FINAL REPORT

Concept Development

Route 31, Bridge over Furnace Brook

Oxford Township, Warren County

NJDOT Division of Project Management

December 2014

GPI Greenman-Pedersen, Inc.

Engineering and Construction Services

Table of Contents

Executive Summary iv
I. INTRODUCTION 1
A. Foreword 1
B. Original and Successor Projects 1
C. Data Reviewed 1
D. Design Standards 3
E. Characteristics of the Roadways and Surrounding Area 3
F. Concept Development Scope Statement 4
G. CD Public Involvement Action Plan 4
H. STIP Conformity 4
II. PURPOSE AND NEED 4
A. Bridge Needs 4
B. Scour Needs 5
C. Roadway Needs 5
D. Goals and Objectives 5
III. EXISTING INVENTORY AND CONDITION 5
A. Existing Bridge Inventory and Condition 5
B. Scour 6
C. Maintenance Issues 7
D. Existing Roadway Inventory and Condition 7
E. Existing Utilities 11
F. Summary of Existing Deficiencies 11
G. List of Substandard Design Elements 12
H. Management Systems Input 12
I. As-Built Plans, Right of Way Maps and Jurisdiction Map 12
IV. TRAFFIC AND CRASH SUMMARY 12
A. Traffic Operations 12
B. Traffic Data 13
C. Traffic Volume Forecasts 14
D. Crash Data Analysis and Crash Diagram 14
V. SOCIAL, ECONOMIC AND ENVIRONMENTAL SCREENING 14
A. Community Outreach 15
B. Noise and Air Quality 15
C. Socioeconomics 15
D. Cultural Resources 15
E. Section 4(f) Properties 16
F. Highlands/Pinelands 16

G. Wetlands 16
H. Reforestation 16
I. Floodplain 16
J. Sole Source Aquifer 16
K. Threatened/Endangered Species 16
L. Category 1 Waters 16
M. Vernal Pools 16
N. Stormwater 16
O. Hazardous Waste 17
P. Anticipated Environmental Permits or Approvals 17
Q. Environmental Summary with Probable NEPA Document required 17
VI. EVALUATION OF CONCEPTUAL ALTERNATIVES 17
A. Bridge Rehabilitation versus Bridge Replacement 17
B. Temporary Bridge Location and Widening Constraints 18
C. Conceptual Alternatives 18
D. Traffic Analysis 19
E. Hydrology & Hydraulics Analysis 20
F. Right of Way Impacts and Review 20
G. Utility Impacts 21
H. ITS Facilities 21
I. Complete Streets Policy 21
J. Access Impacts and Review 22
K. Constructability and Staging Plans and Detour Plan 22
L. Controlling Substandard Design Elements and Reasonable Assurance 23
M. Construction Cost Estimate 23
N. Alternatives Matrix 24
O. Discussions with Subject Matter Experts 24
P. Preliminary Preferred Alternative (PPA) 24
Q. Preliminary Engineering Scope Statement 28
R. Schedule 28
VII. CONCEPT DEVELOPMENT RECOMMENDATION 29
A. Federal Highway Administration (FHWA) Approval of Report 29
B. Capital Program Screening Committee (CPSC) Recommendation 29
C. Capital Program Committee (CPC) Approval 29

List of Figures

Figure 1 – Project Location (Pin No. 1) 2
Figure 2 – Structure General Plan (17th Cycle Report) 6

List of Tables

Table 1 – Data Reviewed 2
Table 2 – Horizontal Alignment Data 7
Table 3 – Vertical Alignment Data 8
Table 4 – Superelevation Data 9
Table 5 – Lane Widths 9
Table 6 – Shoulder Widths 10
Table 7 – Border Widths 10
Table 8 – Route 31 & Wall Street, Existing Conditions (2010) 13
Table 9 – Route 31 & Wall Street, No-Build Conditions (2040) 14
Table 10 – Route 31 & Wall Street, Build Conditions (2040) 20
Table 11 – Access Classifications 22
Table 12 – Structure Type Order-of-Magnitude Cost Estimate 23
Table 13 – Alternative Order-of-Magnitude Cost Estimate 23
Table 14 – Route 31 & Wall Street, Staging Conditions (2020) 26

Appendices

A. Bridge Re-evaluation Survey Report (latest cycle)
B. As-Built Plans, ROW, Tax and Jurisdiction Maps
C. Crash Data & Collision Diagrams
D. Traffic Data
E. Aerial Plan and Photographs
F. Straight Line Diagrams
G. Environmental Screening and Constraint Map
H. Alternatives
I. Public Communications
J. Design Communications Report (DCR)
K. Resolutions of Support
L. NJDOT Communications
M. Management Systems
N. Cost Estimates
O. Alternatives Matrix
P. Preliminary Preferred Alternative (PPA)
Q. Hydrology & Hydraulics Analysis
R. Complete Streets Checklist
S. CD Scope Statement
T. CD Public Involvement Action Plan
U. Preliminary Engineering Scope Statement
V. Utility Letter No. 1

Executive Summary

Background: The original intent of this project was to replace the superstructure of Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83), within Oxford Township, Warren County as recommended in the October 13, 2006 *14th Cycle Bridge Re-evaluation Report*. However, the subsequent October 13, 2010 *17th Cycle Bridge Re-evaluation Report* revised the recommendation to a complete replacement since the single span bridge is comprised of three distinctly different structure types: stone masonry arch, concrete encased steel stringers and reinforced concrete slab.

Route 31 in the vicinity of Furnace Brook is an undivided urban principal arterial running south to north with a posted speed limit of 40 mph and 45 mph south and north of Wall Street, respectively. The Route 31 portion of the bridge has two 12-foot wide lanes and no shoulder in each direction with a 5-foot wide sidewalk along the west fascia. The Wall Street portion of the bridge has a 14-foot wide northbound lane and a 21-foot wide southbound lane with no adjoining shoulders. The west fascia railing is comprised of concrete posts with a two-rail metal tube railing. The east side has a high laid up stone masonry parapet. The existing bridge has a clear span of approximately 26 feet, an approximate out-to-out width of 94 feet, and an average curb-to-curb width of 86 feet.

During the Concept Development study, two (2) local officials meetings were held with representatives from Oxford Township and Warren County. In addition, a Public Information Center (PIC) was held on October 7, 2013 in Oxford Township. The local officials and public concurred with the PPA. Oxford Township provided a Resolution of Support for this project.

Purpose and Need: The purpose of this project is to replace Structure No. 2111-154 to address its existing deficiencies. According to the *17th Cycle Report*, the bridge is structurally deficient due to the condition of the superstructure with a sufficiency rating of 48.2. The superstructure is in poor condition due to excessive loss of mortar and numerous large voids in the underside of the stone masonry arch section along with severe rusting and section loss on the exposed bottom flanges of the steel beam in the stringer section. The deck is in fair condition due to fine to medium longitudinal cracks with heavy efflorescence in the deck underside. The substructure is also in fair condition due to moderate to heavy scaling at both abutments, a large spall at the west end of the north breastwall, and the wide diagonal fracture and heavy spalling in the southwest wingwall. The Report recommends complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure noted by NJDOT SME and the current undesirable configuration.

Additional deficiencies and substandard design elements were identified during Concept Development along Route 31 at and adjacent to Structure No. 2111-154, including superelevation, shoulder width, auxiliary lane length, signal layout and ADA compliance.

Preliminary Preferred Alternative (PPA): The PPA is based on input received from Oxford Township, Warren County and the NJDOT SME. It consists of replacing the existing bridge with a precast concrete rigid frame structure, since superstructure rehabilitation is only possible for the concrete encased steel stringers and reinforced concrete slab portions and rehabilitation of the stone arch is equivalent to a complete replacement. The proposed structure will include an architectural treatment, such as a form

liner or veneer, to mimic the existing fascia of the stone arch section and two-rail parapet on both sides which will meet current vehicular, pedestrian and bicycle standards. The structure will be a 28-foot long single span structure with an average curb-to-curb width of 86 feet and an average out-to-out width of 96 feet. This is two feet longer and two feet wider than the existing bridge. However, the existing hydraulic opening size will be maintained. Along Route 31, the proposed structure will carry three 12-foot wide travel lanes with a 12-foot wide shoulder and a 6-foot wide sidewalk. Along Wall Street, it will carry two 12-foot wide travel lanes with a 10-foot shoulder. The PPA also includes replacing the traffic signal, providing a standard width southbound shoulder, extending the auxiliary lane along Route 31 northbound north of Wall Street, bringing existing guide rail into conformance with current standards, and enhancing pedestrian accessibility with ADA compliant ramps, pedestrian pushbuttons, countdown pedestrian signal heads and sidewalk connectivity.

The bridge will be replaced using two-stage construction. One lane of traffic in each direction along Route 31 will be maintained during both stages with limited access from Wall Street onto Route 31 in the first stage. The Wall Street westbound through and right turn movements and eastbound through movement would be prohibited and detoured to Port Colden Road. All lanes during construction will have a minimum width of 11 feet.

Overhead utility relocations will require permanent utility and/or aerial easements and temporary construction easements. The guide rail relocation and associated grading will require a permanent slope easement. Easements are required from ten (10) properties. Four (4) existing driveways, two each for the Skyland Bank and the U.S. Post Office located in the southwest and northeast quadrants, respectively, will require reconstruction. It is also anticipated that waivers will be obtained for eight (8) total driveways that do not currently meet the *Access Code*.

The probable NEPA document required for this project is a Categorical Exclusion Document (CED). The following environmental permits and interagency coordination may be necessary:

- NJDEP Water Quality Certificate
- NJDEP Freshwater Wetlands
- NJDEP Flood Hazard Area

Preliminary Cost: The total construction cost estimate of the PPA is approximately **$2,989,100** based on Classification No. 1 – New Construction of the NJDOT Trns•port Construction Cost Estimating Guide, dated December 2006, as amended. The NJDOT Right of Way Unit provided a right of way cost estimate of **$246,000**.

Schedule: The following are the anticipated start dates for the subsequent stages of this project:

Project Delivery Phase	Anticipated Start Date (STIP Date)	STIP Funding	Estimate
Concept Development	*Complete September 2014*	--	$170,000
Preliminary Engineering	January 2015 (FY 2015)	$300,000	$300,000
Final Design	January 2016 (FY 2016)	$400,000	$400,000
Right of Way	July 2017 (FY 2017)	$200,000	$246,000
Construction	October 2018 (FY 2019)	$3,100,000	$2,989,100

I. INTRODUCTION

Project UPC No. 093250, DB # 09325
NJDOT Division of Project Management, Assistant Project Manager – Sangaran Vijayakumar
NJDOT Division of Project Management, Project Manager – Robert Lee

A. Foreword

The original intent of this project was to replace the superstructure of Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook, within the Township of Oxford, Warren County as recommended in the October 13, 2006 *14th Cycle Bridge Re-evaluation Report* for this structure. However, the subsequent October 13, 2010 *17th Cycle Bridge Re-evaluation Report* revised the recommendation to a complete replacement of the structure due to the serious condition of the superstructure, the extensive deterioration of the substructure and the undesirable configuration of the existing structure, which is composed of three distinctly different and adjoining structure types.

During the course of Concept Development, additional deficiencies and substandard design elements were identified along Route 31 at and immediately adjacent to Structure No. 2111-154. To address these deficiencies, the project scope was expanded to include the replacement of the traffic signal and the installation of ADA compliant ramps at the intersection of Route 31 and Wall Street, the extension of the auxiliary lane along Route 31 northbound through the intersection north of Wall Street along with other minor roadway work.

Structure No. 2111-154 is located along NJ Route 31 at milepost 46.83. Copies of the NJDOT Straight Line Diagrams for NJ 31 and Warren County Route 624 within the project limits are included within Appendix F.

All proposed improvements are located within Oxford Township, Warren County (see Figure 1).

B. Original and Successor Projects

NJ Route 31 was originally constructed between 1926 and 1935 and extends from U.S. Route 206 in Trenton City north to U.S. Route 46 in Buttzville (White Township). It was formerly designated as Route 30 from 1927 to 1953 when it was renumbered as Route 69. This designation remained intact until 1967 when Route 69 was renumbered to Route 31. Available as-built plans of original and successor projects are listed in Table 1.

The following concurrent projects in various stages of design or construction are within or near the project limits:

- Route 31, Graysrock Road to Bryants Road (CR 634), Pavement (UPC No. 113420)

C. Data Reviewed

During the data collection phase of this project, various sources were consulted to obtain information on the existing conditions within the study area. This information was evaluated to

determine areas of non-conformance with current design standards and to form the base data for use in the development of alternatives. For this project, the following information was available for review:

Table 1 – Data Reviewed

Data	Source	Date
As-Built Plans of Route 30 (1937), Section 11, Route 69 (1953), Oxford Repaving	NJDOT	Sept. 1953
New Jersey State Highway Department, Division of Bridges, Route 69 (1953) 30 (1927), over Furnace Brook	NJDOT	Aug. 1953
New Jersey State Highway Department, Division of Bridges, Route 69 (1953) 30 (1927), 31 (1971), over Furnace Brook, Concrete I-Beam Bridge	NJDOT	April 1920
General Property Parcel Map, Route 30 (1927), Section 11, Route 69 (1953), Oxford Repaving, Showing Existing Right of Way & Parcels to be Acquired in the Township of Oxford, Warren County	NJDOT	Sept. 1953

In the addition to this specific information, numerous field visits were conducted to ascertain and document existing conditions. Digital images were collected and are included in Appendix E.

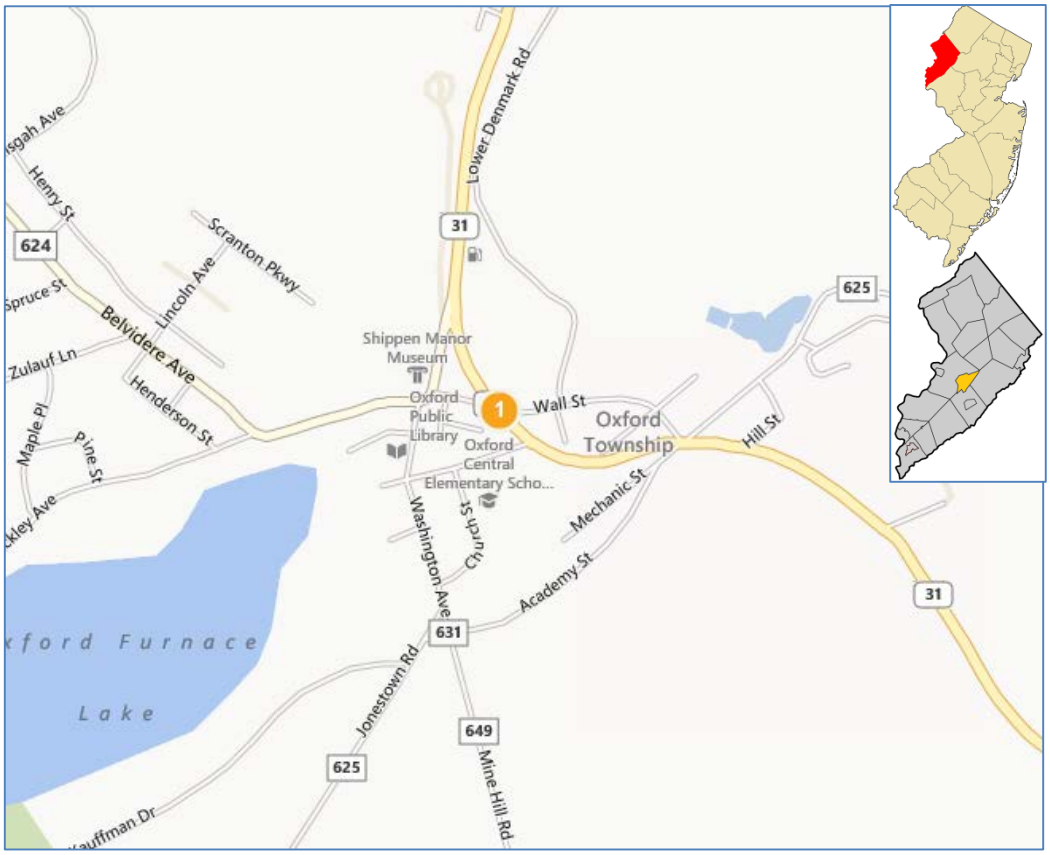


Figure 1 – Project Location (Pin No. 1)

D. Design Standards

The following design standards were utilized in the analysis of the existing conditions and identification of deficiencies within the project area and in the development of alternatives for this project.

1. *Roadway Design Manual* (NJDOT-RDM) – NJDOT, 2007;
2. *NJ State Highway Access Management Code* (*Access Code*) – NJDOT, exp. April 2014;
3. *A Policy on Geometric Design of Highways and Streets* (AASHTO) – AASHTO, 2011;
4. *Roadside Design Guide* – AASHTO, 2011;
5. *Highway Capacity Manual* (HCM)– Transportation Research Board, 2010;
6. *Manual on Uniform Traffic Control Devices* (MUTCD) – FHWA, 2009;
7. *Design Manual for Bridges & Structures, 5th Edition* – NJDOT, 2010; and
8. *LRFD Bridge Design Specifications, Customary U.S. Units, 6th Edition* – AASHTO, 2012 with current Interims.

E. Characteristics of the Roadways and Surrounding Area

Roadway: NJ Route 31 in the vicinity of Furnace Brook is an undivided four-lane urban principal arterial running south to north with a posted speed limit of 40 mph and 45 mph south and north of Wall Street, respectively. The study area consists of the following:

- Route 31 passes over Furnace Brook immediately south of its signalized intersection with Wall Street.
- Route 31 south of the structure consists of two 12-foot wide travel lanes in each direction with no shoulders. Route 31 north of the structure consists of a single travel lane of varying width in each direction and a 14-foot wide shoulder along the southbound direction. Wall Street consists of a single travel lane in each direction with no adjoining shoulders.
- Vertical concrete curb is present along both sides of Route 31 within the project limits. Sidewalk is present in the southeast and southwest quadrants of the intersection of Route 31 and Wall Street.

Land Use: The land use surrounding Route 31 within the project limits includes industrial, agricultural, business and residential uses. Northwest of the project location is an industrial area that is home to Oxford Textile, Inc. In the northeast quadrant of the intersection of Route 31 and Wall Street is Wilkinson Field, which is home to the Oxford Youth Association Team. In the northwest corner of the intersection is located a memorial. To the project's west is the remnants of the Oxford Furnace and a small business district. Businesses directly adjacent to Structure No. 2111-154 include Skyland Community Bank, US Gas and Busy Bee Food Market, and a liquor store all of which are located along Route 31 immediately south of Wall Street. A former salon is located along Wall Street immediately adjacent to the structure. The Oxford Township Volunteer Fire Department and municipal building are located along Wall Street approximately 500 and 1,000 feet east of the project location. The Emergency Squad is located on Academy Street, just outside of the project limits. The Oxford Central School is located approximately 500 feet southwest of the project location.

Oxford Township is a community rich in historic importance. In operation from 1741 to 1884, the Oxford Furnace holds the distinction of being one of colonial New Jersey's first iron furnaces and operating longer than any other colonial furnace. It became the first U.S. smelting operation to use the hot blast process. This project also lies within the Oxford Industrial Historic District.

F. Concept Development Scope Statement

The NJDOT Division of Project Management (DPM) prepared a CD Scope Statement for this project which can be found in Appendix S.

G. CD Public Involvement Action Plan

A Public Involvement Action Plan (PIAP) was prepared and submitted for approval to DPM in May 2010. A copy of the PIAP can be found in Appendix T. Ms. Deborah Hirt is the Office of Community and Constituent Relations (OCCR) representative for this project.

H. STIP Conformity

This project is included in the FY 2014 – 2023 Statewide Transportation Improvement Program (STIP). It is funded for construction in FY 2019 for $3.1 million. Additional funding information is noted in Section VI.S of this report. A copy of the project sheet from the FY 2014 – 2023 STIP can be found in Appendix L.

II. PURPOSE AND NEED

The purpose of this project is to replace Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83), to address its existing deficiencies.

A. Bridge Needs

According to the *17th Cycle Report*, Structure No. 2111-154 is structurally deficient due to the condition of the superstructure with a sufficiency rating of 48.2. The superstructure is in poor condition due to the excessive loss of mortar and numerous large voids in the underside of the stone masonry arch section along with the severe rusting and section loss on the exposed bottom flanges of the steel beam in the steel stringer section. The deck is in fair condition due to fine to medium longitudinal cracks with heavy efflorescence in the underside of the deck. The substructure is also in fair condition due to moderate to heavy scaling at both abutments, the large spall at the west end of the north breastwall and the wide diagonal fracture with heavy spalling in the southwest wingwall.

The *17th Cycle Report* recommends complete replacement of the structure due to the poor condition of the superstructure, the extensive deterioration of the substructure and the undesirable configuration of the existing bridge, which is actually a compilation of three different structures constructed at different times. It also recommends inspections of the masonry portion of the structure on an interim basis until the structure is replaced.

B. Scour Needs

The *17th Cycle Report* did not identify the bridge as scour critical based on the Bridge Scour Evaluation Program. However, since the structure spans a waterway, it is still subject to scour. A localized scour hole was observed in the channel below the drainage pipe outfall that protrudes through the south abutment below the reinforced concrete deck slab section of the structure. However, the footing is not exposed.

C. Roadway Needs

Additional deficiencies and substandard design elements were identified during Concept Development along Route 31 at and adjacent to Structure No. 2111-154, including superelevation, shoulder width, auxiliary lane length, signal layout and ADA compliance.

D. Goals and Objectives

It is the intent of this project to fulfill the purpose and address the needs while minimizing environmental, quality of life, access, right of way and utility impacts. Any proposed improvements will consider improvements to pedestrian accommodations and circulation, as well as impacts to emergency services, school bus routes and road user costs.

III. EXISTING INVENTORY AND CONDITION

A. Existing Bridge Inventory and Condition

Inventory: Structure No. 2111-154 is a single span bridge comprised of three distinctly different structure types (see Figure 2):

- A stone masonry arch structure along Wall Street constructed circa 1875 based on the State's Historic Bridge Survey.
- An asphalt-surfaced reinforced concrete deck supported on concrete encased steel stringers supported by gravity abutments along Route 31 constructed in 1920.
- An asphalt-surfaced reinforced concrete slab monolithic with concrete abutments supported by spread footing foundations. Constructed in 1953, this section also included modifications to the other structures to interconnect and deck over the area between the two structures.

The existing bridge has a clear span of approximately 26 feet, an approximate out-to-out width of 94 feet, and an average curb-to-curb width of 86 feet. The masonry stone arch bridge is normal to the Wall Street roadway, while the newer 1953 portion of the bridge and the original Route 31 Bridge were both constructed on a 26-degree skew approximately parallel to the waterway.

The Route 31 portion of the bridge has two 12-foot wide lanes in each direction with a 5-foot wide sidewalk along the west fascia. No shoulder in either direction is present. The Wall Street portion of the bridge has a 14-foot wide northbound lane and a 21-foot wide southbound lane with no adjoining shoulders. The west fascia railing is 2'-6" high and is comprised of concrete

posts with a two-rail metal tube railing. The east side has a 2'-6" to 3'-6" high laid up stone masonry parapet.

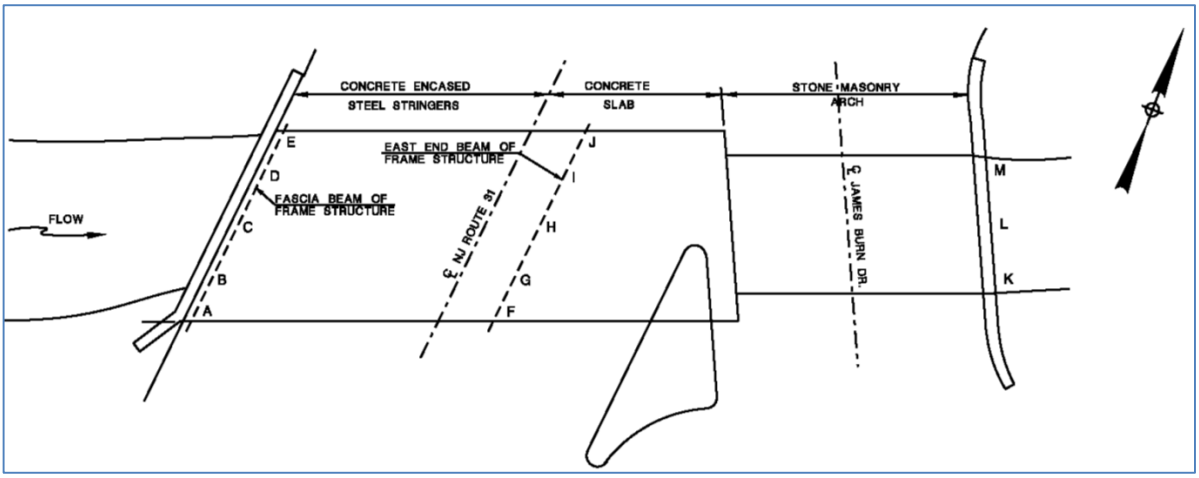


Figure 2 – Structure General Plan (17th Cycle Report)

Condition: As per the *17th Cycle Report*, the overall condition of the structure is poor due to the condition of the superstructure, which exhibits severe rusting and delamination with section loss on the exposed bottom flanges of steel beams, and the excessive loss of mortar and numerous large voids in the underside of the stone masonry arch section. The deck is in fair condition with fine to medium longitudinal cracks and heavy efflorescence. The existing substructure is in fair condition and exhibits a wide diagonal wingwall fracture with 1-inch differential movement, heavy spalling and unsound concrete along the fracture. The abutment breast walls exhibit heavy scaling, heavy efflorescence and map cracking. The existing stone masonry arch exhibits extensive loss of mortar with a 4-foot long by 2-inch wide by 12 to 16-inch deep void/gap between stones at the west end. In addition, safety features (approach guide rail, bridge barrier and bridge railing, etc.) do not meet current NJDOT standards. The bridge has a Sufficiency Rating of **48.2**.

Structure No. 2111-154 is adjacent to the Oxford Industrial Historic District (National and State Registers) and lies within the Highlands Planning Area. However, SHPO determined that while it is over 50 years old that it is not individually eligible and non-contributing to the district. Additionally, according to the State's Historic Bridge Survey, the bridge is not considered historically significant. A copy of the *17th Cycle Report* can be found in Appendix A.

B. Scour

The *17th Cycle Report* did not identify the bridge as scour critical based on the Bridge Scour Evaluation Program. However, since the structure spans a waterway, it is still subject to scour. The *17th Cycle Report* identified a localized one-foot deep scour hole adjacent to the southern abutment (relative to water depth in the immediate area). The hole was located in front of a drainage pipe outfall below the reinforced concrete deck slab section creating a five-foot diameter scour hole. No exposed footings were identified and no localized scour was identified at or near the northern abutment.

C. Maintenance Issues

No maintenance issues were identified during Concept Development.

D. Existing Roadway Inventory and Condition

Design elements are inherently based on traffic volumes and design speed. The posted speed limit along Route 31 is 40 mph and 45 mph south and north of Wall Street, respectively. Therefore, in accordance with Table 2-1 of the NJDOT-RDM, the design speeds along Route 31 are 45 and 50 mph south and north of Wall Street, respectively.

Unless noted otherwise, the following data for Route 31 within the study limits was obtained from the September 1953 As-Built Plans, as well as base mapping and contour CADD files provided by the NJDOT.

1. Passing & Stopping Sight Distance

According to Table 4-1 of the NJDOT-RDM, the minimum stopping sight distance (SSD) for design speeds of 45 and 50 mph are 360 and 425 feet, respectively. According to traffic regulations, no-passing zones are present along Route 31 within the project limits. Based on a review of the as-built plans and field observations, the minimum SSD is provided; however, existing vegetation limits the same, as further detailed below.

2. Horizontal Alignment

The following table summarizes the existing horizontal curves within the study limits:

Table 2 – Horizontal Alignment Data

Horizontal Element	Start Station / MP	End Station / MP	Curve Length	Radius	Tangent Length
Tangent	PT 207+60.97 / 46.63	PC 208+21.47 / 46.64	-	-	60.50’
Curve (1)	PC 208+21.47 / 46.64	PT 216+32.00 / 46.79	810.53’	720.00’	-
Tangent	PT 216+32.00 / 46.79	PC 218+85.92 / 46.84	-	-	253.92’
Curve (2)	PC 218+85.92 / 46.84	PT 228+57.02 / 47.02	971.10’	1070.00’	-
Tangent	PT 228+57.02 / 47.02	Outside project limits	-	-	-

Vegetation is located within the horizontal sightline offset (HSO) along Route 31 northbound south of Wall Street thereby limiting the horizontal SSD of Curve (1). It should be noted that the limited SSD is not a significant crash generator and that the vegetation can be removed to bring the HSO into conformance with current standards. In addition, the existing tangent length between Curve (1) and Curve (2) (broken back curves) is insufficient to accommodate the required superelevation transition given the design speeds of 45 and 50 mph (see Section III.D.5.b). Therefore, the existing horizontal alignment of Route 31 within the study limits does not meet the minimum requirements as identified in the NJDOT-RDM.

3. Vertical Alignment

The vertical curves along Route 31 within the project limits meet the minimum requirements as identified in Section 4.4 of the NJDOT-RDM, as summarized in the following table:

Table 3 – Vertical Alignment Data

PVI Station	Curve Type	As-Built A	As-Built K	As-Built Length	Minimum Length
221+00	Sag	2.80	107.14	300’	269’
225+96	Sag	1.20	416.67	500’	115’

The existing grades are greater than 0.3% and less than 7.0%, the maximum grade for an urban land service highway at designs speed of 45 and 50 mph, and therefore comply with the requirements of the NJDOT-RDM.

4. Intersection Sight Distance

For unsignalized intersections, Section 6.3.2 of the NJDOT-RDM states that intersection designs should provide sufficient sight distances to avoid potential conflicts between vehicles turning onto or crossing a highway from a stopped position and vehicles on the through highway operating at the design speed.

For signalized intersections, Section 6.3.5 of the NJDOT-RDM states that intersections controlled by traffic signals presumably do not require sight distance between intersecting traffic flows because the flows move at separate times. However, sight distance requirements must be considered for vehicles permitted to turn right on red. As a minimum, stopping sight distance should be provided.

Figure 6-A of the NJDOT-RDM provides the recommended sight distance along the major roadway for vehicles stopped on the minor roadway.

At the unsignalized intersection of Route 31 and Washington Avenue, for a major road with a two-lane cross-section and a design speed of 50 mph, the desirable sight distance along the major road to permit a passenger vehicle to turn left or right from the minor road is 555 feet and 480 feet, respectively. Based on the aforementioned, field observations and aerial images, the intersection sight distance does not appear obstructed.

At the signalized intersection of Route 31 and Wall Street, a through highway with a design speed of 45 mph, the desirable sight distance along the highway to permit a passenger vehicle to turn right on red before being overtaken by a vehicle traveling in the same direction is 430 feet. Larger vehicles require longer sight distances. Based on the aforementioned, field observations and aerial images, the intersection sight distance for right turns on red appears adequate for both approaches.

At the unsignalized intersection of Route 31 and Kent Street, for a major road with a four-lane cross-section and a design speed of 45 mph, the desirable sight distance along the main road to permit a passenger vehicle to turn left or right from the minor road is 500 feet and

430 feet, respectively. Based on the aforementioned, field observations and aerial images, the intersection sight distance does not appear obstructed.

5. Major Roadway Cross Section Elements

a) ***Superelevation:*** The existing and required superelevation rates for the existing radii along Route 31 within the project limits are indicated in Table 4. The minimum required superelevation rates are based on Figure 4-C of Section 4.3.2 of the RDM.

As shown, the existing radius for Curve (2) has a substandard superelevation rate and the existing tangent length between the two same direction curves is insufficient to accommodate the required transition given a 50 mph design speed. The intervening tangent distance between broken back curves should, at a minimum, be sufficient to accommodate the superelevation transition. However, for design speeds of 50 mph or greater longer tangent lengths are desirable. The calculated safe speed along Curve (2) is 51 mph, which exceeds the design speed.

Table 4 – Superelevation Data

Horizontal Element	Existing Radius	Existing Superelevation[1]	Existing Tangent Length	Required Min. Superelevation	Required Min. Tangent Length[2]
Curve (1)	720’	6.0%	253.92’	5.91%	348.24’
Curve (2)	1,070’	2.2%		5.75%	

b) ***Cross Slope:*** Within the project limits, the Route 31 has varying cross slopes. The tangent section of Route 31 between Curves (1) and (2) traverses the intersection proper and Wall Street connects with Route 31 at an opposing grade. While Section 5.2.2 of the NJDOT-RDM states that the minimum cross slope for pavement should be 1.5 percent, increasing in each successive lane by 0.5 percent, Section 6.2.4 of the NJDOT-RDM notes that the pavement cross section within an intersection should be reviewed on a case-by-case basis. A detailed analysis should be conducted during Preliminary Engineering to determine whether the cross slopes are sufficient within the intersection proper.

c) ***Lane Widths:*** The following table summarizes the lane width data within the study limits. All lanes meet the minimum width per Section 5.3 of the NJDOT-RDM.

Table 5 – Lane Widths

Location	Existing Lane Width	Minimum Lane Width	Desirable Lane Width
Route 31 NB	12’	11’	12’
Route 31 SB	12’	11’	12’

[1] As-built information unavailable. Existing cross slopes estimated from available survey information.

[2] Desirable tangent length between same direction curves for a design speed of 50 mph is 1,000’.

d) ***Shoulder Widths:*** The following table summarizes the shoulder width data within the study limits. As shown, some shoulder areas do not meet the minimum width per Section 5.4.2 of the NJDOT-RDM.

Table 6 – Shoulder Widths

Location	Ex. Outside Shoulder Width	Min. Outside Shoulder Width	Des. Outside Shoulder Width
Route 31 NB	0 - 12’	8’	12’
Route 31 SB	0 - 12’	8’	12’

e) ***Roadside or Border Widths:*** The following table summarizes the border width data within the study limits. As shown, the border meets the minimum width per Section 5.5.2 of the NJDOT-RDM**.**

Table 7 – Border Widths

Location	Existing Border Width	Minimum Border Width	Desirable Border Width
Route 31 NB	16’	10’	15’
Route 31 SB	16’	10’	15’

6. Clear Zone

The clear zone is defined as the area starting at the edge of the traveled way that is available for safe use by errant vehicles. The width of the clear zone varies with speed, traffic volume, roadside slope and horizontal roadway alignment. Based on a design speed of 45-50 mph, as well as an ADT over 6,000 vehicles, the range of the existing clear zone for Route 31 should be between 14 and 22 feet, depending on fill or cut slope. Currently, utility poles, trees and signs exist within the clear zone. In addition, the liquor store in the southeast quadrant of the intersection of Route 31 and Wall Street appears to encroach within the clear zone. However, additional field measurements would be necessary to confirm the same.

7. Guide Rail

Based on field observations, sections of guide rail exist along Route 31 northbound north of Wall Street and along the west side of Structure No. 2111-154. The existing guide rail section along Route 31 northbound is approximately 370 feet in length and does not meet current NJDOT standards. The guide rail across the structure is currently single thickness steel W-beam attached to the concrete pilaster with standard post spacing. NJDOT construction standards require this section of guiderail to be double thickness with reduced post spacing.

8. Lighting

Utility pole mounted luminaires are located along Route 31 southbound within the project limits and at the intersection of Route 31 and Wall Street. In addition, a luminaire is mounted to the traffic signal pole in the southwest corner of the intersection of Route 31

and Wall Street. A lighting warrant analysis and illumination analysis have not been performed to determine the need for illumination along Route 31 or to verify if the existing lighting meets the illumination requirements of the NJDOT-RDM, respectively. However, according to Section 11-08 of the NJDOT-RDM, all signalized intersections are to be illuminated. A lighting warrant analysis and illumination analysis will be performed during Preliminary Engineering.

9. Signing

All existing regulatory and warning signs appear to be in conformance with the most recent edition of the *Manual on Uniform Traffic Control Devices* (MUTCD) with the exception of the school crossing signs. Regulatory and warning signs are mounted on U-channel breakaway supports. A sign inventory will be conducted during Preliminary Engineering. The inventory will evaluate all signs relative to their conformance with the MUTCD and NJDOT standards. The condition, retro-reflectivity, location and message quality of each sign will be evaluated and documented. Digital images, which clearly indicate the signs will be taken and used for quality review checks.

E. Existing Utilities

GPI prepared and distributed Utility Letter No. 1, which requests verification of existing and/or proposed facilities within the project limits and the name, address and telephone number of the appropriate contact, to those utilities that have facilities within the project limits. Based on information provided to date, the following utility providers have facilities within the study limits:

- Electric – Jersey Central Power & Light (JCP&L)
- Gas – Elizabethtown Gas
- Telephone – Century Link
- Cable – Comcast[3]
- Water – New Jersey American Water (NJAW)
- Water – Warren County Municipal Utilities Authority (WCMUA)
- Sewer – Oxford Township Department of Public Works

No utilities are attached to Structure No. 2111-154. Responses to Utility Letter No. 1 can be found in Appendix V.

F. Summary of Existing Deficiencies

- Structure No. 2111-154 is structurally deficient due to the poor condition of the superstructure.
- The existing guide rail attached to Structure No. 2111-154 does not meet current standards.
- The signal head layout for each approach, with the exception of the Route 31 southbound approach, has an undesirable near right / far left arrangement.

[3] As listed on the New Jersey Cable Telecommunications Association (NJCTA) website < http://www.cablenj.org/>. No response to Letter No. 1 received.

- Crosswalks do not terminate at ADA compliant handicap ramps.
- Driveways adjacent to the structure currently do not comply with the *Access Code*. Of note, three driveways are located within the signalized intersection of Route 31 and Wall Street and are not controlled by the traffic signal.

G. List of Substandard Design Elements

The following existing substandard Controlling Substandard Design Elements (CSDE) were identified within the study limits during Concept Development:

- Substandard superelevation along Route 31 south of Furnace Brook
- Substandard and/or nonexistent shoulders
- Substandard auxiliary lane as only one receiving lane exists along Route 31 northbound for the two through approach lanes.

H. Management Systems Input

The following is the Management System data as provided by the respective bureau or unit in response to a shotgun letter dated May 20, 2011 from DPM:

System	Data
Bridge Management System (BMS)	14th, 15th and 17th Cycle Reports and corresponding SI&A sheets dated October 2006, 2008 and 2010, respectively. **S.R. = 48.2.**
Pavement Management System (PMS)	The IRI and SDI values along Route 31 between mileposts 46.30 and 47.30 are fair and good, respectively.
Drainage Management System (DMS)	Route 31 within the project limits is not on the DMS, and no records of flooding exist.
Safety Management System (SMS)	Based on data from 2006 through 2008 for Route 31 MP 46.70 – 47.00, five (5) crashes occurred. Crash rates not calculated for less than six crashes. No patterns uncovered.

Copies of the Management System data can be found in Appendix M.

I. As-Built Plans, Right of Way Maps and Jurisdiction Map

As-built plans were provided by DPM and are listed in Table 1. Copies of these as-built plans can be found in Appendix B. Copies of jurisdictional limit maps were not available.

IV. TRAFFIC AND CRASH SUMMARY

A. Traffic Operations

The signalized intersection of Route 31 and Wall Street is a four-legged intersection controlled by a two-phase signal. The Route 31 northbound approach consists of shared left/through and through/right lanes and two receiving lanes. The Route 31 southbound and Wall Street approaches consist of a shared left/through/right lane and one receiving lane. Crosswalks, push

buttons and pedestrian signal heads are provided at this intersection for the northbound and southbound approaches only.

A Red Signal Ahead sign exists along Route 31 northbound approximately 1,300 feet south of the stop line for the northbound approach.

B. Traffic Data

GPI performed classified manual turning movement counts on a typical weekday in February 2010 for the intersection of Route 31 and Wall Street. The count data was classified in 15-minute increments into the following three categories:

- Passenger Vehicles (Motorcycles, cars, SUV's, pick-up trucks, mini- and full-size vans)
- Medium Trucks (Single unit trucks)
- Heavy Trucks/Buses (Tractor Trailers)

GPI also performed Automatic Traffic Recorder (ATR) counts from January 27th to February 8, 2010. These counts were aggregated in 15-minute intervals. ATR counts were conducted at the following locations:

1) Route 31 between C.R. 624, Wall Street and Kent Street
2) Route 31 between C.R. 624, Wall Street and Washington Avenue
3) C.R. 624, Wall Street between Route 31 and Lower Denmark Road
4) C.R. 624, Wall Street between Route 31 and Washington Avenue
5) Washington Avenue between C.R. 624, Wall Street and Route 31
6) Kent Street between Route 31 and Washington Avenue

Flow diagrams developed from the 2010 data can be found in Appendix D.

Using the data collected, the operation of the intersection under existing conditions (2010) was analyzed using Synchro. The result of this analysis indicates that the intersection currently operates at acceptable levels of service (LOS). The following table summarizes the LOS, delay and queue during the AM, Midday and PM peak hours for the 2010 existing conditions.

Table 8 – Route 31 & Wall Street, Existing Conditions (2010)

Lane Group	AM		Midday		PM	
	LOS (Delay)	*Queue*	*LOS (Delay)*	*Queue*	*LOS (Delay)*	*Queue*
Wall Street EB LTR	B (11.2)	51	B (12.8)	39	B (13.2)	38
Wall Street WB LTR	C (24.3)	13	B (19.7)	16	C (21.8)	29
Route 31 NB LTR	A (5.5)	34	A (4.8)	42	A (5.6)	86
Route 31 SB LTR	A (7.6)	137	A (5.1)	60	A (5.1)	58
Intersection LOS	**A (7.8)**		**A (6.5)**		**A (6.8)**	

C. Traffic Volume Forecasts

Traffic growth rates were developed from socioeconomic data available from the North Jersey Transportation Planning Authority (NJTPA) and compared to growth rates obtained from the North Jersey Regional Transportation Model (NJRTM-E) for Route 31 within the project limits. Based on the comparison, the NJTPA rates for Oxford Township were deemed reasonable and used to project the existing 2010 volumes to the design year of 2040, which was determined from the construction date in the STIP plus 20 years. A copy of the 2040 No-Build traffic volumes can be found in Appendix D. The following table summarizes the No-Build 2040 AM, Midday, and PM LOS, delay and queue at the intersection.

Table 9 – Route 31 & Wall Street, No-Build Conditions (2040)

Lane Group	AM		Midday		PM	
	LOS (Delay)	*Queue*	*LOS (Delay)*	*Queue*	*LOS (Delay)*	*Queue*
Wall Street EB LTR	B (11.3)	55	B (12.7)	43	B (31.1)	42
Wall Street WB LTR	C (24.8)	14	B (19.6)	18	C (22.1)	33
Route 31 NB LTR	A (5.9)	42	A (5.2)	52	A (6.3)	112
Route 31 SB LTR	A (8.7)	179	A (5.4)	73	A (5.4)	71
Intersection LOS	**A (8.5)**		**A (6.7)**		**A (7.3)**	

D. Crash Data Analysis and Crash Diagram

The NJDOT Bureau of Transportation Data and Safety (BTDS) provided crash data on March 17, 2010 for Route 31 between mileposts 46.7 and 47.0 for the three-year period from January 2006 through December 2008. A total of five (5) crashes occurred over the aforementioned three-year period. BTDS noted that summaries and crash rates are not provided for any location having less than six crashes. No significant patterns were uncovered based on the individual crash reports.

A review of recent crash data from 2011 and 2012, as found on the NJDOT website, indicates that the actual crash rates remained significantly lower than each year's statewide average. It can be reasoned that a similar crash pattern occurred during these years. Copies of the crash summary and recent crash data can be found in Appendix C.

V. SOCIAL, ECONOMIC AND ENVIRONMENTAL SCREENING

The Bureau of Landscape Architecture and Environmental Solutions (BLAES) prepared an Environmental Screening dated February 15, 2011 for Route 31 within the project limits, a copy of which can be found in Appendix G. The items investigated in the Environmental Screening include cultural resources, Section 4(f) properties, air/noise, ecology, socioeconomics, and hazardous waste. DPM also prepared a Community Profile dated November 3, 2009. Information from both documents is summarized below.

A. Community Outreach

As noted in Section I-G, a Public Involvement Action Plan (PIAP) was prepared and submitted for approval to the DPM in December 2011. A Public Information Center (PIC) was held on October 7, 2013 at the Oxford Township municipal building. The PIC served to inform the public of the project and to solicit their input and comments with regard to the PPA. A copy of the PIAP and minutes of the PIC can be found in Appendix T and I, respectively.

B. Noise and Air Quality

The Screening identified sensitive receptors within the project study area. The project is in an attainment area for carbon monoxide (CO) and particulate matter (PM_{10} and $PM_{2.5}$). Hot spot analyses are not required. This project can be classified as bridge replacement project (no additional travel lanes) and is exempt from the requirement to determine conformity (Table 2) [4].

C. Socioeconomics

A Community Profile was conducted by DPM during Concept Development, which serves to alert the project team of the characteristics and demographics within the project area, and is helpful in developing the Public Involvement Action Plan.

The Community Profile determined that the population in Oxford Township is predominantly White (97%). In addition, 4.0% of the population and 2.6% of families were at or below the poverty line. Older individuals were also identified throughout the study area. Any disproportionately high and adverse human health or environmental effects to the population will be avoided or minimized to the greatest extent possible, and would be conducted in coordination with the affected communities. A more detailed impact analysis may be conducted to evaluate potential environmental justice issues as the project progresses.

D. Cultural Resources

The following resources are within or near the project study area:

- Oxford Industrial Historic District (ID #2774, NR Reference #91001471)
- Oxford Furnace (ID #2775, NR Reference #: 77000919)
- Shippen Manor (ID #2777, NR Reference #: 84000517)

Of note is that the entire area of the Oxford Furnace Historic District (ID #2776), as listed on the NJ Register, was subsumed by the later Oxford Industrial Historic District.

In a letter dated June 6, 1995, the State Historic Preservation Office (SHPO) stated that Structure No. 2111-154, which has been significantly altered and lacks integrity, is not individually eligible and is not a contributing resource to the Oxford Industrial Historic District, despite being within the time period and boundaries of the District.

[4] *Transportation Conformity Regulations* prepared by the U.S. Environmental Protection Agency, April 2012.

E. Section 4(f) Properties

Recreational facilities, publicly owned open space, school and school athletic fields, as well as community parks are located within the vicinity of the project. Of note, Wilkinson Field, which is Green Acres encumbered, is located in the northeast quadrant of the intersection of Route 31 and Wall Street.

F. Highlands/Pinelands

This project lies within the Highlands Planning Area, but should not require coordination with the Highlands Commission.

G. Wetlands

The Screening identified wetlands within 100 feet north of the bridge and 400 feet south of the bridge. A wetlands delineation will be conducted during Preliminary Engineering to further define these areas.

H. Reforestation

It is anticipated that less than ½ acre of forested land will be impacted at the project location, therefore replanting as per the No Net Loss Reforestation Act is not anticipated.

I. Floodplain

FEMA established a Zone 'A' flood hazard area by the approximate methods (100-year storm). This area does not overtop Route 31 at this location.

J. Sole Source Aquifer

This project lies within the Northwest New Jersey Sole Source Aquifer.

