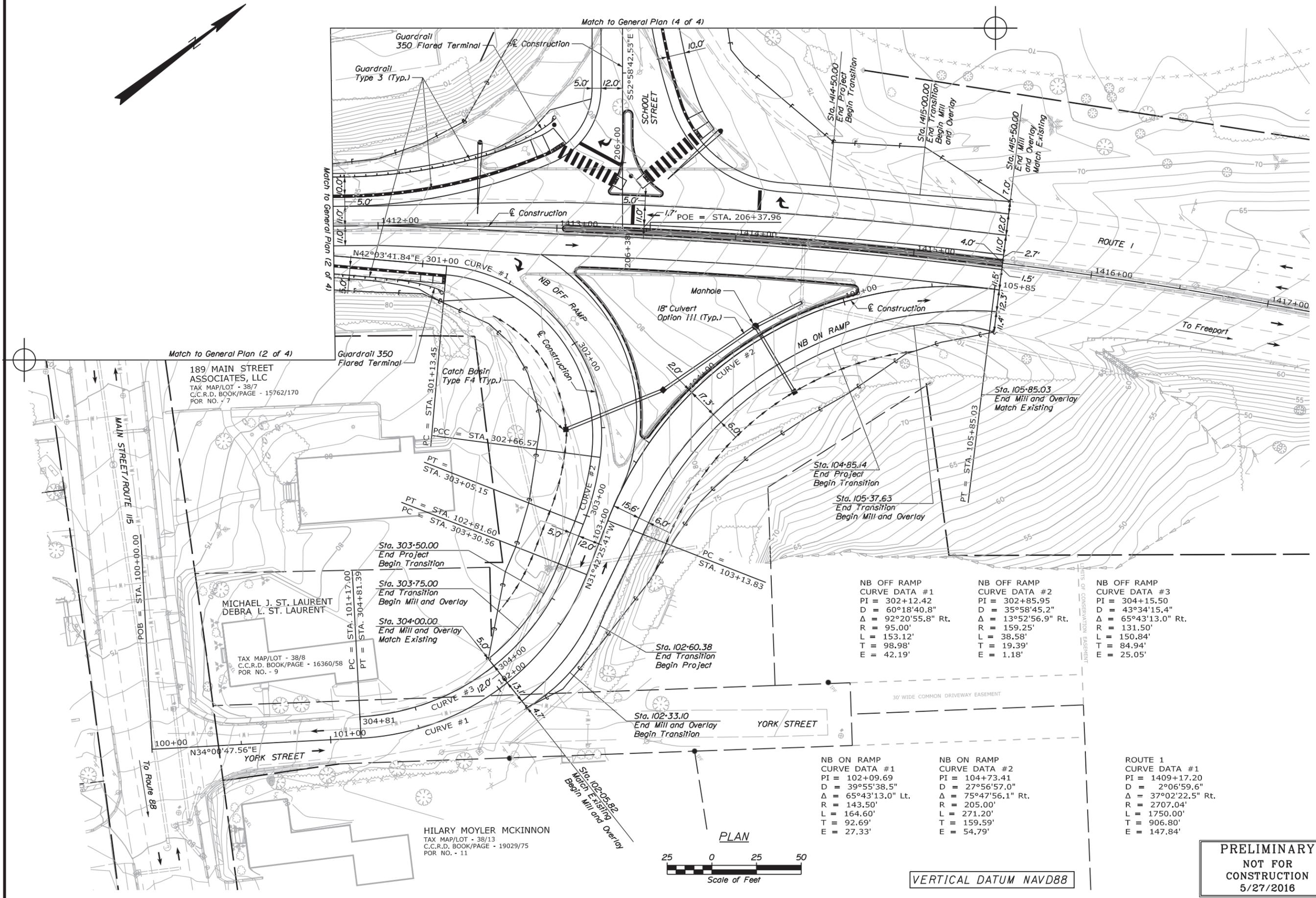
MAIN STREET BRIDGE  
ROUTE 1 OVER MAIN STREET  
CUMBERLAND COUNTY  
YARMOUTH  
GENERAL PLAN (1 OF 4)

SHEET NUMBER  
**1**  
OF 14



Date: 5/27/2016

Filename: \\MEPDATA\projects\52218.00\cod\st\plans\main\03.dgn Username: pdonovan



189 MAIN STREET ASSOCIATES, LLC  
 TAX MAP/LOT - 38/7  
 C.C.R.D. BOOK/PAGE - 15762/170  
 POR NO. - 7

MICHAEL J. ST. LAURENT  
 DEBRA L. ST. LAURENT  
 TAX MAP/LOT - 38/8  
 C.C.R.D. BOOK/PAGE - 16360/58  
 POR NO. - 9

HILARY MOYLER MCKINNON  
 TAX MAP/LOT - 38/13  
 C.C.R.D. BOOK/PAGE - 19029/75  
 POR NO. - 11

NB OFF RAMP CURVE DATA #1  
 PI = 302+12.42  
 D = 60°18'40.8"  
 Δ = 92°20'55.8" Rt.  
 R = 95.00'  
 L = 153.12'  
 T = 98.98'  
 E = 42.19'

NB OFF RAMP CURVE DATA #2  
 PI = 302+85.95  
 D = 35°58'45.2"  
 Δ = 13°52'56.9" Rt.  
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 T = 19.39'  
 E = 1.18'

NB OFF RAMP CURVE DATA #3  
 PI = 304+15.50  
 D = 43°34'15.4"  
 Δ = 65°43'13.0" Rt.  
 R = 131.50'  
 L = 150.84'  
 T = 84.94'  
 E = 25.05'

NB ON RAMP CURVE DATA #1  
 PI = 102+09.69  
 D = 39°55'38.5"  
 Δ = 65°43'13.0" Lt.  
 R = 143.50'  
 L = 164.60'  
 T = 92.69'  
 E = 27.33'

NB ON RAMP CURVE DATA #2  
 PI = 104+73.41  
 D = 27°56'57.0"  
 Δ = 75°47'56.1" Rt.  
 R = 205.00'  
 L = 271.20'  
 T = 159.59'  
 E = 54.79'

ROUTE 1 CURVE DATA #1  
 PI = 1409+17.20  
 D = 2°06'59.6"  
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 T = 906.80'  
 E = 147.84'



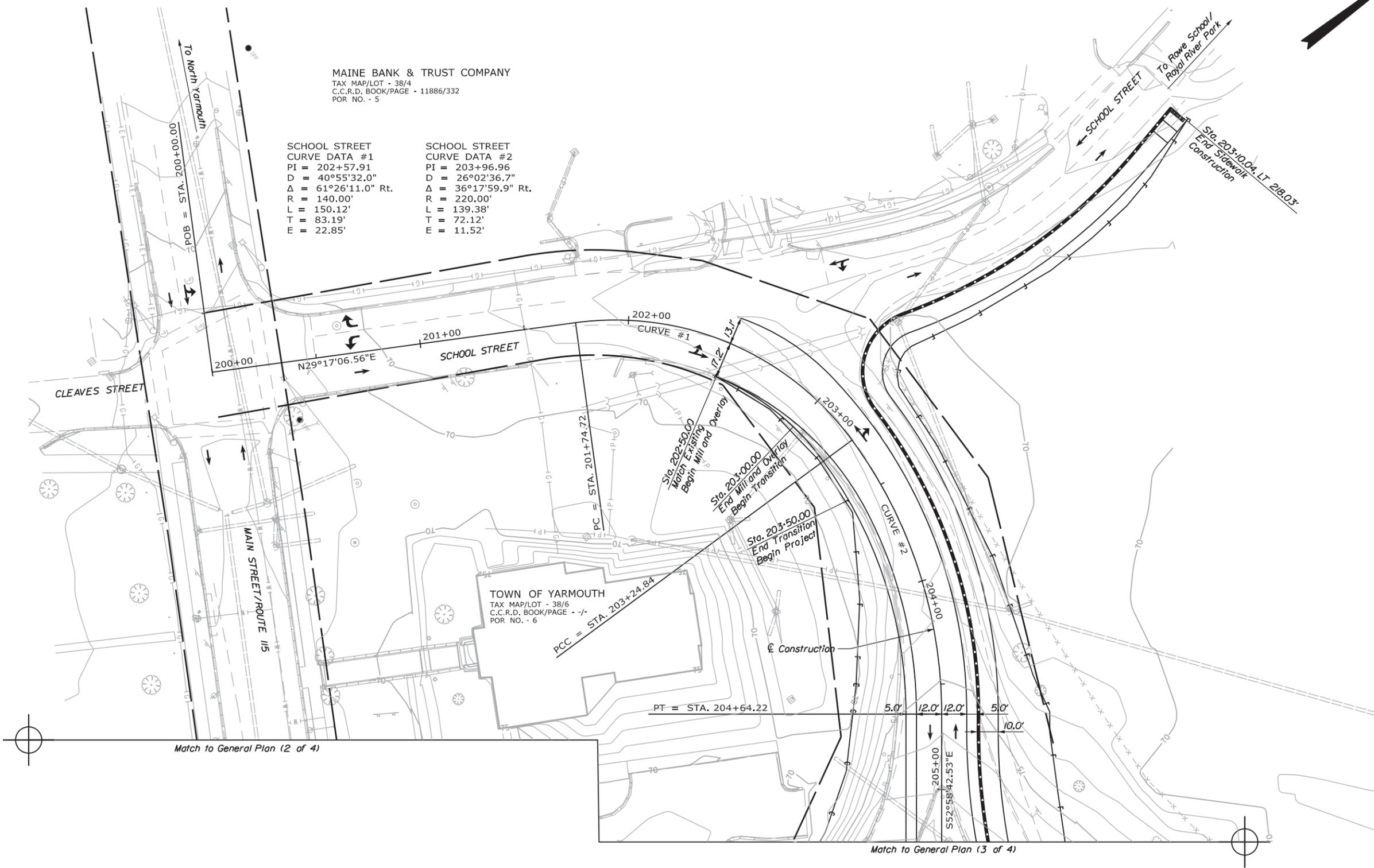
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PROJ. MANAGER	T. BRYANT	BY	DATE
DESIGN-DETAILED	JAW	JAW/CLC	10/7/2015
CHECKED-REVIEWED	ECF	TSB	10/7/2015
DESIGNS-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			
MAIN STREET BRIDGE ROUTE 1 OVER MAIN STREET YARMOUTH CUMBERLAND COUNTY		SIGNATURE	
GENERAL PLAN (3 OF 4)		P.E. NUMBER	
SHEET NUMBER		DATE	
3			
OF 14			

Date: 5/27/2016

Filename: \\MEPDATA\projects\52218.00\cod\st\plans\main\080106en\_04.dgn Username: pdonovan



MAINE BANK & TRUST COMPANY  
 TAX MAP/LOT - 38/4  
 C.C.R.D. BOOK/PAGE - 11886/332  
 POR NO. - 5

SCHOOL STREET  
 CURVE DATA #1  
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 D = 40°55'32.0"  
 Δ = 61°26'11.0" Rt.  
 R = 140.00'  
 L = 150.12'  
 T = 83.19'  
 E = 22.85'

SCHOOL STREET  
 CURVE DATA #2  
 PI = 203+96.96  
 D = 26°02'36.7"  
 Δ = 36°17'59.9" Rt.  
 R = 220.00'  
 L = 139.38'  
 T = 72.12'  
 E = 11.52'

TOWN OF YARMOUTH  
 TAX MAP/LOT - 38/6  
 C.C.R.D. BOOK/PAGE - -/  
 POR NO. - 6

Match to General Plan (2 of 4)

Match to General Plan (3 of 4)

PLAN



VERTICAL DATUM NAVD88

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STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

PROJ. MANAGER	T. BRYANT	BY	DATE
DESIGN-DETAILED	JAW	JAW/CLC	10/7/2015
CHECKED-REVIEWED	ECF	TSB	10/7/2015
DESIGN-DETAILED			SIGNATURE
REVISIONS 1			P.E. NUMBER
REVISIONS 2			DATE
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MAIN STREET BRIDGE  
 ROUTE 1 OVER MAIN STREET  
 YARMOUTH  
 CUMBERLAND COUNTY  
**GENERAL PLAN (4 OF 4)**