K. Threatened/Endangered Species

Bog turtle (federally threatened) is listed as extant in Oxford Township while Indiana bat and dwarf wedgemussles (federally endangered) are listed as potentially present within the Township. Their presence may result in timing/seasonal restrictions for construction.

L. Category 1 Waters

Furnace Brook is a Freshwater, Trout Production Category 1 waterway (FW2-TPC1).

M. Vernal Pools

No vernal pools or habitats are located in the vicinity of the project limits.

N. Stormwater

It is anticipated that the project will result in new impervious area of less than ¼ acre and less than one acre of total land disturbance. Therefore, compliance with the NJDEP Stormwater Management Rules (SWM) will not be required.

O. Hazardous Waste

Hazardous waste sites identified within the vicinity of the project include US Gas at the corner of Route 31 and Kent Street and American Mfg. Int., Inc. located along Wall Street.

P. Anticipated Environmental Permits or Approvals

The following environmental permits and interagency coordination may be necessary:

- NJDEP Water Quality Certificate
- NJDEP Freshwater Wetlands
- NJDEP Flood Hazard Area

Q. Environmental Summary with Probable NEPA Document required

In summary, the Environmental Screening did not identify any "fatal flaws" that would prohibit the advancement of this project. The probable NEPA document required for this project is a Categorical Exclusion Document (CED). BLAES provided concurrence on the NEPA document on December 2, 2013 a copy of which can be found in Appendix L.

VI. EVALUATION OF CONCEPTUAL ALTERNATIVES

A. Bridge Rehabilitation versus Bridge Replacement

Rehabilitation of the existing bridge is not feasible for the following reasons and therefore it was not considered further.

- The majority of structure is approximately 90 years old and has outlived its useful life.
- Rehabilitation is limited to repairs and strengthening of some, but not all, elements and will not offer a long-term solution. It would be costly and will require a continuous future maintenance investment.
- The arch portion of the existing structure is in disrepair. Its present capacity is uncertain and difficult to accurately evaluate, which makes quality rehabilitation very costly.
- Superstructure rehabilitation is only possible for the concrete encased steel stringers and reinforced concrete slab portions of the structure. Rehabilitation of the stone arch portion is equivalent to a complete replacement.
- Safety features (approach guide rail, bridge barrier and bridge railing, etc.) do not meet current NJDOT standards.

Therefore, it is recommended to replace the existing structure given its condition, age and configuration.

Replacement: The proposed bridge will have a curb-to-curb width of 86 feet and an out-to-out width of 96 feet, which is two feet wider than the existing structure to meet current design standards. Along Route 31, it will carry three 12-foot wide travel lanes with a 12-foot wide shoulder and a 6-foot wide sidewalk. Along Wall Street, it will carry two 12-foot wide travel lanes with a 10-foot shoulder. Standard NJDOT parapets meeting requirements for a vehicular, pedestrian and bicycle standards will be provided, as appropriate.

The proposed structure will be a 28-foot long single span structure, which is two feet longer than the existing structure. The existing hydraulic opening will be maintained. Since the existing structure is supported on spread footings, it is anticipated that the replacement bridge will also be supported on spread footings. However, should the geotechnical evaluation performed during Preliminary Engineering justify the use of a pile foundations, the cost estimate should be revised accordingly.

Based on the above, three alternatives were investigated for the proposed single span structure:

Multi-Girder Steel Beam Structure: This alternative consists of a painted steel superstructure with a one-course concrete deck supported on full height abutments. The structure depth for this alternative is estimated to be 2'-7". Construction of this alternative in stages is feasible. The future maintenance costs of this alternative are higher than other alternatives, especially considering the use of a steel superstructure in a waterway crossing environment. Deck joints would also need to be provided, further increasing maintenance costs. The construction duration for this alternative is estimated to be 15 months.

Voided Slab Structure: This alternative consists of an adjacent prestressed concrete voided slab superstructure with a one course concrete deck/wearing course supported on full height abutments. Assuming 48-inch wide by 15-inch deep voided slabs, the structure depth for this alternative is estimated to be 1'-10". Construction of this alternative in stages is feasible. Due to the flared footprint of the bridge, several units would have to be spread apart at one end with the reinforced concrete deck spanning the opening. The construction duration for this alternative is estimated to be 15 months.

Precast Rigid Frame Structure: This alternative consists of a precast rigid frame supported on cast-in-place concrete pedestals on piles. A reinforced concrete wearing surface of five-inch minimum thickness would act as the wearing course. The structure depth for this alternative is estimated to be 1'-11". Construction of this alternative in stages is feasible. Construction is simplified for this alternative since cast-in-place abutments are not required, reducing the likelihood of construction delays. Future maintenance costs are reduced since the rigid frame is fabricated in a controlled environment. The construction duration for this alternative is estimated to be 12 months.

B. Temporary Bridge Location and Widening Constraints

A temporary bridge is not anticipated for construction of the proposed structure. While it is proposed to widen the existing curb-to-curb and out-to-out widths by two feet, the proximity of existing buildings to the existing bridge would pose a challenge if further widening were proposed.

C. Conceptual Alternatives

The conceptual alternatives consist of the three aforementioned structural alternatives that were each combined with the following roadway alternatives:

Alternative Nos. 1 through 3 consist of the replacement of the structure with roadway and traffic signal work and ADA compliant curb ramps limited to only those areas that would be impacted by the replacement of the structure.

- Alternative No. 1 proposes a multi-girder steel beam structure;
- Alternative No. 2 proposes a voided slab structure;
- Alternative No. 3 proposes a precast concrete rigid frame structure.

Alternative Nos. 4 through 6 consist of the replacement of the structure along with the replacement of the entire traffic signal at the intersection of Route 31 and Wall Street and associated roadway work. The wide shoulder along Route 31 southbound north of Wall Street would be reduced to a 12-foot wide shoulder, allowing for a consistent shoulder width through the intersection and reduced crossing time for pedestrians. The shoulder reduction would involve minor drainage work (resetting inlets). These alternatives also propose ADA compliant curb ramps and sidewalk to provide connectivity to the various generators in each quadrant of the intersection.

- Alternative No. 4 proposes a multi-girder steel beam structure;
- Alternative No. 5 proposes a voided slab structure;
- Alternative No. 6 proposes a precast concrete rigid frame structure.

Alternative No. 6 'Mod' is similar to Alternative No. 6 except that it proposes to provide a 13-foot wide, 330-foot long auxiliary lane along Route 31 northbound, north of Wall Street, with a 220-foot taper. This lane would remain within the existing curb lines and not require widening. However, since this auxiliary lane would be substandard in length, a Design Exception would be required.

Alternative Nos. 7 through 9 are the same as Alternative Nos. 4 through 6 except they also include extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street to bring it into conformance with the NJDOT-RDM. The auxiliary lane would be 15 feet in width and 760 feet in length with a 300-foot taper and require minor widening.

- Alternative No. 7 proposes a multi-girder steel beam structure;
- Alternative No. 8 proposes a voided slab structure;
- Alternative No. 9 proposes a precast concrete rigid frame structure.

The widening will involve minor drainage work (resetting inlets) and replacement of the 370-foot segment of guide rail resulting in a slope easement along the same.

A copy of each alternative group can be found in Appendix H.

D. Traffic Analysis

Alternative Nos. 1 through 9 would have similar operations to the No-Build Condition as noted in the table below. The addition of the auxiliary lane north of the signal serves to improve safety and meet current design standards.

Table 10 – Route 31 & Wall Street, Build Conditions (2040)

Lane Group	AM		Midday		PM	
	LOS (Delay)	*Queue*	*LOS (Delay)*	*Queue*	*LOS (Delay)*	*Queue*
Wall Street EB LTR	B (11.3)	55	B (12.7)	43	B (31.1)	42
Wall Street WB LTR	C (24.8)	14	B (19.6)	18	C (22.1)	33
Route 31 NB LTR	A (5.9)	42	A (5.2)	52	A (6.3)	112
Route 31 SB LTR	A (8.7)	179	A (5.4)	73	A (5.4)	71
Intersection LOS	**A (8.5)**		**A (6.7)**		**A (7.3)**	

E. Hydrology & Hydraulics Analysis

A Preliminary Hydrology and Hydraulic Analysis report was prepared during CD, which can be found in Appendix Q. In summary, the arch portion of Structure No. 2111-154 limits the capacity of the entire structure. The low point (for overtopping of the road) elevation of 472.34 is located off the bridge deck, approximately 335 feet to the north of the north abutment on Route 31.

While the upstream low chord elevation of the bridge (472.6) and the low point of the highway are both exceeded by the 10-year storm, the bridge itself does not overtop for the 100-year event. The existing bridge therefore complies with Table 10-2 of the *NJDOT-RDM*. The bridge is not listed in the NJDOT Drainage Management Unit's DMS Ranking list (as of May 2013) and NJDOT has no flooding records at this stream crossing.

Since highway overtopping first occurs at the low point along Route 31 north of the structure and since raising that low point cannot be accommodated without causing adverse impacts on adjacent properties, it is recommended that any full or partial replacement of the bridge replicate upstream hydraulic opening characteristics at both the upstream and downstream ends. Any "loss of storage" will likely be minimal and readily accommodated downstream of Structure No. 2111-154. Increasing the hydraulic opening width, within the constraints of the existing channel banks, or increasing the roadway profile would have a negligible change on the roadway overtopping depths.

The proposed structure replacement will therefore maintain the hydraulic opening of the existing upstream opening. The proposed low chord of the superstructure will be set at the same elevation as the existing upstream low chord and will be level across the four corners of the bridge. The proposed structure does not overtop for the 100-year design storm.

F. Right of Way Impacts and Review

To accommodate utilities along the west side of the bridge for all of the alternatives and the guide rail along the proposed northbound auxiliary lane for Alternative Nos. 7 through 9, right of way will need to be acquired. Overhead utility relocations will require permanent utility and/or aerial easements and temporary construction easements. The guide rail relocation and associated grading will require a permanent slope easement. Easements are required from ten (10) properties for Alternative Nos. 7 through 9. The other alternatives have a fewer right of

way impacts as summarized in the Alternatives Matrix, which can be found in Appendix O. Every effort was made to minimize right of way impacts. A copy of the ROW Impact Plan can be found in Appendix P.

G. Utility Impacts

Overhead utility relocations are required to provide the minimum clearances from structures and signalized intersections per the NJDOT Utility Accommodation Policy (N.J.A.C. 16-25-5). It is anticipated that six utility poles will be impacted due to the bridge replacement along with roadway improvements as proposed in Alternative Nos. 7 through 9. The other alternatives have a lesser impact on the utilities as summarized in the Alternatives Matrix, which can be found in Appendix O.

H. ITS Facilities

A search of the NJDOT Intelligent Transportation Systems (ITS) inventory as well as field investigations did not identify any existing ITS facilities within the project limits. In addition, no proposed ITS facilities are anticipated for this project.

I. Complete Streets Policy

A "Complete Street" is defined as a means to provide safe access for all users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options. The policy dictates that complete streets shall be considered during the planning, design, construction, maintenance and operation of new and retrofit transportation facilities, enabling safe access and mobility of pedestrians, bicyclists, and transit users of all ages and abilities.

Sidewalk is present in the southeast and southwest quadrants of the intersection of Route 31 and Wall Street. Sidewalk also exists along the west side of the structure. Crosswalks exist across both the northbound and southbound approaches of Route 31, but handicap ramps do not exist for the same. Shoulders with widths of eight feet, or greater, which can accommodate bicyclists, are not provided continuously along both sides of Route 31 within the project limits.

In accordance with the NJDOT *Complete Streets Policy*, a six-foot wide sidewalk will be provided along the southbound side of the proposed structure. A ten-foot wide shoulder will be provided on structure along Wall Street. Specifically, this project will address the following policy points:

- 2 – Provide safe and accessible accommodations for existing and future pedestrian, bicycle and transit facilities.
- 4 – The design of intersections, interchanges and bridges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.
- 6 – Transportation facilities are long-term investments that shall anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.

- 10 – Make provisions for pedestrians and bicyclists when closing roads, bridges or sidewalks for construction projects.

The completed CD portion of the Complete Streets Checklist can be found in Appendix R.

J. Access Impacts and Review

Several driveways within the project limits do not comply with the *Access Code*. Specifically, the two driveways for the Skyland Bank and the driveway for Wilkinson Field are located within the signalized intersection of Route 31 and Wall Street but are not controlled by the traffic signal. In addition, the northern most driveway for the US Gas and Busy Bee Food Market, the driveway for the liquor store and the southern driveway for the U.S. Post Office are all have a corner clearance to the signalized intersection of Route 31 and Wall Street of less than 100 feet. Several of the driveways within the project limits do not meet the *Access Code* requirements for driveway and curb line opening widths, minimum radius, and/or offset from the extended property line. A more detailed assessment of the existing *Access Code* violations will be performed during Preliminary Engineering. However, it should be noted that none of the driveways within the project limits were identified as a significant crash generator.

Table 11 – Access Classifications

	MP 46.24 – 46.85	MP 46.85 – 47.33
Desirable Typical Section (DTS)	Type 4A: 4 lanes, divided, with shoulders or parking and a right of way width of 114 feet	
Access Level (AL)	Type 3: right-turn access with left-turn access via jughandle	
Cell, Urban Characteristics	No. 4: low speed (< 45 mph), divided, accessible principal arterial	No. 1: high speed (≥ 45 mph), divided, accessible principal arterial

The four (4) existing driveways for Skyland Bank (2) and the U.S. Post Office (2), located in the southwest and northeast quadrants, respectively, will require reconstruction within State ROW due to proposed improvements. It is anticipated that waivers will be required for a total of eight (8) driveways that do not currently meet the *Access Code*.

K. Constructability and Staging Plans and Detour Plan

Full or partial closure of the bridge with a detour is not a viable possibility, since suitable detour routes are limited, if nonexistent, for Route 31. Therefore, the following staging options were developed. In both options, all temporary construction barrier will be MASH and/or NCHRP-350 compliant.

Option No. 1 consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 during both stages. This alternative also maintains limited access from Wall Street onto Route 31. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement would be prohibited and detoured to Port Colden Road. All lanes will have a minimum width of 11 feet.

Option No. 2 consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 during both stages. This alternative proposes to close the Wall Street westbound approach during Stage 1 and detouring traffic to Port Colden Road. All lanes will have a minimum width of 11 feet.

Both options maintain access to each business via a minimum of one driveway. However, access to Wilkinson field, which hosts spring season little league (March through July), during Stage 1 of construction may not be feasible due to its close proximity to the existing structure. Local officials noted that while it is preferred to begin Stage 1 of construction after the spring season, practice and games could be scheduled at a different location or players and attendees could park in a municipal lot and walk to the field.

L. Controlling Substandard Design Elements and Reasonable Assurance

The PPA will require a Design Exception from the standards set forth in the NJDOT-RDM for superelevation and shoulder width, which are Controlling Substandard Design Elements (CSDE).

A memorandum was prepared requesting reasonable assurance of a design exception approval indicating the CSDE and justification for a design exception. NJDOT Value Solutions performed a review of this memorandum and provided reasonable assurance of approval of the same in an email to DPM dated November 7, 2013. A copy of the aforementioned memorandum and email can be found in Appendix L.

M. Construction Cost Estimate

The estimated construction cost for each structure type, not including roadway and MPT items, or costs for architectural treatments, is shown in 2012 dollars below.

Table 12 – Structure Type Order-of-Magnitude Cost Estimate

Structure Type	Structure Cost
Multi-Girder Steel Beam	$1,070,000
Voided Slab	$1,081,000
Precast Rigid Frame	$990,000

The construction cost estimate for each alternative, which includes construction, utility relocations, lump sum items, contingencies and construction engineering, is noted in the table below.

Table 13 – Alternative Order-of-Magnitude Cost Estimate

Alternative	Structure Type	Total Cost
No. 1	Multi-Girder Steel Beam	$2,109,000
No. 2	Voided Slab	$2,132,000
No. 3	Precast Rigid Frame	$1,991,000
No. 4	Multi-Girder Steel Beam	$2,536,000
No. 5	Voided Slab	$2,559,000

Alternative	Structure Type	Total Cost
No. 6	Precast Rigid Frame	$2,418,000
No. 6 'Mod'	Precast Rigid Frame	$2,418,500
No. 7	Multi-Girder Steel Beam	$2,811,000
No. 8	Voided Slab	$2,885,000
No. 9	Precast Rigid Frame	$2,744,000

A cost estimate breakdown of each can be found in Appendix J.

N. Alternatives Matrix

An alternatives matrix was developed for this project. A copy of the same can be found in Appendix O.

O. Discussions with Subject Matter Experts

The following meetings were held with the NJDOT Subject Matter Experts (SME). The significant issues and concerns that were discussed at each meeting are summarized in the minutes found in Appendix L.

SME Field Meeting	April 29, 2011
Scope Team Meeting	May 18, 2011
SME Coordination Meeting	August 30, 2011
Core Group Meeting	April 11, 2012
2nd Core Group Meeting	March 19, 2013

BLAES also coordinated with SHPO as the project lies within the Oxford Industrial Historic District, even though SHPO previously determined that Structure No. 2111-154 is not individually eligible and is not a contributing resource to the District. In a letter dated August 27, 2013 (Appendix L), SHPO stated the following:

- No additional work to identify archeological resources is required at this time since proposed ground disturbance is within previously disturbed areas.
- The proposed undertaking will have no adverse effect upon the Historic District provided the design is compatible with the historic and architectural character of the District.

While not specifically noted in their letter, SHPO also requested an architectural treatment to mimic the existing fascia of the stone arch section, such as a form liner or veneer, and two-rail railing on both sides.

P. Preliminary Preferred Alternative (PPA)

The PPA is derived from ***Alternative No. 9*** and ***Staging Option No. 1*** and based on input received from Oxford Township, Warren County and the NJDOT SME. It satisfies the purpose and need and meets the goals and objectives for this project. A copy of the PPA can be found in Appendix P.

1. Proposed Alternative

The PPA consists of replacing the existing bridge with a precast concrete rigid frame structure using two-stage construction. This structure type was selected because it is the most cost effective considering initial and future maintenance costs, has the shortest construction duration and offers the highest flexibility to accommodate the proposed bridge footprint and geometry. The PPA also includes replacing the existing traffic signal, providing a standard width southbound shoulder at the intersection and extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street. The additional roadway, signal and pedestrian improvements were chosen to bring the intersection into conformance with the NJDOT-RDM, MUTCD and ADA, respectively.

2. Structural

The proposed structure will be a 28-foot long single span structure. It will have an average curb-to-curb width of 86 feet and an average out-to-out width of 96 feet. This is two feet longer and two feet wider than the existing bridge; however, the existing hydraulic opening will be maintained. The structure will include an architectural treatment to mimic the existing fascia of the stone arch section (i.e. form liner, veneer, etc.) and two-rail parapet with a vertical face (type 4) on both sides of the structure, which will meet current vehicular, pedestrian and bicycle standards.

The proposed cross section along Route 31 on the structure will consist of three 12-foot wide travel lanes, a three-foot wide shoulder adjacent to the reconstructed concrete island, a 12-foot wide southbound shoulder (replacing the existing travel lane) and a six-foot wide sidewalk on the west side of the structure. The proposed cross section along Wall Street will consist of two 12-foot wide travel lanes with a 10-foot shoulder.

An impact attenuator or crash cushion is required for the end of the parapet located in the northwest quadrant of the structure since it is within the clear zone, but available space is limited due to adjacent driveways. The parapet in the remaining quadrants of the structure are outside the clear zone and therefore do not require protection.

3. Geometrics

The aforementioned existing fourth travel lane along Route 31 southbound, which serves as a climbing lane, will begin south of Kent Street. The wide shoulder along Route 31 southbound north of Wall Street will be reduced to a 12-foot wide shoulder, allowing for a consistent shoulder width through the intersection and reduced crossing time for pedestrians. The northbound auxiliary lane would be 15 feet in width and 760 feet in length with a 300-foot taper. This will require minor widening and the replacement of the guide rail adjacent to the northbound edge of pavement.

The existing substandard superelevation rate and shoulder width will not be brought into conformance in the proposed condition; however, reasonable assurance was received for the same as noted in Section VI.L.

4. Pedestrian and Bicycle Compatibility

The PPA proposes a six-foot wide sidewalk on the west side of the structure, replacement of the traffic signal, ADA compliant curb ramps, pedestrian signals and pushbuttons and sidewalk in the northeast and northwest quadrants to provide connectivity to the various generators in each quadrant of the intersection. The existing school crossing signs will also be brought into conformance with current standards.

5. Construction Staging

The bridge will be replaced using two-stage construction while maintaining one lane of traffic in each direction along Route 31 during both stages and limited access from Wall Street onto Route 31 during the first phase. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement would be prohibited and detoured to Port Colden Road. All lanes will have a minimum width of 11 feet. Any work on the bridge, including the installation of sheeting for a cofferdam, may affect the former hair salon building and will have to be carefully monitored during construction. All temporary construction barrier will be MASH and/or NCHRP-350 compliant.

Using the applicable NJDOT Standard Traffic Control Details, GPI prepared preliminary construction staging plans for the construction of the PPA. A copy of the same can be found in Appendix P. NJDOT Construction Management provided concurrence of the plans in an email dated January 7, 2014. In a memorandum dated April 28, 2014, Work Zone Management provided lane closure hours for this project. The email and memorandum can be found in Appendix L.

6. Traffic Engineering

During construction, Route 31 will be reduced to one lane in each direction and limited access to Wall Street will be maintained. As such, the side street was changed to split phasing. The following table summarizes the LOS, delay and queue during the AM, Midday and PM peak hours during construction with a design year of 2020.

Table 14 – Route 31 & Wall Street, Staging Conditions (2020)

Lane Group	AM		Midday		PM	
	LOS (Delay)	*Queue*	*LOS (Delay)*	*Queue*	*LOS (Delay)*	*Queue*
Wall Street EB LR	B (13.0)	60	B (13.2)	44	B (13.6)	44
Wall Street WB L	C (34.6)	9	D (35.5)	5	D (36.5)	23
Route 31 NB LT	A (8.1)	125	A (8.1)	171	B (14.5)	#530
Route 31 SB TR	A (8.8)	205	A (6.6)	95	A (6.6)	95
Intersection LOS	**A (9.5)**		**A (8.3)**		**B (13.0)**	

'#' - 95th percentile volume exceeds capacity, queue may be longer.

The PPA proposes to add an actuated phase to the traffic signal at the intersection for the Wilkinson Field driveway. Since the intersection operates at acceptable LOS during each of the peak hours, and the field is primarily used from March through July, it is anticipated that

the additional phase for the driveway would not significantly degrade the overall operation of the signal. Therefore, the signal is expected to operate at similar LOS in the 2040 design year as the 2040 No-Build conditions shown in Table 9 of Section IV.C.

7. Geotechnical Engineering

As noted previously in this report, no pertinent available existing geotechnical information or borings were identified for this project. A subsurface exploration program and geotechnical investigation to evaluate such geotechnical concerns as foundation support, settlement, slope stability and ground water conditions, and to determine the general geology of the project site will need to be performed during Preliminary Engineering.

8. Right of Way Impacts and Review

Overhead utility relocations will require permanent utility and/or aerial easements and temporary construction easements. The guide rail relocation and associated grading will require a permanent slope easement. Easements are required from ten (10) properties. Every effort was made to minimize right of way impacts. A copy of the ROW Impact Plan can be found in Appendix P.

9. Utility Impacts

It is anticipated that six (6) overhead utility relocations are required to provide the minimum clearances from structures and signalized intersections per the Utility Accommodation Policy (N.J.A.C. 16-25-5).

10. ITS Facilities

No proposed ITS facilities are anticipated for this project.

11. Access Impacts and Review

The four (4) existing driveways for Skyland Bank (2) and the U.S. Post Office (2), located in the southwest and northeast quadrants, respectively, will require reconstruction within State ROW due to proposed improvements. It is anticipated that waivers will be obtained for eight (8) driveways that do not meet the *Access Code*.

12. Anticipated Environmental Permits or Approvals

The probable NEPA document required for this project is a Categorical Exclusion Document (CED). The following environmental permits may be necessary:

- NJDEP Water Quality Certificate
- NJDEP Freshwater Wetlands
- NJDEP Flood Hazard Area

In addition, preparation of a De Minimus Section 4(f) Evaluation is required due to impacts to Wilkinson Field. The June 20, 2012 Section 4(f) Policy Paper, as found on the FHWA website, will be utilized during the preparation of the evaluation.

13. Cost Estimate

The total construction cost estimate of the PPA is approximately **$2,989,100** based on Classification No. 1 – New Construction of the NJDOT Trns•port Construction Cost Estimating Guide, dated December 2006, as amended. The NJDOT Right of Way Unit provided a right of way cost estimate of **$246,000** that was based on the Preliminary R.O.W. and Access Impact Plan. Copies of the construction cost estimate and the right of way cost estimate can be found in Appendices N and L, respectively.

14. Community Outreach

Two (2) local officials meetings were held with representatives of Oxford Township and Warren County. In addition, a Public Information Center (PIC) was held on October 7, 2013 at the Oxford Township municipal building. The PIC served to inform the public of the project and to solicit their input and comments with regard to the PPA. Local officials and the public concurred with the PPA. Oxford Township provided a Resolution of Support for this project, a copy of which can be found in Appendix K.

Q. Preliminary Engineering Scope Statement

The Scope Statement documents key elements of the project scope starting with information gathered during Concept Development. It is refined as more details become available. All input received to date from the various NJDOT offices, bureaus and units was incorporated into the Scope Statement and a copy of the same can be found in Appendix U.

R. Schedule

The following are the anticipated start dates for the subsequent stages of this project:

Project Delivery Phase	Anticipated Start Date (STIP Date)	STIP Funding	Estimate
Concept Development	*Complete September 2014*	--	$170,000
Preliminary Engineering	January 2015 (FY 2015)	$300,000	$300,000
Final Design	January 2016 (FY 2016)	$400,000	$400,000
Right of Way	July 2017 (FY 2017)	$200,000	$246,000
Construction	October 2018 (FY 2019)	$3,100,000	$2,989,100

It should be noted that construction will be initiated when funding is in place, which is currently in FY 2019 according to the Draft FY 2014 – 2023 STIP. Should funding be accelerated, the project could be ready for construction as soon as 2017.

VII. CONCEPT DEVELOPMENT RECOMMENDATION

A. Federal Highway Administration (FHWA) Approval of Report

FHWA reviewed the draft CD Report submitted in August 2014 and provided comments on the same on September 5, 2014. A comment resolution summary was prepared and submitted on September 10, 2014. FHWA provided approval of this report via email on October 8, 2014. All correspondence with FHWA can be found in Appendix L.

B. Capital Program Screening Committee (CPSC) Recommendation

CPSC recommended that this project advance to Preliminary Engineering.

C. Capital Program Committee (CPC) Approval

CPC endorsed the CPSC recommendation at the November 21, 2014 CPC meeting. A copy of the meeting minutes can be found in Appendix L.

Appendix A

Bridge Re-evaluation Survey Report (latest cycle)

State of New Jersey

NEW JERSEY DEPARTMENT OF TRANSPORTATION
1035 PARKWAY AVENUE
P.O. Box 600
TRENTON, NEW JERSEY 08625-0600

BRIDGE RE-EVALUATION SURVEY REPORT

STRUCTURE NO. 2111-154
NJ 31 OVER FURNACE BROOK
OXFORD TOWNSHIP
WARREN COUNTY

17TH CYCLE

OCTOBER 10, 2012

NOTE: This Bridge Re-evaluation Report shall be filed immediately after the 16TH Cycle Inspection Report.

Prepared By:

200 Metroplex Drive, Suite 403
Edison, NJ 08817

TABLE OF CONTENTS

		Page No.
1	Structural Data	17-1
2	Conclusions and Recommendations	17-2
3	Structural Inventory & Appraisal and Pontis Sheets	17-3
4	Load Rating Summary Sheet (LRSS)	17-6
5	Drawings, Soundings and Photographs	17-8
6	Field Notes	17-26
7	Vandalism Report	17-43

N.J.D.O.T. - STRUCTURAL EVALUATION AND BRIDGE MANAGEMENT
RE-EVALUATION BRIDGE SURVEY REPORT

CYCLE NO. 17

STRUCTURAL DATA:

Bridge No.:	2111-154	Year Built:	1926	Widened/Rehab:	1953
Route No.:	NJ 31	Length:	30’	Width:	94.0’
Mile Point:	46.830	Date of this Evaluation:	10/10/2012		
Name:	NJ 31 over Furnace Brook.	By:	Naik Consulting Group, P.C		
		Date of Previous Evaluation:	10/13/2010		
		By:	Cherry Weber & Associates PC		
		Date of FCM/Pin hanger Inspection:	Not Applicable.		
		By:			
		Special Equipment Used:	None.		
Structure Type:	Single Span, Stone Masonry Arch, Widened with Reinforced Concrete Slab and Concrete Encased Steel I-Beams.	Date of Underwater Inspection:	Not Required.		
		By:			
		Date of Special Testing:	Not Required.		
		Date of Elec./Mech. Inspection (Level: II):	Not Applicable.		
		Scour Critical:	No		

WORK DONE: New asphalt concrete has been installed at northwest and southwest approach Sidewalk (Photos 17-13 and 17-21).

OVERALL PHYSICAL CONDITION: **Serious** due to the condition of the superstructure.

OVERALL CONDITION (ITEM 67): **Serious** due to the condition of the superstructure.

Inspection Team Leader: **Sheikh M. Shakil, P.E.** **Initials:** _____

Certifying Engineer: **Anthony A. Panzarino, P.E.**

N.J. P.E. Number: **34656**

I certify that this report is an accurate description of the subject structure, to the extent determinable by visual inspection and testing performed.

Signature: _____

Date: _____

ORIGINAL SIGNED AND SEALED

CONCLUSIONS AND RECOMMENDATIONS:

The structure is in overall serious condition due to the condition of the superstructure.

The deck is in fair condition due to fine to medium longitudinal cracks with heavy efflorescence at underside of deck.

The superstructure is in serious condition due to the excessive loss of mortar and numerous large voids at the underside of the stone masonry arch, and severe rusting and delamination with ⅛"± section loss on the exposed bottom flanges of the steel beams.

The substructure is in fair condition due to moderate to heavy scaling of both abutments, large spall at the west end of the north breastwall, and wide diagonal fracture with heavy spalling in the southwest wingwall.

Since the previous inspection, there have been no significant changes to the conditions of the major bridge components.

Based on the revised Bridge Scour Evaluation Program listing (05/22/2007) provided by NJDOT, the structure is not considered scour critical and SI&A Item 113 is coded 8. A localized scour hole was observed in the channel below the drainage pipe outfall through the south abutment; however, the footing was not exposed.

Due to the serious condition of the superstructure, the structure is classified as Structurally Deficient. Therefore, due to the structurally deficient status of the bridge, the extensive deterioration of the substructure and the configuration of the existing bridge, we recommend complete replacement with a new bridge meeting current design standards:

A) Bridge Replacement:
30 LF (existing bridge length) x 1.7 (length expansion factor) ≅ 50 LF
94' (existing width)
50' x 94' = 4,700 SF x $350 /SF = $1,645,000

B) Demolition (15%) = $246,750

C) Staged Construction/Maintenance of Traffic (15%) = $246,750

D) Approach Roadway Work (Lump Sum) = $120,000

SUBTOTAL = $2,258,500

E) Preliminary Engineering (15%) = $338,775

TOTAL = $2,597,275

≈ $2,600,000

In the interim, until the bridge is replaced, we recommend that the following repair should be made to retard further deterioration, preserve the structural integrity of the bridge, improve safety and extend its useful life:

None.

Due to the serious condition of the superstructure, the following structural component should be inspected on an interim basis at the frequency indicated:

The masonry arch portion of the superstructure due to the excessive loss of mortar and numerous large voids in the underside of the stone masonry arch (12 months).

StructNum: 2111154

NJDOT SI and A Sheet

Name: NJ 31 OVER FURNACE BROOK **S.R.:** 48.1 **SD/FO-** 1 -Structurally Defici..

IDENTIFICATION

1 State:	34 New Jersey	8 Struc Num:	2111154
7 Facility Carried:	NJ 31	9 Location:	2.1 MI SOUTH OF RT 46 JCT
5A Rte.(On/Under):	Route On Structure	5B Rte. Signing Prefix:	3 -State Hwy
5C Level of Service:	1 -Mainline	5D Rte. Number:	00031
5E Directional Suffix:	0- Not Applicable	% Responsibility :	NA
2 SHD District:	01- North	3 County Code:	Warren
4 Place Code:	Oxford (Township of), Wa	11 Mile Post:	46.830 mi
6 Feature Intersected :	FURNACE BROOK		
16 Latitude:	40d 48' 14.21"	17 Longitude:	074d 59' 40.13"
98 Border Bridge Code:	-2 Not Applicable (P)		
99 Border Bridge Number:	NA		

STRUCTURE TYPE AND MATERIALS

46 Number of Approach Spans : 0 45 Number of Spans Main Unit: 1

43A/B Main Span Material/Design:

8 -Masonry 11 -Arch-Deck

107 Deck Type:	1- Conc..-Cast-in-Place
108A Wearing Surface:	6 -Bituminous
108B Membrane:	0- None
108C Deck Protection:	0- None

AGE AND SERVICE

27 Year Built: 1926 106 Year Reconstructed: 1953

42A Type of Service On: 5 -Highway-pedestrian

42B Type of Service Under: 5 -Waterway

28A Lanes on: 6 28B Lanes Under: 0 19 Detour Length: 2.0 mi

29 ADT: 11,611 109 Truck ADT: 4 % 30 Year of ADT: 2012

GEOMETRIC DATA

48 Length Max Span: 26.0 ft 49 Structure Length: 30.0 ft

50A Curb/Sdwlk Wdth L: 5.0 ft 50B Curb/Sidewalk Width R: 0.0 ft

Width Curb to Curb 51: 86.0 ft 52 Width Out to Out: 94.0 ft

32 Approach Roadway Width: (w/ shoulders) 50 ft 33 Median: 0 No median

Deck Area: 2,820.1 sq. ft

34 Skew: 26.00 ° 35 Structure Flared: 0 -No flare

53 Minimum Vertical Clearance Over Bridge: 9999

54A Minimum Vertical Underclearance Reference: N -Feature not hwy or RR

54B Minimum Vertical Underclearance: 0.00 ft

55A Minimum Lateral Underclearance Reference R: N -Feature not hwy or RR

55B Minimum Lateral Undrclearance R: 0.00 ft

56 Minimum Lateral Undrclearance L: 0.00 ft

INSPECTION

91 Frequency:	24 months	90 Inspection Date:	10/10/2012	Next Inspection:	10/10/2014
92A FC Frequency:	NA	93A FC Inspection Date:	NA	Next FC Inspection:	NA
92B UW Frequency:	NA	93B UW Inspection Date:	NA	Next UW Inspection:	NA
92C SI Frequency:	12 months	93C SI Date:	10/10/2012	Next SI:	10/10/2013
Element Frequency:	24 months	Element Inspection Date:	10/10/2012	Next Elem. Insp. Due:	10/10/2014

CLASSIFICATION

100 STRAHNET Highway:	0 -Not a STRAHNET hwy	101 Parallel Structure:	N -No || bridge exists
102 Direction of Traffic:	2 -2-way traffic	103 Temporary Structure:	!
104 Highway System:	1 -On the NHS	112 NBIS Length:	Y - Long Enough
20 Toll Facility:	3 -On free road	26 Functional Class:	14 -Urban Other Princ
37 Historical Significance:	5 -Not eligible for NRHP		
22 Owner:	01 NJDOT		
21 Custodian:	01 NJDOT		

CONDITION

58 Deck: 5 -Fair 59 Super: 3 -Serious 60 Sub: 5 -Fair

62 Culvert: N -Not applicable 61 Channel/Channel Protection: 7 -Minor Damage

LOAD RATING AND POSTING

65 Inventory Rating Method: 1- LF Load Factor 63 Operating Rating Method: 1 -LF Load Factor

66 Inventory Rating: HS31.0 64 Operating Rating: HS51.0

31 Design Load: 0 -Unknown 70 Posting: 5 At/Above Legal Loads

41 Posting status: A -Open, no restriction

APPRAISAL

36A Bridge Rail:	0 -Substandard	36C Approach Rail:	0 -Substandard
36B Transition:	0 -Substandard	36D Approach Rail Ends:	0 -Substandard
67 Str. Evaluation:	3	68 Deck Geometry:	6 Equal Min Criteria
69 Underclearance, Vertical and Horizontal:	N -Not applicable		
71 Waterway Adequacy:	6 -Equal Minimum	72 Approach Alignment:	7-Above Min Criteria
113 Scour Critical:	8 -Stable Above Footing		

PROPOSED IMPROVEMENTS

94 Bridge Cost:	$1,645,000	75 Type of Work:	31
95 Roadway Cost:	$120,000	76 Length of Improvment:	49 ft
96 Total Cost:	$2,600,000	114 Future ADT:	13,933
97 Year of Cost Estimate:	2012	115 Year of Future ADT:	2032

NAVIGATION DATA

38 Navigation Control: 0 0 -Permit Not Required

39 Vertical Clearance:	0.0 ft	40 Horizontal Clearance:	0.0 ft
111 Pier Protection:	-1	116 Lift Bridge Vertical Clearance:	

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
0	13/3	Unp Conc Deck/AC Ovl	(SF)	808	100 %	808	0 %	0	0 %	0	0 %	0	0 %	0
0	39/3	Unp Conc Slab/AC Ovl	(SF)	584	100 %	584	0 %	0	0 %	0	0 %	0	0 %	0
0	145/3	Other Arch	(LF)	18	0 %	0	0 %	0	33 %	6	67 %	12	0 %	0
0	170/3	Open Gird/Enc Stl	(LF)	357	0 %	0	44 %	157	28 %	100	28 %	100	0 %	0
0	217/3	Other Mtl Abutment	(LF)	125	57 %	71	19 %	24	16 %	20	8 %	10	0 %	0
0	301/3	Pourable Joint Seal	(LF)	290	0 %	0	100 %	290	0 %	0	0 %	0	0 %	0

StructNum: 2111154

NJDOT SI and A Sheet

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
0	312/3	Enclosed Bearing	(EA)	22	0 %	0	100 %	22	0 %	0	0 %	0	0 %	0
0	333/3	Other Bridge Railing	(LF)	60	0 %	0	50 %	30	0 %	0	50 %	30	0 %	0
0	359/3	Soffit Smart Flag	(EA)	1	0 %	0	0 %	0	100 %	1	0 %	0	0 %	0
0	361/3	Scour Smart Flag	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
0	363/3	Section Loss SmFlag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
0	503/3	Curbs/Walks - Conc	(LF)	60	0 %	0	47 %	28	0 %	0	53 %	32	0 %	0
0	506/3	Wingwalls - Abut	(LF)	26	0 %	0	23 %	6	23 %	6	54 %	14	0 %	0
0	507/3	Headwalls - Other	(LF)	59	47 %	28	53 %	31	0 %	0	0 %	0	0 %	0

NJDOT BRIDGE FIELDS (V1.2)

Brkey: 2111154 **Inspkey**

GENERAL

(A) Town: Oxford Twp.
(AA) Route: 31
(AD) Admin: -1
(AE) Alt Agency: -1 _

STRUCTURE AND APPURTENANCES

(AC) Non-Inv Feature: WW Rdwy and/or RR /wtrwy
(AF) Alt Struct #: -1
(AG) Rail Type: 10 Concrete Metal Combo
(AH) Rail Height:: 2.50
(AJ) Slope Protection: -1
(AK) Abutment: 09 Gravity
(AL) Pier: -1
(AM) Depth of Fill: 6.00
(AP) Fender System: -1
(AT) Special Material 1: _
(AT) Special Material 2: _
(AU) Add Struct: 1 _
2 _
(AV) Widen Stru: Material Design
1st Widen 3 02
2nd Widen 1 01

FUNDING AND COST

(BL) Discretionary: _
(BM) Fed Job #: BR NBIS757
(BN) State Job #: 2205341
(BO) St Maint Cost: 0
(BP) Brdg Demo N

SCOUR EVALUATION

(FA) FHWA Category: 02
(FB) Stage 1 Date: 4/1/1992
(FC) Stage 1 Consultant: B14
(FD) Prioritization: 2
(FE) Sufficiency: 37.5
(FF)Date Stage II 1/1/1901
(FG) Stage II Consultant: -1
(FH) Crit. Element:
-1

COUNTER MEASURES

(FI) Recommended:
-1

(FJ) Cost: 0
(FK) Installed: 1 _ 2 _ 3 _
(FL) Monitoring Reqd: _

PROJECT PROGRAMMING

(HB) Bridge List ID: ST2B_
(HC) Consultant C14
(HD) 2-Cy Insp Contr: Y
(HE) Proceed Date: I 9/16/2004
II 1/1/1901
(HF) State Proj Mgr: MKP

BRIDGE NOISE BARRIER (HA)

Material 1: _
2: _
Height 1: --
2: --

PAINTING

(GB) Environment: 01
(GR) Last Painting: 01/1901
(GA) Painting Req: Y

FENCING

(AQ) Chain Link: . ft
(FN) Warranted: N

SIGN STRUCTURES

(GS) Overhead: 0
(GT) Cantilever: 0
(GU) Fascia Mounted: 0

POSTINGS

(CG) Load Type: _
(CG) Tons -1
(AI) Speed: -1

TEMPORARY STRUCTURES

(GV) Bridge: N
(GW) Shoring: N
(GX) Reports: N
(GY) Measures: N
(GZ) Cond Desc:
-1

LOAD RATINGS

Type		Inv		Opr
H	(BQ)	-1	(CA)	-1
HS	(BR)	31	(CB)	51
3	(BS)	24	(CC)	41
3S2	(BT)	37	(CD)	64
3-3	(BU)	47	(CE)	79
M	(BV)	--	(CF)	--

Misc (CH1) L
(CH2) -1.1023113

MISCELLANEOUS

(CQ) Bridge List: _
(BK) Overstress %: -1
(FV) Route Milepost: 046.83
(FM) Incident Reprtd: _
(AO) Utilities: 1: G
2: _
3: _
4: _
(CR) Off-Route Bridge: N
(BB) Orphan Bridge: N
(AN) Plan Available: Y
(FX) Fed Error Uncorr N
(FW) Estimated ADT N

RAILROAD

(BC) USRA Code: -1
(BD 1) Rail On/Under: -1
(BD2)RRs intersected: -1
(BE) Rail Milepost: -0.62

StructNum: 2111154 NJDOT SI and A Sheet

NJDOT INSPECTION FIELDS (V1.2)

GENERAL

(CI) Cycle Number:	17
(CJ) Insp Type:	S
(CK) Inspection Crew:	L
(CM) Consultant:	N01
(CO) Prev Consultant:	C14
(CP) Federal Report:	_

INSPECTION DATES

(AW) Mech/Electrical:		1/1/1901
(AX) Deck:		1/1/1901
(AY) Special Testing:		1/1/1901
(GC) Paint:		10/10/2012
(AR) Equipment:	1:	_
	2:	_
	3:	_
(AS) Testing:	1:	_
	2:	_
	3:	_

MISCELLANEOUS

(B) Deletion Code:	N
(BA) Apr Rdwy Cond:	7

FATIGUE DETAIL (AZ)

Location1:	-1
	-1
Location 2:	-1
	-1
Location 3:	-1
	-1

IN-DEPTH PIN-HANGER

(FR) Consultant: -1

(FS)
-1

(FT) Combo: N

(FQ) FCM/Pin-Hngr Insp Date: 1/1/1901

REMARKS

(BF) Deck:	1:	U
	2:	Q
	3:	K
	4:	_
	5:	_
(BG) Super:	1:	A
	2:	C
	3:	D
(BH) Sub:	1:	A
	2:	B
	3:	C
(BI) Channel		C
(BJ) Culvert		_

FENCING

(FO) Pedestrian Traffic:	N	
(FP) Improvement Cost:	$ 0	Thousands

PAINTING

(GD) Fascia Beam:	-1
(GE) Fascia B. Flange:	-1
(GF) Interior Beam:	-1
(GH) Interior B. Flange:	01
(GI) Beam Ends:	01
(GJ) Connections:	-1
(GK) Bracings:	-1
(GL) Bearings:	-1
(GM) Substructure:	-1
(GN) Above Deck Super:	-1
(GO) Railings/Fence:	-1

(GP) Remarks 1:
CODED FOR LOCATIONS OF MISSING ENCASEMENT WITH EXPOSED STEEL.

(GQ) Remarks 2:
-1

ROADWAY DATA

Bridge Id: 2111154
SRI 00000031__ (V1.2)

ROADWAY IDENTIFICATION

NBI Roadway?:	1		
Roadway Name:	NJ 31		
Item 5A:	1		
Item 5B:	3		
Item 5C:	1		
Item 5D:	00031	Item 5E	0

HWY NETWORKS AND SERVICE CLASSIFICATION

11 Milepost:	46.830 mi		
12 Base Hwy Network:	1		
20 Toll Facility:	3		
13A LRS Inventory Route	00000031__	Subroute No.:	00
26 Functional Class:	14	102 TraffDirection:	2

ALTERNATE CLASSIFICATION

100 Strahnet Hwy:	0	Transit Rt:	0
104 NHS System:	1	Emergency	0
105 Fed. Lands Hwy:	0		
110 Truck Hwy Net:	0		
School Bus:	0		

TRAFFIC AND ACCIDENTS

28 Lanes :	6
Num Median:	0
Road Speed:	40 mph
ADTclass:	04
29 ADTtotal:	11611
30 Year of ADT:	2012
114 Future ADT:	13933
115 Year of Future ADT:	2032
109 Truck ADTT % :	4
19 Bypass Length:	2.00 mi
Detour Speed:	25 mph

CLEARANCES

10 Vertical Clearance:	99.99 ft
47 Invent Route Horiz Clear:	51.00 ft
(DJ) Min Vert Undrclr:	00.00 ft

WIDTHS

32 Appr Rdwy Width:	50 ft
51 Brdg Rdwy With Curb-Curb:	86.0 ft

Structure No.: 2111-154 Route: NJ 31 Cycle No.: 17
Name: NJ 31 over Furnace Brook Insp. Date: 10/10/2012

LOAD RATING SUMMARY SHEET (LRSS)

(Form NJ-BI-101 Created 1/25/2011)

Project Information:

Group: ST2B Agreement No.: 2012BI875A Contract ID: 13-50809 Agree/Mod No.: 00

Rating Information:

Method: LRFR: Yes / **No** LFR: **Yes** / No ASR: Yes / **No** Other (Specify): -

Rating Date: 04/1995 Computer Software Used: PennDOT BAR 7 Version: 7.5

Load Testing: Yes / **No** Cycle when Rating Performed: 8th Design Load: Other or Unknown

Structure Information:

Plans Available? **Yes** / No Contract Designation: -

Overlay? **Yes** / No Considered in Rating? **Yes** / No Type/Thickness: Bituminous Concrete

Section Losses? **Yes** / No Considered in Rating? **Yes** / No Item 59 Cond.: 3-Serious.

For LRFR Use Only: The structure is not listed for load rating in this submission.

Surface Roughness Factor: - Condition Factor: - System Factor: -

ADTT (one direction): - Resistance Factor: - FCM: Yes / **No**

Load Rating Engineer (LRE):

Name: Unknown Firm: Unknown Initial: -

Load Rating Reviewer (LRR) certification as per the NBIS Title 23 CFR Section 650.309(c):

Name: - N.J. P.E. No.: -

Firm: -

I certify that this rating is an accurate representation of the subject structure, considering all deterioration and/or changes to loading conditions, to the extent determinable by research and visual inspection and testing performed. I am charged with the overall responsibility for bridge capacity evaluation for the above mentioned structure.

Sign and Seal if Rating Performed in this Cycle

- Sign

- Date

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

LOAD RATING SUMMARY SHEET (LRSS) (*cont.*)

Rating Comments:

1) The structure is not listed for load rating in this submission.

2) The rating values in the following table are taken from previous inspection report.

The Load Factor ratings, computed in the 8th Cycle report in accordance with the FHWA directive dated November 1993 and AASHTO Manual for Condition Evaluation of Bridges, 1994, as modified by Section 43 of the New Jersey Department of Transportation Design Manual, Bridges and Structures, are as follows:

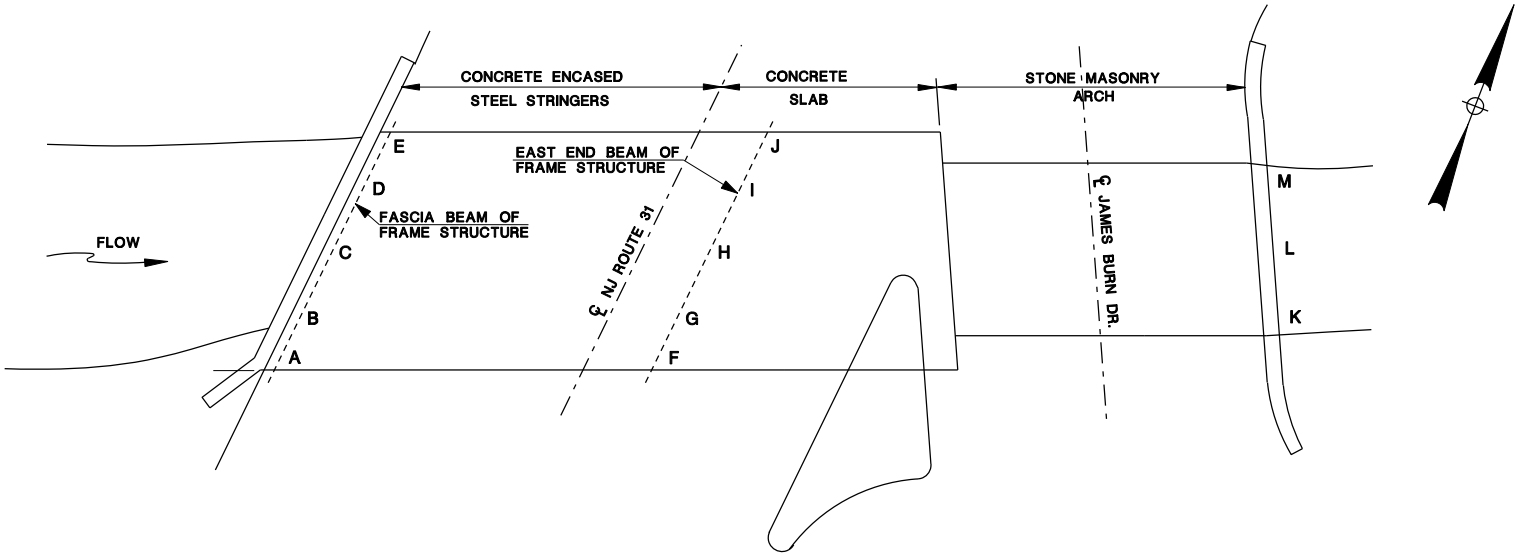
Material	Compressive Strength f'c	Allowable Stresses (Psi) Yield	Inventory	Operating
Concrete	2,500	--	1,000	1,350
Reinforcing Steel	--	33,000	18,000	25,000
Structural Steel	--	30,000	16,500	22,500

Member	Truck Type (Tons)		Rating (Tons) / Rating Factor							
			LFR				LRFR			
			As-Built		As-Insp.		As-Built		As-Insp.	
			Inv.	Op.	Inv.	Op.	Inv.	Op.	Inv.	Op.
*Reinforced Concrete Slab	H15	(15T)	---	---	---	---	---	---	---	---
	HS-20	(36T)	31	51	31	51	---	---	---	---
	3	(25T)	24	41	24	41	---	---	---	---
	3S2	(40T)	38	64	38	64	---	---	---	---
	3-3	(40T)	47	79	47	79	---	---	---	---
Condition Rating = 3	HL-93	(NL)	---	---	---	---	---	---	---	---
Concrete Encased Steel Beam (10% bottom flange loss)	H15	(15T)	---	---	---	---	---	---	---	---
	HS-20	(36T)	37	62	37	62	---	---	---	---
	3	(25T)	29	49	29	49	---	---	---	---
	3S2	(40T)	44	74	44	74	---	---	---	---
	3-3	(40T)	57	96	57	96	---	---	---	---
Condition Rating = 3	HL-93	(NL)	---	---	---	---	---	---	---	---

*Controlling Rating
(NL) = Notional Load

Notes: 1) No information available for computation of load ratings for masonry arch

2) The slightly low Type 3 and Type 3S2 Inventory rating can be attributed to the increased dead load of the wearing surface and the low design capacity of the reinforced concrete slab. Since all Operating ratings exceed the respective vehicle weights, load posting is not required



PLAN AND SOUNDING DATA

N.T.S.

NOTES:

1. THE CLEAR DIMENSIONS GIVEN ARE REFERENCED FROM THE BOTTOM OF THE SUPERSTRUCTURE TO THE STREAMBED.
2. THE WATER DEPTH DIMENSIONS ARE MEASURED FROM THE WATER SURFACE (AT THE TIME OF INSPECTION) TO THE STREAMBED.
3. CENTER LINE SOUNDING DATA IS NOT AVAILABLE FOR SEPT. 1991
4. INFORMATION NOT AVAILABLE FOR SEPT. 1991

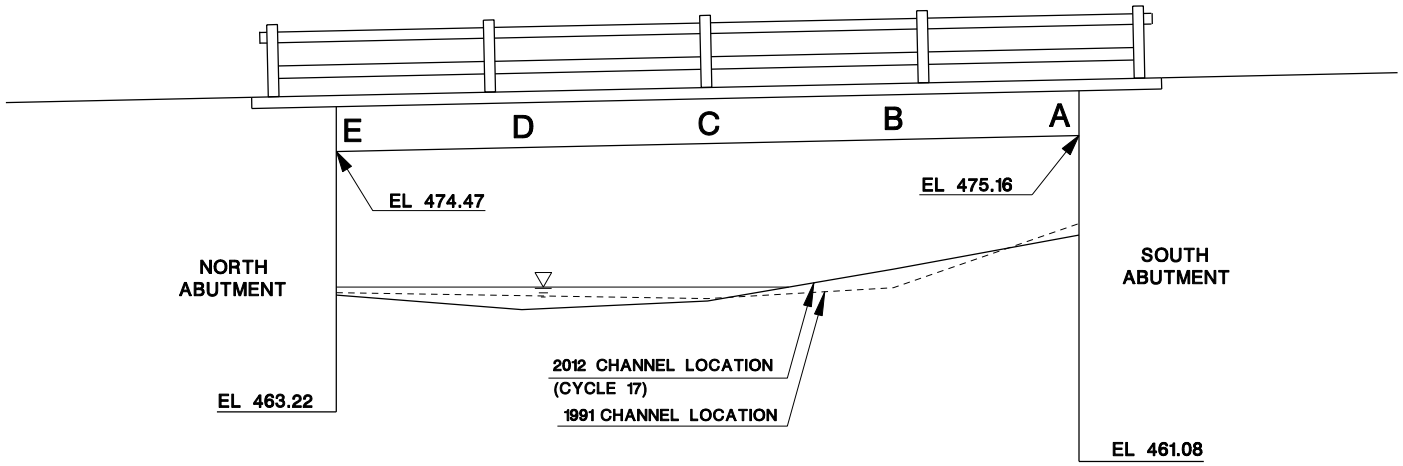
NEW JERSEY DEPARTMENT OF TRANSPORTATION
STRUCTURAL EVALUATION

STRUCTURE NO. 2111-154
NJ 31 OVER FURNACE BROOK
OXFORD TOWNSHIP, WARREN COUNTY

Naik GROUP
Naik Consulting Group, P.C.
200 Metroplex Drive, Suite 403, Edison, N.J. 08817
Tel: 732.777.0030 Fax: 732.777.0040

CYCLE No. 17

DATE: 10/10/12



WEST (UPSTREAM) CROSS SECTION

NOTES:

1. THE CLEAR DIMENSIONS GIVEN ARE RFERENCED FROM THE BOTTOM OF THE SUPERSTRUCTURE TO THE STREAMBED.
2. THE WATER DEPTH DIMENSIONS ARE MEASURED FROM THE WATER SURFACE (AT THE TIME OF INSPECTION) TO THE STREAMBED.

WEST FASCIA				
POINT	LOCATION	SEPTEMBER 1991	OCTOBER 2012	
		CLEAR DIMENSION	CLEAR DIMENSION	WATER DEPTH
A	SOUTH ABUTMENT	3.8	4.0′	-
B	¼POINT	6.4	5.6′	-
C	MID SPAN	6.7	7.1′	0.7′
D	¾POINT	-	7.0′	0.9′
E	NORTH ABUTMENT	6.1	6.6′	0.4′

Baseline soundings for cross sections taken: ---------- September 1991.
Updated soundings for cross sections taken: ———— October 2012.

0 4′ 8′ 16′

SCALE: ⅛″ = 1′

NEW JERSEY DEPARTMENT OF TRANSPORTATION
STRUCTURAL EVALUATION

STRUCTURE NO. 2111-154
NJ 31 OVER FURNACE BROOK
OXFORD TOWNSHIP, WARREN COUNTY

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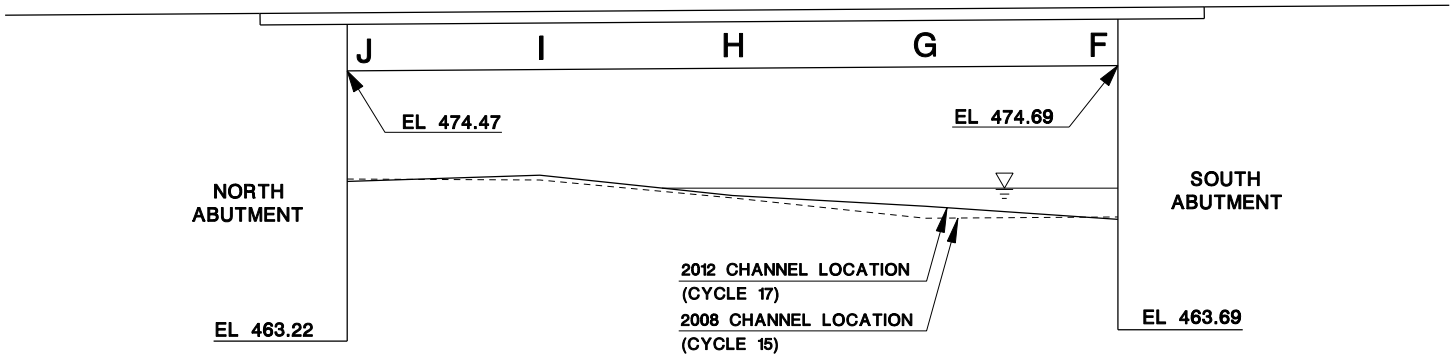
CYCLE No. 17

DATE: 10/10/12



(CENTERLINE) CROSS SECTION

NOTES:

1. ELEVATIONS AT CENTERLINE OF BRIDGE ARE CALCULATED BY INTERPOLATION.

AT CENTERLINE					
POINT	LOCATION	OCTOBER 2008		OCTOBER 2012	
		CLEAR DIMENSION	WATER DEPTH	CLEAR DIMENSION	WATER DEPTH
F	SOUTH ABUTMENT	6.3	1.2	5.3′	1.0′
G	¼POINT	6.3	1.1	5.8′	0.6′
H	MID SPAN	5.4	0.2	4.6′	0.1′
I	¾POINT	4.6	-	4.4′	-
J	NORTH ABUTMENT	4.5	-	5.6′	0.8′

Baseline soundings for cross sections taken: ---------- October 2008.
Updated soundings for cross sections taken: ———— October 2012.

0 4′ 8′ 16′

SCALE: ⅛″ = 1′

NEW JERSEY DEPARTMENT OF TRANSPORTATION
STRUCTURAL EVALUATION

STRUCTURE NO. 2111-154
NJ 31 OVER FURNACE BROOK
OXFORD TOWNSHIP, WARREN COUNTY

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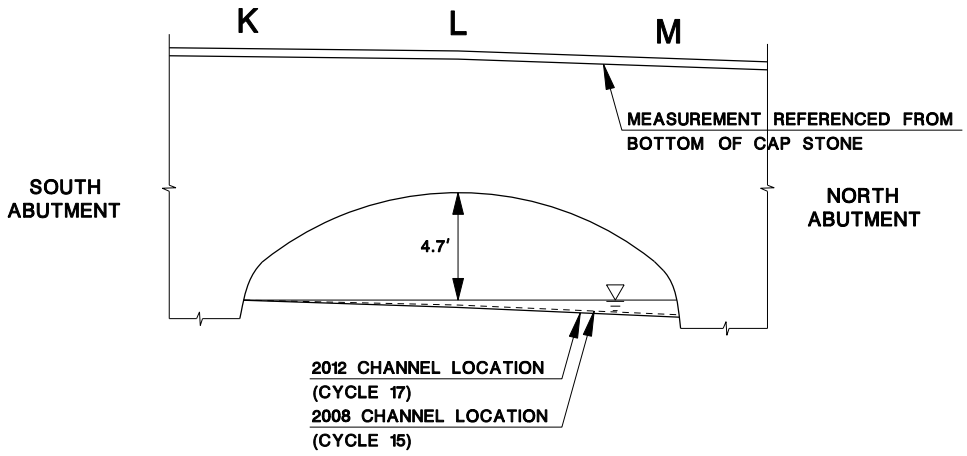
CYCLE No. 17

DATE: 10/10/12



EAST (DOWNSTREAM) CROSS SECTION

NOTES:

1. BRIDGE PLANS FOR ARCH STRUCTURE ARE NOT AVAILABLE.

0 4′ 8′ 16′

SCALE: 1/8″ = 1′

EAST FASCIA (ARCH)					
POINT	LOCATION	OCTOBER 2008		OCTOBER 2012	
		CLEAR DIMENSION	WATER DEPTH	CLEAR DIMENSION	WATER DEPTH
K	SOUTH ABUTMENT	10.3′	-	10.4′	-
L	MID SPAN	10.4′	0.2	11.0′	0.6′
M	NORTH ABUTMENT	10.5′	0.6	10.8′	0.8′

Baseline soundings for cross sections taken: ---------- October 2008.
Updated soundings for cross sections taken: ———— October 2012.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
STRUCTURAL EVALUATION

STRUCTURE NO. 2111-154
NJ 31 OVER FURNACE BROOK
OXFORD TOWNSHIP, WARREN COUNTY

Naik GROUP
Naik Consulting Group, P.C.
200 Metroplex Drive, Suite 403, Edison, N.J. 08817
Tel: 732.777.0030 Fax: 732.777.0040

CYCLE No. 17

DATE: 10/10/12

Photo No: 17-01

Location:	East elevation, looking west.
Description:	General view.

Photo No: 17-02

Location:	West elevation, looking east.
Description:	General view. Note, heavy scaling and disintegrated concrete at northwest wingwall.

Photo No: 17-03

Location:	North approach roadway, looking south.
Description:	General view.

Photo No: 17-04

Location:	South approach roadway, looking north.
Description:	General view.

Photo No: 17-05

Location:	Upstream channel, looking west.
Description:	General view.

Photo No: 17-06

Location:	Downstream channel, looking east.
Description:	General view.

Photo No: 17-07

Location:	Underside of masonry arch and concrete slab, looking west.
Description:	General view.

Photo No: 17-08

Location:	Underside of concrete encased steel stringer span and concrete slab, looking east.
Description:	General view. Note, Spalled and cracked concrete encasement with stalactites.

Photo No: 17-09

Location:	Underside of deck and encased beams, looking north.
Description:	Fine cracks with efflorescence, localized scaling and dampness at underside of deck. Note, spalled concrete encasement with exposed rusted steel beams and light scaling of north end diaphragms.

Photo No: 17-10

Location:	Underside of deck and encased beams, looking south.
Description:	Fine cracks with efflorescence and localized dampness at underside of deck. Note, spalled and cracked concrete encasement with exposed rusted steel beams.

Photo No: 17-15

Location:	West fascia beam, underside of parapet, south abutment and southwest wingwall, looking south.
Description:	Exposed and rusted dowel bars of parapet due to spalling of concrete encasement of west fascia stringer along top. Note, wide diagonal fracture extending from bridge seat through wingwall with heavy spalling up to 8” deep and light to moderate scaling of the west breastwall and efflorescence at west corner.

Photo No: 17-16

Location:	Triangular median between James Burn Drive and NJ 31 northbound, looking southwest.
Description:	Cracked and spalled curb with missing section along west side of James Burn Drive. Note, Spalling with wide random cracks throughout the median slab and missing median slab at north end.

Photo No: 17-11

Location:	Triangular median, looking northwest.
Description:	Spalling, wide random cracks throughout with cracked curb for entire length.

Photo No: 17-12

Location:	West bridge curb, looking west.
Description:	Cracked and spalled curb along west side.

Photo No: 17-13

Location:	West sidewalk, looking north.
Description:	Light to moderate scaling of bridge sidewalk, and growth of vegetation between curb and sidewalk. **Work Done:** New asphalt concrete has been installed at northwest and southwest approach sidewalk.

Photo No: 17-14

Location:	West parapet and railing, looking west.
Description:	Isolated spalling and medium to wide cracks and light to moderate scaling of parapet. Note, moderate rusting of railing and posts with occasional loss of section.

Photo No: 17-17

Location:	Northeast approach curb of James Burn Drive and east stone parapet, looking southeast.
Description:	Broken, settled and missing section of curb at northeast approach of James Burn Drive. Note, spalling of coping stone at east parapet.

Photo No: 17-18

Location:	East stone parapet, looking northeast.
Description:	Missing and loose stones at localized areas and deteriorated coping stone.

Photo No: 17-19

Location:	Southwest approach sidewalk and curb, looking north.
Description:	Cracked/spalled and deteriorated asphalt at southwest approach sidewalk. Note, Severe scaling and localized spalling of southwest approach curb **Work Done:** New asphalt concrete has been installed at southwest approach sidewalk.

Photo No: 17-20

Location:	Southwest embankment and wingwall, looking southwest.
Description:	Very steep embankment, which is protected with bituminous concrete. Note, Wide horizontal crack and medium spall at top of wingwall and cracked concrete railing post.

Photo No: 17-21

Location:	Northwest approach curb and sidewalk, looking north.
Description:	Minor to moderate scaling, minor spalling of curb. **Work Done:** New asphalt concrete has been installed at northwest approach sidewalk.

Photo No: 17-22

Location:	Arch intrados near waterline, looking northwest.
Description:	Several voids between stones near north waterline.

Photo No: 17-23

Location:	Arch intrados at west end near crown, looking south.
Description:	4’ long x 2” wide x 1’ to 1’-4” deep void/gap between stones.

Photo No: 17-24

Location:	Arch intrados near west end, looking south.
Description:	Missing stones at sveral locations.

Photo No: 17-25

Location:	Underside of east spandrel wall, looking south.
Description:	Cracks with stalactites at underside of east spandrel wall.

Photo No: 17-26

Location:	Northwest corner of north breastwall, looking northwest.
Description:	Heavy scaling on west half with exposed aggregate, 2’-5” wide x 4’-9” high x 8” in bay 2 and 2’-4” wide x 1’-8” high x 4” severe scaling/spall in Bay 3. Note, heavy scaling of northwest scour protection apron.

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

Photo No: 17-27

Location:	Northeast stone masonry wall, looking northwest.
Description:	Loss of mortar at joints of northeast stone masonry wall at several locations.

Photo No:

Location:	
Description:	

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

NEW JERSEY DEPARTMENT OF TRANSPORTATION
STRUCTURAL EVALUATION AND BRIDGE MANAGEMENT
FIELD NOTES
NJDOT

Inspectors: Mohammad AlHossain, E.I.T. Name: NJ 31 over Furnace Brook

Crew Chief: Sheikh M. Shakil, P.E.

Temperature: **55**° F Weather: Partly Cloudy.

Special Equipment Used: None.

RATINGS:

N Not applicable.
9 Excellent Condition.
8 Very Good Condition – no problems noted.
7 Good Condition – some minor problems.
6 Satisfactory Condition – some minor deterioration of structural elements.
5 Fair Condition – minor section loss to primary structural elements.
4 Poor Condition – advanced section loss to primary structural elements.
3 Serious Condition – seriously deteriorated primary structural elements.
2 Critical Condition – facility should be closed until repairs are made.
1 Imminent Failure Condition – facility closed. Study of repairs is feasible.
0 Failed Condition – facility is closed and beyond repair.

GPS COORDINATES			
@ southeast corner			
N	**40°**	**48′ 14.21″**	**Lat.**
W	**74°**	**59′ 40.13″**	**Long.**

GENERAL

Type of Bridge: Single Span, Stone Masonry Arch, Widened with Reinforced Concrete Slab and Concrete Encased Steel I-Beams.

Year Built: 1926 Year of Widening / Major Repairs: 1953

No. of Lanes: On 6 NJ 31 - 4
Intersecting Local Road - 2
Under N/A (Waterway).

Vertical Clearances: Over Deck: Unlimited.

Minimum Under: N/A (Waterway).

Maximum Under (Item 10): N/A (Waterway).

Horizontal Underclearance: Total Horizontal Clearance: N/A (Waterway).

Right N/A (Waterway).

Left N/A (Waterway).

Overall Physical Condition of Structure: **Serious** due to the condition of the superstructure.

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

DECK(NJ 31)

SI&A Item 58 Condition Rating: **5**

SPAN # SINGLE

RATING	COMPONENT	REMARKS
7	Wearing Surface *(Bituminous Concrete)*	No significant defects.
5	Underside of Deck *(Concrete, Bays 1 to 10 numbered west to east)*	Fine to medium longitudinal cracks with efflorescence. Bay 2: Efflorescence staining Bay 3, Bay 4, Bay 5 and Bay 7: Fine cracks with efflorescence. Bay 6: Fine to medium longitudinal cracks with efflorescence and light to moderate scaling. Bay 7: Fine crack with efflorescence (Photos 17-09 and 17-10).
4	Median *(Concrete Triangular median)*	Spalling (15 SF), wide random cracking throughout with cracked curb for entire length. Missing section of curb along James Burn Drive, north end and NJ 31 northnound (50 LF). Missing median slab (10 SF) at north end. (Photos 17-11 and 17-16)
6	Curbs *(Concrete)*	West (NJ 31): Cracked and spalled curb along west side (Photo 17-12). Curb Height = 7" at west side only (See Deck Cross Section)
6	Sidewalks *(Concrete)*	West (NJ 31): Light to moderate scaling and growth of vegetation between curb and sidewalk (Photo 17-13).
5	Parapets *(Concrete)*	West (NJ 31): Isolated spalling and medium to wide cracks and light to moderate scaling. Exposed and rusted dowel bars of parapet due to spalling of concrete encasement of west fascia stringer along top (Photos 17-14 and 17-15)
4	Railings *(Metal Pipe Rails)*	West (NJ 31): Moderate to severe loss of section of rails and rail posts with holes at few locations. Concrete railing posts are cracked and leaning outward-out of plumb (appears stable) (Photos 17-14 and 17-20).
N	Deck Joints / Filler Material	
N	Drains and Scuppers	
7	Light Stands	No significant defects. Traffic lights and light pole.
N	Utilities	
N	Others	

Additional Remarks:

Structure No.: 2111-154 Route: NJ 31 Cycle No.: 17
Name: NJ 31 over Furnace Brook Insp. Date: 10/10/2012

ROADWAY (JAMES BURNS DRIVE)

SI&A Item BA Rating: **7**

SI&A Item 72 Rating: **7**

RATING	COMPONENT	REMARKS
7	Top of Roadway *(Bituminous Concrete)*	No significant defects.
6	Curbs *(Concrete)*	East and West side of James Burns Drive: Cracked and spalled curb with missing section along west side of James Burn Drive. Broken, settled and missing section (8 LF) at northeast approach (Photos 17-16 and 17-17)
N	Sidewalks	
4	Median *(Concrete Triangular median)*	Spalling (15 SF) with wide random cracks throughout the median slab. Missing median slab (10 SF) at north end. (Photo 17-16)
6	Parapets *(Stone Masonry)*	East: Missing and loose stones at localized areas. Spalled and deteriorated coping stone. (Photos 17-17 and 17-18)
N	Railings	
N	Guide Rail Condition	
	Approach Roadway Vertical and Horizontal Alignment	Vertical: Fairly flat. Horizontal: Straight along James Burn Drive and sharp curve towards northeast for NJ 31.
7	Approach Roadway Embankment	No significant defects.
7	Utilities	No significant defects.
7	Others	No significant defects.

Additional Remarks:

Structure No.: 2111-154 Route: NJ 31 Cycle No.: 17
Name: NJ 31 over Furnace Brook Insp. Date: 10/10/2012

APPROACHES (NJ 31)

SI&A Item BA Rating: **7**

SI&A Item 72 Rating: **7**

APPROACH SOUTH

RATING	COMPONENT	REMARKS
7	Pavement *(Bituminous Concrete)*	No significant defects.
N	Approach Shoulder	
	Approach Roadway Vertical and Horizontal Alignment	Vertical: Slight downgrade toward bridge. Horizontal: Straight.
7	Guide Rail Condition *(W-Beam, West side only)*	No significant defects.
6	Sidewalks *(Bituminous Concrete, west side only)*	Cracked/spalled and deteriorated asphalt sidewalk at southwest end at the entrance to the gas station (Photo 17-19) New asphalt concrete has been installed at southwest approach sidewalk (Photo 17-19)
6	Curbs *(Concrete, west side only)*	Severe scaling and localized spalling of southwest approach curb (Photo 17-19).
7	Utilities *(Catch Basin, 5' from structure)*	No significant defects.
6	Approach Roadway Embankment	West side only: Very steep and protected with bituminous concrete, appears stable (Photo 17-20).
N	Others	

Additional Remarks:

Structure No.: 2111-154 Route: NJ 31 Cycle No.: 17
Name: NJ 31 over Furnace Brook Insp. Date: 10/10/2012

APPROACHES (NJ 31)

SI&A Item BA Rating: **7**

SI&A Item 72 Rating: **7**

APPROACH NORTH

RATING	COMPONENT	REMARKS
7	Pavement *(Bituminous Concrete)*	No significant defects.
N	Approach Shoulder	
	Approach Roadway Vertical and Horizontal Alignment	Vertical: Slight downgrade away from bridge. Horizontal: Long curve to east away from bridge.
7	Guide Rail Condition *(W-Beam, West side only)*	No significant defects.
7	Sidewalks *(Bituminous Concrete)*	No significant defects. New asphalt concrete has been installed at northwest approach sidewalk (Photo 17-21).
5	Curbs *(Concrete)*	West: Minor to moderate scaling, minor spalling, and settlement up to 3" at north abutment joint (Photo 17-21). East: Broken, settled and missing section (8 LF) at northeast approach (Photo 17-17).
N	Utilities	None
7	Approach Roadway Embankment	No significant defects.
7	Other/Traffic Light at northwest corner	No significant defects.

Additional Remarks:

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

SUPERSTRUCTURE
(ARCH)

SI&A Item 59 Condition Rating: **3**

SPAN # SINGLE

RATING	COMPONENT	REMARKS
3	Intrados of Arch (Soffit) *(Stone Masonry)*	4' long x 2" wide x 1' to 1'-4" deep void/gap between stones at west end at crown. Scattered voids between stones near crown, 8" to 1'-2" deep and up to 4" deep at waterline along both ends (10 SF). Missing mortar and small voids occasionally with missing stones in arch masonry at random locations (75 SF) (Photos 17-22, 17-23 and 17-24).
N	Spandrel Columns/ Extrados	
5	Spandrel Walls *(Stone Masonry)*	East: Cracks with stalactites at underside of spandrel wall/ring stones (Photos 17-25). West: Four small voids 2" x 2" x 10" deep each at north end; loose stones and small voids at south end.
	Others	

Additional Remarks:

FATIGUE DETAILS

Estimated percentage of Large trucks in ADT = 4%

Category	Detail Description and Location
N/A	None.

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

SUPERSTRUCTURE

SI&A Item 59 Condition Rating: **3**

SPAN # SINGLE

RATING	COMPONENT	REMARKS
4	Girders/ **11-Concrete Encased Steel Beams**/ Floorbeams/ Trusses/ P/S. Beams (Beams numbered west to east)	Cracked, spalled and deteriorated concrete encasement at B4 through B11 (125 SF). Exposed bottom flanges are severely rusted and delaminated with ⅛"± loss. B11 bottom flange exposed approximately 80% B4 and B5 encasement missing exposing bottom flanges for 4 LF and 5 LF, respectively, at mid-span. B4, B5, B6, B8, B9 and B10 encasement missing exposing bottom flanges for 3 LF at north end. Fine to medium longitudinal cracks with heavy efflorescence/stalactites on encasement of all beams. West fascia: Large spalls with exposed rusted curb dowels for entire length (30' x 6" x up to 4" deep) (Photos 17-08, 17-09, 17-10 and 17-15)
6	Diaphragms *(Concrete)*	Concrete end diaphragms between beams exhibit light scaling and occasionally fine cracks (Photos 17-09).
N	Bearings	Not visible
	Deflection and Vibration	Not noticeable.
N	Others	

Additional Remarks:

FATIGUE DETAILS

Estimated percentage of Large trucks in ADT = 4%

Category	Detail Description and Location
N/A	None.

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

SUPERSTRUCTURE

SI&A Item 59 Condition Rating: **3**

SPAN # SINGLE

RATING	COMPONENT	REMARKS
7	Reinforced Concrete Slab	No significant defects.
N	Diaphragms / Cross Frames	
N	Bearings	
	Deflection and Vibration	Not noticeable.
N	Others	

Additional Remarks:

FATIGUE DETAILS

Estimated percentage of Large trucks in ADT = 4%

Category	Detail Description and Location
N/A	None.

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

PAINT INSPECTION

*Environment: 1

Date of Last Painting: N/A

1. Rural or Industrial, Mild exposure
2. Industrial, Severe Exposure
3A. Marine, Mild Exposure
3B. Marine, Severe Exposure
*Ref. NJDOT Design Manual Sec. 1.24.19

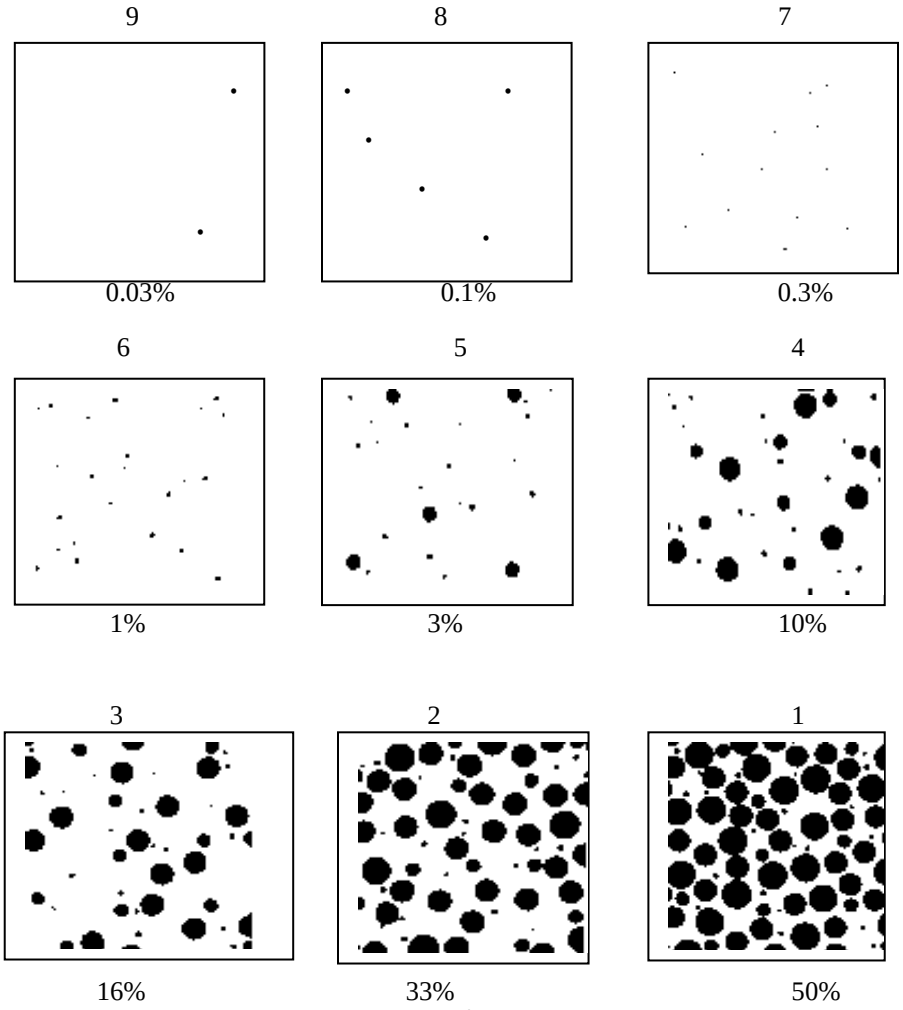


FIG. 1 Examples of Area Percentages

Notes: Blistered Paint areas are counted as rust

10 = 0% Rust
0 = 100% Rust

Use the closest rating to the actual field condition based on the average for the bridge. Indicate any areas of severe rusting in remarks.

For structures composed of weathering steel, this sheet should be used to rate the effectiveness of the iron oxide coating (see Appendix G from the state coding guide). For beam ends, use the controlling rating (paint or oxide coating).

INSPECTION RATINGS (0 THROUGH 10 OR N/A)

Fascia Beam:	N/A	Fascia Bottom Flange:	N/A	Beams Ends:	1
Interior Beam:	N/A	Interior Bottom Flange:	1	Connections:	N/A
Bracing:	N/A	Substructure:	N/A	Railings/Fence:	N/A
Bearings:	N/A	Above Deck Superstructure	N/A		

Remarks 1: Coded for locations of spalled encasement with exposed bottom flange.

Remarks 2:

SUBSTRUCTURE

SI&A Item 60 Condition Rating: **5**

ABUTMENT SOUTH (WEST END AND CENTER)

RATING	COMPONENT	REMARKS
5	Breastwall *(Concrete)*	Light to moderate scaling about 40% of the breastwall area (120 SF) and efflorescence at west corner (Photos 17-15).
N	Backwall	Not visible
N	Bridge Seat	Not visible
4	Wingwalls *(Concrete)*	West: Wide diagonal fracture extending from bridge seat through wingwall with 1" differential movement; heavy spalling up to 8" deep (4 SF) and unsound concrete along fracture. Wide horizontal crack and medium spall at top of wingwall (Photos 17-15 and 17-20).
N	Embankment / Slope Protection	
5	Others / Footings / Waterway Probing	Localized 2'-9" deep scour hole in front of drainage pipe outfall below reinforced concrete deck slab section creating a 3 1/2' diameter scour hole. No exposed footing.

Additional Remarks:

ABUTMENT NORTH (WEST END AND CENTER)

RATING	COMPONENT	REMARKS
5	Breastwall *(Concrete)*	Heavy scaling on west half with exposed aggregate (80 SF). Heavy efflorescence, fine to medium map cracking throughout western portion. 2'-5" wide x 4'-9" high x 8" in bay 2 and 2'-4" wide x 1'-8" high x 4" severe scaling/spall in Bay 3 (Photo 17-26).
N	Backwall *Concrete*	Not visible
N	Bridge Seat	Not visible
5	Wingwalls *(Concrete)*	West: Heavy scaling and disintegrated concrete (30 SF) (Photos 17-02).
N	Embankment / Slope Protection	N/A
7	Others / Footings / Waterway Probing	No scour noted

Additional Remarks:

SUBSTRUCTURE (Arch/Frame)

SI&A Item 60 Condition Rating: **5**

ABUTMENT SINGLE (EAST END)

RATING	COMPONENT	REMARKS
N	Footings/ Skewbacks	Not visible – covered by stream bed.
5	Wingwalls/ Retaining Walls	Loss of mortar at joints of northeast stone masonry wall at several locations (25 SF) (Photos 17-27).
N	Others	

Additional Remarks:

SUBSTRUCTURE/SCOUR

SI&A Item 60 Condition Rating: **5**

ABUTMENT SOUTH

RATING	COMPONENT	REMARKS
		COUNTERMEASURES
	Description	Scour wall along west (steel stringer section) portion (1' wide).
8	Condition	No significant defects.
		PROBING/SCOUR
5	Findings	Localized 2'-9" deep scour hole in front of drainage pipe outfall below reinforced concrete deck slab section creating a 3 1/2' diameter scour hole. No exposed footing.
	Changes Since Prior Inspection	No significant changes since prior inspection.
	Debris	Minor debris.

Repair Quantities: None.

ABUTMENT NORTH

RATING	COMPONENT	REMARKS
		COUNTERMEASURES
	Description	Scour protection apron (1' wide) along bottom of north breastwall.
5	Condition	Heavy scaling at northwest end (20 SF) (Photos 17-26).
		PROBING/SCOUR
7	Findings	No scour noted.
	Changes Since Prior Inspection	No significant changes since prior inspection.
	Debris	Large sandbar along center of abutment. Minor debris.

Repair Quantities: None.

Structure No.: 2111-154 Route: NJ 31 Cycle No.: 17
Name: NJ 31 over Furnace Brook Insp. Date: 10/10/2012

WATERWAY/CHANNEL

SI&A Item No. 61: **7**
SI&A Item No. 71: **6**
WATERWAY Furnace Brook Prioritization Category: **2**
SPAN(S) SINGLE Scour Sufficiency Rating: **37.5**

RATING	COMPONENT	REMARKS
	FLOW CONDITIONS	
	Direction	West to east
	Magnitude	Upstream channel is narrower than bridge opening.
	Velocity	Moderate
	EMBANKMENTS	
7	Upstream	Well vegetated with minor to moderate cutting.
7	Downstream	Well vegetated with minor to moderate cutting.
N	Channel Countermeasures	None
	CHANNEL MOVEMENT AND CHANGES	
	Horizontal Location	Upstream: Straight Under bridge flow is directed mostly along south abutment due to large sandbar along north abutment (80' x 15' x 2'H). Downstream: Curves to south 50' beyond the bridge.
	Cross Section	Thalweg is along midspan of bridge. Due to sandbar along north abutment, thalweg shifts to ¼ point from south abutment at center of structure.
	Alignment	Channel is generally well aligned with flow primarily along south abutment due to large sandbar along north abutment (80' x 15' x 2' high).
	Changes Since Previous Inspection	No significant changes since prior inspection.
	Navigation Clearances	Not a navigable waterway.
	Waterway Opening	Adequate for current flow.
7	Other/Debris in Channel	None.

Repair Quantities: None.

HIGHWAY SAFETY

Coding of SI&A Item 36: **0000**
1: Good
0: Not Good
N: Not Applicable

RATING		COMPONENT	REMARKS
0		Bridge Railing	Stone masonry parapet (height 2'-6") along east side. Two rail metal pipe railing (height 2'-6") along west side.
0	0	Transition to Bridge Railing	NW & SW: Steel W-beam guide rail at west side. Single element with steel I-beam spacer blocks spaced at 6'.
	0	Curb / Sidewalk Terminations	West: Continuous throughout and tapered at driveways. East: N/A
0		Approach Guide Rails	East: None. NE: Driveway SE: House/bar/salon West: Steel W-beam guide rail with 6'-0" post spacing, steel I-beam spacer blocks.
0		Approach Guide Rail End Terminals	East: None West: Non-breakaway terminations at northwest and southwest with rounded end sections (12'± southwest, 25'± northwest) from corners of structure.

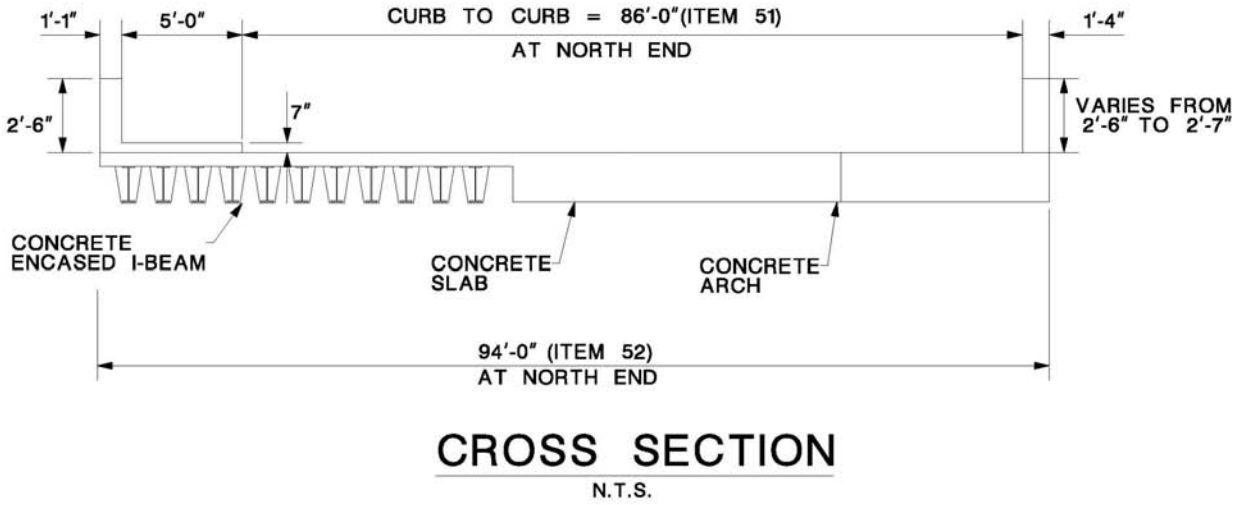
DECK GEOMETRY

SI&A Item 68 Rating: **6**

COMPONENT	REMARKS
Bridge Cross Section	Deck cross section is consistent with approach roadway. (See Deck Cross Section on next page)
Adequacy of Lane / Shoulder Widths	NJ 31: Curb to Curb width = 51.0' (4 lanes) James Burn Drive. : Curb to Curb width = 35.0' (2 lanes); Item 51= 86' ADT = 11,611 (2012) SI&A Item 68=6
Vertical Clearance over Deck	Unlimited.

*Posting for Load / Speed / Clearance Restrictions (Include a photo)	None.

DECK CROSS SECTION



CROSS SECTION

N.T.S.

Structure No.:	2111-154	Route:	NJ 31	Cycle No.:	17
Name:	NJ 31 over Furnace Brook			Insp. Date:	10/10/2012

FENCING

Coding of SI&A Item FN:	**N**
Coding of SI&A Item FO:	**N**
Coding of SI&A Item FP (in thousands):	**$0.0**

Warranted (Per Design Manual Section 23): Yes/**No**

If Yes: Description: -

Current Status of Fence & Sidewalk:	Left Side	Right Side
a. Fence:	Yes/**No**	Yes/**No**
b. Sidewalk Width:	5.0 FT	-
c. Total Height of fence above curb/sidewalk:	-	-
d. Type of Fence (per Design Manual Section 23):		

Action Recommended: None.

Estimated Cost: $0.0

WORK DONE HISTORICAL DATA

CYCLE NO.	YEAR	WORK DONE SUMMARY
17	2012	New asphalt concrete has been installed at northwest and southwest approach sidewalk.
16	2010	Cracks in pavement throughout NJ 31 and at James Burns Road intersection sealed with hot poured asphalt.
15	2008	None

VANDALISM REPORT:

None.

Appendix B

As-Built Plans, ROW, Tax and Jurisdiction Maps

The following plans used during Concept Development can be found on the CD provided with this report.

DATA	SOURCE	DATE[1]
As-Built Plans of Route 30 (1937), Section 11, Route 69 (1953), Oxford Repaving	NJDOT	Sept. 1953
New Jersey State Highway Department, Division of Bridges, Route 69 (1953) 30 (1927), over Furnace Brook	NJDOT	Aug. 1953
New Jersey State Highway Department, Division of Bridges, Route 69 (1953) 30 (1927), 31 (1971), over Furnace Brook, Concrete I-Beam Bridge	NJDOT	April 1920
General Property Parcel Map, Route 30 (1927), Section 11, Route 69 (1953), Oxford Repaving, Showing Existing Right of Way & Parcels to be Acquired in the Township of Oxford, Warren County	NJDOT	Sept. 1953
Tax Maps, Township of Oxford (Key Map, Sheets 2, 4, 10, 13)	NJ Property Fax	Oct. 2002(r)

[1] (Date) indicates last revision date.

Appendix C

Crash Data & Collision Diagrams

NEW JERSEY DEPARTMENT OF TRANSPORTATION
MEMORANDUM

TO: Veronica Murphy, Sr. Transportation Planner
Division of Project Development

FROM: Kevin M. Conover, Acting Section Chief KMC
Bureau of Safety Programs

DATE: March 17, 2010

PHONE: 530 – 2471

RE: Crash Data for Route 31 MP 46.70 – 47.00
Oxford Township, Warren County

RECEIVED
MAR 29 2010
Division of Project Development

This is in reference to your email dated February 22, 2010, requesting this office to furnish the crash data for the above referenced location for the years 2006 through 2008.

Please be advised that we do not provide summaries and crash rates for any location if there were less than six crashes.

Enclosed are the Police Crash Reports and Details for the years 2006 through 2008. This information may help your office in any engineering decision that might be made to improve or upgrade this roadway section.

ATTENTION

The police crash reports supplied with this analysis contain sensitive personal data. Appropriate caution must be used in the handling of these reports to ensure the privacy of the individuals involved in these crashes. Once the crash reports are no longer needed, please make sure they are shredded to maintain this privacy.

If there are any further questions, please contact Geoffrey Gayanilo of this office at 530-4288.