SHEET NUMBER

**4**

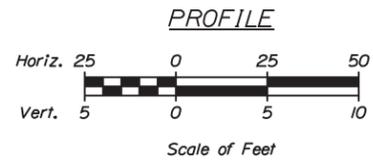
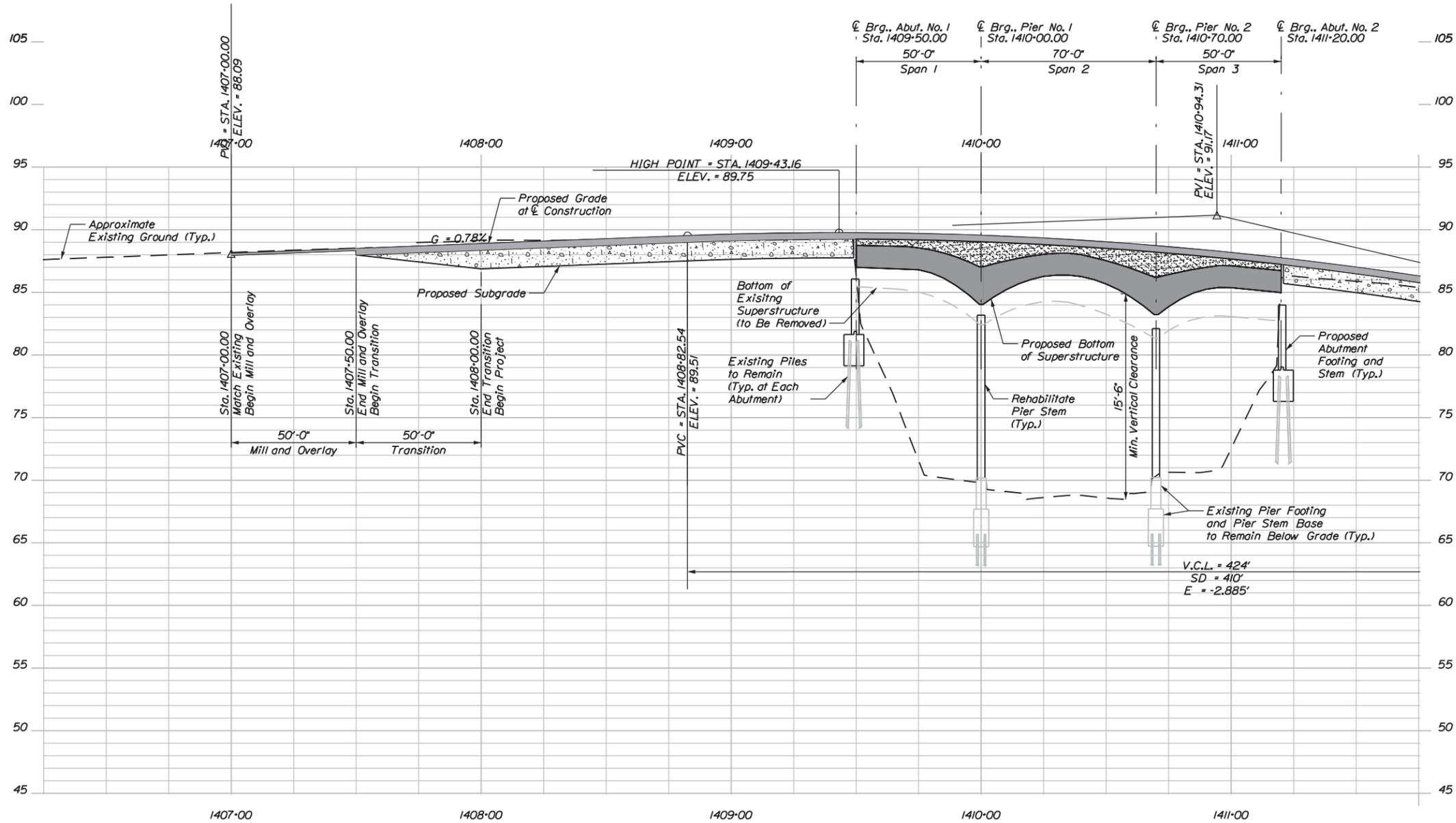
OF 14

BRIDGE NO. 5230  
 WIN  
 18238.00  
 BRIDGE PLANS



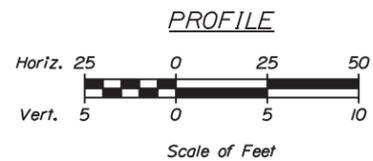
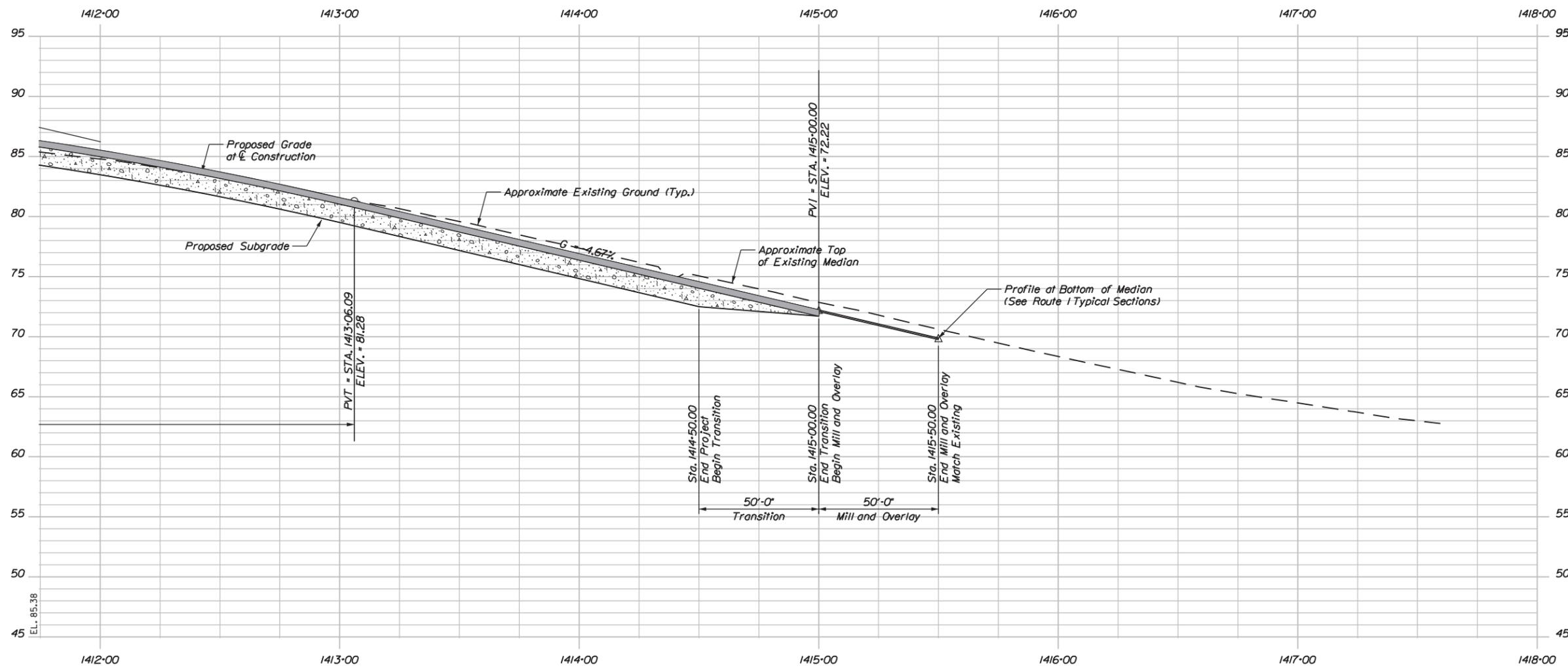
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5/27/2016**

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OF 14				
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CHECKED-REVIEWED	ECF	TSB	10/7/2015	P.E. NUMBER
DESIGNS DETAILED				
REVISIONS 1				
REVISIONS 2				
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REVISIONS 4				
FIELD CHANGES				
		DATE		



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CONSTRUCTION  
5/27/2016**

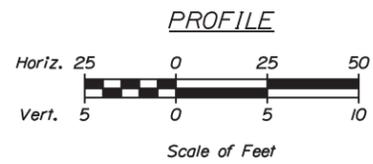
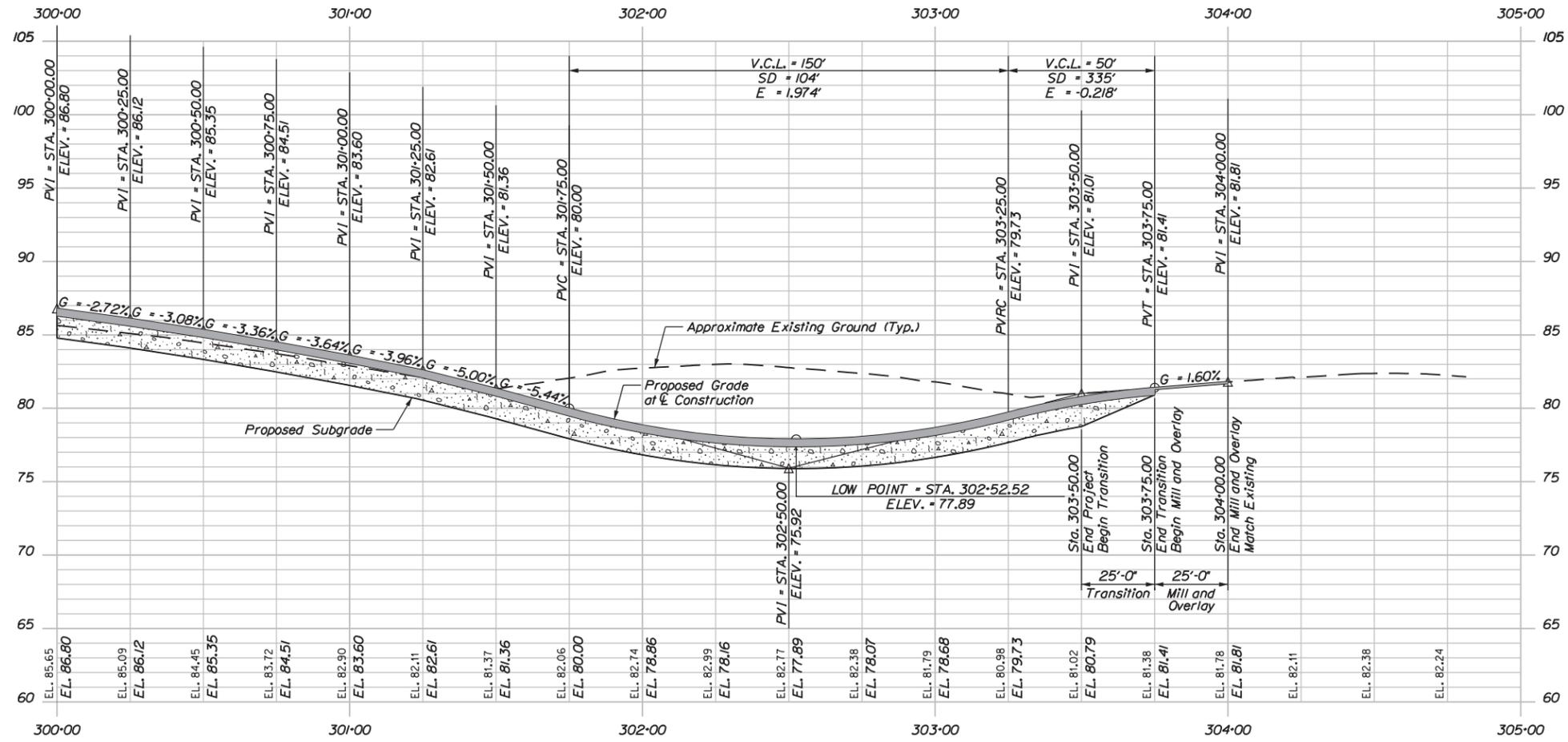
STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 5230  
WIN  
18238.00  
BRIDGE PLANS

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CHECKED-REVIEWED	ECF	TSB	10/7/2015
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REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MAIN STREET BRIDGE  
ROUTE 1 OVER MAIN STREET  
CUMBERLAND COUNTY  
YARMOUTH  
ROUTE 1 PROFILE (3 OF 3)

SHEET NUMBER  
7  
OF 14



PRELIMINARY  
NOT FOR  
CONSTRUCTION  
5/27/2016

SHEET NUMBER

8

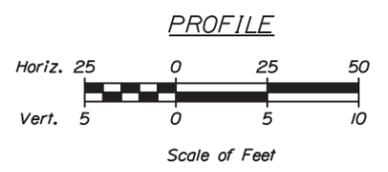
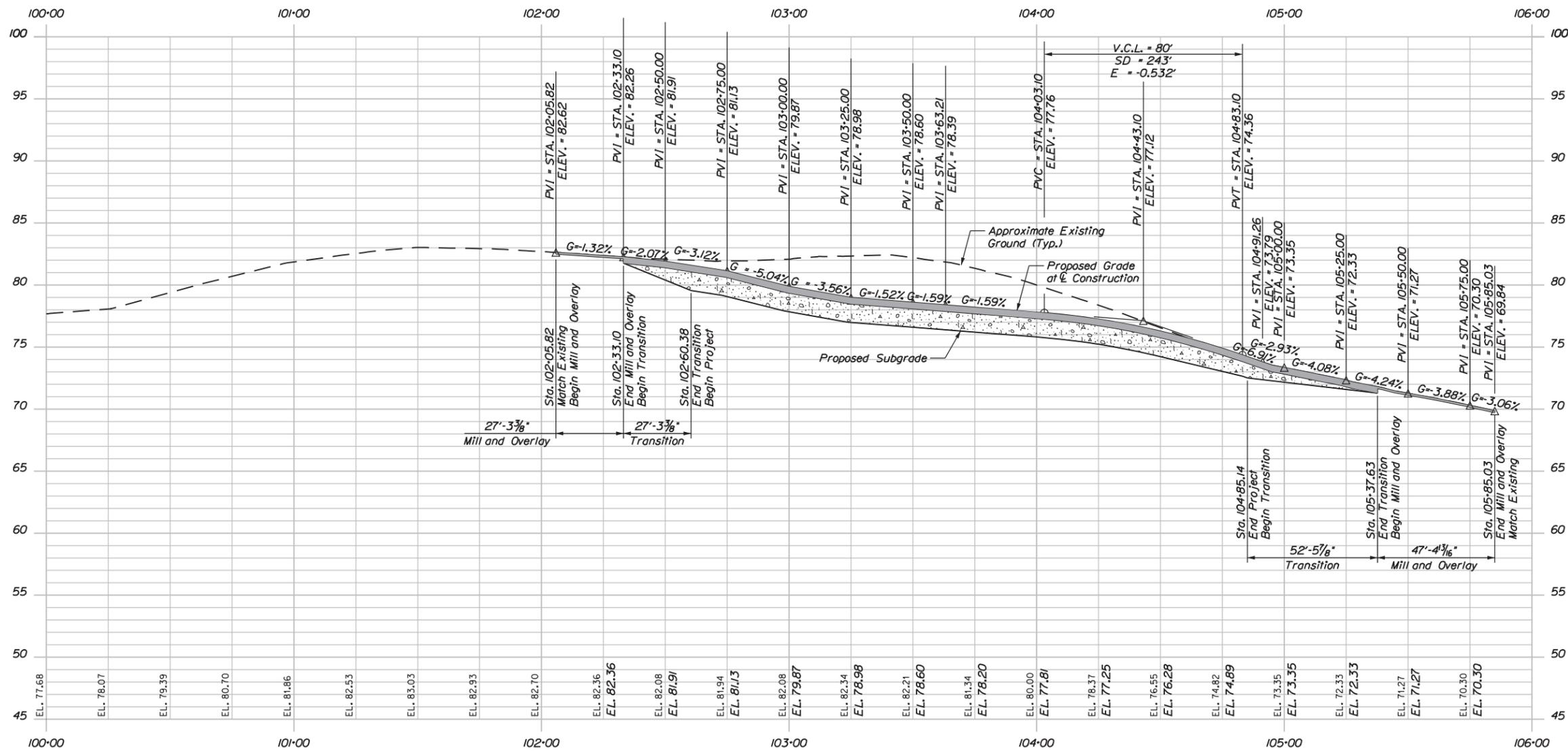
OF 14