WB:KC:TZ:GG

Mail log No. 43-10

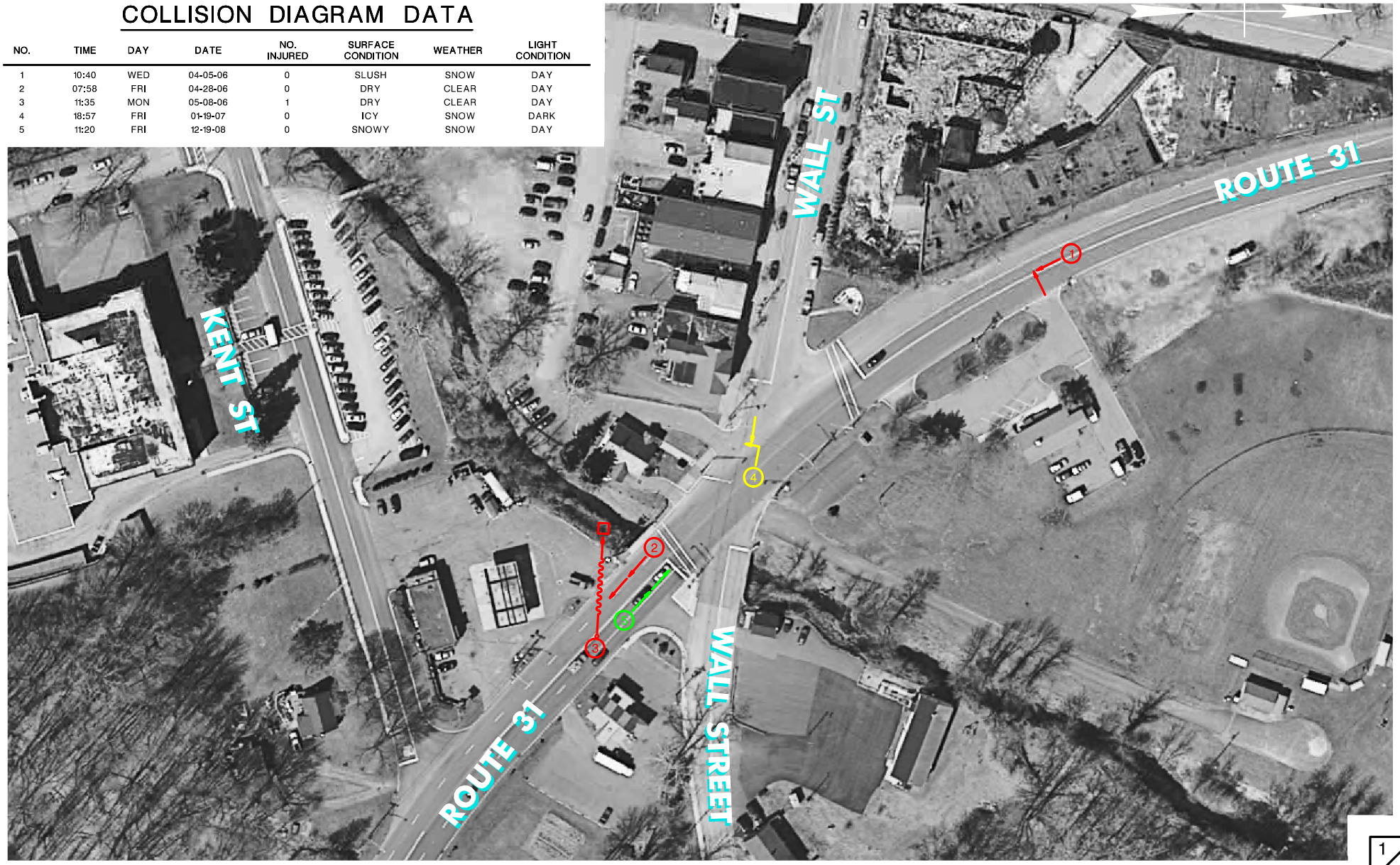
NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF SAFETY PROGRAMS
DETAIL OF MOTOR VEHICLE ACCIDENTS
ON ROUTE 31
MILEPOST 46.700 TO 47.000
01/01/2006 TO 12/31/2008

ROAD SYS D L N	COLLISION TYPE	VEHICLE 1 DIR TRAV VEH TYPE, VEH ACTN	VEHICLE 2 DIR TRAV VEH TYPE, VEH ACTN	WEA SUR	LITE	DATE	DOW TIME	VEH 1 CONTRIB CIRCUMSTANCES	VEH 2 CONTRIB CIRCUMSTANCES	NO. KIL	NO. INJURED MAJ	MOD	MIN	NO. ACC
STATE HWY	*RT 31*	*MP 046.85*	*NEAR CR 624*				*OXFORD TWP*		*WARREN*	*0*	*0*	*0*	*0*	*1*
06092424	SAME DIR-REAR	S- PKUP-GOING STRT	S- PASS-GOING STRT	CL/DR	DAY	04/28/06	FRI 07:58	NONE-DRIVER/CYC	FOLLOW TO CLOSE	0	0	0	0	
STATE HWY	*RT 31*	*MP 046.85*	*AT WALL STREET*				*OXFORD TWP*		*WARREN*	*0*	*0*	*0*	*0*	*2*
07000084	RIGHT ANGLE	S- SUV-RT TRN-RED	W- SUV-LEFT TURN	SN/IC	DARK	01/19/07	FRI 18:57	OTH RDWAY FACTS	OTH RDWAY FACTS	0	0	0	0	
08300546	SAME DIR-REAR	N-SEMIT-SLOW-STOP	N- PASS-SLOW-STOP	SN/SN	DAY	12/19/08	FRI 11:10	UNKNOWN	RD SURF CNDTION	0	0	0	0	
STATE HWY	*RT 31*	*MP 046.87*	*NEAR CR 624*				*OXFORD TWP*		*WARREN*	*0*	*0*	*1*	*0*	*1*
06094872	FIXED OBJECT	N- SUV-SLOW-STOP	- -	CL/DR	DAY	05/08/06	MON 11:35	DRI INATTENTION		0	0	1	0	
STATE HWY	*RT 31*	*MP 046.90*	*NEAR WALL STREET*				*OXFORD TWP*		*WARREN*	*0*	*0*	*0*	*2*	*1*
06072719	RIGHT ANGLE	S- PKUP-GOING STRT	W- SUV-LEFT TURN	SN/SL	DAY	04/05/06	WED 10:40	NONE-DRIVER/CYC	DRI INATTENTION	0	0	0	2	

County-Municipality Restrictions: 1: None 2:

COLLISION DIAGRAM DATA

NO.	TIME	DAY	DATE	NO. INJURED	SURFACE CONDITION	WEATHER	LIGHT CONDITION
1	10:40	WED	04-05-06	0	SLUSH	SNOW	DAY
2	07:58	FRI	04-28-06	0	DRY	CLEAR	DAY
3	11:35	MON	05-08-06	1	DRY	CLEAR	DAY
4	18:57	FRI	01-19-07	0	ICY	SNOW	DARK
5	11:20	FRI	12-19-08	0	SNOWY	SNOW	DAY



1/1

LEGEND

NUMBER OF COLLISIONS WITH

	4
PROPERTY DAMAGE ONLY	1
INJURIES	0
FATALITIES	5
TOTAL NO. OF COLLISIONS	

SYMBOLS

- MOVING VEHICLE
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- INJURY IN ACCIDENT
- FATAL ACCIDENT
- PEDESTRIAN
- FIXED OBJECT
- ANIMAL
- NON-FIXED OBJECT

TYPES OF COLLISIONS

- REAR END
- HEAD ON
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED
- LEFT TURN
- RIGHT ANGLE

- 2006 CRASHES
- 2007 CRASHES
- 2008 CRASHES

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ROUTE 31 OVER FURNACE BROOK
CONCEPT DEVELOPMENT

2006-2008 COLLISION DIAGRAMS

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NOT TO SCALE

FILE: L:\DPPD\2009658.06 – Rt 31 over Furnace Brook\Cadd\Crash Diagrams.dgn
TIME: 3:38:45 PM

NEW JERSEY DEPARTMENT OF TRANSPORTATION
MEMORANDUM

TO: Sangaran Vijayakumar, Assistant Project Manager
Division of Project Management

FROM: Kevin Conover, Project Engineer
Bureau of Transportation Data and Safety

DATE: April 18, 2012

PHONE: 530 – 3482

RE: Design Exception Crash Analysis
Route 31 MP 46.56 to 47.10
Oxford Township, Warren County

As requested by your office on March 2, 2012, crash data was analyzed for the subject location. Crash data used is for the years 2008 to 2010. The following is a summary of this data and you will also find attached the crash detail sheets used for this analysis.

Controlling Substandard Design Elements

Substandard Superelevation – Indicator Crash Types: Fixed Object, Head-On, Struck Parked Vehicle, and Overturned Vehicle. (Also same direction side swipe crashes on multi-lane roadways)

MP 46.60 to 47.10 — No indicator crashes at this location.

Substandard Outside Shoulder – Indicator Crash Types: Fixed Object, Struck Parked Vehicle, and Overturned Vehicle

MP 46.56 to 46.83 — No indicator crashes at this location.

Substandard Lane Drop Transition Length – Indicator Crash Types: Same Direction Crashes

MP 46.83 to 46.90 N/B — No indicator crashes at this location.

If there are any further questions, please contact Mr. Thomas Zim of this office at 530-4123.

KC:TZ
Mail Log No. 32-12

RECEIVED
APR 20 2012
PROJECT MANAGEMENT

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF SAFETY PROGRAMS
DETAIL OF MOTOR VEHICLE ACCIDENTS
ON ROUTE 31
MILEPOST 46.560 TO 46.900
01/01/2008 TO 12/31/2010

ROAD SYS D L N	COLLISION TYPE	VEHICLE 1 DIR TRAV VEH TYPE, VEH ACTN	VEHICLE 2 DIR TRAV VEH TYPE, VEH ACTN	WEA SUR	LITE	DATE	DOW	TIME	VEH 1 CONTRIB CIRCUMSTANCES	VEH 2 CONTRIB CIRCUMSTANCES	NO. KIL	NO. MAJ	INJURED MOD	INJURED MIN	NO. ACC
STATE HWY	*RT 31*	*MP 046.56*	*AT CR 625/OXFORD AVE/ACADEMY/MECHAN*				*OXFORD TWP*			*WARREN*	*0*	*0*	*0*	*1*	*3*
09151364	RIGHT ANGLE	S- PASS-GOING STRT	E- PASS-START PARK	CL/DR	DAY	07/14/09	TUE	20:22	NONE-DRIVER/CYC	DISOBEYED TCD	0	0	0	1	
09258051	RIGHT ANGLE	N- PASS-GOING STRT	W- PASS-LEFT TURN	CL/DR	DAY	11/18/09	WED	11:33	NONE-DRIVER/CYC	DRI INATTENTION	0	0	0	0	
09276905	OPP SIDESWIPE (Left Turn)	E- PKUP-GOING STRT	W- PASS-LEFT TURN	CL/DR	DAY	12/07/09	MON	15:10	NONE-DRIVER/CYC	DRI INATTENTION	0	0	0	0	
STATE HWY	*RT 31*	*MP 046.78*	*AT KENT ST*				*OXFORD TWP*			*WARREN*	*0*	*0*	*0*	*0*	*1*
09089415	SAME DIR-SIDE	S- PASS-RT TRN-NRD	S- PASS-GOING STRT	CL/DR	DAY	04/16/09	THR	16:11	IMP LANE CHANGE	NONE-DRIVER/CYC	0	0	0	0	
STATE HWY	*RT 31*	*MP 046.79*	*NEAR CR 624 / JAMES BURNS DR / WALL S*				*OXFORD TWP*			*WARREN*	*0*	*0*	*0*	*0*	*1*
10302619	RIGHT ANGLE	S- PASS-GOING STRT	E- PASS-MERGING	RN/WT	DAWN	12/01/10	WED	07:08	NONE-DRIVER/CYC	DRI INATTENTION	0	0	0	0	
STATE HWY	*RT 31*	*MP 046.85*	*AT WARREN COUNTY 624*				*OXFORD TWP*			*WARREN*	*0*	*0*	*0*	*1*	*8*
08306546 (NO)	SAME DIR-REAR	N- SEMIT-SLOW-STOP	N- PASS-SLOW-STOP	SN/SN	DAY	12/19/08	FRI	11:10	UNKNOWN	RD SURF CNDTION	0	0	0	0	
09111801	SAME DIR-SIDE	S-SEMIT-CHNG LANES	S- PASS-CHNG LANES	CL/DR	DAY	05/22/09	FRI	09:30	OTH VEHICLE FAC	NONE-DRIVER/CYC	0	0	0	0	
09154331 (NO)	SAME DIR-SIDE	N- PKUP-STOP-TRAF	N- PASS-STOP-TRAF	CL/DR	DAY	07/24/09	MON	07:45	DRI INATTENTION	NONE-DRIVER/CYC	0	0	0	0	
09243846	RIGHT ANGLE	E- SUV-LEFT TURN	N- PASS-GOING STRT	CL/DR	DARK	10/26/09	MON	19:21	DRI INATTENTION	NONE-DRIVER/CYC	0	0	0	0	
09271844	RIGHT ANGLE	S- PASS-GOING STRT	E- PASS-GOING STRT	CL/DR	DARK	11/24/09	TUE	06:25	NONE-DRIVER/CYC	DRI INATTENTION	0	0	0	0	
09301115	FIXED OBJECT	S- PASS-GOING STRT	- -	CL/DR	DAY	12/23/09	WED	08:55	SUNGLARE		0	0	0	1	
10115423	RIGHT ANGLE	W- PASS-LEFT TURN	N- PKUP-GOING STRT	CL/DR	DAY	05/16/10	SUN	15:16	NONE-DRIVER/CYC	DISOBEYED TCD	0	0	0	0	
10302616 (NO)	SAME DIR-REAR	N- PASS-SLOW-STOP	S- PASS-GOING STRT	WT/WT	DAY	12/01/10	WED	09:51	NONE-DRIVER/CYC	DRI INATTENTION	0	0	0	0	

STOP AND GO TRAFFIC

INTERSECTION WAITING TO TURN

County-Municipality Restrictions: 1: 2:

SUMMARY OF CRASH RATES ON STATE AND INTERSTATE HIGHWAYS IN ROUTE AND MILEPOST ORDER FOR 2011

ROUTE 31

M P	TO	M P	SECTION LENGTH		AADT	TOTAL CRASHES	FATAL CRASHES	INJURY CRASHES	PROP DAM ONLY CRASHES	WET WEATHER CRASHES	CRASH RATE	COUNTY	CROSS SECTION
46.32	-	46.56	00.24		10,626							WARREN	4 or More Lanes, No Median With Shoulder
46.56	-	46.85	00.29		10,626	1		1			0.89	WARREN	4 or More Lanes, No Median Without Shoulder
46.85	-	46.88	00.03	(150')	10,626	1			1		8.59	WARREN	2 Lanes With Shoulder
46.88	-	47.53	00.65		8,414	4		1	3		2.00	WARREN	2 Lanes With Shoulder
47.53	-	47.76	00.23		8,414							WARREN	2 Lanes Without Shoulder
47.76	-	48.00	00.24		8,414							WARREN	2 Lanes With Shoulder
48.00	-	48.34	00.34		8,414	2		1	1		1.92	WARREN	2 Lanes Without Shoulder
48.34	-	48.93	00.59		8,414	5			5		2.76	WARREN	2 Lanes Without Shoulder
SUMMARY RT STATS			42.12		18,151	843	3	227	613		3.02		

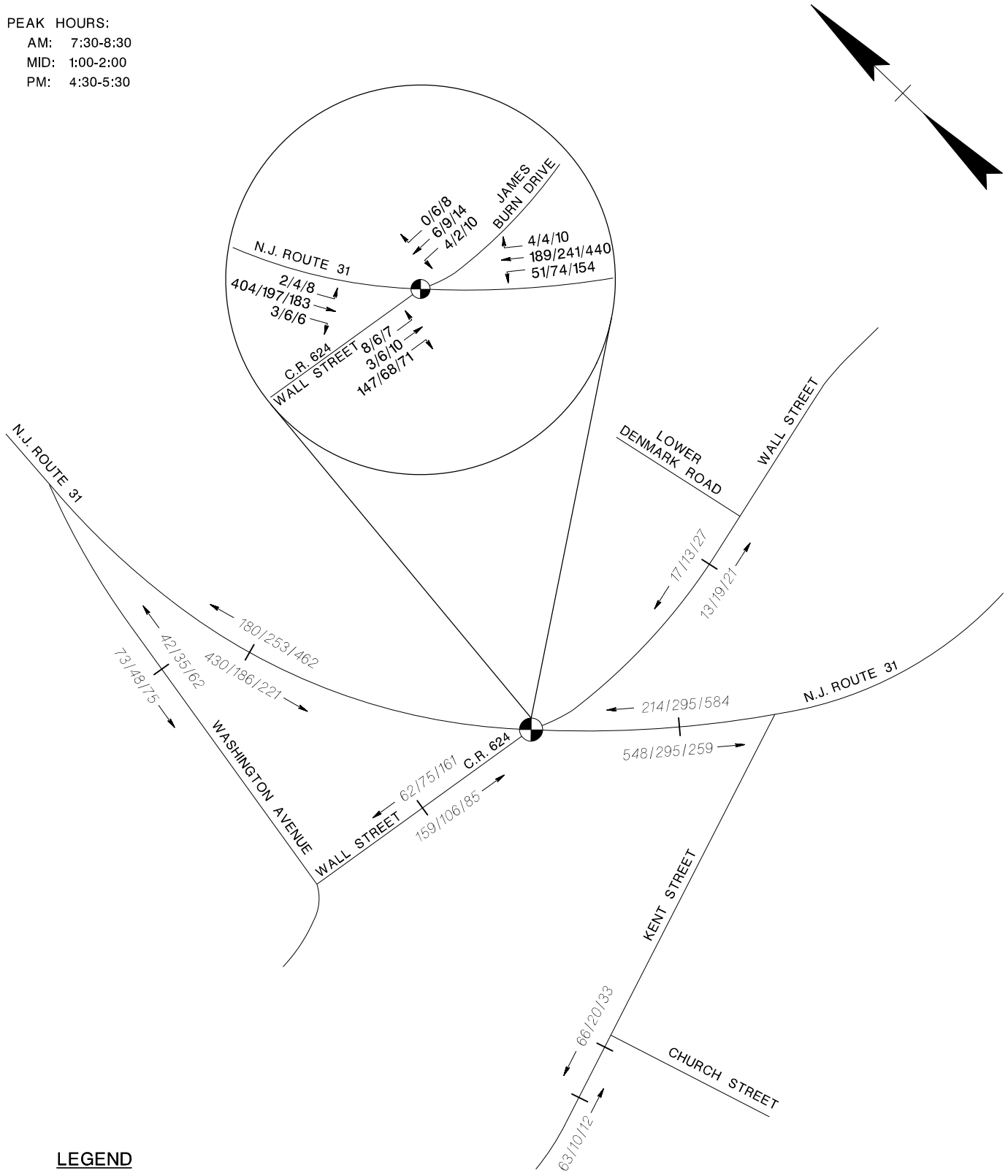
SUMMARY OF CRASH RATES ON STATE AND INTERSTATE HIGHWAYS IN ROUTE AND MILEPOST ORDER FOR 2012

ROUTE 31

M P	TO	M P	SECTION LENGTH	AADT	TOTAL CRASHES	FATAL CRASHES	INJURY CRASHES	PROP DAM ONLY CRASHES	WET WEATHER CRASHES	CRASH RATE	COUNTY	CROSS SECTION
37.98	-	38.11	00.13	20,747	8		1	7		8.10	HUNTERDON	2 Lanes With Shoulder
38.11	-	38.30	00.19	20,747	3		2	1		2.08	HUNTERDON	3 Lanes With/Without Shoulder
38.30	-	38.32	00.02	20,747							HUNTERDON	3 Lanes With/Without Shoulder
38.32	-	38.70	00.38	20,747	12		3	9		4.16	HUNTERDON	3 Lanes With/Without Shoulder
38.70	-	39.30	00.60	10,703	13		5	8		5.53	HUNTERDON	3 Lanes With/Without Shoulder
39.30	-	39.42	00.12	10,703	6			6		12.76	HUNTERDON	2 Lanes With Shoulder
39.42	-	39.43	00.01	10,703							HUNTERDON	2 Lanes With Shoulder
39.43	-	39.83	00.40	10,703	6		2	4		3.83	WARREN	2 Lanes With Shoulder
39.83	-	40.40	00.57	9,819	17		5	12		8.30	WARREN	2 Lanes With Shoulder
40.40	-	41.64	01.24	18,541	11		2	9		1.31	WARREN	2 Lanes With Shoulder
41.64	-	42.31	00.67	15,830	9		4	5		2.32	WARREN	2 Lanes With Shoulder
42.31	-	42.34	00.03	15,830	1		1			5.75	WARREN	4 or More Lanes, No Median Without Shoulder
42.34	-	42.46	00.12	15,253	1			1		1.49	WARREN	4 or More Lanes, No Median Without Shoulder
42.46	-	42.47	00.01	15,253							WARREN	4 or More Lanes, No Median Without Shoulder
42.47	-	42.64	00.17	15,253	2			2		2.11	WARREN	4 or More Lanes, No Median Without Shoulder
42.64	-	43.14	00.50	14,649	14		2	12		5.22	WARREN	4 or More Lanes, No Median Without Shoulder
43.14	-	43.55	00.41	14,649	1		1			0.45	WARREN	3 Lanes With/Without Shoulder
43.55	-	44.35	00.80	14,649	9		3	6		2.10	WARREN	2 Lanes With Shoulder
44.35	-	45.00	00.65	11,251	5		3	2		1.87	WARREN	2 Lanes With Shoulder
45.00	-	45.15	00.15	10,521	1			1		1.73	WARREN	2 Lanes With Shoulder
45.15	-	45.30	00.15	10,521							WARREN	2 Lanes With Shoulder
45.30	-	45.76	00.46	10,521	1		1			0.56	WARREN	3 Lanes With/Without Shoulder
45.30	-	46.00	00.70	10,521	1		1			0.37	WARREN	3 Lanes With/Without Shoulder
45.76	-	45.82	00.06	10,521							WARREN	3 Lanes With/Without Shoulder
45.82	-	45.99	00.17	10,521							WARREN	3 Lanes With/Without Shoulder
45.99	-	46.00	00.01	10,521							WARREN	3 Lanes With/Without Shoulder
46.00	-	46.08	00.08	14,314							WARREN	3 Lanes With/Without Shoulder
46.00	-	46.08	00.08	14,314							WARREN	3 Lanes With/Without Shoulder
46.08	-	46.14	00.06	14,314							WARREN	2 Lanes Without Shoulder
46.08	-	46.14	00.06	14,314							WARREN	2 Lanes Without Shoulder
46.14	-	46.32	00.18	14,314							WARREN	2 Lanes Without Shoulder
46.32	-	46.56	00.24	14,314							WARREN	4 or More Lanes, No Median With Shoulder
46.56	-	46.60	00.04	14,314	1		1			4.77	WARREN	4 or More Lanes, No Median Without Shoulder
46.60	-	46.85	00.25	13,610							WARREN	4 or More Lanes, No Median Without Shoulder
46.85	-	47.53	00.68	13,610	6		3	3		1.77	WARREN	2 Lanes With Shoulder
47.53	-	47.76	00.23	13,610	2			2		1.75	WARREN	2 Lanes Without Shoulder
47.76	-	48.00	00.24	13,610							WARREN	2 Lanes With Shoulder
48.00	-	48.34	00.34	8,414	2		1	1		1.91	WARREN	2 Lanes Without Shoulder
48.34	-	48.93	00.59	8,414	2		1	1		1.10	WARREN	2 Lanes Without Shoulder

Appendix D

Traffic Data



LEGEND

- SIGNALIZED INTERSECTION
- AM/MIDDAY/PM PEAK HOURS (MANUAL)
- *AM/MIDDAY/PM PEAK HOURS (ATRs)*
- APPROXIMATE ATR LOCATION

ATR VOLUMES WERE ADJUSTED USING 2008 NJDOT SEASONAL AND AXLE CORRECTION FACTORS.
ATR COUNTS WERE PERFORMED FROM JANUARY 27 TO FEBRUARY 8, 2010 BY GREENMAN-PEDERSEN, INC.
MANUAL CLASSIFICATION COUNTS WERE PERFORMED FEBRUARY 18, 2010 BY GREENMAN-PEDERSEN, INC.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

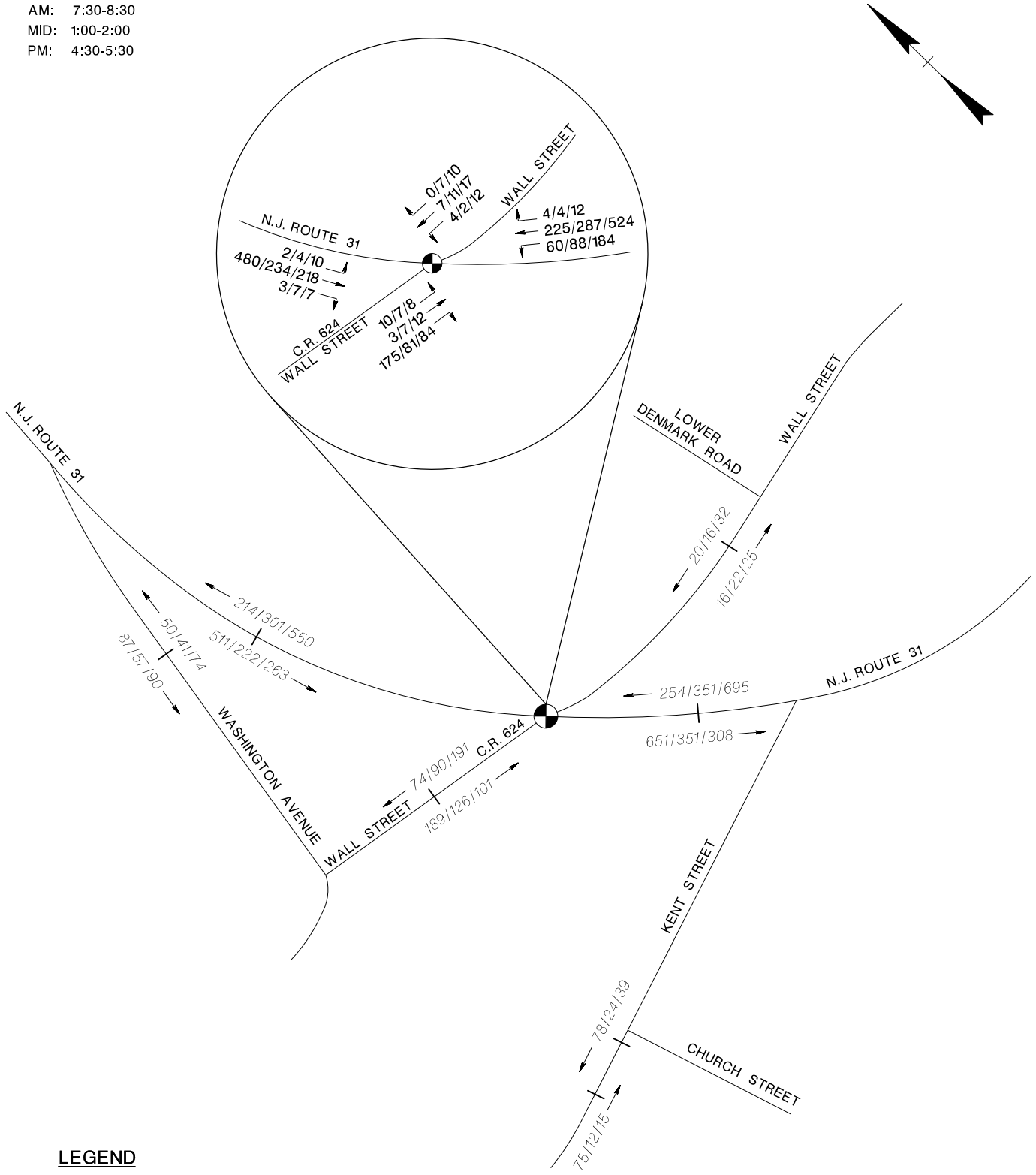
EXISTING WEEKDAY VOLUMES AM/MIDDAY/PM PEAK HOUR

N.J. ROUTE 31 OVER FURNACE BROOK
OXFORD TOWNSHIP, WARREN COUNTY

N.T.S. FEBRUARY 2010

GREENMAN-PEDERSEN, INC. PLOT DATE: 4/5/2013 FILE: L:\DPPD\2009658.06 - Rt 31 over Furnace Brook\Cadd\Flow Diagrams\Flow Diagram.dgn

PEAK HOURS:
AM: 7:30-8:30
MID: 1:00-2:00
PM: 4:30-5:30



LEGEND

- SIGNALIZED INTERSECTION
- AM/MIDDAY/PM PEAK HOURS (MANUAL)
- *AM/MIDDAY/PM PEAK HOURS (ATRs)*
- APPROXIMATE ATR LOCATION

VOLUMES WERE PROJECTED USING NJTPA POPULATION AND EMPLOYMENT DATA FOR OXFORD TOWNSHIP AND WARREN COUNTY.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

PROJECTED 2040 VOLUMES AM/MIDDAY/PM PEAK HOUR

N.J. ROUTE 31 OVER FURNACE BROOK
OXFORD TOWNSHIP, WARREN COUNTY

N.T.S. NOVEMBER 2013

GREENMAN-PEDERSEN, INC. PLOT DATE: 11/5/2013 FILE: L:\DPPD\2009658.06 - Rt 31 over Furnace Brook\Cadd\Flow Diagrams\Flow Diagram 2040.dgn

Directive No. 328 - 09

Route 31 and Wall Street – James Burn Drive
Oxford Twp., Warren Co.

60 - 81 SECOND VARIABLE CYCLE

Phase		Signal Indications				Time
		1, 2	3, 4	7 - 11	5, 6, 12, 13	
	(NO PEDESTRIAN ACTUATION)					
2	Route 31	R	R	G	DW	38 (Min.)
	Change	R	R	Y	DW	4
	Clearance	R	R	R	DW	4
4	Wall Street – James Burn Drive	G	G	R	DW	7-21
	Change	Y	Y	R	DW	3
	Clearance	R	R	R	DW	4
	(WITH PEDESTRIAN ACTUATION)					
2	Route 31	R	R	G	DW	38 (Min.)
	Change	R	R	Y	DW	4
	Clearance	R	R	R	DW	4
4	Wall Street – James Burn Drive	G	G	R	W	10
	Pedestrian Clearance	G	G	R	FDW	18
	Change	Y	Y	R	DW	3
	Clearance	R	R	R	DW	4
	Emergency Flash	R	R	Y	DARK	-

The vehicular memory is to be disconnected and the extension set at 2.0 seconds.

The manual control is to be removed.

A vehicle detector delay of 80 seconds is to be employed for Phase 4.

The "Red Signal Ahead" sign shall start flashing 22 seconds prior to the beginning of yellow to Route 31 and shall stop flashing at the beginning of green to Route 31.

EMERGENCY OPERATION

An emergency pre-emption sequence is to be provided for the James Burn Drive ROW (Faces 1 and 2) and shall be assigned as Phase 1.

Upon actuation, following minimum green intervals, the appropriate vehicle change and clearance intervals shall be provided. The clearance for the "Red Signal Ahead" sign (22 seconds) is not to be aborted by a fire actuation. If pre-emption occurs during an active pedestrian movement, any "Walk" interval shall be aborted.

The minimum green intervals for pre-emption purposes shall be:

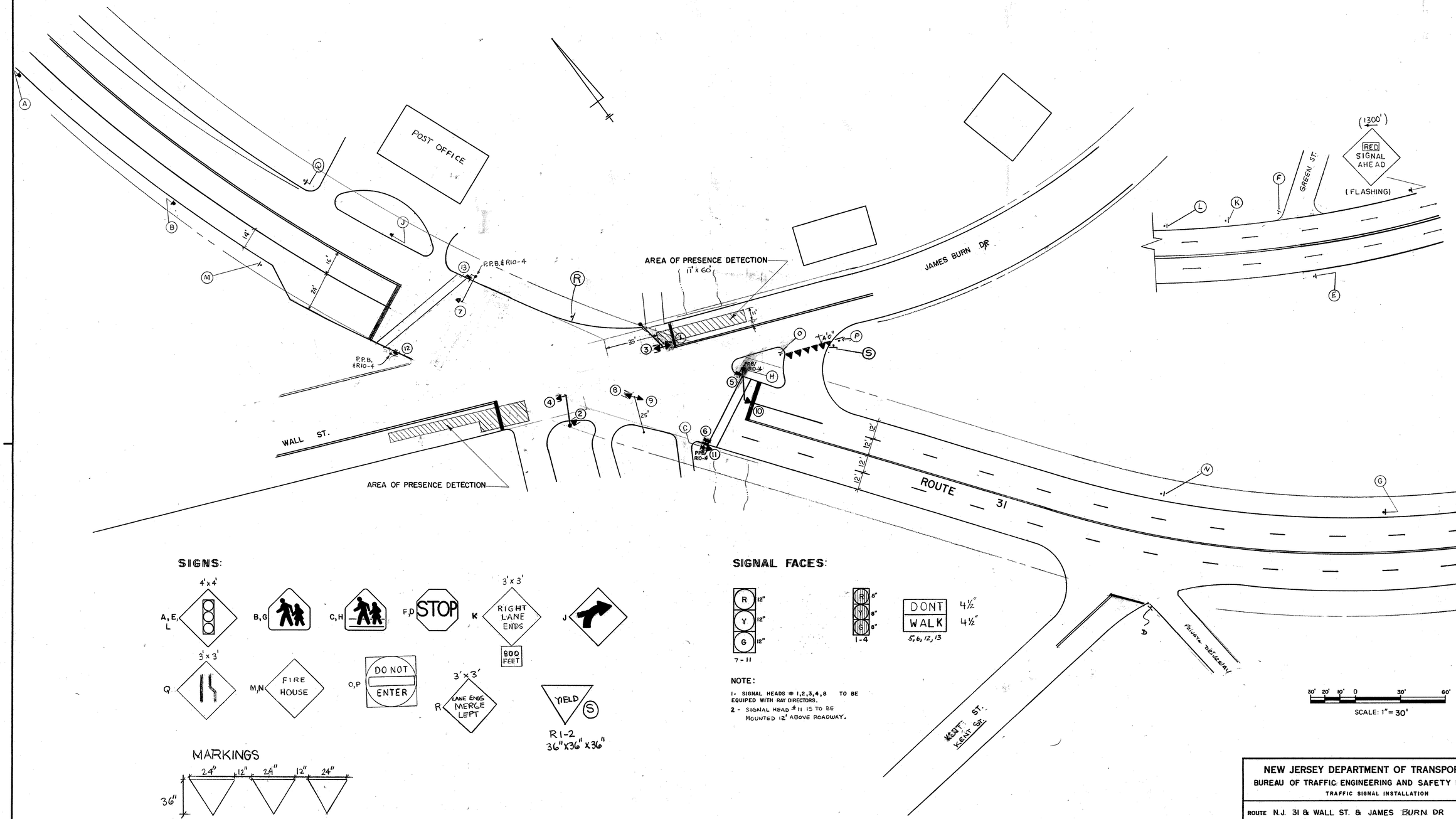
Phase 2 - 7 Seconds
Phase 4 - 7 Seconds

Emergency ROW (Phase 1) times shall be:

Green - 25 Seconds
Yellow - 3 Seconds
All Red - 4 Seconds

Following completion of the emergency ROW, Route 31 ROW (Phase 2) shall be provided.

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET	TOTAL SHEETS
1	N.J.			



SIGNS:

MARKINGS

YIELD BAR

SIGNAL FACES:

NOTE:

1- SIGNAL HEADS # 1,2,3,4,8 TO BE EQUIPED WITH RAY DIRECTORS.

2 - SIGNAL HEAD # 11 IS TO BE MOUNTED 12' ABOVE ROADWAY.

30' 20' 10' 0 30' 60'

SCALE: 1" = 30'

	Revision Description	By	Checked	Date
F	INSTALL YIELD SIGN & YIELD BAR	JS	MT	12/15/08
E	INSTALLED SIGN R	MT	RG	1/7/04
D	RELOCATE SIGNS, CONVERT ON ROAD TO MAST ARM	VAD	FEW	8/1/00
C	REVISE MARKINGS	HDB		6/12/91
B	INST. SIGNS K & Q	HDB		9/24/91
A	INST. NEW POLE FOR FACES 8 & 9, INST. 12" HWY INDICATIONS	HDB		9/12/90
	SUPERSEDES TS 1064E ADD PED INDIC. # 5, 6, 12, 13	R.A.V.	TDB	10/24/86

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC ENGINEERING AND SAFETY PROGRAMS
TRAFFIC SIGNAL INSTALLATION

ROUTE N.J. 31 & WALL ST. & JAMES BURN DR

MUNICIPALITY OXFORD COUNTY WARREN

DESIGN AUTHORIZED P. Norman Dewitt DATE November 7, 1984

DESIGNED

DRAWN R.A.G.

CHECKED

CHECKED

Scale: 1" = 30'

TS 3793F

REFERENCE

R-2/18

New Jersey Department of Transportation

Daily Volume from 07/30/2012 through 08/02/2012

Site Names: 1-7-045, , NJ 31-48.01, 00000031__, Oxford Twp
County: WARREN
Funct. Class: Rural Principal Arterial - Other
Location: BET PEQUEST RD AND QUARRY RD

Seasonal Factor Group: REGION 1
Daily Factor Group: REGION 1
Axle Factor Group: REGION 1
Growth Factor Group:

	Sun 07/29/2012			Mon 07/30/2012			Tue 07/31/2012			Wed 08/01/2012			Thu 08/02/2012			Fri 08/03/2012			Sat 08/04/2012		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00							73	31	42	64	25	39	61	28	33						
01:00							51	24	27	45	21	24	57	31	26						
02:00							55	24	31	53	29	24	57	29	28						
03:00							77	49	28	77	52	25	92	56	36						
04:00							148	103	45	157	116	41	122	90	32						
05:00							353	273	80	369	277	92	343	265	78						
06:00							507	354	153	626	415	211	475	349	126						
07:00							740	487	253	764	499	265	569	390	179						
08:00							728	417	311	510	284	226	548	337	211						
09:00							575	304	271	513	280	233	528	306	222						
10:00							564	260	304	515	251	264	542	272	270						
11:00							552	258	294	590	291	299									
12:00							580	277	303	541	257	284									
13:00							576	260	316	588	293	295									
14:00				639	280	359	587	249	338	607	277	330									
15:00				679	248	431	772	267	505	683	260	423									
16:00				693	225	468	670	222	448	708	266	442									
17:00				720	257	463	637	213	424	676	242	434									
18:00				573	188	385	559	189	370	517	200	317									
19:00				399	143	256	387	137	250	377	167	210									
20:00				274	99	175	299	101	198	297	122	175									
21:00				203	63	140	245	98	147	253	105	148									
22:00				154	65	89	182	83	99	138	61	77									
23:00				118	38	80	103	31	72	98	39	59									
Volume				4,452	1,606	2,846	10,020	4,711	5,309	9,766	4,829	4,937	2,852	1,881	971						
AM Peak Vol							792	515	311	795	508	308									
AM Peak Fct							0.95	0.95	0.89	0.97	0.96	0.87									
AM Peak Hr							7:15	7:15	8:00	6:45	6:45	10:45									
PM Peak Vol							772	277	505	716	299	452									
PM Peak Fct							0.93	0.90	0.95	0.95	0.85	0.93									
PM Peak Hr							15:00	12:00	15:00	15:45	13:30	15:45									
Seasonal Fct				0.971	0.971	0.971	0.971	0.971	0.971	0.960	0.960	0.960	0.960	0.960	0.960						
Daily Fct				1.076	1.076	1.076	0.952	0.952	0.952	0.970	0.970	0.970	0.954	0.954	0.954						
Axle Fct				0.495	0.495	0.495	0.495	0.495	0.495	0.492	0.492	0.492	0.492	0.492	0.492						
Pulse Fct				2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000						

Collected by: NJDOT
Created 09/10/2012 2:54:50PM

ROAD AADT 9,117 **S AADT 4,362** **N AADT 4,755**

New Jersey Department of Transportation

Daily Volume from 03/28/2011 through 03/31/2011

Site Names: 1-5-035, , NJ 31-46.6, 00000031__, Oxford Twp
County: WARREN
Funct. Urban Principal Arterial - Other
Location: BET CO 625 and Town Line

Seasonal Factor Type: 2 Urban Other Roadways
Daily Factor Type: 2 Urban Other Roadways
Axle Factor Type: 14
Growth Factor Type:

	Sun 03/27/2011			Mon 03/28/2011			Tue 03/29/2011			Wed 03/30/2011			Thu 03/31/2011			Fri 04/01/2011			Sat 04/02/2011		
	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N	ROAD	S	N
00:00							79	38	41	55	21	34	62	25	37						
01:00							58	31	27	95	61	34	66	34	32						
02:00							47	26	21	50	24	26	74	54	20						
03:00							80	57	23	72	55	17	66	50	16						
04:00							150	128	22	161	131	30	133	107	26						
05:00							440	386	54	429	363	66	432	360	72						
06:00							699	546	153	689	533	156	683	527	156						
07:00							872	644	228	909	689	220	899	674	225						
08:00							809	558	251	730	494	236									
09:00							680	422	258	646	390	256									
10:00							637	317	320	593	315	278									
11:00				594	298	296	594	279	315	610	310	300									
12:00				611	285	326	584	293	291	617	290	327									
13:00				667	329	338	648	337	311	654	349	305									
14:00				753	322	431	696	315	381	725	335	390									
15:00				863	356	507	877	342	535	825	312	513									
16:00				915	292	623	910	282	628	939	307	632									
17:00				862	275	587	895	299	596	931	280	651									
18:00				679	230	449	719	235	484	700	232	468									
19:00				469	146	323	479	174	305	456	140	316									
20:00				302	115	187	362	114	248	336	120	216									
21:00				219	72	147	249	79	170	258	94	164									
22:00				184	77	107	198	76	122	178	72	106									
23:00				145	56	89	123	50	73	131	52	79									
Volume				7,263	2,853	4,410	11,885	6,028	5,857	11,789	5,969	5,820	2,415	1,831	584						
AM Peak Vol							872	644	347	909	689	315									
AM Peak Fct							0.92	0.96	0.75	0.90	0.89	0.84									
AM Peak Hr							7:00	7:00	10:30	7:00	7:00	10:45									
PM Peak Vol				962	356	623	941	353	637	974	376	663									
PM Peak Fct				0.93	0.88	0.87	0.91	0.91	0.95	0.87	0.91	0.86									
PM Peak Hr				15:30	15:00	16:00	16:30	14:45	15:45	16:15	13:15	16:30									
Seasonal Fct				1.027	1.027	1.027	1.027	1.027	1.027	1.027	1.027	1.027	1.027	1.027	1.027						
Daily Fct				1.032	1.032	1.032	0.951	0.951	0.951	0.939	0.939	0.939	0.935	0.935	0.935						
Axle Fct				0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487						
Pulse Fct				2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000						

Appendix E

Aerial Plan & Photographs

MANAGEMENT SYSTEM	DATA
Bridge Management System (BMS)	*16th Cycle Inspection (2010)* *Sufficiency Rating: 48.2* *– Structurally Deficient* *– Overall Condition: Poor*
Drainage Management System (DMS)	*Location not ranked* *No flooding reported*
Maintenance Management System (MMS)	*Reconstructed Inlet/Manhole* *Cleaned Pipes*
Pavement Management System (PMS)	*M.P. 46.30–47.30* *Average IRI: NB/SB=106/118 (Fair)* *Average SDI: NB/SB=4.97/4.30 (Good)*

STRUCTURE TYPE		
Conc. Encased Steel Stringers	Concrete Slab	Stone Masonry Arch

MAY 2012

NJ ROUTE 31 (MP 46.83) OVER FURNACE BROOK
CONCEPT DEVELOPMENT

OXFORD TOWNSHIP
WARREN COUNTY, NEW JERSEY

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

Figure 1 - Stone arch portion of bridge constructed c. 1875, looking West

Figure 2 - Steel stringer portion of bridge constructed in 1920, looking Northeast

Figure 3 - Steel stringer portion of structure, looking East (Inset, top: wingwall fracture, bottom: full spall)

Figure 4 - Stone arch portion of structure, looking West (Inset: mortar loss and masonry voids on arch underside)

Figure 5 - Asphalt-surfaced reinforced concrete slab portion of bridge constructed in 1953, looking North (Steel stringer and stone arch to the left and right, respectively)

Figure 6 - Steel stringer section showing monolithic signal pole foundation, looking East

Figure 7 - Stone arch portion of structure built cc. 1875, looking Southwest

Figure 8 – Steel stringer portion of structure constructed in 1920, looking East

Figure 9 - Outfall along ball field driveway, looking Northwest

Figure 10 - Underside of structure, looking East at stone arch portion

Figure 11 - Underside of structure, looking at stone arch portion

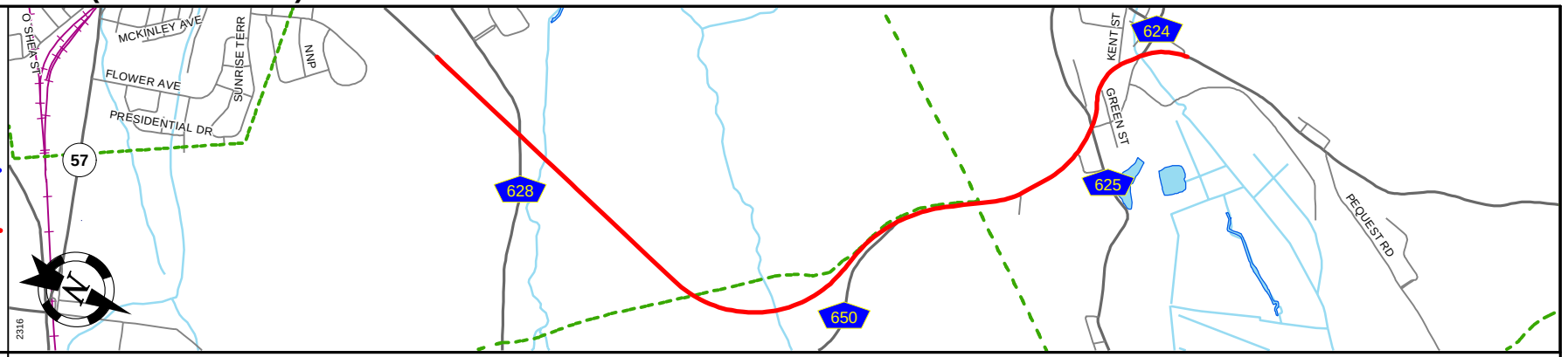
Figure 12 - Underside of structure, looking East at stone arch portion

Appendix F

NJDOT Straight Line Diagrams

NJ 31 (South to North)

Mile Posts: 44.000 - 47.000



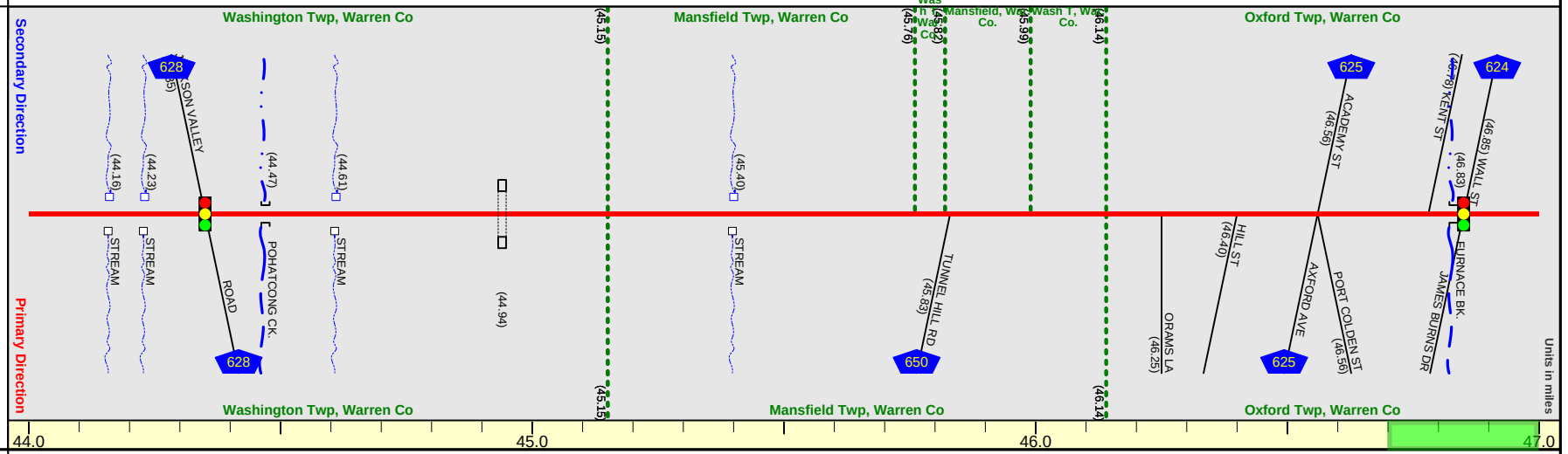
Pavement

Shoulder

Number of Lanes

Speed Limit

Street Name



Street Name: NJ 31

Jurisdiction: N.J.D.O.T.