MAIN STREET BRIDGE  
ROUTE 1 OVER MAIN STREET  
YARMOUTH CUMBERLAND COUNTY  
NB OFF RAMP PROFILE

PROJ. MANAGER	T. BRYANT	BY	DATE
DESIGN-DETAILED	JAW	JAW	10/7/2015
CHECKED-REVIEWED	ECF	TSB	10/7/2015
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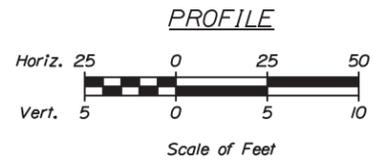
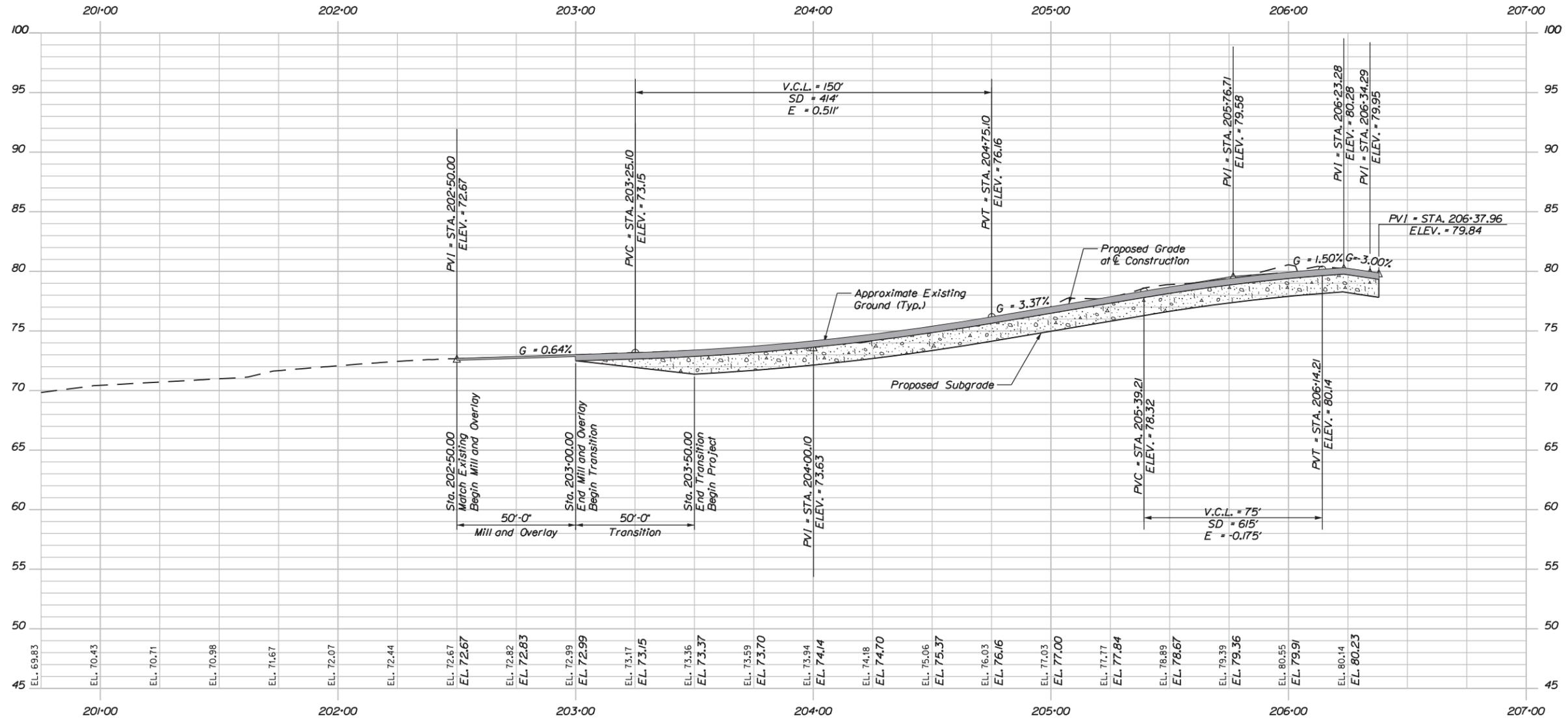
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STATE OF MAINE  
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BRIDGE NO. 5230  
WIN  
18238.00  
BRIDGE PLANS



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5/27/2016

<b>STATE OF MAINE</b>		<b>DEPARTMENT OF TRANSPORTATION</b>	
<b>YARMOUTH</b>		<b>CUMBERLAND COUNTY</b>	
<b>MAIN STREET BRIDGE</b>		<b>ROUTE 1 OVER MAIN STREET</b>	
<b>NB ON RAMP PROFILE</b>		<b>BRIDGE NO. 5230</b>	
<b>SHEET NUMBER</b>		<b>WIN</b>	
<b>9</b>		<b>18238.00</b>	
<b>OF 14</b>		<b>BRIDGE PLANS</b>	
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REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
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		<b>P.E. NUMBER</b>	
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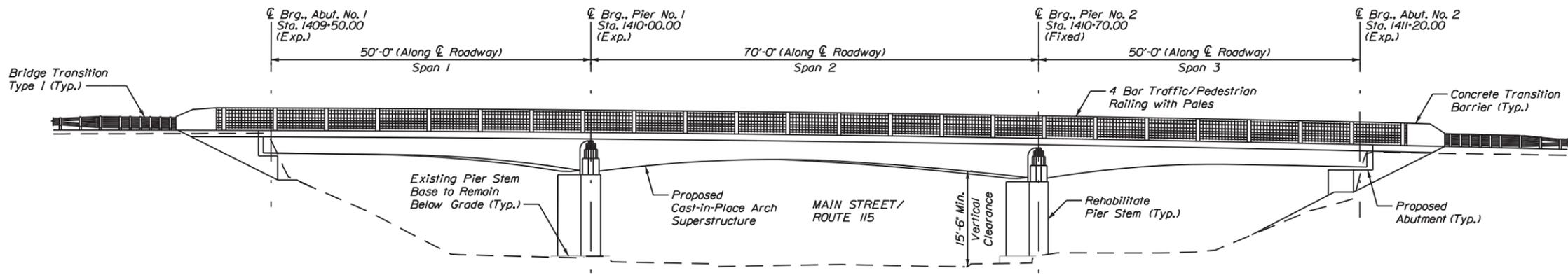
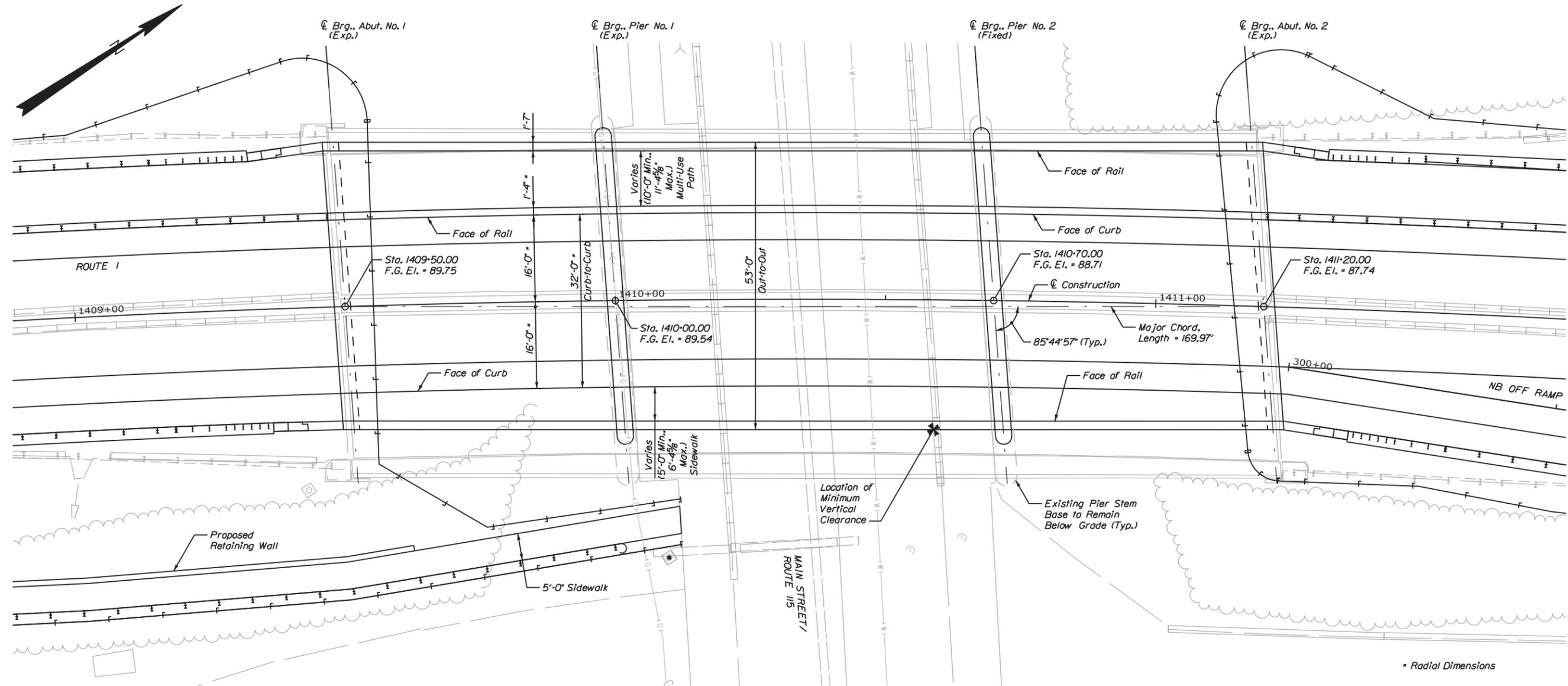


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NOT FOR  
CONSTRUCTION  
5/27/2016

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BRIDGE NO. 5230 WIN 18238.00 BRIDGE PLANS	
MAIN STREET BRIDGE ROUTE 1 OVER MAIN STREET YARMOUTH CUMBERLAND COUNTY		SCHOOL STREET PROFILE	
SHEET NUMBER		10 OF 14	
PROJ. MANAGER	T. BRYANT	DATE	SIGNATURE
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CHECKED-REVIEWED	TSB	10/7/2015	
DESIGN-DETAILED			P.E. NUMBER
REVISIONS 1			DATE
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