Functional Class: Urban Principal Arterial

Federal Aid - NHS Sy: NHS

Control Section: 2111

Speed Limit	50				40				45
Number of Lanes	2		3		2		4		2
Med. Type	None								
Med. Width	0								
Pavement	24		36		24		48		24
Shoulder	8		1		12		0		10

Traffic Volume	13,118 (2006)	13,006 (2009)	9,496 (2009)	11,546 (2009)	11,164 (2008)
Traffic Sta. ID	1-7-047	1-7-047	1-4-327	1-4-328	1-5-035
Structure No.	N/A N/A	2111151 2111156	2111152	2111153	2111154

Enlarged Views

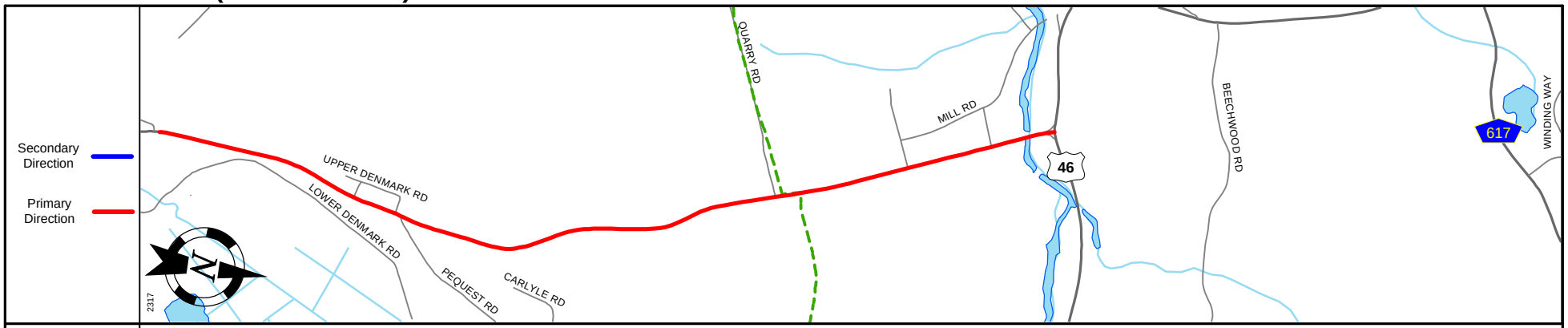
SRI = 00000031__

Date last inventoried: April 2010

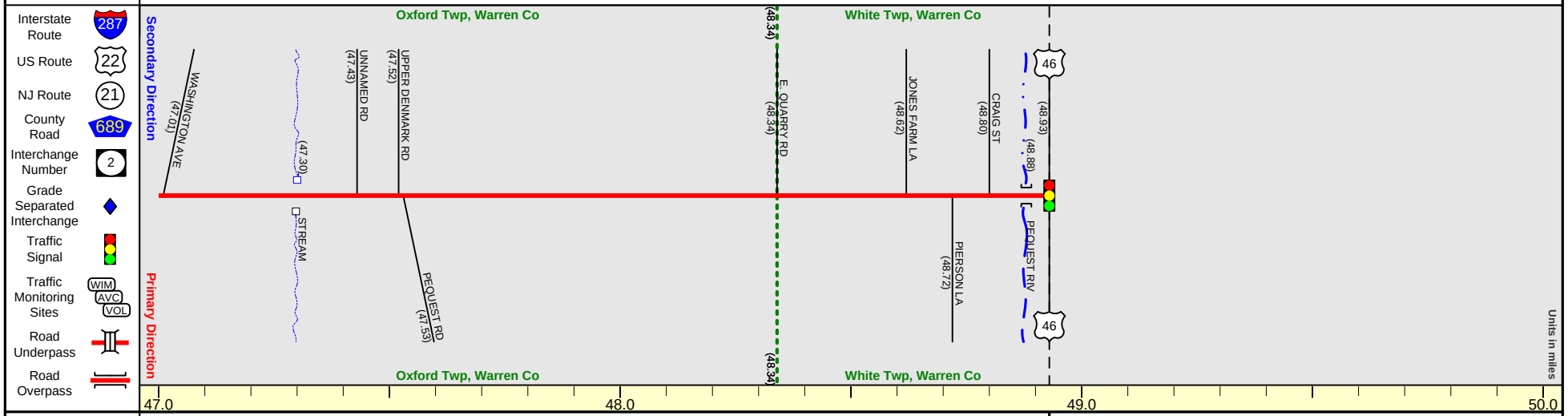
Page Created: May 2010

NJ 31 (South to North)

Mile Posts: 47.000 - 48.930



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



Street Name	NJ 31			
Jurisdiction	N.J.D.O.T.			
Functional Class	Urban Principal Arterial		Rural Principal Arterial	
Federal Aid - NHS Sy	NHS			
Control Section	2111			
Speed Limit	45			
Number of Lanes	2			
Med. Type	None			
Med. Width	0			
Pavement	24			
Shoulder	10	3	8	3
Traffic Volume	10,138 (2009)			
Traffic Sta. ID	1-7-045			
Structure No.	N/A		2111155	
Enlarged Views				

End NJ 31 MP=48.93

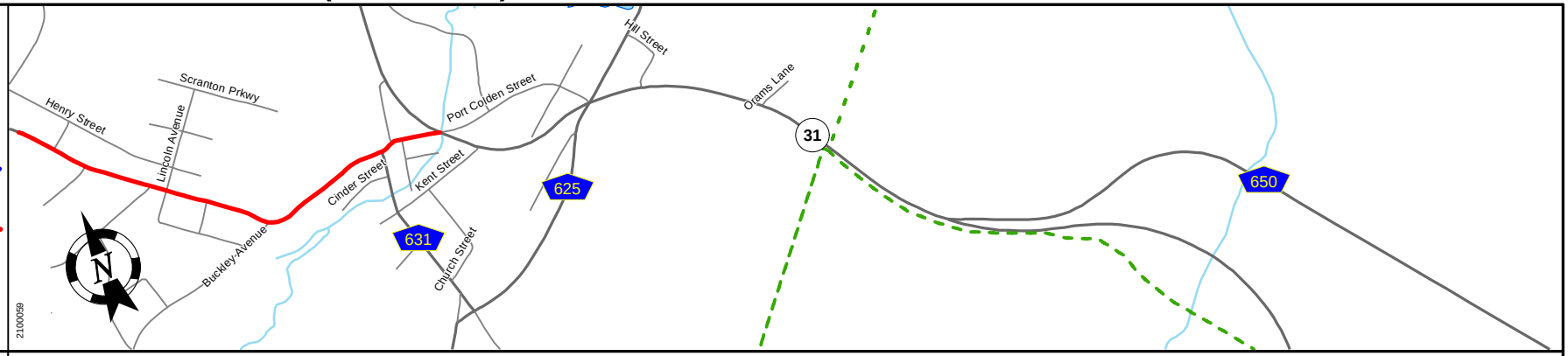
SRI = 00000031__

Date last inventoried: April 2010

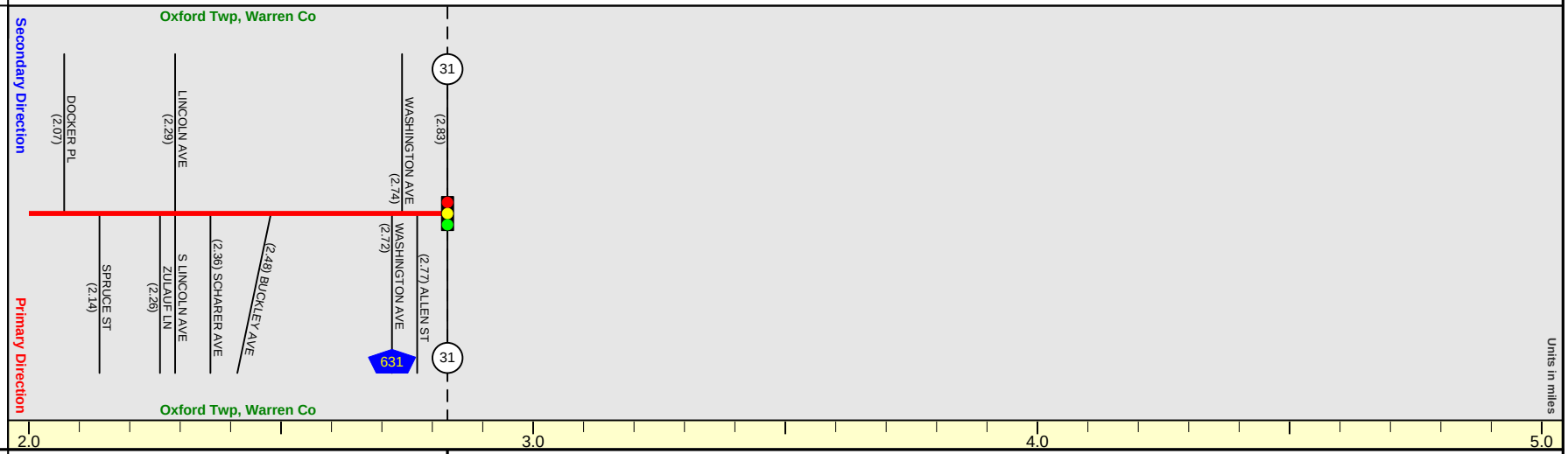
Page Created: May 2010

WARREN COUNTY 624 (West to East)

Mile Posts: 2.000 - 2.830



Pavement	
Shoulder	
Number of Lanes	
Speed Limit	
Street Name	



Street Name	Belvidere Avenue
Jurisdiction	County
Functional Class	Urban Collector
Federal Aid - NHS Sy	STP
Control Section	
Speed Limit	40 — 35 — 30
Number of Lanes	2
Med. Type	None
Med. Width	0
Pavement	20 — 30 — 25 — 43
Shoulder	0
Traffic Volume	
Traffic Sta. ID	
Structure No.	
Enlarged Views	

End Warren County 624 MP=2.83

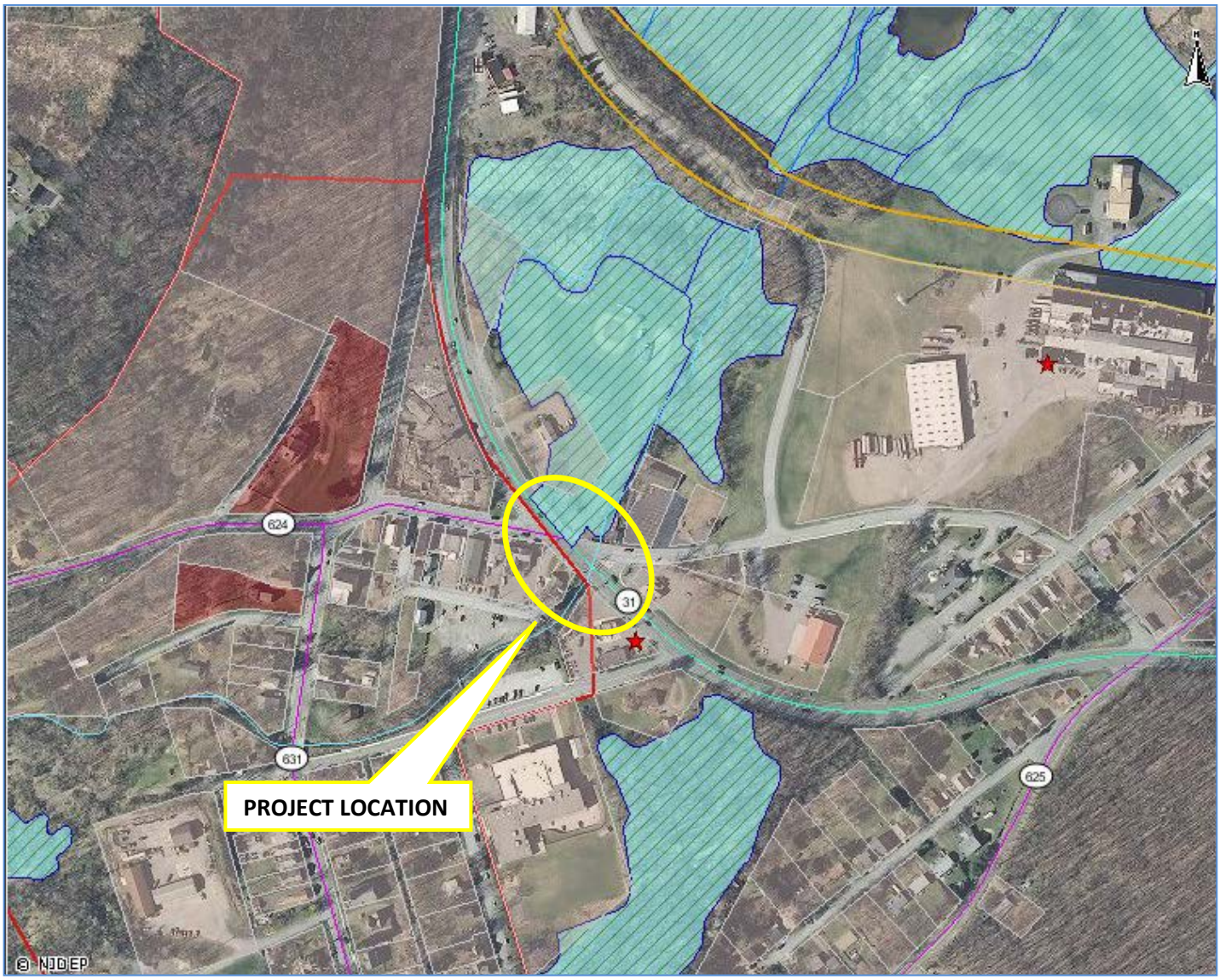
Page Created: May 2009

SRI = 21000624__

Date last inventoried: November 1999

Appendix G

Environmental Screening & Constraint Map



LEGEND

Environmental Data

Historic Properties
- Listed (Indv.)
- Listed (HD)
- Eligible (Indv.)
- Eligible (HD)
- Identified (Indv.)
- Identified (HD)

Historic Districts
- Listed
- Eligible
- Identified

Known Contaminated Sites List

Groundwater Contamination Areas (CEA)

Category One Waters

Surface Water Quality Standards

Wetlands (2007)

Groundwater Contamination Areas (CKE)

Counties

Major Roads
- Toll Road
- Interstate
- US Highway
- State Highway
- County 500 Series
- County 600 Series

Source: NJDEP, NJ-GeoWeb / iMapNJ

ROUTE 31, BRIDGE OVER FURNACE BROOK

Oxford Township, Warren County

ENVIRONMENTAL CONSTRAINTS MAP

NJDOT Division of Project Management

Scale: N.T.S. **Date: October 2013**

NEW JERSEY DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL SCREENING

Revised April 27, 2006

Date:	2/15/2011
Request for this screening made by:	Veronica Murphy
Project Name:	Rt. 31 Furnace Brook
Project Description:	Superstructure Replacement
County and Municipality:	Oxford Township, Warren County

ENVIRONMENTAL CONSTRAINTS/OPPORTUNITIES:

Cultural Resources	**Yes / No**
Are there any 50+ year old structures in the project study area?	Y
Are there known buildings or structures on or eligible for the State and /or National Register of Historic Places in the project study area?	Y
Is there involvement with a historic bridge or culvert?	N
Is the project located in a known or potential Historic District?	Y
Are there any undisturbed areas, old foundations or building rubble in the project study area?	Possible
Are there any known archaeological sites or potential underground cultural resources within the project study area?	Possible
Enhancement Opportunities:	
Comments: Oxford Industrial Historic District (NR: 8/27/1992; SR: 8/16/1991) lies immediately adjacent to the bridge. SHPO Letter 6/30/95: bridge is over 50 years old and not individually eligible and non-contributing to the historic district. There may be undisturbed areas in the project area. There may be prehistoric and historic archaeological potential in the project area. No known prehistoric or historic archaeological sites immediately adjacent to the bridge.	

Section 4(f) Properties	Yes / No
Are there any recreational facilities within the project study area?	Y
Is there publicly owned open space in the project study area?	Y
Is there a Wildlife Refuge or Wildlife Management Area in the project study area?	N
Is there a school or school athletic fields in the project study area?	Y
Is there a community park or parkland within the project study area?	Y
Enhancement Opportunities:	
Comments: The Wall Street Academy Child Care Center is within 200' of the project location. Oxford Central Elementary School is within 400' of the project location. Block 42, Lot 14 is a ballfield directly north of the bridge within 100'. This is a Green Acres protected recreational facility. Kent Road Parking and Playground (Block 6, Lot 15) is also a Green Acres protected property. This property encompasses the Furnace Brook and parking facilities to the south/south-west of the bridge. Kent Road ends right at the southern portion of the bridge.	

Air/Noise	Yes / No
Are there any sensitive receptors (i.e. residences, schools, hospitals, and churches) within 300 feet of the project?	Y
Will the project change the vertical or horizontal alignment of the roadway?	N
Does the project provide for a significant increase in vehicle operating speeds of roadway capacity?	N
Is the project in a non-attainment area for Carbon Monoxide?	N
Is an intersection Carbon monoxide analysis required?	N
Is the project in a non-attainment area for PM2.5?	N
Is a PM2.5 hot-spot analysis required?	N
Is the project in a non-attainment area for PM10?	N
Is a PM10 hot-spot analysis required?	N
Mitigation Opportunities:	
Comments: Once the detour route is confirmed, the route will have to be evaluated for potential air/noise impacts. The Wall Street Academy Child Care Center is within 200' of the proposed project.	

Ecology	Yes / No
Are there any wetlands, floodplains, sole source aquifer, stream crossings or wildlife habitat in the project study area?	Y
Are there any Category 1 waters or Wild and Scenic rivers in the project study area?	Y
Are there any potential or know vernal pool habitats with the project study area?	N

Are there any trout maintenance or trout production streams within the project study area?	Y
Is there any potential for rare, threatened or endangered species or their habitats within the project study area?	Y
Are there any environmentally-sensitive areas that are possible project design constraints?	Y
Are there any potential stormwater management mitigation areas in project area or upstream of project area?	To be determined

Describe ecology in the project study area: (ie heavily forested, urban, residential, etcetera)
Suburban

The following environmental permits and interagency coordination may be necessary:

U.S. Coast Guard (Bridge)		NJDEP Freshwater Wetlands	X
USACOE Section 404		P.L. 2001 Chapter 10 Reforestation	
USACOE Section 10 (Navigable Waters)		NJDEP Waterfront Development	
CAFRA		NJDEP Stream Encroachment	X
NJPDES Construction Stormwater		NJDEP Riparian	X
NJDEP Coastal Wetlands		USEPA-Sole Source Aquifer	X
NJDEP Water Quality Certificate	X	Essential Fish Habitat	
Pinelands Commission		Category One waters	X
D & R Canal Commission		NJDEP Stormwater Management Rules	X
Meadowlands Commission		Delaware River Bridge Commission	

Comments: The project is within the Highlands Planning Area. However, this type of project should not require coordination with the Highlands Commission. Furnace Brook is a C1 Waterway (FW2-TPC1), and would be considered an environmentally-sensitive area. There are wetlands within 100' to the north of the bridge, and approximately 400' south of the bridge. This project is in the Northwest New Jersey Sole Source Aquifer. No coordination would be needed due to the project as proposed. Bog Turtle, a Federally listed threatened species, is listed as extant in the township of Oxford. Indiana Bat and Dwarf Wedgemussels, both of which are Federally listed as Endangered, are listed as Potentially present in Oxford Township.

What coordination is needed and what permits are needed won't be determined until the project progresses further.

Socioeconomics	**Yes / No**
Will the project affect farmland or community facilities?	N
Based on the proposed improvements for this project, will there be possible displacement of businesses or residences?	N
Will the project affect access to community facilities, bus stop shelters, playgrounds or parks or gardens?	To be determined
Are there any observable safety issues or concerns in the project study area?	N
Does project have potential for Environmental Justice involvement?	N

There are recreational areas near the project site. Whether access to these facilities will be impaired has yet to be determined.

Hazardous Waste	Yes / No
Are there any known or suspected hazardous waste sites (UST, landfills, known NJDEP Case, ECRA Case), within the project study area?	Y
Are there active or abandoned industries, service stations or repair shops within the project study area?	Y
Is there evidence of potential contamination (monitoring wells, stained soils, etc.)?	N
Are railroad or railyards located in the project study area?	N
Enhancement Opportunities:	
Comments: During the field inspection signs or potential sources of contamination were found for the project limits at the following sites: 1 LUST OXFORD US Gas/CITGO Rt. 31 and Kent Street LU-99-01-11-1353- Oxford NJ 07863 Spills Oxford US Gas/Citgo Rt. 31 and Kent Street 99-01-11-1353-51 Oxford NJ 07863 State US Gas/Citgo North Rt. 31 and Kent Street 003413/Active Oxford Twp NJ 07863 American Mfg. Int. Inc. John Burns Dr. #008299 UST Removal Case, ongoing NJDEP Investigation	

Environmental Screening Summary:

Prepared & Recommended By:

Matt Wilityer	2/15/11	530-4550
E-Team Screening Coordinator	Date	Phone
Zack Asadourian	2-16-11	530-2727
Environmental Team Leader (FOR)	Date	Phone

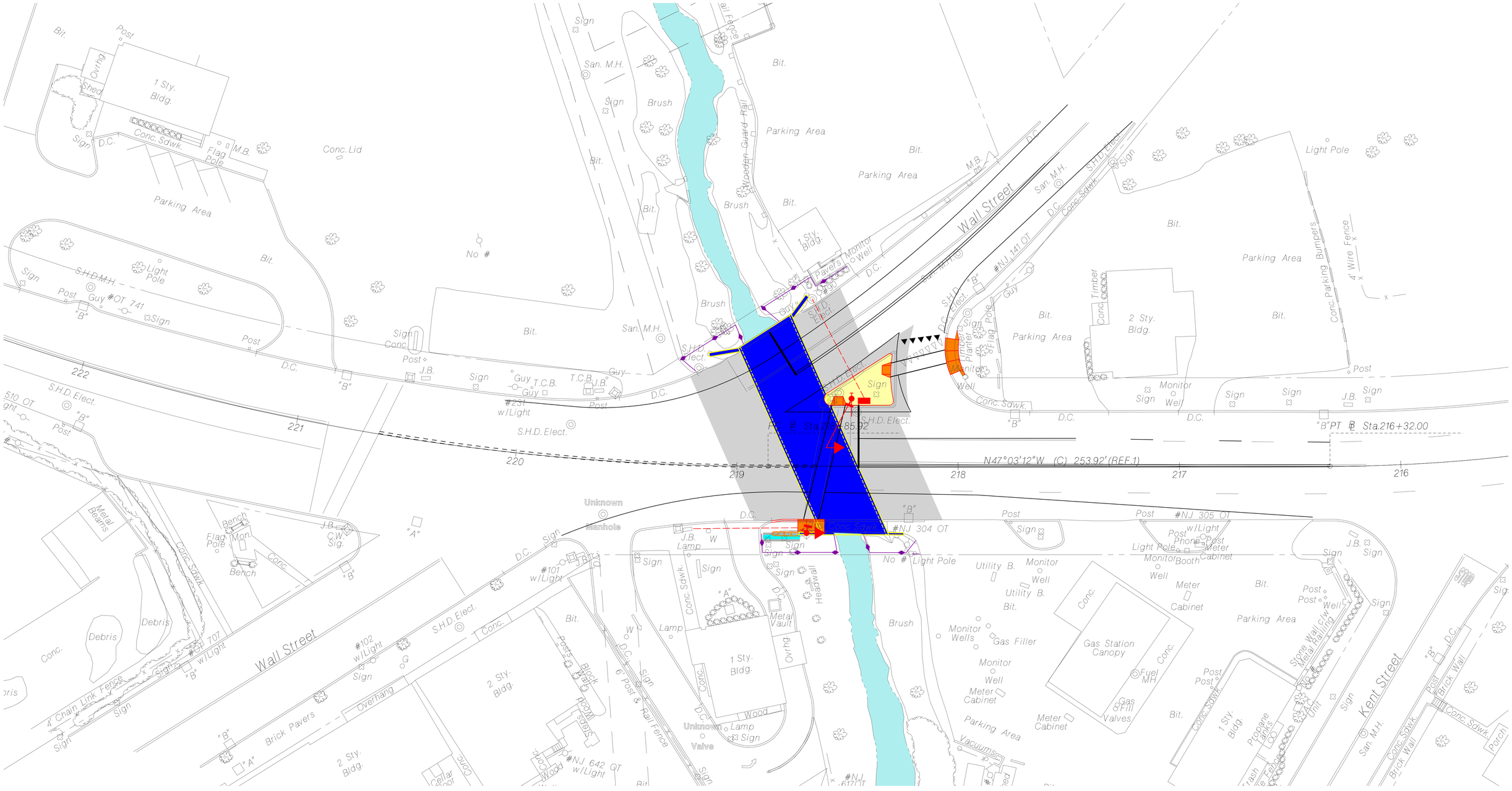
Appendix H

Alternatives

TOWNSHIP OF OXFORD

COUNTY OF WARREN

20' 0 20' 40'



PROPOSED FINAL CONDITIONS

LEGEND

- EXISTING FEATURES
- FURNACE BROOK
- PROPOSED FEATURES
- PROPOSED BRIDGE
- PROPOSED ISLAND
- PROPOSED CURB RAMPS
- PROPOSED PAVEMENT
- PROPOSED TOPSOIL & SEED
- PROPOSED IMPACT ATTENUATOR
- PROPOSED SILT FENCE

ALTERNATIVE NO. 1 – MULTI–GIRDER STEEL BEAM
ALTERNATIVE NO. 2 – VOIDED SLAB
ALTERNATIVE NO. 3 – PRECAST CONCRETE RIGID FRAME

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NJ ROUTE 31 OVER FURNACE BROOK BRIDGE REPLACEMENT

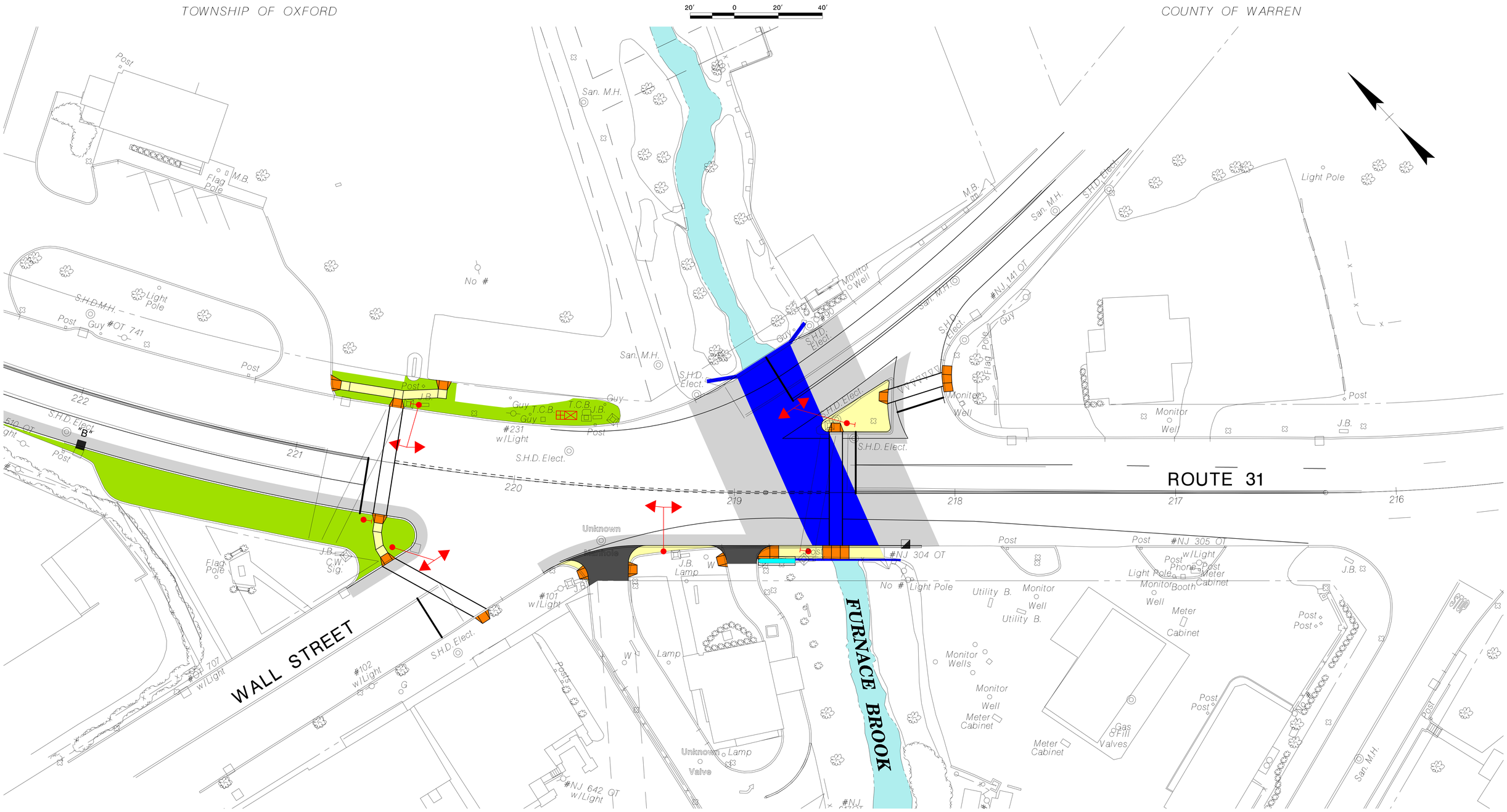
CONCEPT DEVELOPMENT

Township of Oxford, Warren County

ALTERNATIVE NO. 1, 2 & 3

NJDOT Division of Project Management

Scale: 1" = 20' Date: June 2012



PROPOSED FINAL CONDITIONS

LEGEND

- EXISTING FEATURES
- FURNACE BROOK
- PROPOSED FEATURES
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- PROPOSED HANDICAP RAMPS
- PROPOSED TOPSOIL & SEED
- PROPOSED PAVEMENT
- PROPOSED DRIVEWAYS
- PROPOSED IMPACT ATTENUATOR

ALTERNATIVE NO. 4 – MULTI–GIRDER STEEL BEAM
ALTERNATIVE NO. 5 – VOIDED SLAB
ALTERNATIVE NO. 6 – PRECAST CONCRETE RIGID FRAME

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NJ ROUTE 31 OVER FURNACE BROOK BRIDGE REPLACEMENT

CONCEPT DEVELOPMENT

Township of Oxford, Warren County

ALTERNATIVE NO. 4, 5 & 6

NJDOT Division of Project Management

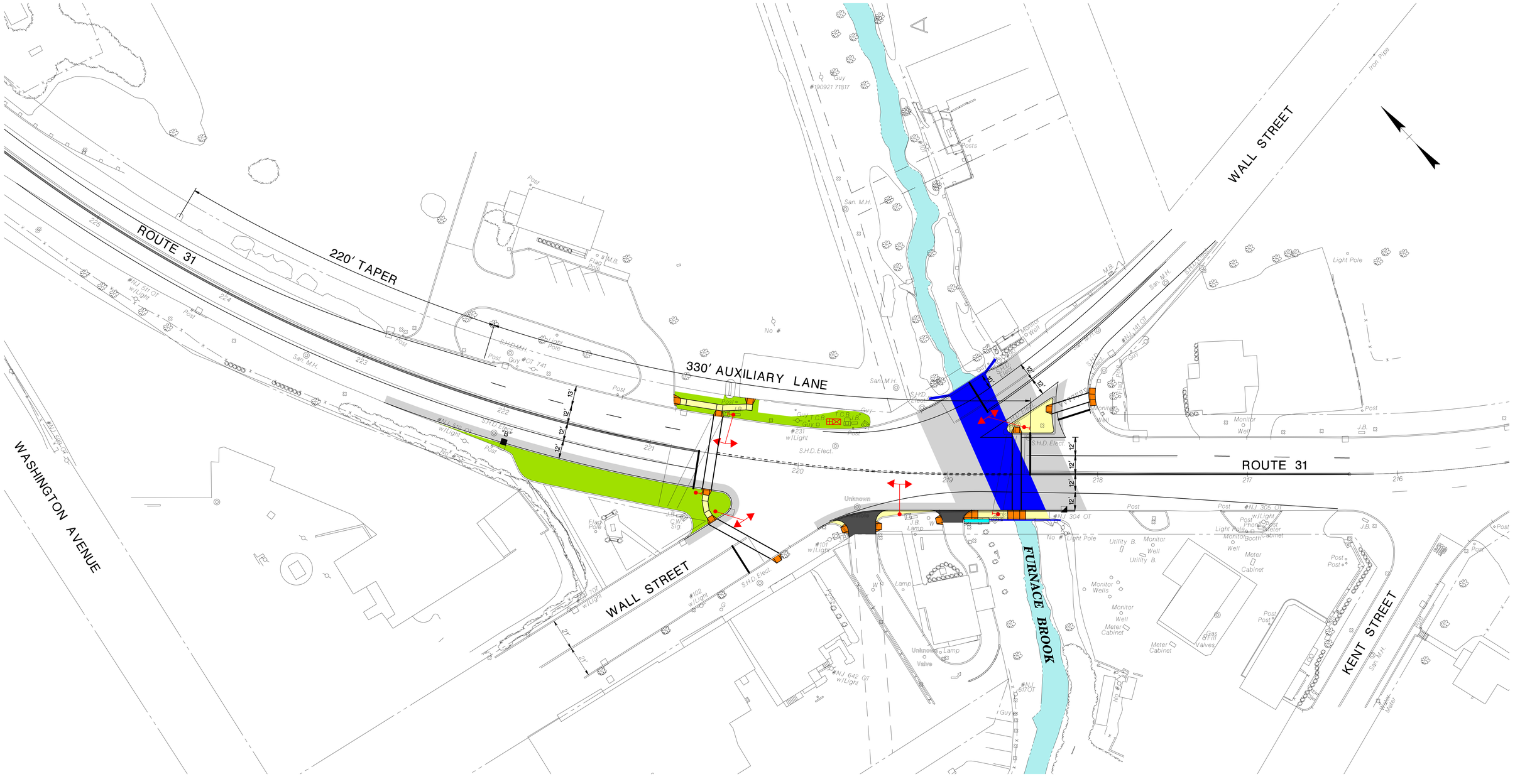
Scale: 1" = 20'

Date: September 2011

TOWNSHIP OF OXFORD

40′ 20′ 0 40′ 80′

COUNTY OF WARREN



LEGEND

- EXISTING FEATURES
- FURNACE BROOK
- PROPOSED FEATURES
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- PROPOSED HANDICAP RAMPS
- PROPOSED TOPSOIL & SEED
- PROPOSED PAVEMENT
- PROPOSED DRIVEWAYS
- PROPOSED IMPACT ATTENUATOR

DEPARTMENT OF TRANSPORTATION THE STATE OF NEW JERSEY

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

NJ ROUTE 31 OVER FURNACE BROOK BRIDGE REPLACEMENT

CONCEPT DEVELOPMENT

Township of Oxford, Warren County

ALTERNATIVE NO. 6 MOD.

NJDOT Division of Project Management

Scale: 1" = 40'

Date: April 2013

TOWNSHIP OF OXFORD

40′ 20′ 0 40′ 80′

COUNTY OF WARREN

535′ GUIDE RAIL

ROUTE 31

300′ TAPER

760′ AUXILIARY LANE

WASHINGTON AVENUE

WALL STREET

KENT STREET

Furnace Brook

BLOCK 42 LOT 18

BLOCK 42 LOT 14

BLOCK 42 LOT 14.01

BLOCK 42 LOT 5

BLOCK 42 LOT 4

BLOCK 42 LOT 2

BLOCK 42 LOT 1

BLOCK 41 LOT 5

BLOCK 41 LOT 4

BLOCK 26 LOT 70

BLOCK 26 LOT 69

BLOCK 45 LOT 1

BLOCK 44 LOT 1

BLOCK 6 LOT 8

BLOCK 6 LOT 7

BLOCK 6 LOT 16

PROPOSED FINAL CONDITIONS

LEGEND

- EXISTING FEATURES
- FURNACE BROOK
- PROPOSED FEATURES
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- LIMIT OF GRADING
- PROPOSED HANDICAP RAMPS
- PROPOSED TOPSOIL & SEED
- PROPOSED PAVEMENT
- PROPOSED DRIVEWAYS
- PROPOSED GUIDE RAIL/ IMPACT ATTENUATOR

DEPARTMENT OF TRANSPORTATION THE STATE OF NEW JERSEY

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

ALTERNATIVE NO. 7 – MULTI–GIRDER STEEL BEAM
ALTERNATIVE NO. 8 – VOIDED SLAB
ALTERNATIVE NO. 9 – PRECAST CONCRETE RIGID FRAME

NJ ROUTE 31 OVER FURNACE BROOK BRIDGE REPLACEMENT

CONCEPT DEVELOPMENT

Township of Oxford, Warren County

ALTERNATIVE NO. 7, 8 & 9

NJDOT Division of Project Management

Scale: 1" = 40′ Date: February 2013

Appendix I

Public Communications

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: June 30, 2011 (rev. July 5, 2011)

Project Name: NJDOT, Division of Project Development (DPD)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.05

Subject: Local Officials Meeting

Copy: Attendees

A meeting was held for the above referenced project at 9:30 A.M. on Wednesday, June 22, 2011 at the Oxford Township Municipal Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Bonnie Riley	Oxford Township – Deputy Mayor	908 453-3192
Lou Accetturo	Oxford Township – Public Works Department	908 283-8852
Sheila L. Oberly	Oxford Township – Municipal Clerk	908 453-3098
Michael Finelli	Oxford Township – Engineer (Finelli Consulting)	908 835-9500
Debbie Hirt	NJDOT – Office of Community Relations (OCR)	609 530-2110
Towfigh Molavi	NJDOT – DPD	609 530-4880
Kamlesh Shah	NJDOT – DPD	609 530-5539
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Julia Steponanko	GPI	908 236-9001

The purpose of this meeting was to introduce the project, confirm the project need(s), discuss potential alternatives, and solicit comments, requirements, and/or concerns that address the project need(s).

After self-introductions, Mrs. Hirt explained the purpose of the meeting and the NJDOT project delivery process noting that this project is in Concept Development. Mr. Molavi then provided a brief project overview and history. He stated that the project is based on the 15th Cycle Bridge Re-evaluation Report dated October 6, 2008. The Report notes that Structure No. 2111-154, which carries Route 31 over Furnace Brook, is structurally deficient and recommends the complete replacement of the structure. Mr. Molavi continued that Concept Development (CD) was initiated to develop and evaluate various alternatives and to ultimately select a Preliminary

Preferred Alternative (PPA) to advance to Preliminary Engineering (PE) which addresses the project need.

Mr. Boerchers then presented a summary of the information provided in the Project Fact Sheet via a PowerPoint presentation. He noted that the structure is comprised of three distinctly different structure types: a stone masonry arch section (circa 1875), a concrete encased steel stringer section constructed in 1926, and a concrete slab section constructed in 1953. He also noted that the Furnace Brook is a Category One waterway and that the existing gas station in the southwest quadrant of the structure is a known contaminated site.

The following summarizes the significant items of discussion and comments:

1. Mr. Finelli stated that the Township is in the petition process for Plan Conformance with the Highlands Council for both the planning and preservation areas within the Township.

2. Mr. Boerchers inquired if there was a history of flooding along Route 31 in the vicinity of the Furnace Brook or overtopping of the structure. The local officials stated that they were unaware of any past flooding or overtopping at the project site. However, they added that flooding does occur at the Wilkinson Field. Mr. Boerchers stated that since the project does not have a history of flooding and in consideration of the potential adverse impacts of raising the roadway elevation, it is recommended that any proposed structure be hydraulically equivalent to the existing structure and the existing roadway profile be maintained.

3. Mr. Boerchers stated that the stopping sight distance along Route 31 northbound, south of Wall Street, is substandard and that the pine trees planted between the roadway and the firehouse are limiting the existing stopping sight distance. He added that the substandard stopping sight distance is not currently a significant crash generator, but as the trees mature that the stopping sight distance could be further restricted thereby requiring the removal of the trees.

4. Mr. Molavi inquired if the Township had any concerns regarding the replacement of the stone arch portion of the structure with a precast structure. The local officials stated that the stone arch could only be seen from the ball fields and opinioned that it would be a nonissue with the Township. Mr. Boerchers noted that the State Historic Preservation Office has determined that the structure is not individually eligible and is non-contributing to the adjacent historic district.

5. Mr. Boerchers stated that the three driveways located within the signalized intersection of Route 31 and Wall Street are not controlled by the signal and are in violation of the *New Jersey State Highway Access Management Code*. He added that these driveways were not identified as significant crash generators and opinioned that the driveways may be able to remain as is if the traffic signal is not impacted by the proposed project.

6. Mr. Shah stated that the northerly driveway for the liquor store, which is located in the southeast quadrant of the intersection, is in violation of the *Access Code* and that the driveway may be closed as alternate access is available for the site.

7. Mr. Boerchers inquired if access to and from Wilkinson Field during games and events was a problem for the Township and if they used traffic directors for said events. Ms. Riley stated that there have not been any problems with the same and that traffic directors are not employed at events.

8. Mr. Boerchers stated that the existing crosswalks at the intersection of Route 31 and Wall Street only cross the two approaches of Route 31 and that these crosswalks do not include ADA handicap accessible ramps and countdown pedestrian signals. He added that the project purpose is the replacement of the structure, but that since one of the traffic signal standards is mounted on structure that the traffic signal may need to be modified or replaced which would require compliance with current standards.

9. Ms. Riley stated that the pushbuttons at the signalized intersection of Route 31 and Wall Street do not work. Mr. Molavi and Mr. Shah indicated that they would inform NJDOT Maintenance of the same.

10. Mr. Finnelli stated that Oxford Textile LLC is considering mixed use redevelopment of a 285-acre former industrial site adjacent to the project area which would include approximately 325 residential units. He noted that the redevelopment project would include the creation of a wetlands mitigation bank. He added that the Township has not been presented with a traffic impact study and/or plans for this redevelopment project.

11. Mrs. Hirt inquired as to the construction duration. Mr. Boerchers stated that the anticipated construction duration should be less than one construction season since the proposed structure is to be precast.

12. The attendees stated that access to and from the firehouse along James Burn Drive to Route 31 should be maintained during construction given that the existing traffic signal has emergency preemption. The attendees noted that full or partial access to James Burn Drive from Route 31 could possibly be maintained by temporarily eliminating the existing concrete channelizing island along Route 31 northbound.

13. The attendees agreed that the structure should be completely replaced given its condition, age, and configuration and that the replacement structure should be a three-sided precast concrete structure so as to reduce the construction duration and costs as well as future maintenance costs.

14. Mrs. Hirt requested that the Township provide a resolution of support for this project. Ms. Oberly stated that she would place the resolution on the agenda for the next town council meeting.

Action Items:

- GPI will develop alternatives based on the comments received during the meeting.
- DPD will request that Maintenance inspect and, if required, repair the existing pushbuttons.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

June 22, 2011 – 9:30 PM
Oxford Township Municipal Building

The NJDOT Division of Project Development (DPD) is currently performing Concept Development for the Route 31 over Furnace Brook project located in Oxford Township, Warren County.

Meeting Purpose – The purpose of this meeting is to introduce the project, confirm the project need(s), discuss potential alternatives, and solicit comments, requirements, and/or concerns that address the project need(s).

Problem Statement – The overall purpose of this project is the rehabilitation or replacement of Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83) in the Township of Oxford, Warren County.

The project is based on the *Structure No. 2111-154 Route NJ 31 over Furnace Brook / 15th Cycle / Bridge Re-evaluation Report* dated October 6, 2008. According to the 15th Cycle report, Structure No. 2111-154 is structurally deficient due to the poor condition of the superstructure. The Report recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure and the current undesirable configuration. The NJDOT initiated Concept Development (CD) to develop and evaluate various alternatives and to ultimately select a Preliminary Preferred Alternative (PPA) to advance to Preliminary Engineering (PE) which addresses the project need.

Existing Roadway Conditions – NJ Route 31 in the vicinity of Furnace Brook is an undivided four-lane urban principal arterial running south to north with a posted speed limit of 40 mph and 45 mph south and north of Wall Street/James Burn Drive, respectively. The study area consists of the following:

Route 31 looking north

- Route 31 passes over Furnace Brook immediately south of the signalized intersection of Route 31 and Wall Street/James Burn Drive.
- Route 31 south of the structure consists of two 12-foot wide travel lanes along each direction with no shoulders. Route 31 north of the structure consists of a single travel lane of varying width along each direction and a 14-foot shoulder along the southbound direction.
- Wall Street/James Burn Drive consists of a single travel lane in each direction and no shoulders.

- Vertical concrete curb is present along both directions of Route 31 within the project limits. Sidewalk is present in the southeast and southwest quadrants of the Route 31 and Wall Street/James Burn Drive intersection.
- The signalized intersection of Route 31 and Wall Street/James Burn Drive is a four-legged intersection controlled by a two-phase signal. The Route 31 northbound approach consists of shared left/through and through/right lanes and two receiving lanes. The Route 31 southbound, Wall Street and James Burn Drive approaches consist of a shared left/through/right lane and one receiving lane. Crosswalks, push buttons and pedestrian signal heads are provided at this intersection for the northbound and southbound approaches only.
- A Red Signal Ahead sign exists along Route 31 northbound approximately 1,300 feet south of the stop line for the northbound approach.