Date: 5/27/2016

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**ELEVATION**

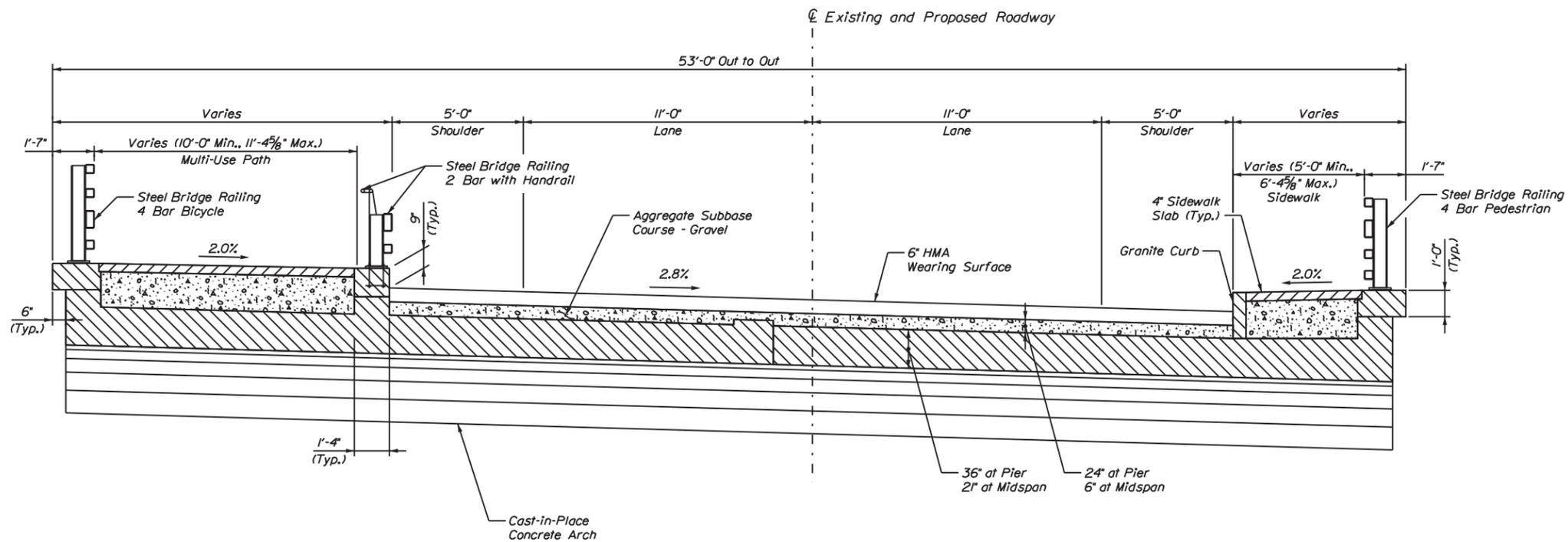
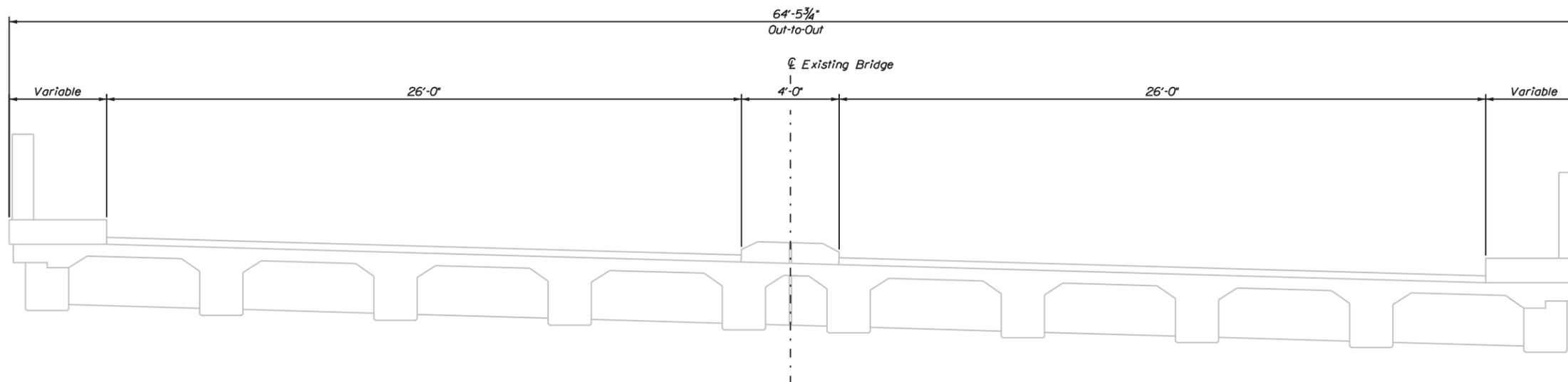
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 NOT FOR  
 CONSTRUCTION  
 5/27/2016

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		BRIDGE NO. 5230		WIN 18238.00		BRIDGE PLANS	
PROJ. MANAGER	T. BRYANT	BY	DATE	DESIGN DETAILED	SIGNATURE	P.E. NUMBER	DATE
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DESIGNED				REVISIONS 1			
				REVISIONS 2			
				REVISIONS 3			
				REVISIONS 4			
				FIELD CHANGES			
MAIN STREET BRIDGE ROUTE 1 OVER MAIN STREET CUMBERLAND COUNTY YARMOUTH				BRIDGE PLAN AND ELEVATION			
SHEET NUMBER				11			
				OF 14			

Date: 5/27/2016

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STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 5230  
WIN 18238.00  
BRIDGE PLANS

PROJ. MANAGER	T. BRYANT	BY	DATE
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CHECKED-REVIEWED	ECF	TSB	10/7/2015
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REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MAIN STREET BRIDGE  
ROUTE 1 OVER MAIN STREET  
CUMBERLAND COUNTY  
YARMOUTH

TYPICAL BRIDGE SECTIONS

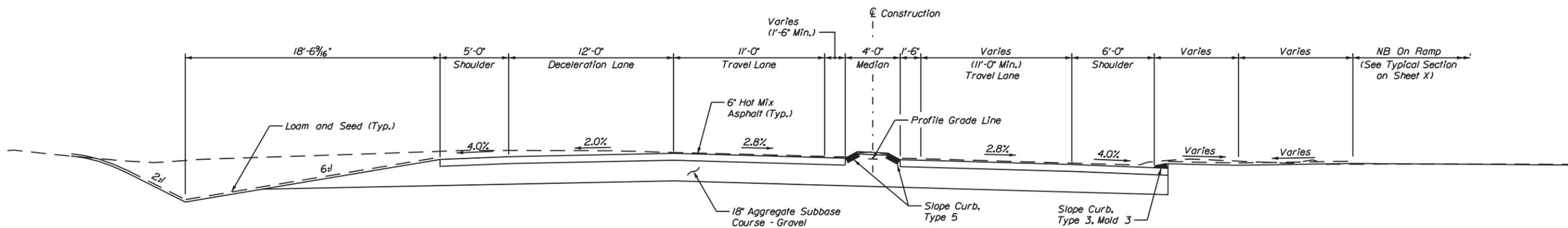
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5/27/2016

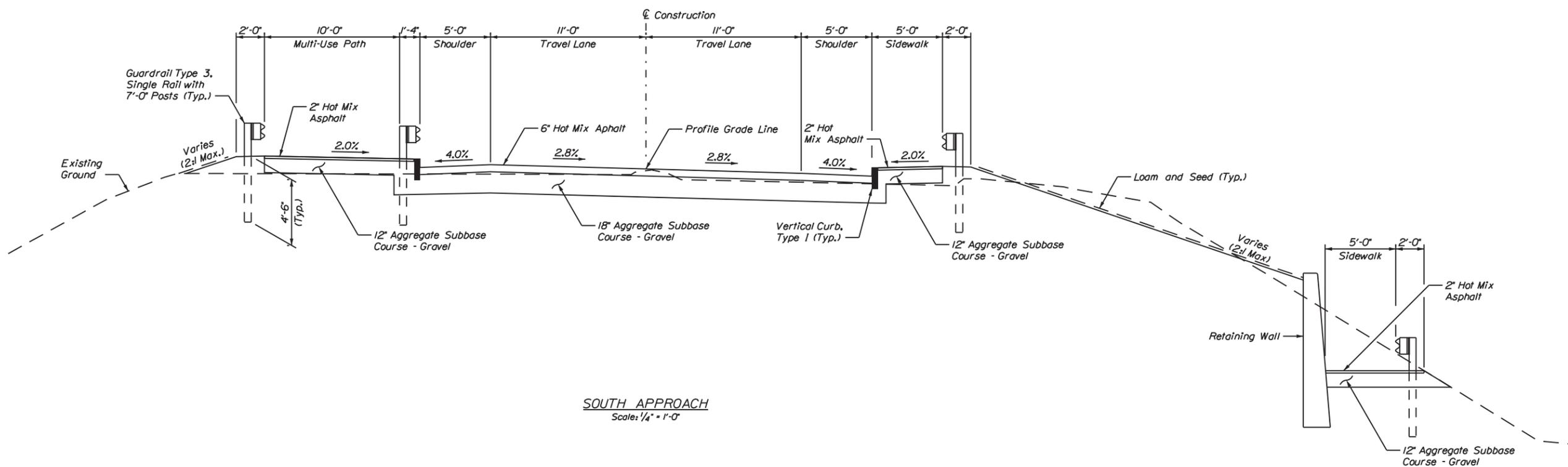
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OF 14