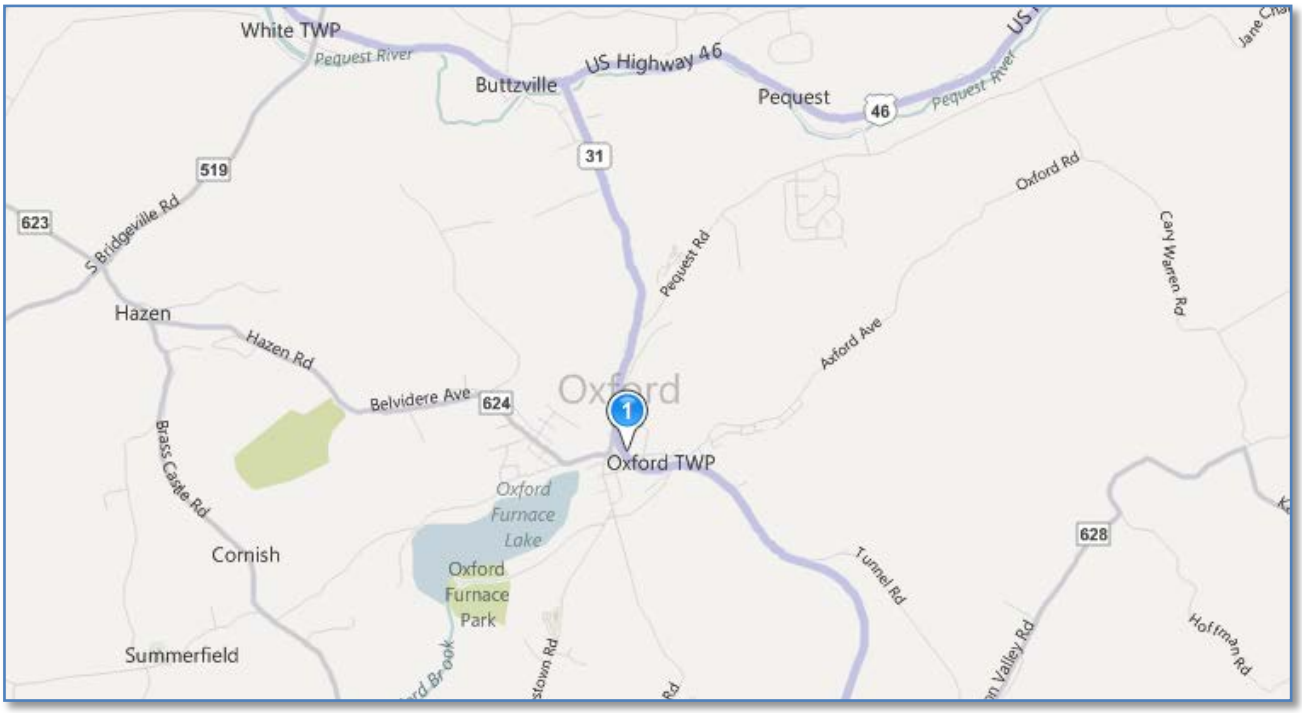


Figure 1 – Project Location (Pushpin No. 1)

Existing Deficiencies include the following:

- Two horizontal curves along Route 31 north and south of Furnace Brook have substandard superelevation. In addition, the sight distance along one horizontal curve south of Furnace Brook may be obstructed by the forested areas adjacent to Route 31. The substandard superelevations and sight distance have not been identified as significant crash generators.
- Substandard / nonexistent shoulders
- The existing guide rail on the structure (which is only located along Route 31 southbound) does not meet current standards based on the required length, rail thickness, post spacing, spacer block type and end terminals.

- Driveways for businesses adjacent to the structure currently do not meet the requirements set forth in the *New Jersey State Highway Access Management Code*.
- Three driveways are located within the intersection and are not controlled by signal heads.
- The crosswalks do not terminate at ADA compliant handicap ramps.
- Only one receiving lane exists along Route 31 northbound for the two through approach lanes which is not consistent with Figure 6-G of the NJDOT Design Manual – Roadway.
- The signal head layout for each approach, with the exception of the Route 31 southbound approach, have an undesirable arrangement of near right / far left.

Management Systems – BMS data was provided to DPD, which included a copy of the 14th and 15th Cycle Reports and corresponding SI&A sheets dated October 2006 and October 2008, respectively.

The Drainage Unit noted that Route 31 within the project limits is not on the DMS, and no records of flooding exist.

The Pavement Management Unit provided profiler data for Route 31 between mileposts 46.30 and 47.30. According to the PMS, Route 31 within the project limits has an International Roughness Index (IRI) and Surface Distress Index (SDI) ratings of fair and good, respectively.

Crash Analysis – The NJDOT Bureau of Safety Programs (BSP) provided crash data for Route 31 between mileposts 46.70 and 47.00 for the three-year period between January 1, 2006 and December 31, 2008. A total of five (5) crashes occurred over the aforementioned three-year period. BSP noted that summaries and crash rates are not provided for any location having less than six crashes. No significant patterns were uncovered based on the individual crash reports.

Environmental Screening Summary – An environmental screening was prepared for this project. The purpose of the screening was to identify any possible environmental "fatal flaws" for the proposed replacement of Structure No. 2111-154. Potential environmental constraints identified within the Screening include cultural resources, Green Acres parkland, freshwater wetlands, rare, threatened and/or endangered species and a hazardous waste site. Furnace Brook is a freshwater, trout

East (Downstream) Section

West (Upstream) Section

production Category 1 (FW2-TP C1) waterway. Structure No. 2111-154 is adjacent to the Oxford Industrial Historic District (National and State Registers) and lies within the Highlands Planning Area. However, SHPO determined that while it is over 50 years old that it is not individually eligible and non-contributing to the district.

Structural Inventory & Deficiencies – Structure No. 2111-154 is a single span, stone masonry arch, which was built in 1926 and subsequently widened in 1953. The bridge is comprised of three distinctly different structure types (see Figure 2):

- An asphalt-surfaced reinforced concrete deck supported on concrete encased steel stringers supported by gravity abutments.
- The stone masonry arch structure.
- An asphalt-surfaced reinforced concrete slab monolithic with concrete abutments supported by spread footing foundations which included modifications to the other structures to interconnect and deck over the area between the two structures

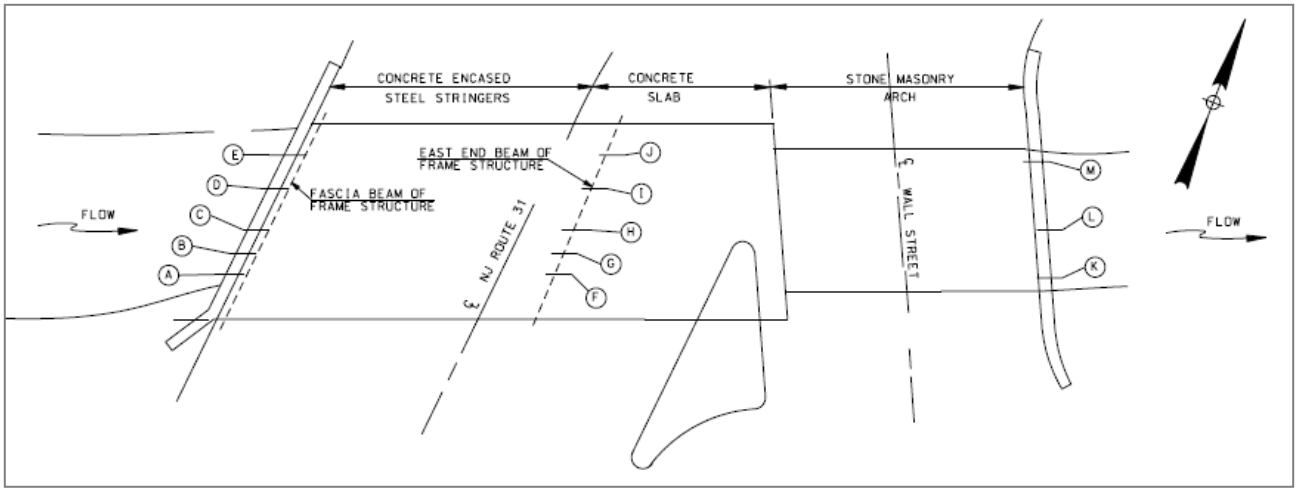


Figure 2 – Structure General Plan

Structure No. 2111-154 has a clear span of approximately 26 feet, an approximate out-to-out width of 94 feet, and an average curb-to-curb width of 86 feet. The masonry stone arch bridge is normal to the James Burn Drive roadway, while the newer 1953 portion of the bridge and the original Route 31 Bridge were both constructed on a 26-degree skew approximately parallel to the waterway.

Furnace Brook crosses Route 31 immediately south of the signalized intersection of Route 31 and Wall Street / James Burn Drive. The reinforced concrete slab and concrete encased steel stringer sections lie along Route 31 while the stone masonry arch section of the structure lies along James Burn Drive. According to the *15th Cycle Report*, the structure is structurally deficient due to the poor condition of the superstructure. The superstructure is in poor condition due to excessive loss of mortar and numerous voids in the underside of the stone masonry arch section, and loss of steel section in the exposed steel stringer section. The deck and substructure are in fair condition due to longitudinal

cracks with heavy efflorescence, and scaling at both abutments and a large spall on the north breastwall, respectively. The bridge has been identified as not being scour critical based on the Bridge Scour Evaluation Program.

The *15th Cycle Report* also states that since the previous inspection, there was no change in the overall condition of the structure. Structure No. 2111-154 had a sufficiency rating of 63.2 at the time of the *15th Cycle Report*. The report recommends a complete replacement of the structure due to the poor condition of the superstructure, the extensive deterioration of the substructure and the configuration of the existing bridge.

Hydrology and Hydraulics – Based on the TR-55 methodology and a HEC-RAS model, both the existing and proposed structure do not overtop for the 25-year design storm, which meets the requirements set forth in Section 10-02.4 of the *NJDOT Design Manual – Roadway* for drainage structures that pass water under a land service highway. However, the 100-year storm would (theoretically) overtop the roadway, which does not meet NJDOT design requirements (10-02.4; Table 10-02) for a facility that requires a NJDEP permit for a non-delineated stream. Based on our correspondence with the NJDOT Drainage Unit, there is no flooding record for the project location and it is not in the Drainage Management Unit's DMS Ranking List. Since the project does not have a history of flooding and in consideration of the potential adverse impacts of raising the roadway elevation, it is recommended that any proposed structure be hydraulically equivalent to the existing structure and the existing roadway profile be maintained.

Alternatives – The following preliminary alternatives have been developed based on the aforementioned data and analyses.

Structural Alternatives

- **Alternative No. 1** consists of a **Multi-Girder Steel Beam** superstructure composite with a reinforced concrete deck slab. Due to the short span length, an integral abutment substructure is recommended to minimize initial costs and future maintenance costs.
- **Alternative No. 2** consists of a **Voided Slab** superstructure with a reinforced concrete wearing surface. Similar to Alternative No. 1, due to the short span length, an integral abutment substructure is recommended to minimize initial costs and future maintenance costs.
- **Alternative No. 3** consists of a **Precast Concrete Rigid Frame** structure supported on a pile foundation with a concrete wearing surface, which would meet the structure depth requirements. This alternative has been determined by the NJDOT Subject Matter Experts as the preferred alternative.

Construction Staging Alternatives

Key issues, in addition to worker and public safety, vehicular, bicycle and pedestrian mobility, driveway access, seasonal timing restrictions, and contractor access, which will be considered as part of the alternatives analysis for construction staging, include the following:

- Emergency services, specifically the fire station located 400 feet east of Route 31 along James Burn Drive
- School busing, specifically the Oxford Central School is located within 500 feet of the project site
- Access to the municipal building located 900 feet east of Route 31 along James Burn Drive.
- Access to the recreational field during events.
- Constructability with respect to the structure actually consisting of three distinct structures.
- The feasibility of temporarily reducing the number of receiving lanes along Route 31 southbound south of Wall Street/James Burn Drive within the project limits from two lanes to one as Route 31 southbound north of Wall Street/James Burn Drive only consists of a single lane and the additional lane south of the intersection appears to be a climbing lane.
- The feasibility of temporarily reducing the number of approach lanes along Route 31 northbound from two lanes to one as there currently exists only one receiving lane for Route 31 northbound north of Wall Street/James Burn Drive. The impacts of the same can be evaluated via capacity analyses.
- The feasibility of detouring or limiting movements from the side streets.
- Maintaining access for the driveways located within the work zone.

Suitable detour routes are limited, if nonexistent, for Route 31.

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: July 26, 2013

Project Name: NJDOT, Division of Project Management (DPM)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.05

Subject: Local Officials Meeting

Copy: Attendees

A meeting was held for the above referenced project at 10:30 A.M. on Wednesday, July 17, 2013 at the Oxford Township Municipal Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Peggy Hissim	Oxford Township – Emergency/First Aid Squad	908 552-1402
Louis Accetturo	Oxford Township – Department of Public Works	908 283-8852
Thomas Cicerelle	Washington Township – Police Department	908 623-6806
Michael Finelli	Oxford Township – Engineer (Finelli Consulting Engineers)	908 835-9500
Barth Johnson	Warren County – Engineering Department	908 475-6546
Robert Lee	NJDOT – DPM	609 530-3813
Sangaranat Vijayakumar	NJDOT – DPM	609 530-2642
Zak Asadpour	NJDOT – BLAES*	609 530-2727
Debbie Hirt	NJDOT – Office of Community & Constituent Relations	609 530-2110
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Julia Steponanko	GPI	908 236-9001

**Bureau of Landscape Architecture and Environmental Services*

The purpose of this meeting was to present the project and the Preliminary Preferred Alternative (PPA) to County and Township officials and to solicit their comments, requirements, and/or concerns. After self-introductions, the attendees discussed the following items:

Mr. Boerchers began the meeting by stating that the purpose of this project is to replace Structure No. 2111-154 which carries Route 31 over Furnace Brook. The project is based on the *16th Cycle Bridge Re-evaluation Report* dated October 2010 which states that the structure is structurally deficient, with a

sufficiency rating of 48.2, and recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure, and the current undesirable configuration.

Mr. Boerchers then presented a summary of the information provided in the Project Fact Sheet, including existing conditions and deficiencies, PPA and staging via a PowerPoint presentation. He stated that the structure is comprised of three distinctly different structure types: a stone masonry arch section (circa 1875), a concrete encased steel stringer section (1926), and a concrete slab section (1953). He noted that the proposed bridge will be a precast concrete structure to reduce the construction duration and costs as well as future maintenance costs. The PPA also includes replacing the traffic signal at the Route 31 and Wall Street intersection, associated roadway work and extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street to bring it into conformance with the NJDOT Design Manual – Roadway. The proposed staging consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 during both stages. This alternative also maintains limited access from Wall Street onto Route 31. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement would be prohibited and detoured to Port Colden Road. Access to businesses along Route 31 will be maintained.

The following summarizes the significant items of discussion and comments:

1. Ms. Hirt inquired if there were any issues with flooding or overtopping of the bridge during Hurricane Sandy in October 2012. The local officials stated that there were no issues at the bridge since the flow at the bridge is controlled by the dam at Furnace Lake.

2. Mr. Finelli stated that the liquor store, which is located in the southeast quadrant of the intersection of Route 31 and Wall Street, is currently being expanded and that upon completion of the expansion the southernmost driveway along Route 31 northbound will be eliminated. He added that the existing northernmost driveway along Route 31 northbound for the liquor store will remain open and that left turns onto Route 31 southbound from the driveway will be prohibited. Patrons will have to exit the driveway along Wall Street to access Route 31 southbound. He added that the proposed driveway reconfiguration was approved by NJDOT Major Access. NJDOT representatives stated that they would request the access plan for the liquor store expansion from NJDOT Major Access and indicate the proposed driveway configuration on the PPA.

3. Mr. Finelli stated that the Township petitioned the Highlands Council to have their historic downtown and industrial area designated as a Highlands Center.

4. Mr. Finelli stated that the Township acquired the title for the Oxford Mill through foreclosure and will be soliciting bids for demolition and hazmat cleanup on the site. (The Oxford Mill is the triangular property bordered by Route 31, Wall Street and Washington Avenue.)

5. Mr. Boerchers stated that the side street traffic volumes along Wall Street are extremely low with the exception of the eastbound right turn movement and that the potential exists for detouring

some of these movements during construction. He added that the second through lane along Route 31 southbound south of the intersection is a climbing lane and Route 31 northbound lacks a second receiving lane north of the intersection. Given these conditions and the current operation of the intersection based on the capacity analyses performed to date, Mr. Boerchers noted that Route 31 could be reduced to two through lanes during construction with a minimal increase in overall delay thereby allowing staged construction.

6. Mr. Boerchers stated that three driveways, two for the bank and one for Wilkinson Field, within the signalized intersection of Route 31 and Wall Street are not controlled by the traffic signal. He noted that these driveways were not identified as crash generators. The attendees discussed options for the Wilkinson Field driveway that included turn prohibitions and/or adding an actuated phase to the traffic signal at the intersection for the driveway. Mr. Boerchers noted that the intersection operates at an overall Level of Service 'A' during each of the peak hours with no movement operating worse than an LOS of 'C', and he opinioned that the addition of an actuated signal phase for the driveway would not significantly degrade the operation of the overall intersection. The attendees agreed that the driveway from Wilkinson Field should be controlled by the signal in the proposed condition.

7. Mr. Boerchers noted that closing access to Wilkinson field during construction may have Green Acres implications since it is a public park. The attendees noted that players and attendees could park in the municipal lot behind Wall Street or the school lot along Kent Street and walk to the field if access was closed to the Wilkinson field driveway. Mr. Accetturo stated that the league only has a spring season running from March through July. He noted that the league could possibly schedule practices and games at a different field during construction. The attendees agreed that the best alternative would be not to schedule Stage 1 of construction during the spring baseball season; however, if necessary, players and attendees could park at the municipal lot and/or the practices and games could be scheduled on another field.

8. Mr. Boerchers stated that due to the close proximity of the Busy Bee / US Gas station driveways, which are located in the southwest quadrant of the intersection of Route 31 and Wall Street, to the bridge and work zone that only the southernmost driveway along Route 31 southbound and the driveway onto Kent Street could be maintained during construction. He added that all vehicles, including refueling trucks and tractor trailers, would be required to turn onto Kent Street to access the driveway along the same, exiting the site via the driveway along Route 31. Ms. Hissim stated that the delivery vehicles currently enter and exit the site that way currently so it should not be a hardship for deliveries.

9. Mr. Boerchers recommended performing a before and after survey of the building in the northeast quadrant of the bridge to determine if sheeting or other work results in structural damage to said building. Ms. Hissim stated that this building was home to a hair salon, which has since closed, and that the property is currently for sale.

10. Mr. Asadpour noted that the Furnace Brook is trout production and that no work can be performed in the waterway between September 15th and March 15th. Mr. Boerchers noted that the cofferdams would be constructed outside of the timing restriction period so that construction could continue, if necessary, during said restriction.

11. Ms. Hissim expressed concern over trucks and local traffic bypassing the construction area along Washington Avenue to Academy Street which she noted as a dangerous intersection. Mr. Boerchers stated that the proposed construction should not significantly increase delay in the project area, but that temporary turn restrictions could be implemented during construction, if necessary.

12. Ms. Hissim also expressed concern regarding the termination point of the proposed auxiliary lane taper along Route 31 northbound, noting that immediately north of the same is a high crash location. Subsequent to the meeting, a review of the NJDOT online crash database for Route 31 from milepost 47.0 – 47.3 indicated a total of only four crashes occurred over the three-year period from 2009 – 2011, the majority of which were animal crashes. In addition, this location is outside the project limits; therefore no further action will be taken.

13. Ms. Hissim stated that a previous crash along CR 519 required a temporary detour along Wall Street. Mr. Boerchers noted that the intersection of Route 31 and Wall Street will remain open during construction so that Wall Street can be used as a detour route, if needed, in an emergency condition.

14. Ms. Hissim noted that the monument area in the northwest quadrant of the Route 31 and Wall Street intersection was previously a gas station. The attendees noted that the Township currently owns this property (Block 44, Lot 1).

15. **The local officials concurred with the PPA.** Ms. Hirt requested a Resolution of Support (ROS) from the Township by the end of August 2013, if possible.

Action Items:

- DPM to obtain a copy of the access plan for the liquor store expansion from Major Access.
- DPM will arrange a PIC through OCCR.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

Route 31 over Furnace Brook Bridge Replacement

Oxford Township, Warren County

Structure No. 2111-154 – NJ Route 31 Milepost 46.83

Concept Development: Local Officials Briefing

Wednesday, July 17, 2013 10:30 AM

The New Jersey Department of Transportation (NJDOT), which is committed to developing transportation improvements that best balance transportation needs, the environment, community concerns and cost, will hold an Officials Briefing to inform local officials about the proposed replacement of the bridge carrying NJ Route 31 over the Furnace Brook (Route 31 MP 46.83) in Oxford Township, Warren County.

The Meeting

The Officials Briefing will be held at the **Oxford Township Municipal Building, 11 Green Street, on Wednesday, July 17, 2013 at 10:30 AM.**

The Proposed Project

The NJDOT proposes to replace the existing structure which is actually composed of three distinctly different and adjoining structure types, as follows:

- A reinforced concrete deck supported on concrete encased steel stringers constructed in 1920
- A stone masonry arch structure constructed c. 1875
- A reinforced concrete slab monolithic with concrete abutments constructed in 1953, this section included modifications to the other structures to interconnect and deck over the area between them.

The proposed bridge will be a three-sided precast concrete structure. The project also includes replacing the traffic signal at the Route 31 and Wall Street intersection, associated roadway work and extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street.

Construction Staging

The proposed staging consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 at all times. Access from Wall Street onto Route 31 will be limited during the first stage. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement will be prohibited and detoured to Port Colden Road during this stage. Access to businesses along Route 31 will be maintained at all times.

Anticipated Schedule

Concept Development Complete:	January 2014
Design Start:	May 2014
Construction Start:	April 2017
Estimated Construction Cost:	$ 3.1 M

For further information, please contact:

Debbie Hirt, Regional Manager
Office of Community Relations
Deborah.Hirt@dot.state.nj.us

New Jersey Department of Transportation
P.O. Box 600, Trenton, NJ 08625-0600
Phone: 609.530.2110; Fax: 609.530.2536

Memorandum of Meeting

To:	File
From:	Julia Steponanko, GPI
Date:	October 8, 2013
Project Name:	NJDOT, Division of Project Management (DPM) Route 31, Bridge over Furnace Brook, Oxford Township, Warren County Concept Development
Project Number:	2009658.06
Subject:	Public Information Center
Copy:	Attendees

A Public Information Center (PIC) was held for the above referenced project between 6:00 and 8:00 PM on Monday, October 7, 2013 at the Oxford Township Municipal Building, 11 Green Street, Oxford, NJ. NJDOT Representatives and local officials in attendance were as follows:

Attendee	Bureau / Company	Phone
Robert Lee	NJDOT – DPM	609 530-3813
Sangaranat Vijayakumar	NJDOT – DPM	609 530-2642
John Nettleton	NJDOT – ROW North	973 273-7963
Deborah Hirt	NJDOT – Community & Constituent Relations (OCCR)	609 530-4897
Keith Gibbons	Oxford Township Mayor	973-903-6243
Jade White	Oxford Township Deputy Mayor	973 579-0500
Scott Minnich	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Julia Steponanko	GPI	908 236-9001

Local residents and business owners who attended the PIC are listed on the attached sign-in sheet.

The purpose of the PIC was for the NJDOT to obtain public input and support for the Preliminary Preferred Alternative (PPA) for the replacement of Structure No. 2111-154, which carries Route 31 over Furnace Brook, and the associated roadway improvements.

The following input was received during the PIC:

1. The majority of residents in attendance requested a stone treatment on the proposed structure due to the proximity of the Historic District. NJDOT representatives stated that they would evaluate the feasibility of providing the same.

2. Residents noted that because of the intersection width, skewed Wall Street approaches and offset lanes, opposing left turns have difficulty judging where to turn and in some cases turn behind one another. NJDOT representatives stated that dotted center line extension markings are proposed as part of the PPA, but the feasibility of providing additional striping could be evaluated.

3. Residents stated that a school crossing guard is used at the intersection for students attending Oxford Central School to cross Route 31, south of Wall Street. They expressed concern that motorists turning right from Wall Street onto Route 31 southbound cannot see the crosswalk from that approach and are looking north for oncoming traffic. As a result, motorists execute the turn and then stop short at the crosswalk when the guard is allowing students to cross. Mr. Robert Magnuson, Principal and School Administrator, expressed similar concerns.

   While school crossing signs are present approaching the intersection and at the crosswalk, they are not highly visible, are not in conformance with the 2009 MUTCD and none are present along Wall Street. NJDOT representatives stated that they would evaluate the feasibility of providing new and/or additional signing. It was also suggested to inquire with NJDOT Bureau of Traffic Engineering if this location is a designated school crossing.

4. Residents noted that tractor trailers have difficulty maneuvering the right turn from Route 31 northbound to Wall Street eastbound due to the existing concrete island and intersecting angle of both roadways. One resident recommended mountable curb for the curb line and/or island. NJDOT representatives stated that they would evaluate the feasibility of providing the same or revising the island dimensions.

5. Residents stated that the signal heads for the Wall Street approaches are visible along Route 31 and vice versa which causes confusion on which road has the right of way. Some residents stated that heavy vehicles frequently run the red light along Route 31.

6. Mr. Magnuson stated that the majority of school buses use Washington Avenue to drop students at the school and exit via Kent Street. He added that buses travel north and south along Route 31 since the Township shares bus service with surrounding municipalities.

7. A resident noted that making a left turn out of the post office is extremely difficult due to the roadway geometry and the number of heavy vehicles along Route 31.

8. Residents noted that the auxiliary lane as proposed will allow more room to pass heavy vehicles and may eliminate “drag race”-type situations previously experienced with motorists stopped at the signal along Route 31 northbound.

Action Items:

- NJDOT/GPI will evaluate the feasibility of providing a stone treatment on the proposed structure.
- NJDOT/GPI will determine if the southern crosswalk across Route 31 is a designated school crossing and evaluate the feasibility of providing new and/or additional signing for the same.

- NJDOT representatives stated that they would evaluate the feasibility of either providing mountable curb or revising the island to accommodate heavy vehicles.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

Route 31, Bridge over Furnace Brook

Oxford Township, Warren County • Structure No. 2111-154 – Route 31 MP 46.83

Public Information Center

Monday, October 7, 2013 6 – 8 PM

The New Jersey Department of Transportation (NJDOT), committed to developing transportation improvements that best balance transportation needs, environment, community concerns and cost, will hold a **Public Information Center** to inform residents and businesses about the **Route 31, Bridge over Furnace Brook** project located in Oxford Township, Warren County. You are encouraged to actively participate by providing comments at the meeting, by mail or by e-mail.

The Meeting

The Public Information Center will be held at the **Oxford Township Municipal Building at 11 Green Street**, on **Monday, October 7, 2013** from **6–8 pm.** Please plan to attend the meeting at a time that is convenient for you. You will have an opportunity to examine design plans, ask questions and discuss issues with NJDOT representatives. *Property owners of rental units are advised that tenants are encouraged to participate*.

Background

The overall purpose of this project is to replace Structure No. 2111-154. The bridge has a sufficiency rating of 48.2 and is considered structurally deficient. The bridge consists of three distinctly different and adjoining structure types covered in an asphalt surface:

- A reinforced concrete deck supported on concrete encased steel stringers and gravity abutments constructed in 1920;
- A stone masonry arch structure constructed c. 1875;
- A reinforced concrete slab monolithic with concrete abutments constructed in 1953.

The Proposed Project

The proposed bridge will be a three-sided precast concrete structure. The project also includes replacing the traffic signal at the intersection of Route 31 and Wall Street, associated roadway work and extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street.

Construction Staging

The proposed staging consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 at all times. Access from Wall Street onto Route 31 will be limited during the first stage. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement will be prohibited and detoured to Port Colden Road during this stage. Access to businesses along Route 31 will be maintained at all times.

Environmental

This project is located within or near an environmentally sensitive area and a historic district. Every effort will be made to avoid or minimize impacts to any identified resources within the project.

Anticipated Schedule

Design Start:	Mid-2014
Construction Start:	Mid-2017

For further information, please contact:

Debbie Hirt, Regional Manager
Office of Community Relations
Deborah.Hirt@dot.state.nj.us

New Jersey Department of Transportation
P.O. Box 600, Trenton, NJ 08625-0600
Phone: 609.530.2110; Fax: 609.530.2536

NJDOT ATTENDANCE RECORD
PUBLIC INFORMATION CENTER
PLEASE PRINT

PROJECT: Rte 31 over Furnace Brook Bdge Replcmt DATE: 10/7/13

MEETING LOCATION: Oxford Twp Mun Bldg.

Name	Phone Number	Mailing Address/Affiliation	Business	Resident	Email Address (optional)
Mary Alice Backman	908 453 2366	69 Belvidere Ave		✓	backman35@embarqmail.com
Robert Mulke	–	P O 93 Oxford		✓	
CHRIS HOEFLY	908 334-0897	35 MECHANIC ST OXFORD	✓	✓	
Paul Kilduff	9085310 8280	26 Wall St Oxford, NJ 07863	✓		SenseiKilduff@goldenrulekaratefitness.com
Mario Gorrocito	908 453 4101	50 Summerfield Ln	✓		
Nick Guarriello * Send pdf to Nick	908 453 2121	Oxford Textile	✓		nick@gsautowerks.biz nick@gsautoworks.biz
BRIAN DERR	908 453 7069	396 LIBERTY RD STEWARTSVILLE	✓		derr@pbworld.com
AL HANDY	732-777-0030	c/o NAIK 200 METROPLEX DRIVE EDISON NJ 08837	✓		AHANDY@NAIKGROUP.com
Keith Gibbons	908-763-9628	16 spring meadow Oxford – MAYOR		✓	
Craig + Christine Erhard	908 453 4095	41 Snyder Lane Oxford			erhard41@comcast.net
BOB MAGNUSON	908 453 4101	Oxford Central School	✓		bmagnuson@oxfordcentral.org

NJDOT ATTENDANCE RECORD
PUBLIC INFORMATION CENTER
PLEASE PRINT

P92

PROJECT: Rte 31 over Furnace Brook Bdge Replcmt DATE: 10/7/13

MEETING LOCATION: Oxford Twp. Mun. Bldg

Name	Phone Number	Mailing Address/Affiliation	Business	Resident	Email Address
Jade White	908-914-5352	4 Spring Mdw Oxford NJ 07863 Oxford Deputy mayor		x	

Appendix J

Design Communications Report (DCR)

STATE OF NEW JERSEY
DEPARTMENT OF TRANSPORTATION
Consultant Design

Design Communications Report Approval

Concept Development Phase

PROJECT NAME: Route 31, Bridge over Furnace Brook UPC#: 093250

CONSULTING FIRM: Greenman-Pedersen Inc.
DESIGNER PROJECT MANAGER: Bernie Boerchers

NJDOT PROJECT MANAGER: Robert Lee
NJDOT PROGRAM MANAGER: Robert Lee (Acting)

Design Communications Report (DCR) Entry No.(s) 2-7

Pursuant to the Interactive Communications Procedure and the Interactive Communications Process of the New Jersey Department of Transportation (the Department), the Department's Project Manager has approved the DCR identified above, (approved by DCR Entry No.(s)) subject to the certification below of the Designer.

This approval by the Department's Project Manager is not a certification by the Department that the above project has been designed in accordance with all applicable State and Federal design standards and requirements or that comments and decisions made during Interactive Communications with the Department on design elements and features of the project to this point have been incorporated or satisfactorily resolved and the Contract Documents have been revised accordingly, and the Department is fully relying in this regard upon the certification below by the Designer.

Furthermore, the Department's Project Manager, by signing below on behalf of the Department, has not waived the Designer's obligation to provide contract documents that are constructible and free from errors and/or omissions.

Designer's Project Manager / Date

NJDOT Project Manager / Date 10/15/13

Project Review Certification

In accordance with the Interactive Communications procedure and the Interactive Communication Process of the Department, in the Designer's professional opinion, and to the best of the Designer's knowledge, information and belief and based upon the performance of the Designer's duties as set forth in the NJDOT and the Designer Agreement, the Designer represents that the above project has been designed in accordance with all applicable State and Federal design standards and requirements. Comments and decisions made during the Interactive Communications with the Department on design elements and features of the project to this point have been incorporated or satisfactorily resolved, and that the approved DCR entry (or entries) identified above will be incorporated into the Contract Documents accordingly.

Designer's Project Manager / Date

Designer's Principal / Date

STATE OF NEW JERSEY
DEPARTMENT OF TRANSPORTATION
Quality Management

Design Communications Report

PROJECT NAME: Route 31, Bridge over Furnace Brook

UPC#: 093250

DESIGNER: Greenman-Pedersen Inc.

DESIGNER PROJECT MANAGER: Bernie Boerchers

NJDOT PROJECT MANAGER: Robert Lee

Design Communications Report Entry Form

Project Name: Route 31, Bridge over Furnace Brook

Design Activity No. 2045	**(10/29/10)**	**DCR Entry No. 1** _____ **Schedule**
Veronica Murphy, DPD PM and Bernie Boerchers, GPI PM		
DCR Entry Schedule		
New DCR entries are to be submitted as key design decisions are made and not on a set schedule.		

Design Activity No. 2300	**10/15/13**	**DCR Entry No. 2** _____ **Structures**
Al Eugene	NJDOT – DPM	
Towfigh Molavi	NJDOT – DPD	
Bhavesh Shah	NJDOT – DPD	
Kamlesh Shah	NJDOT – DPD	
Hector Rodriguez	NJDOT – Value Solutions, Structures	
Bernie Boerchers	GPI	
Attendees of the May 18, 2011 Scope Team Meeting		
Structure rehabilitation or replacement		

At the May 18, 2011 Scope Team meeting, GPI noted that rehabilitation of the existing bridge is not feasible for the following reasons:

- The majority of structure is approximately 90 years old and has outlived its useful life.
- Rehabilitation is limited to repairs and strengthening of some but not all elements and will not offer a long term solution. It would be costly and require a continuous future maintenance investment.
- The arch portion of the existing structure is in disrepair. Its present capacity is uncertain and difficult to accurately evaluate, which makes quality rehabilitation very costly.

GPI recommended that the existing structure be replaced with a precast concrete rigid frame as it is the most cost effective considering initial and future maintenance costs, has the shortest construction duration and offers the highest flexibility to accommodate the proposed bridge footprint and geometry.

The SME attendees agreed that the structure should be completely replaced given its condition, age and configuration and that the replacement structure should be a three-sided precast concrete structure.

Design Communications Report Entry Form

Project Name: Route 31, Bridge over Furnace Brook

Design Activity No. 2330/ 2320	**10/15/13**	**DCR Entry No. 3** _____ **Access**
Bonnie Riley	Oxford Township – Deputy Mayor	
Towfigh Molavi	NJDOT – DPD	
Kamlesh Shah	NJDOT – DPD	
Debbie Hirt	NJDOT – Office of Community Relations (OCR)	
Bernie Boerchers	GPI	
Attendees of the June 22, 2011 Local Officials Meeting		
Access during construction		
The attendees agreed that access to and from the fire house along James Burn Drive to Route 31 should be maintained during construction given that the existing traffic signal has emergency preemption.		

Design Activity No. 2300	**10/15/13**	**DCR Entry No. 4** _____ **Safety**
Towfigh Molavi	NJDOT – DPD	
Bhavesh Shah	NJDOT – DPD	
David Bizuga	NJDOT – Roadway Design, Group 1	
Karalas Ranganathan	NJDOT – Roadway Design	
Bernie Boerchers	GPI	
Guide rail and/or crash cushion installation		
At the August 30, 2011 SME meeting, Mr. Bizuga confirmed that the minimum requirements could not be met for the installation of guide rail with the appropriate end treatment of a CRT in the northwest corner of the proposed structure. He stated that the only viable option is the installation of an impact attenuator to protect motorists from the end of the parapet.		

Design Activity No. 2300/ 2480	**10/15/13**	**DCR Entry No. 5** _____ **Structures / Geometrics**
Robert Lee	NJDOT – DPM	
Sangaran Vijayakumar	NJDOT – DPM	
Bernie Boerchers	GPI	
Attendees of the March 19, 2013 Core Group Meeting		
Preliminary Preferred Alternative (PPA)		
The alternatives presented at the March 19, 2013 Core Group meeting consisted of three structural alternatives that were each combined with different roadway alternatives. Since the SMEs at the April 11, 2012 Core Group meeting selected a precast concrete structure as the preferred structure type, the viable alternatives presented were Alternative No. 3 (bridge replacement only with limited roadway/signal work), No. 6 (bridge and traffic signal replacement with associated roadway work) and No. 9 (bridge and traffic signal replacement with standard auxiliary lane through the intersection). Two staging options were also presented, both of which maintain one lane of traffic in each direction along Route 31. Option No. 1 also maintains limited access from Wall		

Project Name: Route 31, Bridge over Furnace Brook

Street whereas Option No. 2 proposes to close the Wall Street westbound approach.

GPI recommended Alternative No. 9 due to the close proximity of the structure to the intersection and the substandard auxiliary lane length along Route 31 northbound. Alternative No. 9 addresses FHWA's concern from the April 11, 2012 meeting that the project scope should address the aforementioned substandard auxiliary lane. GPI also recommended Staging Option No. 1 to maintain signalized controlled access for fire vehicles from Wall Street onto Route 31.

The consensus of the Core Group was that Alternative No. 9, unless deemed unreasonable in the future based on SHPO input, and Staging Option No. 1 pending local input should be advanced as the PPA.

Design Activity No. 2400	**10/15/13**	**DCR Entry No. 6** _____ **Environmental**
Robert Lee	NJDOT – DPM	
Sangaran Vijayakumar	NJDOT – DPM	
Zakrollah Asadpour	NJDOT – BLAES	
Daniel D. Saunders	NJDEP – SHPO	
Bernie Boerchers	GPI	
Attendees of the March 19, 2013 Core Group Meeting		
SHPO concurrence on auxiliary lane		
Due to the close proximity of the project to the Oxford Industrial Historic District, it was opinioned that SHPO would require that the proposed improvements be compatible with the District and that the proposed auxiliary lane along Route 31 northbound may have an adverse effect on the District and/or require an archeological investigation. Subsequent to the March 19, 2013 Core Group meeting, NJDOT coordinated with SHPO to determine if the project had any adverse effects on the District. In a letter dated August 27, 2013, SHPO opinioned that the project lies within the Oxford Industrial Historic District and is adjacent to the Oxford Furnace Historic District. However, the PPA will have no adverse effect upon either district if it is compatible with the Districts' character, significance and setting.		

Design Activity No. 2235	**10/15/13**	**DCR Entry No. 7** _____ **ITS**
Robert Lee	NJDOT – DPM	
Sangaran Vijayakumar	NJDOT – DPM	
Bernie Boerchers	GPI	
Proposed ITS Equipment		
There are no existing ITS facilities in the project area and NJDOT Operations has not requested any proposed facilities. In accordance with the ITS Interim Guidelines, a two-inch rigid metallic conduit (empty) for possible future fiber optic cable will be installed within the bridge parapet.		

Appendix K

Resolutions of Support

B. Lee
FYI

RESOLUTION 2013-76

TOWNSHIP OF OXFORD
COUNTY OF WARREN
STATE OF NEW JERSEY

RESOLUTION ENDORSING A NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT) PROPOSED ROUTE 31 OVER FURNACE BROOK BRIDGE REPLACEMENT PROJECT IN OXFORD TOWNSHIP

WHEREAS, it has been determined that there is an existing bridge that needs replacement in Oxford Township, County of Warren; and,

WHEREAS, the State , County and Municipal Government entities have consulted on this project and are in agreement as to the work that must be done; and,

WHEREAS, the New Jersey Department of Transportation (NJDOT) proposes to replace the existing Route 31 over Furnace Brook Bridge (Structure No. 2111-154) in Oxford Township;

WHEREAS, the project name and assigned number to this project is: Route 31, Bridge over Furnace Brook, UPC No. 093250;

WHEREAS, it has been determined that the project will require all traffic destined for Wall Street east of Route 31 to be redirected to Port Colden Street during the first stage of construction;

NOW, THEREFORE BE IT RESOLVED by the Township Committee of the Township of Oxford, State of New Jersey, commends the NJDOT for working cooperatively and collaboratively with Oxford Township and Warren County, along with their professionals, in developing this project to be constructed in a more effective and efficient manner.

CERTIFICATION

I, Sheila L. Oberly, Municipal Clerk of the Township of Oxford, County of Warren, do hereby certify that the foregoing resolution is a true and exact copy adopted by the Township Committee of the Township of Oxford on the 16th day of December, 2013.

Sheila L. Oberly

Sheila L. Oberly, RMC

Appendix L

NJDOT Communications

Meeting Minutes

Memorandum of Meeting

To:	File
From:	Julia Steponanko, GPI
Date:	September 21, 2009
Project Name:	NJDOT, Division of Project Development (DPD) Route 31 over Furnace Brook Oxford Township, Warren County Concept Development
Project Number:	2009658.05
Subject:	Kickoff Meeting
Copy:	Attendees

A kickoff meeting was held for the above referenced project at 1:00 P.M. on Thursday, September 17, 2009, in Conference Room 3A of the NJDOT E&O Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Jay Jeyamohan	NJDOT – DPD	609 530-3884
Veronica Murphy	NJDOT – DPD	609 530-8142
Kartikeyak Patel	NJDOT – DPD	609 530-5640
Dominique Brooks	NJDOT – DPD	609 530-3502
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Julia Steponanko	GPI	908 236-9001

The purpose of this meeting was to discuss the scope of work to perform Concept Development (CD) services for Structure No. 2111-154, which carries Route 31 over Furnace Brook, in the Township of Oxford, Warren County.

The following summarizes the significant items of discussion and comments:

1. Ms. Murphy stated that Structure No. 2111-154 was recommended for replacement based on the Bridge Inspection Report dated October 13, 2006.

2. The attendees noted that Structure No. 2111-154 is structurally deficient due to the poor condition of the superstructure, which was noted as having excessive loss of mortar and numerous voids in the stone masonry arch, and a loss of steel in the bottom flanges of the exposed steel stringers.

3. Mr. Jeyamohan noted that the Structural Bureau requested a complete bridge replacement. However, a deck and superstructure replacement may be sufficient. He added that both options should be addressed during CD.

4. Mr. Boerchers stated that the NJDOT – Roadway Design Manual (NJDOT-RDM) Section 10-02.4 states that any drainage structure that passes water under a land service highway embankment should accommodate a 25 year flood recurrence interval. As such a hydrology analysis including a HEC-RAS model would be required to properly evaluate any proposed replacement structure. Mr. Jeyamohan stated that any hydraulic and/or hydrologic analyses are to be performed under a separate task order, if needed.

5. Mr. Jeyamohan stated that GPI will be provided with mapping of the area, including a survey of the structure.

6. Ms. Murphy stated that the Community Profile is being completed in-house and that the Environmental Screening and CED were previously completed. She added that she will provide GPI with this information. Subsequent to the meeting, it was determined that an Environmental Screening and CED were *not* completed.

7. Ms. Murphy also noted that the structure is within the Oxford Industrial Historic District. While the structure itself is not noted as being historic, SHPO involvement may still be required since it is in the historic district.

8. The attendees agreed that GPI should run life cycle cost analyses as part of the alternatives analyses specifically with respect to rehabilitation versus full replacement.

9. Ms. Murphy stated that the scope of work should also include a Purpose and Need statement, a kick-off meeting with local officials and a core group meeting. She provided GPI with available as-built information for the project.

Action Items:

- GPI will begin preparation of a task order and Primavera schedule to perform the appropriate activities for CD.
- DPD will provide GPI with base mapping and any additional available data.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: May 20, 2011

Project Name: NJDOT, Division of Project Development (DPD)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.05

Subject: Scope Team Meeting

Copy: Attendees

A meeting was held for the above referenced project at 1:30 P.M. on Wednesday, May 18, 2011 in Conference Room 4A of the E&O Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Al Eugene	NJDOT – Project Management	609 530-3791
Towfigh Molavi	NJDOT – DPD	609 530-4880
Kamlesh Shah	NJDOT – DPD	609 530-5539
Bhavesh Shah	NJDOT – DPD	609 530-8078
Disha Parikh	NJDOT – DPD Intern	None Listed
Mark Hauske	NJDOT – Value Management	609 530-5278
Rob Siley	NJDOT – Value Engineering	609 530-8165
Al Virgilio	NJDOT – Value Solutions, Structures	609 530-5594
Hector Rodriguez	NJDOT – Value Solutions, Structures	609 530-5593
Robert Abitz, Jr.	NJDOT – Value Solutions, Roadway	609 530-5515
Chiman Antala	NJDOT – Value Solutions, Roadway	609 530-2455
Stan Pierzhanowski	NJDOT – Value Solutions, Roadway	609 530-3809
Karalas Ranganathan	NJDOT – Value Solutions, Roadway	609 530-5504
Susan Sczepkowski	NJDOT – BLAES*	609 530-3765
Joe Sweger	NJDOT – BLAES	609 530-2985
Matt Wilityer	NJDOT – BLAES	609 530-4550
David Ahdout	NJDOT – Stormwater Management	609 530-2283
Joe Powell	NJDOT – Office of Bicycle and Pedestrian Programs	609 530-5290
Nick Alfano	NJDOT – Construction	609 530-2013
Thomas Loftus	NJDOT – Construction	609 530-4859
Paul Hartle	NJDOT – Traffic Operations North	201 797-9023

* Bureau of Landscape Architecture and Environmental Solutions

Jean Joseph	NJDOT – Maintenance	973 601-6616
Jim Lepri	NJDOT – Utility Coordination	609 530-5560
Frank Pinto	NJDOT – Utility Coordination	609 530-2881
Debbie Hirt	NJDOT – Office of Community Relations (OCR)	609 530-2110
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Valerie Hrabal	GPI	908 236-9001
Lenny Lembersky	GPI	908 236-9001
Julia Steponanko	GPI	908 236-9001

The purpose of this meeting was to introduce the project, confirm the project need(s), discuss potential alternatives, and solicit comments, requirements, and/or concerns that address the project need(s).

After self-introductions, Mr. Molavi began by providing a brief project overview and history. He stated that the project is based on the 15th Cycle Bridge Re-evaluation Report dated October 6, 2008. The Report notes that Structure No. 2111-154, which carries Route 31 over Furnace Brook, is structurally deficient and recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure and the current undesirable configuration. Mr. Molavi continued that Concept Development (CD) was initiated to develop and evaluate various alternatives and to ultimately select a Preliminary Preferred Alternative (PPA) to advance to Preliminary Engineering (PE) which addresses the project need. He added that the sufficiency rating is 62.3, which is higher than the 50 rating required for federal funding and total replacement is questionable.

Mr. Boerchers then presented a summary of the information provided in the Project Fact Sheet via a PowerPoint presentation. He noted that the structure is comprised of three distinctly different structure types: a stone masonry arch section, a concrete encased steel stringer section (circa 1920), and a concrete slab section constructed in 1953.

The following summarizes the significant items of discussion and comments:

1. Mr. Boerchers stated that the sufficiency rating is greater than 50 and that the FHWA may not participate in the full replacement of the structure. He added that the load ratings for the structure were based on the 8th Cycle loads, which are now 15 years old, and that a review of the same may reduce the sufficiency rating. Mr. Rodriquez stated that if the inspection observations of the structure deterioration level would be such that the load ratings needed to be updated, it should/would have been done. He added that he would confirm the same.

2. It was stated that the stone arch portion of the overall structure was not included in the sufficiency rating of 62.3. It was opinioned that the inclusion of the stone arch would reduce the sufficiency rating based on its poor condition.

3. Mr. Boerchers questioned why the SIA sheet did not identify the structure as functionally obsolete given that there are no shoulders on the structure. It was agreed that the appropriate SME would investigate the same.

4. It was questioned whether the signalized intersection of Route 31 and Wall Street / James Burn Drive would be included in the project. Mr. Boerchers noted that the intersection may be included as the structure is within the intersection. He added that some of the traffic signal equipment is located on or immediately adjacent to the structure and would be impacted by replacement of the same. SME attendees add, however, that the project should focus solely on the project need which is the rehabilitation or replacement of the structure.