Date: 5/27/2016

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NORTH APPROACH  
Scale: 1/4" = 1'-0"



SOUTH APPROACH  
Scale: 1/4" = 1'-0"

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
WIN  
18238.00  
BRIDGE NO. 5230  
BRIDGE PLANS

DESIGN DETAILED	JAW	DATE	SIGNATURE
CHECKED-REVIEWED	ECF	10/7/2015	
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REVISIONS 1			DATE
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PROJ. MANAGER	T. BRYANT	DATE	
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REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MAIN STREET BRIDGE  
ROUTE 1 OVER MAIN STREET  
CUMBERLAND COUNTY  
YARMOUTH  
ROUTE 1 TYPICAL SECTIONS

SHEET NUMBER

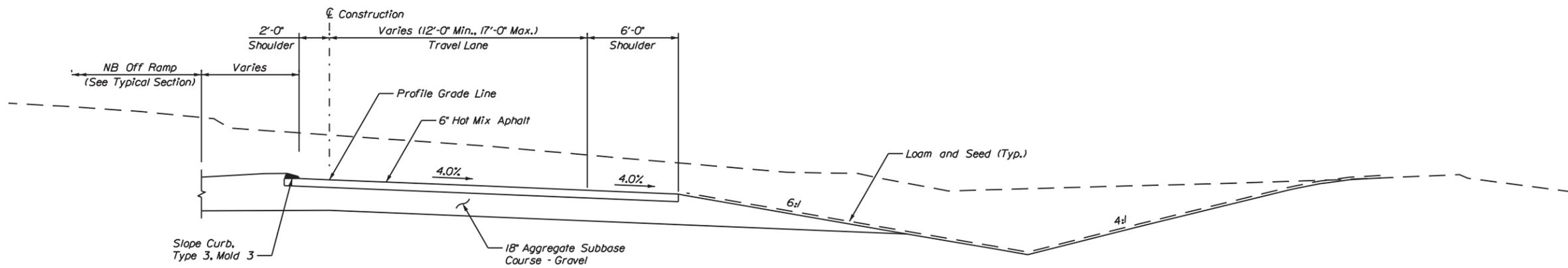
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OF 14

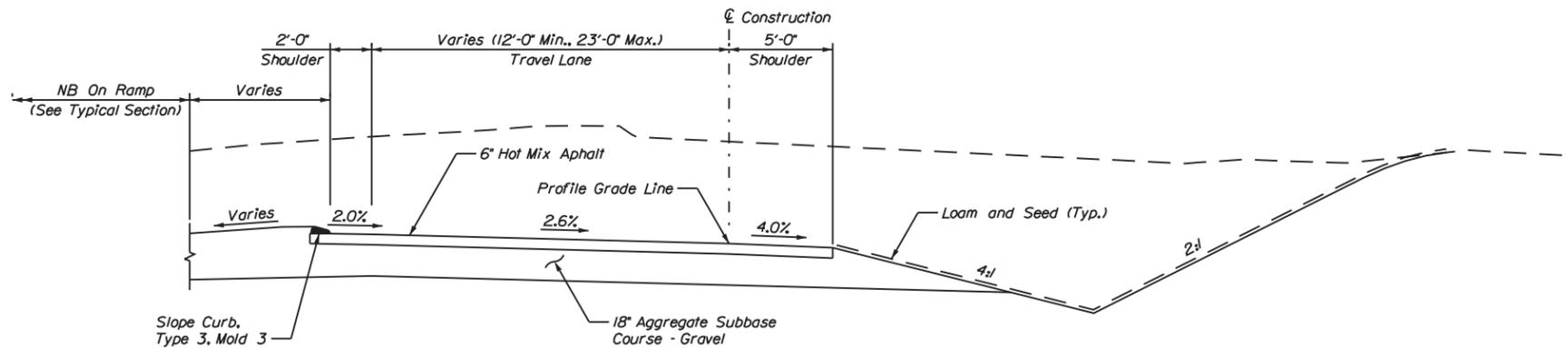
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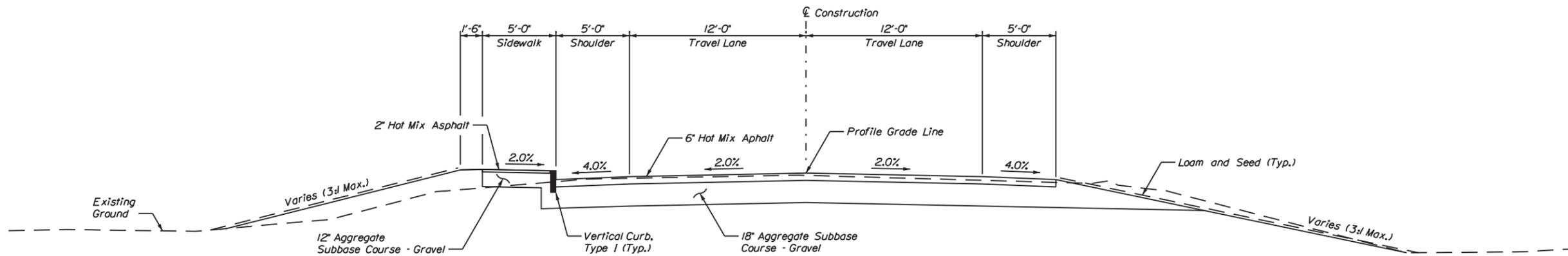
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**NB ON RAMP TYPICAL SECTION**  
Scale: 1/4" = 1'-0"



**NB OFF RAMP TYPICAL SECTION**  
Scale: 1/4" = 1'-0"



**SCHOOL STREET TYPICAL SECTION**  
Scale: 1/4" = 1'-0"

**PRELIMINARY**  
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5/27/2016

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
BRIDGE NO. 5230  
WIN  
18238.00  
BRIDGE PLANS

PROJ. MANAGER	T. BRYANT	BY	DATE
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REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MAIN STREET BRIDGE  
ROUTE 1 OVER MAIN STREET  
CUMBERLAND COUNTY  
YARMOUTH  
TYPICAL ROADWAY SECTIONS

SHEET NUMBER  
**14**  
OF 14



Alternative 2 – 3-span Cast-In-Place Concrete Arch Superstructure on Rehabilitated Substructure

Elevation View



Alternative 2 – 3-span Cast-In-Place Concrete Arch Superstructure on Rehabilitated Substructure

Under Bridge View

# Concept Plan for Street Level Lighting & Site Improvements

## Main Street Bridge, Yarmouth ME

Alex Jaegerman, Director of Planning &  
Sarah Witte, Landscape Architect  
12.27.15



### LEGEND

- uplight/ceiling wash
- ▲ sconce/up+down
- bollard
- ⦿ bollard on precast or granite base
- precast or granite paver areas