5. Ms. Hirt stated that the second lane along Route 31 northbound was added approximately 10 to 15 years ago due to a high number of same-direction rear end crashes resulting from the horizontal and vertical alignment south of the intersection.

6. Mr. Boerchers inquired as to the feasibility of obtaining reasonable assurance of a design exception for the existing controlling substandard design elements, specifically the substandard superelevation and shoulders, within the project limits given the low crash rate and potential environmental and right of way impacts of addressing the same. Mr. Abitz stated that a design exception would be required for both existing controlling substandard design elements should they not be addressed by the proposed improvements. He added that if the substandard superelevation is to remain then the structure should be designed to accommodate the additional future dead load should the Department eventually decide to correct the superelevation. Mr. Boerchers added that the parapet heights would also have to be designed giving consideration to potential future modifications of the cross slope on the structure.

7. Mr. Boerchers stated that the side street traffic volumes at the signalized intersection of Route 31 and Wall Street / James Burn Drive are extremely low with the exception of the eastbound right turn movement and that the potential exists for detouring some of these movements during construction. He added that the second through lane along Route 31 southbound south of the intersection is a climbing lane and that there is no receiving lane north of the intersection for the second through lane along Route 31 northbound. Given these conditions and the current operation of the intersection based on the capacity analyses performed to date for Concept Development, Mr. Boerchers opinioned that Route 31 could be reduced to two through lanes at the project site during construction thereby allowing staged construction.

8. The attendees stated that access to and from the fire house along James Burn Drive to Route 31 should be maintained during construction given that the existing traffic signal has emergency preemption. The attendees noted that full or partial access to James Burn Drive

from Route 31 could possibly be maintained by temporarily eliminating the existing concrete channelizing island along Route 31 northbound.

9. Mr. Powell stated that his office would prefer to see sidewalk on the structure as well as a shoulder. The attendees added that if modifications are made to the traffic signal and/or intersection that at a minimum consideration needs to be given to crosswalks along the side street approaches and the installation of ADA compliant handicap ramps and countdown pedestrian signals. Mr. Boerchers noted the close proximity of the Oxford Central School and the school crossing signs at the intersection. He added that the Oxford downtown district and the Oxford Central School are on the west side of Route 31 and the Wilkinson Recreational Field, Oxford Township municipal building and fire house, and the post office are located directly opposite on the east side. Ms. Hirt added that students walk to school through the intersection.

10. Mr. Boerchers expressed concern over the three driveways within the signalized intersection that are not controlled by the signal especially the driveway for Wilkinson Field for games and events. The attendees noted that they are not significant crash generators. It was agreed that access control for Wilkinson Field during games and events would be discussed at the local officials meeting.

11. Ms. Sczepkowski stated that according to the Historic Bridge Survey, the stone arch was built around 1875 and that modification or removal of the same may create an adverse effect on the Oxford Industrial Historic District which is located immediately west of Route 31. She added that any improvements will need to be coordinated with SHPO. Mr. Sweger added that any proposed structure may need to be visually compatible with the historic district. It was added that SHPO may give us a finding of no adverse effect with conditions. One of which is the condition of visual compatibility of the proposed structure to the historic district.

12. Mr. Sweger stated that while the Project Fact Sheet identifies Furnace Brook as Trout Production, the signs posted near the waterway indicate that it is trout stocked. He added that timing restrictions would be based on the waterway classification.

13. Mr. Wilityer stated that there is Green Acres property along Route 31 southbound that runs up to the right of way adjacent to the west side of structure. He added that he would confirm the status of this property. Subsequent to the meeting Mr. Wilityer stated via email that the property in question is Green Acres encumbered (Block 6, Lot 15).

14. The attendees agreed that the structure should be completely replaced given its condition, age, and configuration and that the replacement structure should be a three-sided precast concrete structure so as to reduce the construction duration and costs as well as future maintenance costs.

15. Mr. Loftus inquired as to the existing footing type noting that the removal of the same and the type of the proposed footing would significantly impact construction duration and costs. Mr. Lembersky stated that the existing structure is on a spread footing and that there is currently insufficient geotechnical information available to determine the proposed footing.

16. Mr. Pinto stated that the existing utility pole in the southwest corner of the structure is located in unstable soil.

17. Ms. Hrabal stated that the project lies within the Highlands Planning Area and that Oxford may have petitioned for "Plan Conformance" to adopt the standards of the Preservation Area which could affect project approvals if new through lanes are proposed in the future. Care should be taken to avoid eliminating any existing "lanes" for future needs. GPI to check to see if petition has been made for Plan Conformance.

18. Ms. Hrabal indicated that the stream is hydraulically constrained by the downstream stone arch which has a significantly smaller hydraulic opening than the rectangular opening of the upstream span. However, based on the HEC-RAS model and the downstream land use (open space/swamp), any potential "loss of storage" (due to increasing the size of the downstream opening so as to match the upstream opening) would be minimal because the roadway begins to overtop at the low point in front of the Post Office driveway long before the bridge would overtop. Additional computations may be required during the NJDEP permit process.

Action Items:

- GPI will develop alternatives based on the comments received during the meeting.
- DPD will request a reevaluation of the sufficiency rating for Structure No. 2111-154.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

May 18, 2011 – 1:30 PM
E&O Building – Room 4A

The NJDOT Division of Project Development (DPD) is currently performing Concept Development for the Route 31 over Furnace Brook project located in Oxford Township, Warren County.

Meeting Purpose – The purpose of this meeting is to introduce the project, confirm the project need(s), discuss potential alternatives, and solicit comments, requirements, and/or concerns that address the project need(s).

Problem Statement – The overall purpose of this project is the rehabilitation or replacement of Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83) in the Township of Oxford, Warren County.

The project is based on the *Structure No. 2111-154 Route NJ 31 over Furnace Brook / 15th Cycle / Bridge Re-evaluation Report* dated October 6, 2008. According to the 15th Cycle report, Structure No. 2111-154 is structurally deficient due to the poor condition of the superstructure. The Report recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure and the current undesirable configuration. The NJDOT initiated Concept Development (CD) to develop and evaluate various alternatives and to ultimately select a Preliminary Preferred Alternative (PPA) to advance to Preliminary Engineering (PE) which addresses the project need.

Existing Roadway Conditions – NJ Route 31 in the vicinity of Furnace Brook is an undivided four-lane urban principal arterial running south to north with a posted speed limit of 40 mph and 45 mph south and north of Wall Street/James Burn Drive, respectively. The study area consists of the following:

Route 31 looking north

- Route 31 passes over Furnace Brook immediately south of the signalized intersection of Route 31 and Wall Street/James Burn Drive.
- Route 31 south of the structure consists of two 12-foot wide travel lanes along each direction with no shoulders. Route 31 north of the structure consists of a single travel lane of varying width along each direction and a 14-foot shoulder along the southbound direction.
- Wall Street/James Burn Drive consists of a single travel lane in each direction and no shoulders.

- Vertical concrete curb is present along both directions of Route 31 within the project limits. Sidewalk is present in the southeast and southwest quadrants of the Route 31 and Wall Street/James Burn Drive intersection.
- The signalized intersection of Route 31 and Wall Street/James Burn Drive is a four-legged intersection controlled by a two-phase signal. The Route 31 northbound approach consists of shared left/through and through/right lanes and two receiving lanes. The Route 31 southbound, Wall Street and James Burn Drive approaches consist of a shared left/through/right lane and one receiving lane. Crosswalks, push buttons and pedestrian signal heads are provided at this intersection for the northbound and southbound approaches only.
- A Red Signal Ahead sign exists along Route 31 northbound approximately 1,300 feet south of the stop line for the northbound approach.

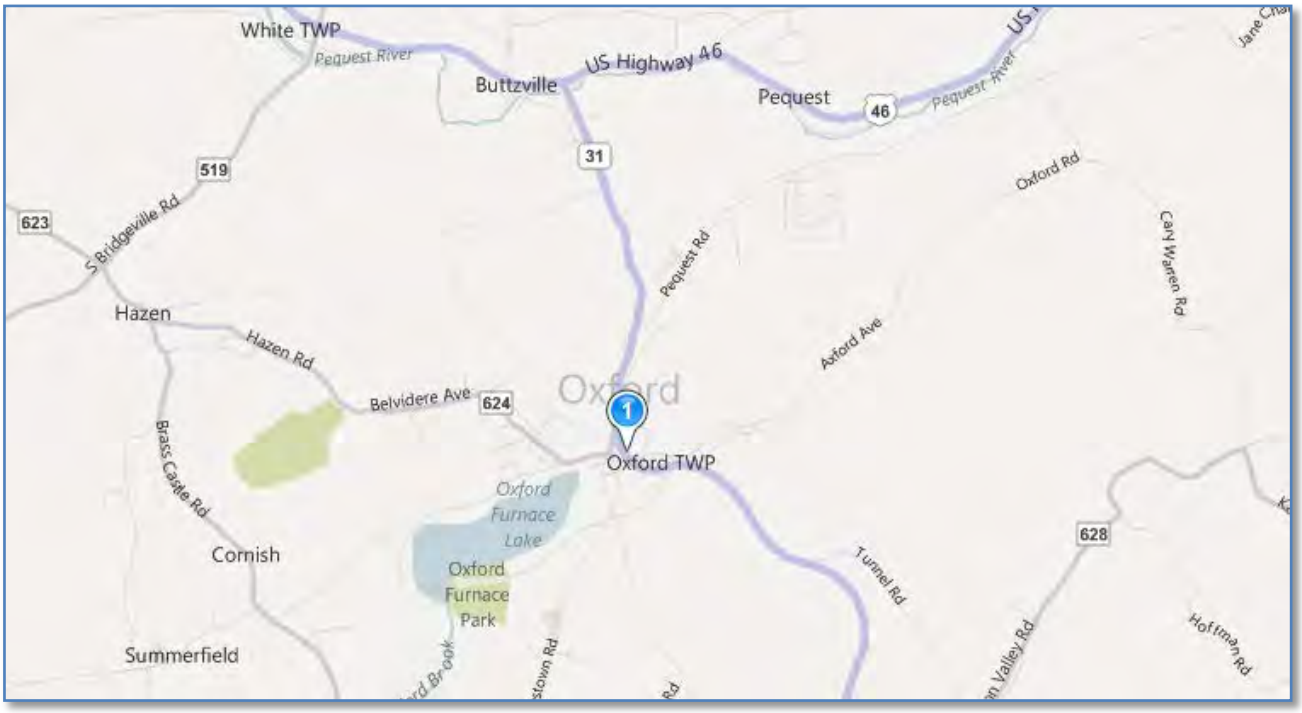


Figure 1 – Project Location (Pushpin No. 1)

Existing Deficiencies include the following:

- Two horizontal curves along Route 31 north and south of Furnace Brook have substandard superelevation. In addition, the sight distance along one horizontal curve south of Furnace Brook may be obstructed by the forested areas adjacent to Route 31. The substandard superelevations and sight distance have not been identified as significant crash generators.
- Substandard / nonexistent shoulders
- The existing guide rail on the structure (which is only located along Route 31 southbound) does not meet current standards based on the required length, rail thickness, post spacing, spacer block type and end terminals.

- Driveways for businesses adjacent to the structure currently do not meet the requirements set forth in the *New Jersey State Highway Access Management Code*.
- Three driveways are located within the intersection and are not controlled by signal heads.
- The crosswalks do not terminate at ADA compliant handicap ramps.
- Only one receiving lane exists along Route 31 northbound for the two through approach lanes which is not consistent with Figure 6-G of the NJDOT Design Manual – Roadway.
- The signal head layout for each approach, with the exception of the Route 31 southbound approach, have an undesirable arrangement of near right / far left.

Management Systems – BMS data was provided to DPD, which included a copy of the 14th and 15th Cycle Reports and corresponding SI&A sheets dated October 2006 and October 2008, respectively.

The Drainage Unit noted that Route 31 within the project limits is not on the DMS, and no records of flooding exist.

The Pavement Management Unit provided profiler data for Route 31 between mileposts 46.30 and 47.30. According to the PMS, Route 31 within the project limits has an International Roughness Index (IRI) and Surface Distress Index (SDI) ratings of fair and good, respectively.

Crash Analysis – The NJDOT Bureau of Safety Programs (BSP) provided crash data for Route 31 between mileposts 46.70 and 47.00 for the three-year period between January 1, 2006 and December 31, 2008. A total of five (5) crashes occurred over the aforementioned three-year period. BSP noted that summaries and crash rates are not provided for any location having less than six crashes. No significant patterns were uncovered based on the individual crash reports.

Environmental Screening Summary – An environmental screening was prepared for this project. The purpose of the screening was to identify any possible environmental "fatal flaws" for the proposed replacement of Structure No. 2111-154. Potential environmental constraints identified within the Screening include cultural resources, Green Acres parkland, freshwater wetlands, rare, threatened and/or endangered species and a hazardous waste site. Furnace Brook is a freshwater, trout

East (Downstream) Section

West (Upstream) Section

production Category 1 (FW2-TP C1) waterway. Structure No. 2111-154 is adjacent to the Oxford Industrial Historic District (National and State Registers) and lies within the Highlands Planning Area. However, SHPO determined that while it is over 50 years old that it is not individually eligible and non-contributing to the district.

Structural Inventory & Deficiencies – Structure No. 2111-154 is a single span, stone masonry arch, which was built in 1926 and subsequently widened in 1953. The bridge is comprised of three distinctly different structure types (see Figure 2):

- An asphalt-surfaced reinforced concrete deck supported on concrete encased steel stringers supported by gravity abutments.
- The stone masonry arch structure.
- An asphalt-surfaced reinforced concrete slab monolithic with concrete abutments supported by spread footing foundations which included modifications to the other structures to interconnect and deck over the area between the two structures

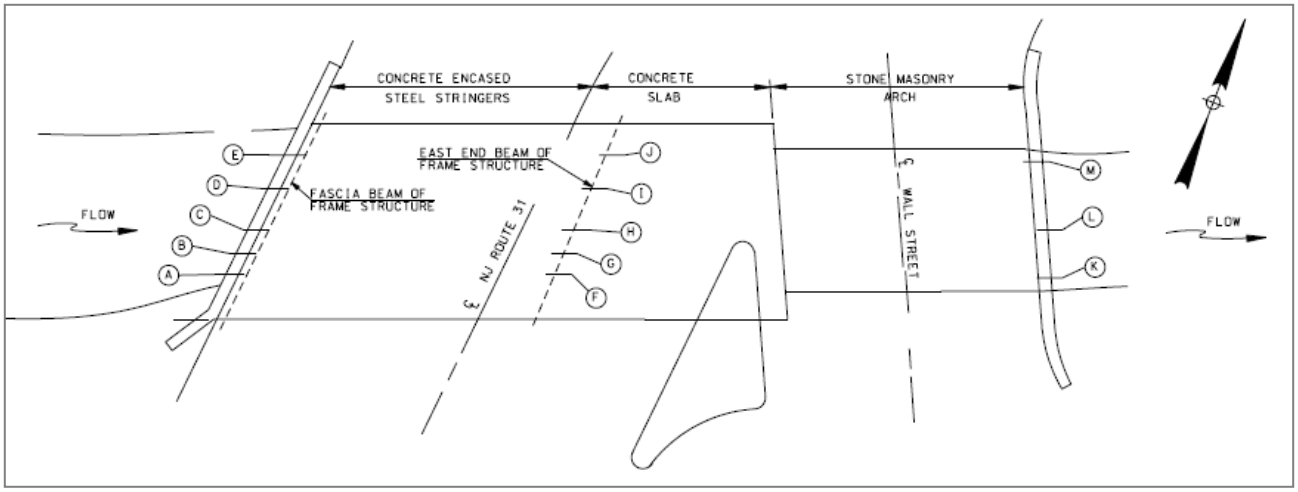


Figure 2 – Structure General Plan

Structure No. 2111-154 has a clear span of approximately 26 feet, an approximate out-to-out width of 94 feet, and an average curb-to-curb width of 86 feet. The masonry stone arch bridge is normal to the James Burn Drive roadway, while the newer 1953 portion of the bridge and the original Route 31 Bridge were both constructed on a 26-degree skew approximately parallel to the waterway.

Furnace Brook crosses Route 31 immediately south of the signalized intersection of Route 31 and Wall Street / James Burn Drive. The reinforced concrete slab and concrete encased steel stringer sections lie along Route 31 while the stone masonry arch section of the structure lies along James Burn Drive. According to the *15th Cycle Report*, the structure is structurally deficient due to the poor condition of the superstructure. The superstructure is in poor condition due to excessive loss of mortar and numerous voids in the underside of the stone masonry arch section, and loss of steel section in the exposed steel stringer section. The deck and substructure are in fair condition due to longitudinal

cracks with heavy efflorescence, and scaling at both abutments and a large spall on the north breastwall, respectively. The bridge has been identified as not being scour critical based on the Bridge Scour Evaluation Program.

The *15th Cycle Report* also states that since the previous inspection, there was no change in the overall condition of the structure. Structure No. 2111-154 had a sufficiency rating of 63.2 at the time of the *15th Cycle Report*. The report recommends a complete replacement of the structure due to the poor condition of the superstructure, the extensive deterioration of the substructure and the configuration of the existing bridge.

Hydrology and Hydraulics – Based on the TR-55 methodology and a HEC-RAS model, both the existing and proposed structure do not overtop for the 25-year design storm, which meets the requirements set forth in Section 10-02.4 of the *NJDOT Design Manual – Roadway* for drainage structures that pass water under a land service highway. However, the 100-year storm would (theoretically) overtop the roadway, which does not meet NJDOT design requirements (10-02.4; Table 10-02) for a facility that requires a NJDEP permit for a non-delineated stream. Based on our correspondence with the NJDOT Drainage Unit, there is no flooding record for the project location and it is not in the Drainage Management Unit's DMS Ranking List. Since the project does not have a history flooding and in consideration of the potential adverse impacts of raising the roadway elevation, it is recommended that any proposed structure be hydraulically equivalent to the existing structure and the existing roadway profile be maintained.

Alternatives – The following preliminary alternatives have been developed based on the aforementioned data and analyses.

Structural Alternatives

- **Alternative No. 1** consists of a **Multi-Girder Steel Beam** superstructure composite with a reinforced concrete deck slab. Due to the short span length, an integral abutment substructure is recommended to minimize initial costs and future maintenance costs.
- **Alternative No. 2** consists of a **Voided Slab** superstructure with a reinforced concrete wearing surface. Similar to Alternative No. 1, due to the short span length, an integral abutment substructure is recommended to minimize initial costs and future maintenance costs.
- **Alternative No. 3** consists of a **Precast Concrete Rigid Frame** structure supported on a pile foundation with a concrete wearing surface, which would meet the structure depth requirements.

Construction Staging Alternatives

Key issues, in addition to worker and public safety, vehicular, bicycle and pedestrian mobility, driveway access, seasonal timing restrictions, and contractor access, which will be considered as part of the alternatives analysis for construction staging, include the following:

- Emergency services, specifically the fire station located 400 feet east of Route 31 along James Burn Drive
- School busing, specifically the Oxford Central School is located within 500 feet of the project site
- Access to the municipal building located 900 feet east of Route 31 along James Burn Drive.
- Access to the recreational field during events.
- Constructability with respect to the structure actually consisting of three distinct structures.
- The feasibility of temporarily reducing the number of receiving lanes along Route 31 southbound south of Wall Street/James Burn Drive within the project limits from two lanes to one as Route 31 southbound north of Wall Street/James Burn Drive only consists of a single lane and the additional lane south of the intersection appears to be a climbing lane.
- The feasibility of temporarily reducing the number of approach lanes along Route 31 northbound from two lanes to one as there currently exists only one receiving lane for Route 31 northbound north of Wall Street/James Burn Drive. The impacts of the same can be evaluated via capacity analyses.
- The feasibility of detouring the approach of James Burn Drive at its intersection with Route 31 due to the low traffic volumes along this approach. Specifically, alternate access will need to be considered for the fire station and the municipal building.
- The feasibility of detouring the approach of Wall Street at its intersection with Route 31.
- Maintaining access for the driveways located within the work zone.

Suitable detour routes are limited, if nonexistent, for Route 31.

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: August 30, 2011

Project Name: NJDOT, Division of Project Development (DPD)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.05

Subject: SME Meeting

Copy: Attendees

A meeting was held for the above referenced project at 9:00 A.M. on Tuesday, August 30, 2011 on the 6th Floor of the E&O Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Towfigh Molavi	NJDOT – DPD	609 530-4880
Bhavesh Shah	NJDOT – DPD	609 530-8078
David Bizuga	NJDOT –Roadway Design, Group 1	609 530-5273
Karalas Ranganathan	NJDOT –Roadway Design	609 530-5504
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Julia Steponanko	GPI	908 236-9001

The purpose of this meeting was to discuss potential options for the installation of guide rail and/or crash cushions to protect motorists from the end of the parapets for the proposed replacement of Structure No. 2111-154, which carries NJ Route 31 over the Furnace Brook given the existing constraints. Specifically, the installation of guide rail and/or crash cushions is required for the end of the parapets located in the northwest and southeast quadrants of the structure since they are located within the clear zone, but available space is limited in both of these quadrants due to adjacent driveways. The meeting was also held to discuss the impact of existing substandard and undesirable features within the project area and their impact on the project limits and scope.

The following summarizes the significant items of discussion and comments:

1. Mr. Boerchers stated that the attendees at the May 18, 2011 Scope Team Meeting agreed that the project scope should be limited to addressing the project need which is the rehabilitation or replacement of Structure No. 2111-154. He added that the attendees agreed that the structure should be completely replaced with a three-sided precast concrete structure.

2. Mr. Towfigh stated that the sufficiency rating for Structure No. 2111-154 based on the 14th Cycle Bridge Re-evalaution report was greater than 50 which does not warrant FHWA participation for complete replacement as recommended by the Scope Team. He added that subsequent to the Scope Team meeting that the Structures Unit recoded the structure based on current conditions and that the sufficiency rating is now below 50.

3. Mr. Boerchers stated that Structure No. 2111-154 is partially located in the signalized intersection of Route 31 and Wall Street and that some of the existing traffic signal equipment is attached or monolithic with the existing structure. He inquired if the necessary modifications to the traffic signal would require complete replacement of the traffic signal as the current configuration is undesirable and certain features do not meet current MUTCD standards. Mr. Molavi stated that Mr. Chris Barretts of Traffic Signal and Safety Engineering (TSSE) provided concurrence for a full signal replacement in an email dated August 11, 2011. Mr. Boerchers noted that he was aware of the email, but that it is contradictory to the decision at the Scope Team meeting as it would expand the project scope. The attendees agreed that the project scope would expand to include full replacement of the traffic signal.

4. Mr. Boerchers also inquired if the intersection needs to be brought into compliance with current ADA standards noting that handicap ramps are not currently present at the intersection, which separates the downtown area immediately to the west of Route 31 from the municipal building, ball field and fire department which are located east of Route 31. Mr. Bizuga stated that handicap ramps are only required where sidewalks abut the curb or pedestrian push buttons are present. As sidewalk is present in two of the four quadrants and given the significant pedestrian generators in each quadrant, the attendees agreed that the intersection should be brought into conformance with current ADA standards.

5. Mr. Bizuga stated that the replacement of the bridge defines the project as reconstruction, and therefore the project must be in compliance with the NJDOT Completes Street Policy.

6. Mr. Boerchers stated that three driveways within the signalized intersection of Route 31 and Wall Street are currently uncontrolled and in violation of the *New Jersey State Highway Access Management Code* and that with the expansion of the project scope these nonconforming driveways will need to be addressed as part of this project. The attendees agreed that the Office of Access Design will provide guidance as to how to address these driveways.

7. Mr. Ranganathan expressed concern over the proximity of the salon building to Structure No. 2111-154 along Wall Street. He noted that any work on the bridge, including the installation of sheeting for a cofferdam, may impact the building and will have to be carefully monitored during construction.

8. Mr. Bizuga confirmed that the minimum requirements could not be met for the installation of guide rail with the appropriate end treatment of a CRT in the northwest corner of the proposed structure. He stated that the only viable option is the installation of an impact attenuator to protect motorists from the end of the parapet. He added that guide rail could be installed between the bank's two driveways, but cautioned that the distance between the driveways may not long enough to accommodate guide rail and would have to be verified.

9. Mr. Bizuga questioned if schoolchildren cross Route 31 at its intersection with Wall Street. Mr. Boerchers stated that the local officials did not mention schoolchildren crossing at this location at the local officials meeting, but added that GPI would follow-up with the Township to confirm.

10. Mr. Bizuga stated that the pavement width along Route 31 southbound north of Wall Street could be reduced to accommodate sidewalk and reduce the crossing distance across Route 31 since the existing shoulder width is excessive.

Action Items:

- GPI will revise the alternatives based on the comments received during the meeting.
- GPI will contact Oxford Township regarding schoolchildren crossing at the intersection of Route 31 and Wall Street.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: September 22, 2011

Project Name: NJDOT, Division of Project Management (DPM)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.06

Subject: Status Meeting

Copy: Attendees

A meeting was held for the above referenced project at 1:00 P.M. on Tuesday, September 13, 2011 in Conference Room 3B of the E&O Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Robert Lee	NJDOT – DPM	609 530-3813
Sangaran Vijayakumar	NJDOT – DPM	609 530-2642
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Julia Steponanko	GPI	908 236-9001

The purpose of this meeting was to discuss the status and confirm the need for the subject project. The following summarizes the significant items of discussion and comments:

1. Mr. Boerchers stated that the attendees at the May 18, 2011 Scope Team Meeting agreed that the project scope should be limited to addressing the project need which is the rehabilitation or replacement of Structure No. 2111-154. He added that the attendees agreed that the entire structure should be replaced with a three-sided precast concrete structure.

2. Mr. Boerchers stated that the structure is partially located in the signalized intersection of Route 31 and Wall Street and that some of the existing traffic signal equipment is attached or monolithic with the existing structure. He added that Mr. Chris Barretts of Traffic Signal and Safety Engineering (TSSE) provided concurrence for a full signal replacement in an email dated August 11, 2011, but this is contradictory to the decision at the Scope Team meeting as it would expand the project scope. Mr. Lee stated that the project scope and purpose

need to be confirmed prior to continuation of the Concept Development process. It was agreed that GPI would resubmit the Purpose and Need Statement for this project to DPM

3. Mr. Lee stated that the Sufficiency Rating (S.R.) for Structure No. 2111-154 based on the 14th Cycle Bridge Re-evaluation report was greater 63.1, but was recently recoded to a S.R. of 48.2. He added that this is barely within the FHWA requirements for a complete replacement. Mr. Boerchers stated that the S.R. in the 14th Cycle report did not include an evaluation of the stone arch portion of the structure, which was why the structure was recoded by the NJDOT Structures Unit. He added that the Subject Matter Experts (SME) had concluded at the Scope Team meeting that the structure should be completely replaced given its condition, age, and configuration, which is a union of three distinct and separate structures, and that the replacement structure should be a three-sided precast concrete structure so as to reduce the construction duration and costs as well as future maintenance costs

4. The attendees noted that the replacement of the structure defines the project as reconstruction, and therefore the project must be in compliance with the NJDOT Completes Street Policy. It was also noted that if the traffic signal were to be replaced, then the intersection would have to be brought into compliance with current ADA standards. It was agreed that GPI would contact TSSE to determine if the entire signal would need to be replaced or if just the equipment impacted by the replacement of the structure could be replaced and/or relocated.

5. It was noted that the existing traffic signal is not in conformance with the current MUTCD and that a Contractor may not accept the signal for use as an interim signal during construction unless it was brought into conformance.

6. Mr. Boerchers summarized the existing deficiencies within the project area which include the following:

    - Two horizontal curves along Route 31 north and south of Furnace Brook have substandard superelevation.
    - The stopping sight distance along the horizontal curve south of Furnace Brook is obstructed by trees located within the horizontal sightline offset.
    - Substandard / nonexistent shoulders
    - The existing guide rail on the structure (which is only located along Route 31 southbound) does not meet current standards based on the required length, rail thickness, post spacing, spacer block type and end terminals.
    - Three driveways are located within the intersection and are not controlled by the signal.
    - The crosswalks do not terminate at ADA compliant handicap ramps.
    - Only one receiving lane exists along Route 31 northbound for the two through approach lanes which is not consistent with Figure 6-G of the NJDOT Design Manual – Roadway.

- The signal head layout for each approach, with the exception of the Route 31 southbound approach, have an undesirable arrangement of near right / far left.

He added that none of the aforementioned substandard or undesirable conditions has been identified as a significant crash generator.

7. Mr. Vijayakumar expressed concern over the proximity of the salon building to Structure No. 2111-154 along Wall Street. He noted that any work on the bridge, including the installation of sheeting for a cofferdam dam, may impact the building and will have to be carefully monitored during construction. Mr. Boerchers also recommended a pre-construction survey of the property to validate any potential damage claims.

8. Mr. Lee stated that the project should be re-baselined to account for the delay associated with the project transfer from the Division of Project Development to DPM.

Action Items:

- GPI will confirm with TSSE whether the traffic signal must be replaced in its entirety.
- GPI will update the project schedule.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: April 19, 2012

Project Name: NJDOT, Division of Project Management (DPM)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.05

Subject: Core Group Meeting

Copy: Attendees

A meeting was held for the above referenced project at 9:30 A.M. on Wednesday, April 11, 2012 in Conference Room 3B of the E&O Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Robert Lee	NJDOT – DPM	609 530-3813
Sangaran Vijayakumar	NJDOT – DPM	609 530-2642
Brett Steinberg	Federal Highway Administration (FHWA)	609 637-4237
Mark Hauske	NJDOT – Quality Management Services (QMS)	609 530-5278
Warren Howard	NJDOT – QMS	609 530-2499
Al Virgilio	NJDOT – Value Solutions, Structures	609 530-5594
Shirish Patel	NJDOT – Structural Design	609 530-5656
Chiman Antala	NJDOT – Value Solutions, Roadway	609 530-2455
Glenn Adams	NJDOT – Roadway Design	609 530-2608
Vincent Burns	NJDOT – Bureau of Traffic Engineering (BTE)	609 530-8091
Joe Sweger	NJDOT – BLAES	609 530-2985
Suzanne Sczepkowski	NJDOT – BLAES	609 530-3765
Matt Wilityer	NJDOT – BLAES	609 530-4550
Joe Powell	NJDOT – Office of Bicycle and Pedestrian Programs	609 530-5290
Robert Kopf	NJDOT – Construction Management	609 530-2682
Frank Cole	NJDOT – Region North Construction	973 647-4987
Paul Hartle	NJDOT – Traffic Operations North	201 797-9023
John Nettleton	NJDOT – Right of Way & Access Management	973 601-6737
Charles Isiadinso	NJDOT – Right of Way & Access Management	609 530-5376
Paul Ignarri	NJDOT – Right of Way & Access Management	609 530-5543
Frank Pinto	NJDOT – Utility Coordination	609 304-3288
Chrystal Section	NJDOT – ADA	609 530-2939

Zack Asadpour	NJDOT-BLAES	609 530-2727
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Lenny Lembersky	GPI	908 236-9001
Julia Steponanko	GPI	908 236-9001

*Bureau of Landscaping and Environmental Services

The purpose of this meeting was to reconfirm the project need, discuss potential alternatives, solicit comments, requirements, and/or concerns that address the project need(s), and to potentially select the Preliminary Preferred Alternative (PPA).

After self introductions, Mr. Lee began the meeting by stating that the purpose of the project is to replace Structure No. 2111-154 which carries Route 31 over Furnace Brook. He added that the project scope should be limited to the replacement of the structure and avoid the complete replacement of the adjacent traffic signal at the intersection of Route 31 and Main Street, if possible. Mr. Vijayakumar provided a brief project overview and history. The project was initiated as a superstructure replacement project. However, based on the structural conditions and input from the SMEs, it is turning into a total replacement project. He stated that the project is based on the *16th Cycle Bridge Re-evaluation Report* dated October 2010. The *Report* states that Structure No. 2111-154 is structurally deficient and recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure, and the current undesirable configuration. Mr. Vijayakumar continued that Concept Development (CD) was initiated to develop and evaluate various alternatives and to ultimately select a Preliminary Preferred Alternative (PPA) to advance to Preliminary Engineering (PE) which addresses the project need. He added that the sufficiency rating is 48.2.

Mr. Boerchers then presented a summary of the information provided in the Project Fact Sheet, including existing conditions and deficiencies, structural alternatives and staging alternatives. He noted that the structure is comprised of three distinctly different structure types: a stone masonry arch section (circa 1875), a concrete encased steel stringer section (1926), and a concrete slab section (1953).

The following summarizes the significant items of discussion and comments:

1. Mr. Boerchers indicated that the stream is hydraulically constrained by the downstream stone arch which has a significantly smaller hydraulic opening than the rectangular opening of the upstream span. However, based on the HEC-RAS model and the downstream land use (open space/swamp), any potential “loss of storage” (due to increasing the size of the downstream opening so as to match the upstream opening) would be minimal.

2. Mr. Boerchers noted the close proximity of the Oxford Central School and the school crossing signs at the intersection. He added that the Oxford downtown district and the Oxford Central School are on the west side of Route 31 and the Wilkinson Recreational Field, Oxford Township municipal building and fire house, and the post office are located directly opposite on the east side.

3. Mr. Lembersky stated that Structure Alternative No. 3, pre-cast rigid frame, is the best option to accommodate the proposed footprint and would minimize construction duration and cost. Mr. Boerchers noted that since the existing structure is on a spread footing and given the surrounding area, spread footings were assumed for the proposed structure. However, he added there is currently insufficient geotechnical information available to determine the final proposed footing.

4. Mr. Boerchers stated that any curb ramps impacted during replacement of Structure No. 2111-154 will be replaced with ADA compliant curb ramps. Mr. Burns and Ms. Section noted that the pedestrian signal heads and push buttons should be replaced for the entire signal as per the PROWAAG. The attendees noted that this would significantly increase the project scope beyond the initial project purpose. Mr. Steinberg added that the entire federal project limits must be ADA compliant.

5. Mr. Steinberg stated that the project scope should address the lack of a second receiving lane along Route 31 northbound through its intersection with Wall Street. Mr. Boerchers stated that the provision of an auxiliary lane through the intersection in accordance with the NJDOT Design Manual – Roadway would require widening and possibly right of way acquisition or a design exception.

6. Mr. Boerchers stated that providing ADA compliant handicap ramps throughout the intersection of Route 31 and Wall Street would possibly require right of acquisition, specifically in the northwest corner of the intersection adjacent to the memorial based on the base plans which include right of way lines based on tax maps and as-built plans. He added that sidewalks do not adjoin the crosswalk along the southbound approach, but that pedestrian signals are provided for the crosswalk.

7. Mr. Boerchers inquired as to the feasibility of obtaining reasonable assurance of a design exception for the existing controlling substandard design elements, specifically the substandard superelevation and shoulders, within the project limits given the low crash rate and potential environmental and right of way impacts of addressing the same. Mr. Antala stated that the approval of a design exception for each of the existing controlling substandard design elements is probable.

8. Mr. Boerchers expressed concern over the three driveways within the signalized intersection that are not controlled by the signal especially the driveway for Wilkinson Field for games and events. The attendees noted that the driveways are not significant crash generators and that NJDOT Access may possibly grant waivers for the same.

9. Mr. Boerchers suggested performing a survey of the building foundation in the northeast quadrant of the structure before and after construction to determine if sheeting or other work results in foundation problems.

10. Mr. Sweger stated that the Furnace Brook is trout production, and any necessary cofferdams must be in place prior to the work restriction period between September 15 and

March 15. He added that construction inside the cofferdam can occur during the trout production season.

11. Mr. Boerchers stated that the side street traffic volumes at the signalized intersection of Route 31 and Wall Street are extremely low with the exception of the eastbound right turn movement and that the potential exists for detouring some of these movements during construction. He added that the second through lane along Route 31 southbound south of the intersection is a climbing lane and that there is no receiving lane north of the intersection for the second through lane along Route 31 northbound. Given these conditions and the current operation of the intersection based on the capacity analyses performed to date for Concept Development, Mr. Boerchers noted that Route 31 could be reduced to two through lanes at the project site during construction thereby allowing staged construction.

12. The attendees stated that access to and from the fire house along Wall Street to Route 31 should be maintained during construction given that the existing traffic signal has emergency preemption. The attendees noted that full or partial access to James Burn Drive from Route 31 could be maintained. Mr. Burns requested an AutoTurn analysis to ensure the fire trucks can maneuver the right turn from Wall Street onto Route 31.

13. It was noted that an AutoTurn analysis should also be conducted for circulation of a delivery tanker truck within the gas station located at the intersection of Route 31 and Kent Street since access from said property along Route 31 will be restricted during Stage 2 of construction.

14. It was noted that the height dimension for the parapet walls and barrier curb with railings was incorrect regarding bicycle and pedestrian compatibility.

15. Mr. Hartle stated that access could be maintained along Route 31 for the liquor store in the southeast quadrant of the Route 31 and Wall Street intersection, and that the same can be accomplished by shifting the approach end of the construction barrier to allow access and installing additional barrier between the driveway and the work zone.

16. The consensus of the Core Group was that the replacement structure should be a three-sided precast concrete structure (Structure Alternative No. 3) to minimize the construction duration and cost as well as future maintenance costs. The Core Group also requested an AutoTurn analysis before deciding on a staging PPA.

17. It was agreed that DPM would coordinate with FHWA to determine the project limits and scope and if they should address deficiencies at the intersection of Route 31 and Wall Street.

Action Items:

- GPI will perform an AutoTurn analysis for fire trucks turning right from Wall Street onto Route 31 and for delivery tanker truck circulation in the gas station at the intersection of Route 31 and Kent Street.
- GPI will correct the height dimensions for the parapet walls and barrier curb.
- GPI will modify the construction staging plans to provide access to the liquor store in the southeast corner of the intersection of Route 31 and Wall Street.
- GPI will investigate pedestrian circulation through the work zone during construction.
- DPM will define the project limits with FHWA.
- GPI will investigate the minimum improvements needed to make the entire intersection ADA compliant.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

April 11, 2012 – 9:30 AM
E&O Building Conference Room 3B

The NJDOT Division of Project Management (DPM) is currently performing Concept Development for the Route 31 over Furnace Brook project located in Oxford Township, Warren County.

Meeting Purpose –The purpose of this meeting is to review the developed alternatives, solicit comments, requirements and/or concerns from the SMEs, and to ultimately recommend one alternative that will best serve as the Preliminary Preferred Alternative (PPA).

Problem Statement – The overall purpose of this project is to address the identified existing deficiencies of Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83). The project was originally advanced as a deck/ superstructure replacement project. However, based on the *Structure No. 2111-154, Route NJ 31 over Furnace Brook, 16th Cycle Bridge Re-evaluation Report* dated October 13, 2010, Structure No. 2111-154 is structurally deficient due to the poor condition of the superstructure. The Report recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure and the current undesirable configuration. The NJDOT initiated Concept Development (CD) to develop and evaluate various alternatives and to ultimately select a PPA to advance to Preliminary Engineering (PE) which addresses the project need.

Existing Roadway Conditions – The study area consists of the following:

- NJ Route 31 in the vicinity of Furnace Brook is an undivided urban principal arterial running south to north with a posted speed limit of 40 mph and 45 mph south and north of Wall Street, respectively.
- Route 31 is a four-lane section south of the structure with no shoulders and a two-lane section north of the structure with a shoulder along the southbound direction. Wall Street consists of a single travel lane in each direction and no shoulders. Route 31 and Wall Street form a four-legged signalized intersection controlled by a two-phase signal.
- Vertical concrete curb is present along both directions of Route 31 within the project limits. Sidewalk is present in the southeast and southwest quadrants of the Route 31 and Wall Street intersection.

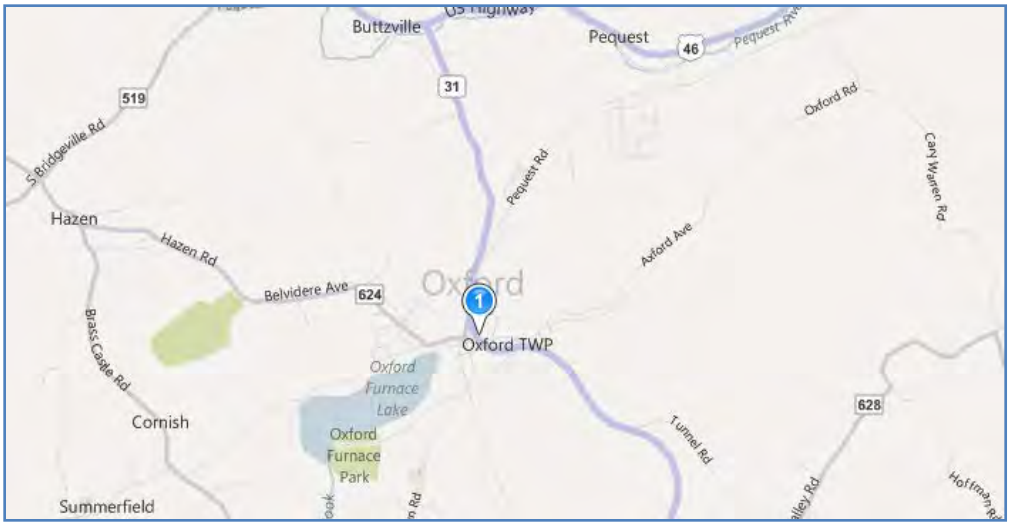
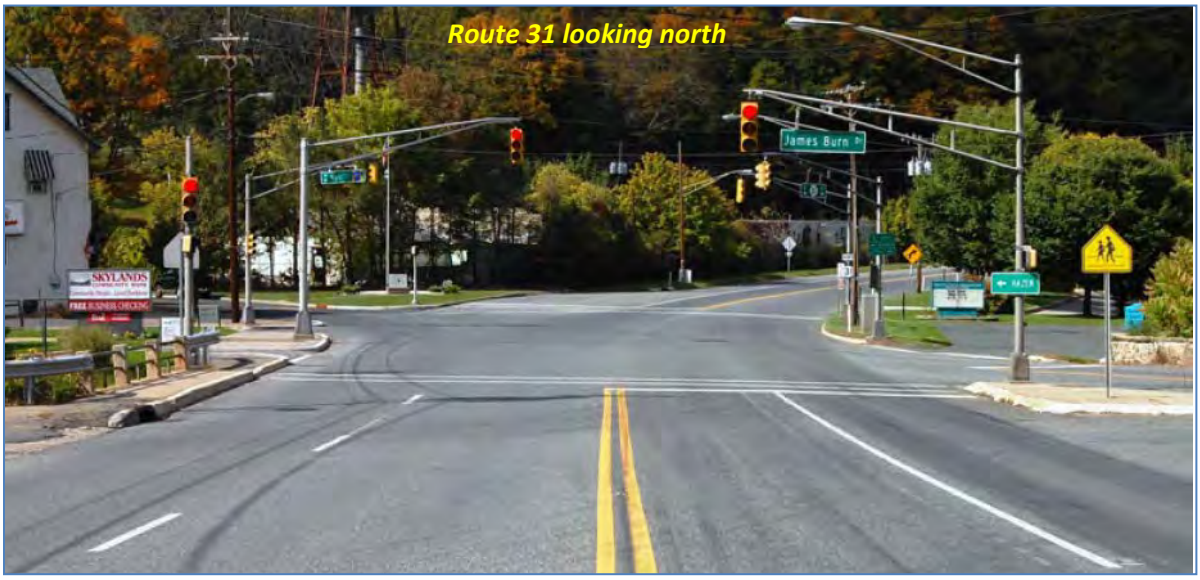


Figure 1 - Project Location (Pushpin No. 1)

Existing Deficiencies – The following existing Controlling Substandard Design Elements (CSDE) and deficiencies have been identified based on available information. None of the below were identified as significant crash generators.

- (CSDE) Substandard superelevation on one curve exists along Route 31 south of Furnace Brook.
- (CSDE) Substandard / nonexistent shoulders as identified previously
- (CSDE) Only one receiving lane exists along Route 31 northbound for the two through approach lanes.
- The existing guide rail on the structure (which is only located along Route 31 southbound) does not meet current standards based on the required length, rail thickness, post spacing, spacer block type and end terminals.
- Driveways adjacent to the structure currently do not meet the requirements set forth in the *New Jersey State Highway Access Management Code*. Additionally, three driveways are located within the intersection and are not controlled by signal heads.
- The signal head layout for each approach, with the exception of the Route 31 southbound approach, has an undesirable near right / far left arrangement. In addition, the crosswalks do not terminate at ADA compliant handicap ramps.



Structural Inventory & Deficiencies – Structure No. 2111-154 is comprised of three distinctly different structure types (see Figure 2). It has a clear span of approximately 26 feet, an approximate out-to-out width of 94 feet, and an average curb-to-curb width of 86 feet.

- An asphalt-surfaced reinforced concrete deck supported on concrete encased steel stringers supported by gravity abutments along Route 31 constructed in 1920.
- A stone masonry arch structure along Wall Street constructed c. 1875 based on the State's Historic Bridge Survey.
- An asphalt-surfaced reinforced concrete slab monolithic with concrete abutments supported by spread footing foundations. Constructed in 1953, this section also included modifications to the other structures to interconnect and deck over the area between the two structures.

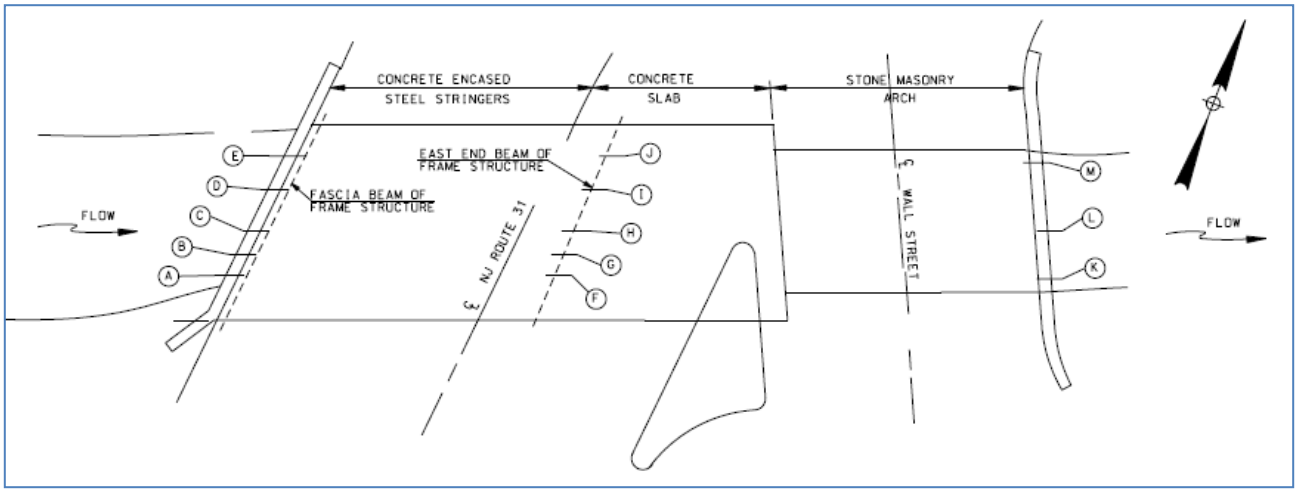


Figure 2 - Structure General Plan

The masonry stone arch bridge is normal to the Wall Street roadway, while the original Route 31 structure and the newer 1953 portion were both constructed on a 26-degree skew approximately parallel to the waterway.

According to the *16th Cycle Report*, the overall condition of the structure is serious due to the superstructure. The superstructure is in poor condition due to excessive loss of mortar and numerous voids in the underside of the stone masonry arch section, and loss of steel section in the exposed steel stringer section. The deck and substructure are in fair condition due to longitudinal cracks with heavy efflorescence; and scaling of both abutments, a large spall on the north breastwall and a wide longitudinal fracture on the southwest wingwall, respectively. The bridge is not scour critical based on the Bridge Scour Evaluation Program. Structure No. 2111-154 had a sufficiency rating of **48.2**.

The *16th Cycle Report* also states that since the previous inspection, it was recommended to inspect the masonry portion of the structure on an interim basis. The report recommends a complete replacement of the structure due to the poor condition of the superstructure, the extensive deterioration of the substructure and the configuration of the existing bridge. Unlike the *15th Cycle Report*, this inspection included an evaluation of the stone arch as part of the sufficiency rating.

Hydrology and Hydraulics – Based on the TR-55 methodology and a HEC-RAS model, both the existing and proposed structure do not overtop for the 25-year design storm, which meets the requirements set forth in Section 10-02.4 of the *NJDOT Design Manual – Roadway* for drainage structures that pass water under a land service highway. However, the 100-year storm would (theoretically) overtop the roadway, which does

not meet NJDOT design requirements (10-02.4; Table 10-02) for a facility that requires a NJDEP permit for a non-delineated stream. Based on our correspondence with the NJDOT Drainage Unit, there is no flooding record for the project location and it is not in the Drainage Management Unit's DMS Ranking List. Since the project does not have a history flooding and in consideration of the potential adverse impacts of raising the roadway elevation, it is recommended that any proposed structure be hydraulically equivalent to the existing structure and the existing roadway profile be maintained.

Management Systems: The following data was provided for this study.

SYSTEM	DATA
Bridge Management System (BMS)	14th, 15th and 16th Cycle Reports and corresponding SI&A sheets dated October 2006, 2008 and 2010, respectively. **S.R. = 48.2.**
Pavement Management System (PMS)	Pavement condition on Route 31 between mileposts 46.30 and 47.30 (IRI and SDI) is fair and good, respectively.
Drainage Management System (DMS)	Route 31 within the project limits is not on the DMS, and no records of flooding exist.

Crash Analysis – The NJDOT Bureau of Safety Programs (BSP) provided crash data for Route 31 between mileposts 46.70 and 47.00 for the three-year period between January 1, 2006 and December 31, 2008. A total of five (5) crashes occurred over the aforementioned three-year period. BSP noted that summaries and crash rates are not provided for any location having less than six crashes. No significant patterns were uncovered based on the individual crash reports.

Environmental Screening Summary –The purpose of the screening was to identify any possible environmental "fatal flaws" for the proposed replacement of Structure No. 2111-154. Potential constraints include cultural resources, Green Acres parkland, freshwater wetlands, rare, threatened and/or endangered species and a hazardous waste site. Furnace Brook crosses Route 31 immediately south of its intersection with Wall Street. Furnace Brook is a freshwater, trout production Category 1 (FW2-TP C1) waterway. Structure No. 2111-154 is adjacent to the Oxford Industrial Historic District (National and State Registers) and lies within the Highlands Planning Area. However, SHPO determined that while it is over 50 years old, the structure is not individually eligible and non-contributing to the district.

West (Upstream) Section

East (Downstream) Section

Alternatives – The following alternatives have been developed based on the aforementioned data and analyses.

Structural Alternatives

- **Alternative No. 1** consists of a **Multi-Girder Steel Beam** superstructure composite with a reinforced concrete deck slab. Due to the short span length, an integral abutment substructure is recommended to minimize initial costs and future maintenance costs.
- **Alternative No. 2** consists of a **Voided Slab** superstructure with a reinforced concrete wearing surface. Similar to Alternative No. 1, due to the short span length, an integral abutment substructure is recommended to minimize initial costs and future maintenance costs.
- **Alternative No. 3** consists of a **Precast Concrete Rigid Frame** structure with a concrete wearing surface, which would meet the structure depth requirements.

Construction Staging Alternatives

- **Alternative No. 1** consists of two-stage construction maintaining one lane of traffic in each direction along Route 31 during both stages. This alternative also maintains limited access from Wall Street onto Route 31. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement will be prohibited and detoured to Port Colden Road.
- **Alternative No. 2** is consists of two-stage construction maintaining one lane of traffic in each direction along Route 31 during both stages. This alternative proposes to close the Wall Street westbound approach during Stage 1 and detouring traffic to Port Colden Road.

Suitable detour routes are limited, if nonexistent, for Route 31.

Key issues, in addition to worker and public safety, vehicular, bicycle and pedestrian mobility, driveway access, seasonal timing restrictions, and contractor access, which were considered as part of the alternatives analysis for construction staging, included the following:

- Emergency services, specifically the fire station located 400 feet east of Route 31 along Wall Street;
- School busing, specifically the Oxford Central School located within 500 feet of the project site;
- Access to the municipal building located 900 feet east of Route 31 along Wall Street;
- Access to the recreational field during events;
- Constructability with respect to the structure actually consisting of three distinct structures; and
- Maintaining access for the driveways located within the work zone.

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: April 2, 2013 (Rev. May 17, 2013)

Project Name: NJDOT, Division of Project Management (DPM)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.05

Subject: Core Group Meeting

Copy: Attendees

A meeting was held for the above referenced project at 9:30 A.M. on Tuesday, March 19, 2013 in Conference Room 3B of the E&O Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Robert Lee	NJDOT – DPM	609 530-3813
Sangaranat Vijayakumar	NJDOT – DPM	609 530-2642
Brett Steinberg	Federal Highway Administration (FHWA)	609 637-4237
Nicole Einthoven	NJDOT – Quality Management Design Standards	609 530-5781
Al Virgilio	NJDOT – Structures	609 530-5594
Jayant Dalal	NJDOT – Structures	609 530-2567
Pranav Lathia	NJDOT – Structures	609 530-3531
Chiman Antala	NJDOT – Value Solutions	609 530-2455
Robert Abitz, Jr.	NJDOT – Value Solutions	609 530-5515
Stan Pierzhanowski	NJDOT – Value Solutions	609 530-3809
Glenn Adams	NJDOT – Roadway Design	609 530-2608
Karalas Ranganathan	NJDOT – Roadway Design	609 530-5504
Kantilal Patel	NJDOT – Road User Solutions	609 530-4949
Vincent Burns	NJDOT – Bureau of Traffic Engineering (BTE)	609 530-8091
Joe Sweger	NJDOT – BLAES*	609 530-2985
Suzanne Sczepkowski	NJDOT – BLAES	609 530-3765
Matt Wilityer	NJDOT – BLAES	609 530-4550
Zak Asadpour	NJDOT – BLAES	609 530-2727
David Ahdout	NJDOT – Hydraulics and Hydrology	609 530-2283
Joseph Powell	NJDOT – Office of Bicycle and Pedestrian Programs	609 530-5290

Kim Sharp	NJDOT – Construction Management	609 530-2781
Shamser Choudhury	NJDOT – Region North Construction	908 441-6101
Robert Anderson	NJDOT – Right of Way North	973 601-6727
Charles Isiadinso	NJDOT – Access Design	609 530-5376
Paul Ignarri	NJDOT – Access Design	609 530-5543
Frank Pinto	NJDOT – Utility Management	609 530-2881
James Lepri	NJDOT – Utility Management	609 530-5560
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Valerie Hrabal	GPI	908 236-9001
Julia Steponanko	GPI	908 236-9001

**Bureau of Landscape Architecture and Environmental Services*

The purpose of this meeting was to reconfirm the project need, address SME comments from the April 11, 2002 Core Group meeting, solicit any additional comments, requirements, and/or concerns that address the project need(s), and to potentially select the Preliminary Preferred Alternative (PPA). The meeting purpose also included addressing any necessary modifications to the project scope to bring the project into ADA conformance.

After self introductions, Mr. Lee began the meeting by stating that the purpose of this project is to replace Structure No. 2111-154 which carries Route 31 over Furnace Brook. The project is based on the *16th Cycle Bridge Re-evaluation Report* dated October 2010 which states that the structure is structurally deficient, with a sufficiency rating of 48.2, and recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure, and the current undesirable configuration.

Mr. Boerchers then presented a summary of the information provided in the Project Fact Sheet, including existing conditions and deficiencies, alternatives and staging options. He stated that the structure is comprised of three distinctly different structure types: a stone masonry arch section (circa 1875), a concrete encased steel stringer section (1926), and a concrete slab section (1953). He noted that based on input received at the April 11, 2012 Core Group meeting that GPI revised / developed a total of nine alternatives along with a No-Build Alternative. The alternatives consist of three different structural alternatives that were each combined with the following roadway alternatives: Alternative Nos. 1 through 3 consist of the replacement of the structure with roadway and traffic signal work limited to only that which would be impacted by the replacement of the structure. Alternative Nos. 4 through 6 consist of the replacement of the structure along with the replacement of the traffic signal at the intersection of Route 31 and Wall Street and associated roadway work. Alternative Nos. 7 through 9 are the same as Alternative Nos. 4 through 6 except they also include extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street to bring it into conformance with the NJDOT Design Manual – Roadway. All of the alternatives are in conformance with ADA standards. Mr. Boerchers added that the SMEs at the April 11, 2012 Core Group meeting had selected a precast concrete structure as the preferred structure type. Therefore the viable alternatives to be discussed at this meeting included Alternative Nos. 3, 6 and 9.

The following summarizes the significant items of discussion and comments:

1. Ms. Hrabal stated that Furnace Brook overtopped the roadway after several consecutive storms in August and September 2011. She added, however, that the roadway does not have a history of flooding and in consideration of the potential adverse impacts of raising the roadway elevation, it was previously agreed upon with the SMEs to maintain the existing hydraulic opening and roadway profile.

2. Mr. Boerchers stated that three driveways, two for the bank and one for Wilkinson Field, within the signalized intersection of Route 31 and Wall Street are not controlled by the traffic signal. He noted that after inquiry the Department was informed by local officials that a traffic director is not used at the driveway for Wilkinson Field for games and events. He also noted that these driveways were not identified as crash generators. Mr. Ignarri stated that if the driveways are not significant crash generators, NJDOT Access may possibly grant waivers for the same if the driveways are not modified by the proposed improvements. The attendees discussed options for the Wilkinson Field driveway that included turn prohibitions and/or adding an actuated phase to the traffic signal at the intersection for the driveway. Mr. Boerchers noted that the intersection operates at an overall Level of Service 'A' during each of the peak hours with no movement operating worse than an LOS of 'C', and he opinioned that the addition of an actuated signal phase for the driveway would not significantly degrade the operation of the overall intersection. The attendees agreed that these options would be discussed with Oxford Township.

3. Mr. Ahdout inquired if the extension of the auxiliary lane along Route 31 northbound north of Wall Street would result in a net increase of new impervious area of more than ¼ acre or a total disturbance of more than one acre thereby requiring compliance with the Stormwater Management Rules. Mr. Boerchers stated that the proposed widening for the auxiliary lane accompanied with other improvements would not exceed either of the Stormwater Management Rules trigger values.

4. Mr. Ahdout inquired as to the location of the outfalls for the inlets along Route 31 both north and south of the Furnace Brook. Mr. Boerchers stated that an outfall with a headwall exists on the north side of the Furnace Brook to the east of the structure, and that another outfall exists under the structure through the abutment wall. He could not recall the specific location of the outfall under the structure or the pipe runs between the inlets and outfalls. Subsequent to the meeting, GPI confirmed via a review of as-built plans and a field investigation that the outfall under the structure is located on the south side of the structure and within the concrete slab section (1953). GPI also attempted to identify the pipe runs, along with size and type, between the existing inlets through a review of the as-built plans and a field investigation. However, most of the inlets along Route 31 north of Wall Street are not indicated on the as-built plans and due to sediment in the existing inlets it was impossible to verify/determine the pipe runs, size and type north of the structure and their respective outfall.

5. Ms. Hrabal indicated that the stream is hydraulically constrained by the downstream stone arch which has a significantly smaller hydraulic opening than the rectangular opening of the upstream

span. However, based on the HEC-RAS model and the downstream land use (open space/swamp), any potential "loss of storage" due to increasing the size of the downstream opening so as to match the upstream opening would be minimal. She added that flood routing would be required by NJDEP if the opening size were to be increased.

6. Ms. Sczepkowski stated that this project is in close proximity to the Oxford Industrial Historic District, and as such she opinioned that SHPO would require that the proposed improvements be compatible with the District (i.e. curb color, pavers, decorative lighting, etc.). She added that the proposed extension of the auxiliary lane along Route 31 northbound may have an adverse effect on the District and/or require an archeological investigation. The attendees agreed that SHPO coordination should be initiated during this phase of the project for a modified version of Alternative No. 6, which would include a substandard auxiliary for Route 31 northbound, and Alternative No. 9.

7. The attendees noted that the proposed extension of the existing substandard auxiliary lane along Route 31 northbound would make left turns into and from the post office more difficult. Mr. Abitz suggested a substandard auxiliary lane, which would require a Design Exception, to minimize impacts.

8. The attendees recommended that sidewalk with an ADA compliant handicap ramp be provided to connect the proposed sidewalk in the northwest quadrant through to the post office driveway.

9. Mr. Boerchers stated that since the existing structure is on a spread footing, spread footings were assumed for the proposed structure. However, he added there is currently insufficient geotechnical information available to confirm the final proposed foundation.

10. Mr. Boerchers recommended performing a before and after survey of the building foundation in the northeast quadrant of the structure to determine if sheeting or other work results in foundation problems.

11. The attendees noted that the Furnace Brook is trout production, and any necessary cofferdams must be in place prior to the work restriction period between September 15 and March 15. Mr. Boerchers noted that construction inside the cofferdam can occur during the trout production season.

12. Mr. Boerchers stated that the side street traffic volumes along Wall Street are extremely low with the exception of the eastbound right turn movement and that the potential exists for detouring some of these movements during construction. He added that the second through lane along Route 31 southbound south of the intersection is a climbing lane and Route 31 northbound lacks a second receiving lane north of the intersection. Given these conditions and the current operation of the intersection based on the capacity analyses performed to date, Mr. Boerchers noted that Route 31 could be reduced to two through lanes during construction thereby allowing staged construction.

13. The attendees stated that Wall Street should be closed and detoured during Stage 1 of construction, unless the local officials oppose the same.

14. Mr. Wilityer stated that closing access to Wilkinson field during construction may have Green Acres implications since it is a public park. Mr. Boerchers noted that GPI will investigate providing alternate access to the park during construction.

15. Mr. Ignarri stated that closing all access points along Route 31 for the gas station and liquor store would result in the State compensating the owners for any loss in business. The attendees agreed that GPI should investigate maintaining one driveway for each business open during construction.

16. Mr. Lepri and Mr. Pinto noted that the pole located along Wall Street near the southeast quadrant of the bridge (behind the stone wall) has a guy wire that may become an easement issue if it requires relocation. The pole along Route 31 near the southwest quadrant of the structure is located at the guide rail terminus which does not comply with current design standards or the Utility Accommodation Policy. Consideration should be given to relocating both poles during construction for work to be performed to the structure.

17. The consensus of the Core Group was that **Alternative No. 9**, unless deemed unreasonable in the future based on SHPO input, and **Staging Option No. 1** pending local input should be advanced as the PPA.

Action Items:

- GPI will investigate the outfalls for the drainage system along Route 31.
- GPI will modify the PPA per the SME comments at this meeting.
- GPI will modify the construction staging plans to provide access to Wilkinson field, the liquor store and gas station along Route 31 for Constructability Review.
- DPM/BLAES will coordinate with SHPO to determine the impacts of Alternative Nos. 6 and 9 on the Historic District.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

AGENDA

Core Group Meeting

March 19, 2013
9:30 AM – NJDOT Conference Room 3B

Route 31 over Furnace Brook
Structure No. 2111-154, MP 46.83

Location: Oxford Township, Warren County, New Jersey

1) Introductions

2) Meeting Purpose (NJDOT)

3) Project Background

   - Project Location and Limits
   - Project Purpose and Need
   - Existing Conditions
     - Roadway Deficiencies / Substandard Elements
     - Structural Deficiencies / Substandard Elements
     - Hydrology and Hydraulics
     - Management System Information
     - Safety / Operations
     - Review of Environmental Screening
     - Original Preliminary Preferred Alternative (PPA)

4) Core Group Comments/How they have been addressed

5) Proposed PPA

   - Roadway and Substandard Elements
   - ADA and Complete Street Policy Related Improvements
   - Guide Rail
   - Drainage
   - Traffic Signal
   - Curb
   - Environmental Issues
   - ITS / Utilities / Access

6) Staging Options / Constructability

7) Questions / Comments

8) Next Steps

March 19, 2013 – 9:30 AM
E&O Building Conference Room 3B

The NJDOT Division of Project Management (DPM) is currently performing Concept Development for the NJ Route 31 over Furnace Brook project located in Oxford Township, Warren County.

Meeting Purpose – The purpose of this meeting is to present the revised alternatives to the attendees, solicit their comments, requirements, and/or concerns, and recommend one alternative as the Preliminary Preferred Alternative (PPA).

Problem Statement – The overall purpose of this project is to address the existing deficiencies of Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83). The project was originally advanced as a deck/superstructure replacement project. However, the *16th Cycle Bridge Re-evaluation Report* dated October 13, 2010 recommends the complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure and the current undesirable configuration.

Existing Roadway Conditions – NJ Route 31 in the vicinity of Furnace Brook consists of the following:

- Undivided urban principal arterial; four-lanes, no shoulders; and two-lanes, southbound shoulder south and north of the structure, respectively.
- Posted speed limit of 40 mph and 45 mph south and north of Wall Street, respectively.
- Forms a signalized intersection with Wall Street (two-lane local road), controlled by a two-phase signal.
- Curb along both directions of NJ Route 31. Sidewalk in southeast and southwest quadrants of the signalized intersection.

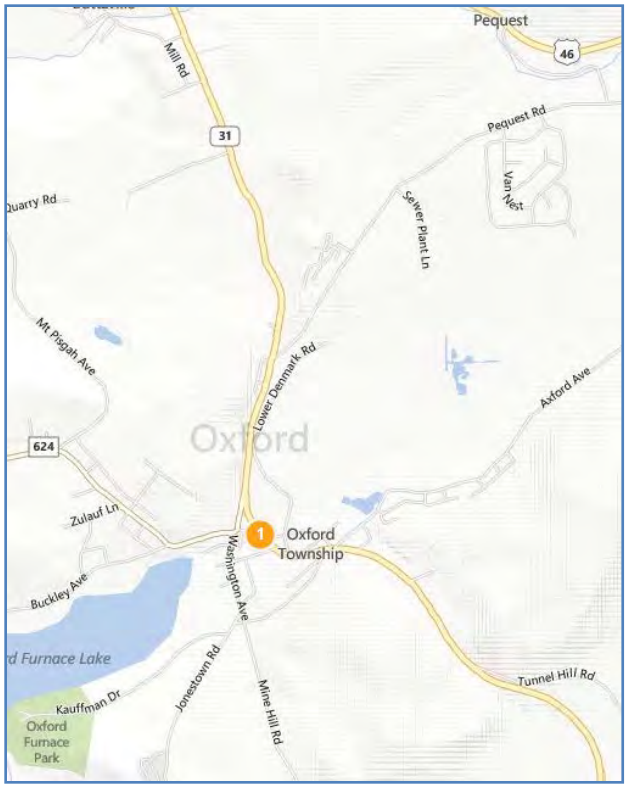


Figure 1 - Project Location (Pushpin No. 1)

Existing Deficiencies – The following existing Controlling Substandard Design Elements (CSDE) and deficiencies have been identified based on available information. None of the below were identified as significant crash generators.

- (CSDE) Substandard superelevation along Route 31 south of Furnace Brook.
- (CSDE) Substandard / nonexistent shoulders as identified previously.
- (CSDE) Substandard auxiliary lane as only one receiving lane exists along Route 31 northbound for the two through approach lanes.
- The existing guide rail attached to Structure No. 2111-154 does not meet current standards.
- The signal head layout for each approach, with the exception of the Route 31 southbound approach, has an undesirable near right / far left arrangement.

- Crosswalks do not terminate at ADA compliant handicap ramps.
- Driveways adjacent to the structure currently do not comply with the *New Jersey State Highway Access Management Code*. Three driveways are located within the intersection and are not controlled by signal heads.

Structural Inventory & Deficiencies – Structure No. 2111-154 is comprised of three distinctly different structure types (see Figure 2).

- An asphalt-surfaced reinforced concrete deck supported on concrete encased steel stringers supported by gravity abutments along Route 31 constructed in 1920.
- A stone masonry arch structure along Wall Street constructed c. 1875 based on the State's Historic Bridge Survey.
- An asphalt-surfaced reinforced concrete slab monolithic with concrete abutments supported by spread footing foundations. Constructed in 1953, this section also included modifications to the other structures to interconnect and deck over the area between the two structures.
- The masonry stone arch bridge is normal to the Wall Street roadway, while the original Route 31 structure and the newer 1953 portion were both constructed on a 26-degree skew approximately parallel to the waterway.

Overall Length	30 feet
Out-to-out Width	Approximately 94 feet (6-foot sidewalk along Route 31 southbound)
Curb-to-curb Width	86 feet (4 lanes along Route 31, 2 lanes along Wall Street, channelizing island)
Clear Span	26 feet
Sufficiency Rating	**48.2**, overall serious condition
Scour	**Not** scour critical based on the Bridge Scour Evaluation Program
Structurally Deficient	Due to the poor condition of the superstructure
Functionally Obsolete	Due to the horizontal clearance of 30 feet from curb-to-curb.
Deck Condition	Fair condition due to fine / medium longitudinal cracks with heavy efflorescence in the underside of the deck
Superstructure Condition	Serious condition due to excessive loss of mortar and numerous voids in the under-side of the stone masonry arch section, and loss of steel section in the exposed steel stringer section
Substructure Condition	Fair condition due to moderate / severe scaling of both abutments, a large spall on the north breastwall and a wide longitudinal fracture on the southwest wing-wall, respectively
Utilities	None identified, except aerial utilities along Route 31 southbound and Wall Street.

The *16th Cycle Report* also states that since the previous inspection, it was recommended to inspect the masonry portion of the structure on an interim basis. (Unlike the *15th Cycle Report*, this inspection included an evaluation of the stone arch as part of the sufficiency rating.)

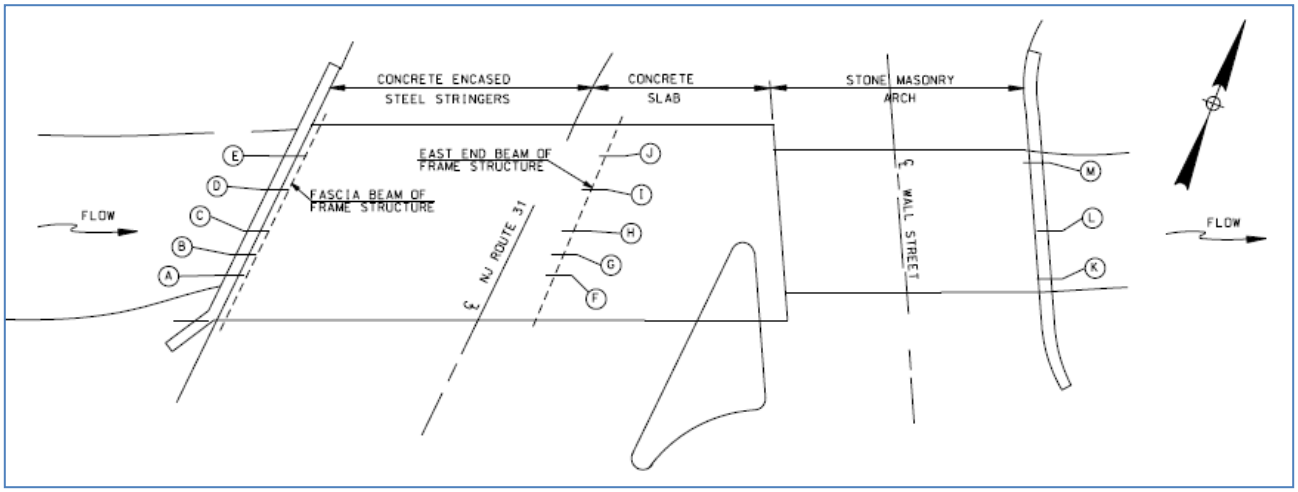


Figure 2 - Structure General Plan

Hydrology and Hydraulics – Based on the TR-55 methodology and a HEC-RAS model, both the existing and proposed structure do not overtop for the 25-year design storm, which meets the requirements set forth in Section 10-02.4 of the *NJDOT – Roadway Design Manual (NJDOT – RDM)* for drainage structures that pass water under a land service highway. However, the 100-year storm would (theoretically) overtop the roadway, which does not meet NJDOT design requirements (10-02.4; Table 10-02) for a facility that requires a NJDEP permit for a non-delineated stream. Based on our correspondence with the NJDOT Drainage Unit, there are no flooding records for the project location and it is not in the DMS Ranking List. Since the project does not have a history flooding and in consideration of the potential adverse impacts of raising the roadway elevation, it is recommended that any proposed structure be hydraulically equivalent to the existing structure and the existing roadway profile be maintained.

Management Systems: The following data was provided for this study.

SYSTEM	DATA
Bridge Management System (BMS)	14th, 15th and 16th Cycle Reports and corresponding SI&A sheets dated October 2006, 2008 and 2010, respectively. **S.R. = 48.2.**
Pavement Management System (PMS)	Pavement condition on Route 31 between mileposts 46.30 and 47.30 (IRI and SDI) is fair and good, respectively.
Drainage Management System (DMS)	Route 31 within the project limits is not on the DMS, and no records of flooding exist.
Safety Management System (SMS)	Based on data from 2006 through 2008 for Route 31 MP 46.70 – 47.00, a total of five (5) crashes occurred. Crash rates not calculated for less than six crashes. No patterns uncovered.

Environmental Screening Summary – Potential constraints include cultural resources, Green Acres parkland, freshwater wetlands, rare, threatened and/or endangered species and a hazardous waste site. Furnace Brook crosses Route 31 immediately south of its intersection with Wall Street. Furnace Brook is a freshwater, trout production Category 1 (FW2-TP C1) waterway. Structure No. 2111-154 is adjacent to the Oxford Industrial Historic District (National and State Registers) and lies within the Highlands Planning Area.

However, SHPO determined that while it is over 50 years old, the structure is not individually eligible and non-contributing to the district.

West (upstream) section, full spall, wingwall fracture

Alternatives – The alternatives listed in the attached matrix were developed based on the aforementioned data / analyses. Of note is that at the April 11, 2012 Core Group meeting, FHWA stated the project scope should include the signalized intersection.

Original PPA – At the April 11, 2012 Core Group meeting, the consensus of the attendees was that the replacement structure should be a **three-sided precast concrete structure** (Alternative No. 3) to minimize the construction duration and cost, and future maintenance costs.

Construction Staging Options – Suitable detour routes are limited, if nonexistent, for Route 31.

- **Option No. 1** consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 during both stages. This alternative also maintains limited access from Wall Street onto Route 31. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement would be prohibited and detoured to Port Colden Road.
- **Option No. 2** consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 during both stages. This alternative proposes to close the Wall Street westbound approach during Stage 1 and detouring traffic to Port Colden Road.

East (downstream) section, mortar loss, masonry voids

ALT.	ALTERNATIVE DESCRIPTION[1]	MEETS PURPOSE AND NEED	RIGHT OF WAY IMPACTS				ACCESS IMPACTS		ENVIRONMENTAL IMPACTS	STORMWATER MANAGEMENT	UTILITY IMPACTS	ESTIMATED CONSTRUCTION COST[2] AND DURATION[3]	ADVANTAGES	DISADVANTAGES
			No. Parcels	Block	Lot	Taking Area ± F - Full (SF) P - Partial (SF)	No. DRWY	Alteration Type						
1	Multi-Girder Steel Beam superstructure composite; reinforced concrete deck slab; work limited to structure only.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	2 TS poles 4 poles	$2,041,000 15 months	• Allow for flexibility to accommodate bridge footprint	• High future maintenance costs • Reduced hydraulic performance compared to other alternatives • Does not address conditions at the intersection or lack of aux. lane
2	Voided Slab superstructure; reinforced concrete wearing surface; work limited to structure only.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	2 TS poles 4 poles	$2,063,000 15 months	• Satisfies hydraulic opening and structure depth requirements • Can be jointless due to short span length	• Due to footprint, several units would be spread apart at one end with reinforced concrete deck spanning opening • Does not address conditions at the intersection or lack of aux. lane
3	Precast Concrete Rigid Frame structure; conc. wearing surface; work limited to structure only.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	2 TS poles 4 poles	$1,926,000 10 months	• Constructed in controlled environment, improving quality and longevity • Lower initial and future maintenance costs • Shorter construction duration • Greater flexibility to accommodate bridge footprint	• Does not address conditions at the intersection or lack of aux. lane
4	Multi-Girder Steel Beam superstructure composite; reinforced concrete deck slab; structure & bike/ped accommodations at signal.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	4 poles	$2,455,000	• Allow for flexibility to accommodate bridge footprint • Address conditions at the intersection	• High future maintenance costs • Reduced hydraulic performance compared to other alternatives • Does not address lack of aux. lane
5	Voided Slab superstructure; reinforced concrete wearing surface; structure & bike/ped accommodations at signal.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	4 poles	$2,477,000	• Satisfies hydraulic opening and structure depth requirements • Can be jointless due to short span length • Address conditions at the intersection	• Due to footprint, several units would be spread apart at one end with reinforced concrete deck spanning opening • Does not ddress lack of aux. lane
6	Precast Concrete Rigid Frame structure; conc. wearing surface; structure & bike/ped accommodations at signal.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	4 poles	$2,340,000	• Constructed in controlled environment, improving quality and longevity • Lower initial and future maintenance costs • Shorter construction duration • Greater flexibility to accommodate bridge footprint	• Does not ddress lack of aux. lane
7	Multi-Girder Steel Beam superstructure composite; reinforced concrete deck slab; structure, bike/ped accommodations at signal & std. aux. lane along Rt 31 NB.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	6 poles	$2,722,000	• Allow for flexibility to accommodate bridge footprint	• High future maintenance costs • Reduced hydraulic performance compared to other alternatives
8	Voided Slab superstructure; reinforced concrete wearing surface; structure, bike/ped accommodations at signal & std. aux. lane along Rt 31 NB.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	6 poles	$2,793,000	• Satisfies hydraulic opening and structure depth requirements • Can be jointless due to short span length	• Due to footprint, several units would be spread apart at one end with reinforced concrete deck spanning opening
9	Precast Concrete Rigid Frame structure; conc. wearing surface; Structure, bike/ped accommodations at signal & std. aux. lane along Rt 31 NB.	Yes	0	Temporary and/or permanent easements (TSMW, slope, utility, etc.)			0		Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	6 poles	$2,656,100	• Constructed in controlled environment, improving quality and longevity • Lower initial and future maintenance costs • Shorter construction duration • Greater flexibility to accommodate bridge footprint	• Does not address all CSDE; will require Design Exception
	No-Build	No	None				None		None	None	None	$0	No proposed improvements are implemented within the project limits. It is intended that this alternative serve as a reference for comparison to each of the other proposed alternatives. This alternative does not address the project need.	

[1] See *Project Fact Sheet* or *Concept Development Report* for more information.
[2] Construction cost estimate does not include ROW or utility relocation costs.
[3] Construction duration is for actual bridge construction and does not include pre-stage or utility work.

Memorandum of Meeting

To: File

From: Julia Steponanko, GPI

Date: July 15, 2014

Project Name: NJDOT, Division of Project Management (DPM)
Route 31 over Furnace Brook, Oxford Township, Warren County
Concept Development

Project Number: 2009658.05

Subject: Subject Matter Expert (SME) Meeting

Copy: Attendees

A meeting was held for the above referenced project at 9:30 A.M. on Monday, July 14, 2014 in Conference Room 3B of the E&O Building. Those in attendance were as follows:

Attendee	Bureau / Company	Phone
Charles Henry	NJDOT – DPM	609 530-2389
Sangaranat Vijayakumar	NJDOT – DPM	609 530-2642
Zack Asadpour	NJDOT – E Team	609 530-2727
Joseph Powell	NJDOT – Office of Bicycle and Pedestrian Programs	609 530-5290
William Riviere	NJDOT – Office of Bicycle and Pedestrian Programs	609 530-4646
Bernie Boerchers	Greenman-Pedersen, Inc. (GPI)	908 236-9001
Julia Steponanko	GPI	908 236-9001

The purpose of this meeting was to discuss the proposed pedestrian and bicycle accommodations in the Preliminary Preferred Alternative (PPA), specifically the need for sidewalk on the northeast side of the proposed replacement structure for Structure No. 2111-154, which carries Route 31 over Furnace Brook. Currently, the PPA proposes sidewalk on the west side of the structure and a 10-foot wide shoulder on the northeast side to accommodate pedestrians.

Mr. Vijayakumar began the meeting by stating that the purpose of this project is to replace Structure No. 2111-154 to address the poor condition of the superstructure, the extensive deterioration of the substructure, and the current undesirable configuration. He stated that the structure is comprised of three distinctly different structure types: a stone masonry arch section (circa 1875), a concrete encased steel stringer section (1926), and a concrete slab section (1953).

Mr. Boerchers then presented a summary of the PPA. He noted that the proposed bridge will be a precast concrete structure. The PPA also includes replacing the traffic signal at the Route 31 and Wall

Street intersection and extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street. The PPA proposes a six-foot wide sidewalk on the west side of the structure, replacement of the traffic signal, ADA compliant curb ramps, countdown pedestrian signals, pushbuttons and sidewalk to ensure pedestrian safety and enhance connectivity.

The following summarizes the significant items of discussion and comments:

1. Mr. Boerchers stated that sidewalk is currently present along the south side of Wall Street both east and west of Route 31. The manual turning movement count, which included a pedestrian count, performed at the intersection of Route 31 and Wall Street as part of Concept Development indicated that pedestrians cross Route 31 south of Wall Street and Wall Street west of Route 31. He added that a school crossing guard is used at the intersection for students attending Oxford Central School to cross Route 31 south of Wall Street. He added that while school crossing signs are present in the immediate vicinity of the crosswalk that these signs are in poor condition and are not in conformance with the 2009 MUTCD. Mr. Boerchers stated that the signing would be upgraded as part of this project.
2. Mr. Boerchers stated that widening the structure to provide a six-foot minimum sidewalk along the northeast side would have additional right-of-way impacts and the potential for additional environmental impacts. It would also place the structure closer to the former hair salon building, which is already in close proximity to the existing bridge. He added that the subject building should be surveyed before and after construction to verify any potential claimed impacts to said building due to construction. He noted that the proposed ten-foot shoulder would accommodate both pedestrians and bicyclists. Conflicts with vehicular traffic would be minimal since the right turn volume along the Wall Street westbound approach are low based on the manual classified turning movement counts collected for this project (0/6/8 vehicles in the AM/MD/PM peak hours, respectively).
3. Mr. Powell stated that he and Mr. Riviere conducted a field visit of the project site on July 10, 2014. Based on their field visit he added that the Office of Bicycle and Pedestrian Programs **concurs** with the pedestrian and bicycle accommodations as proposed in the PPA.
4. Mr. Powell inquired if left turns from Route 31 northbound onto Washington Road should be prohibited based on the existing geometry. Mr. Boerchers stated that this could be investigated further in PE. Subsequent to the meeting, a review of the available crash data did not indicate this location as a crash generator.
5. The consensus of the attendees was that the PPA should be advanced to PE as presented.

Action Items:

- GPI will complete the revised PE Scope Statement and CD Report.

This memorandum of record is believed to be an accurate record of the discussions at this meeting. If any of the attendees disagree with the documented discussion, please contact Julia Steponanko at (908) 236-9001 within 5 days of receipt of minutes. If no comments are received, then this memorandum will be considered a true and accurate record of this meeting.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

MEMORANDUM

TO: **Joe Bertoni**
Rick Hammer
Gary Brune
Dennis Motiani
Andrew Tunnard
Joe Dee
Robert Clark

FROM: **David A. Kuhn**
Assistant Commissioner
Capital Investment Planning and Grant Administration

DATE: **November 25, 2014**

SUBJECT: **Capital Program Committee - Minutes**

Attached are the minutes from the November 21, 2014 Capital Program Committee meeting.

C:
Andy Swords
Dan Black
Dana Hecht
Dave Lambert
Elkins Green
Eric Powers
James Vari
Jim Berzok
Karen Abbott
Lynn Rich
Martin Miller
Mike Russo
Nat Kasbekar
PRS Mailbox
Ray Kauffman
Rick Jaffe
Robert Marshall
Sharon Caffey
Snehal Patel
Talvin Davis
Tom Wospil
Elizabeth Schoonmaker, DVRPC
John Miller, FHWA
Peter Garino, NJT
Tim Chelius, SJTPO
Ann Ludwig, NJTPA
Rich Stoolman, NJTPA

Rt. 18, South of Texas Rd. to Rues Lane, Pavement
DB: 11408 UPC: 114080
Initiating Unit: CPM
County: Middlesex & Monmouth
Municipalities: East Brunswick; Marlboro & Old Bridge Twp.
Milepost: NB 29.5 – 35.4 & SB 30.5 – 35.5
CIS Category: Road Assets
Structure: Various
Project Status: CD
Estimated Project Cost: $13.8M (CON. Total =$12.3M)

The purpose of this Concept Development Study is to implement the findings of pavement improvement recommendations, in this segment of Rt. 18 roadway. In addition, the existing roadway deficiencies related to roadway geometrics, ADA requirements, guiderails, signing, striping, drainage, ITS work will be evaluated. Cost effective solutions where found to address the existing roadway deficiencies, and would be incorporated in the project. The proposed improvements will include Mill 2" to 4" and overlay with 2" to 6". Some segments of this section also includes full depth reconstruction, ramps will also be included as a part of this project, ADA related improvements, pavement markings, guiderails, and ITS work Multiple meetings were held with various NJDOT Bureaus/Offices to discuss the development of the PPA. The attendees concurred with the PPA and the proposed construction staging. During this phase, we also had several meetings with local officials as well as a Public Information Center. FHWA reviewed the CD report and approved the same.

CPSC Recommendation: Advance to Preliminary Engineering.

CPC Decision: Endorsed CPSC recommendation.

Rt. 31 Pennington Circle Safety Improvements
DB: 159A UPC: 088006
Initiating Unit: DPM
County: Mercer
Municipalities: Hopewell twp.
Milepost: 5.9 – 6.3
CIS Category: Safety Management
Structure: N/A
Project Status: Problem Statement/Tier 2
Estimated Project Cost: $1.6M (CON. Total =$658K)

Rt. 31 an Urban Principal Arterial and a north-south corridor with a speed limit of 45 mph through the project limits. Field observations and traffic analysis indicate that traffic operational and safety issues exist at the circle. At the north end of the circle, queuing at the location where the circle yields to Rt. 31 NB affects both CR 640 SB and CR 546 WB approaches during peak hours. Crash analysis indicates that the majority of crashes at the circle are Same Direction-Rear End crashes along CR 546 EB and WB, with driver inattention being the major contributing factor. Travel speeds as well as lack of pavement markings in the circle also contribute to the number of crashes. Injury crashes do not exceed the statewide average due to the crash types. The project does not rank high on NJDOT Management Systems, the project is being advanced as with a narrow scope to improve traffic operations and reduce crashes at the circle. Results of the CD Study indicate that more substantial improvements, such as removal of the circle, are not justified at this time. Proposed improvements include striping improvements to better delineate lane use within the Pennington Circle. Advanced signing and additional signing within the circle will also be included. Two traffic metering signals are proposed: one north of the circle to meter Rt. 31 SB traffic, and one south of the circle to meter Rt. 31 NB traffic. The metering signals will be coordinated with each other to provide gaps for motorists entering the circle. Truck aprons are proposed to accommodate trucks traveling through the circle. Pavement within the project limits will also be milled and resurfaced, and minor drainage improvements include the addition of inlets to reduce the spread onto the travel lanes. Existing substandard guiderail will be replaced with guiderail that meets current design standards. CD Report was completed and approved by FHWA. This project is on the old Pipeline 3 Transition List and FHWA agreed that this project can proceed to Final Design directly from the CD phase.

CPSC Recommendation: Advance to the Final Design.

CPC Decision: Endorsed CPSC recommendation.

Rt. 3 & 495 Interchange Improvements
DB: 12386 UPC: 123860
Initiating Unit: DPM
County: Hudson
Municipalities: North Bergen Twp.
Milepost: 10.33
CIS Category: Bridge Assets
Structure: 0908-152
Project Status: CD
Estimated Project Cost: $43.5M (CON. Total =$40M)

Merge Rt. 3 & S. Service Rd. over Ramp J (UPC 123860; Structure # 0908-152) deck replacement project with the Rt. 495 EB and Ramps B&J over Rt. 3 (UPC #144120; Structure #0916150) structure. It is proposed to evaluate safety and operational improvements to the other ramps (***A, B, C, D, F, G, H, J, U)*** within the interchange. Both structures have been identified through the BMS and have been recommended for replacement. Rt. 3 & S. Service Rd over Ramp J have been recommended for a deck replacement. CPC approved the realignment of the Rt. 3 EB curve immediately east of this structure to address safety concerns in advance of Ramp "B". It is recommended that the replacement of both of these structures as well as the safety and operational improvements within this interchange be evaluated together. Due to the existence of the structures within the interchange, which are under the jurisdiction of the N.J.TA. and their proximity to the Lincoln Tunnel, it is anticipated that there will be coordination with both the N.J.T.A. and Port Authority during CD. There will be involvement with NJ Transit due to access of their park and ride facility within the interchange. It is proposed to utilize a federally funded individual project agreement for this CD effort for which a consultant selection will be made. FHWA has approved $1M of SPR funding for this CD effort. Rt. 3 & 495 Interchange.

CPSC Recommendation: Merge projects and name Rt. 3 & 495 Interchange - UPC #123860. Archive UPC # 144120.

CPC Decision: Endorsed CPSC recommendation.

Rt. 31 Bridge over Furnace Brook
DB: 09325 UPC: 093250
Initiating Unit: DPM
County: Warren
Municipalities: Oxford Twp.
Milepost: 46.83
CIS Category: Bridge Assets
Structure: 2111-154
Project Status: CD
Estimated Project Cost: $4.7M (CON. Total = $3.15M / PE. Total =0.30K)

This (CD) study was initiated as a result of the poor condition of the superstructure. The purpose of this project is to replace the structure to address its existing deficiencies. The bridge is structurally deficient due to the condition of the superstructure with a sufficiency rating of 48.2. The superstructure is in poor condition due to excessive loss of mortar and numerous large voids in the underside of the stone masonry arch section along with severe rusting and section loss on the exposed bottom flanges of the steel beam in the stringer section. The deck is in fair condition due to fine to medium longitudinal cracks with heavy efflorescence in the deck underside. The substructure is also in fair condition due to moderate to heavy scaling at both abutments, a large spall at the W end of the N breastwall, and the wide diagonal fracture and heavy spalling in the SW wingwall. The Report recommends complete replacement of the structure to address the poor condition of the superstructure, the extensive deterioration of the substructure noted NJDOT SME and the current undesirable configuration. The PPA is based on input received and consists of replacing the existing bridge with a precast concrete rigid frame structure. Local officials and public concurred with the PPA. The proposed structure will include an architectural treatment, such as a form liner or veneer, to mimic the existing fascia of the stone arch section and two-rail parapet on both sides which will meet current vehicular, pedestrian and bicycle standards. Structure will be a 28-ft long single span structure with an average curb-to-curb width of 86 ft. and an average out-to-out width of 96 ft. This is two ft. longer and two ft. wider than the existing bridge. The existing hydraulic opening size will be maintained. Along Rt. 31, the proposed structure will carry three 12-ft wide travel lanes with a 12-ft wide shoulder and a 6-ft wide sidewalk. Wall Street will carry two

12-ft wide travel lanes with a 10-ft shoulder. The PPA also includes replacing the traffic signal, providing a standard width SB shoulder, extending the auxiliary lane along Rt. 31 NB north of Wall Street, bringing existing guide rail into conformance with current standards, and enhancing pedestrian accessibility with ADA compliant ramps, pedestrian pushbuttons, countdown pedestrian signal heads and sidewalk connectivity. The bridge will be replaced using two-stage construction. Screening was completed during CD phase and a CED will be prepared during PE. Environmental permits and interagency coordination may be necessary for NJDEP Water Quality Certificate, Freshwater Wetlands and Flood Hazard Area. The project's CD Report is approved by FHWA.

CPSC Recommendation: Advance to the Preliminary Engineering

CPC Decision: Endorsed CPSC recommendation.

Rt. 22 Bridge over Echo Lake
DB: 14330 UPC: 143300
Initiating Unit: DPM
County: Union
Municipalities: Mountainside Boro.
Milepost: 50.74
CIS Category: Bridge Assets
Structure: 2003-157
Project Status: CD
Estimated Project Cost: $3.2M (CON. Total =$2.5M)

This project was previously advanced by the CPC to Concept Development as a limited scope bridge deck replacement project due to its Deck Rating of 4 (poor). Due to the large spalls with deteriorated concrete and exposed rusted rebar, the superstructure is in "Fair" condition due to the exposed and severely rusted bottom flange with minor section loss at beams 2 and 16. The substructure is in "Fair" condition due to the wide vertical cracks at both abutment breast walls and the 1¼" settlement of the west abutment breast wall at the north end. This structure is listed as "Scour Critical". Footings are on a scourable material. The scour analysis concluded that the calculated scour depth is lower than the bottom of the abutment footing elevations. The structure is not founded on piles. The existing bridge carrying has a single-span, simply supported, concrete encased steel multi-beam superstructure with a reinforced concrete deck. It has reinforced concrete gravity type abutments. The bridge was constructed in 1929. It has a clear span of 20 feet and has an under-clearance of approximately 4 feet. The wing walls are short U-shape reinforced concrete cantilever type walls. The span length is 23 feet; the total out-to-out width is 104 feet; and the total structure length is 26 feet. During Concept Development, Scoping Field Trip has revealed the following safety concerns. The existing abutments were found to have wide cracks and settlement, as noted in the current bridge inspection report. The abutment breast walls exhibit pattern cracking, large cracks and efflorescence. Rehabilitation of the existing abutments would provide no guarantee that the remaining service life would be significantly extended. A very large water main leak behind the west abutment has been eroding the abutment backfill for a very long time. The leak was documented over several bridge inspection cycles from 2009 to 2013. There is a potential that a large void might exist behind the abutment, based on the extremely high flow rate and volume of water observed coming out of the abutment weep holes during our Scoping Field View. The water leak is now fixed by the utility owner. It is recommended to replacement the structure with a three-sided precast reinforced concrete box culvert with precast reinforced concrete wing walls which will provide rapid construction, low initial cost, provide protection against scour, eliminate extensive rehabilitation to abutments and eliminate future maintenance costs. Since the backfill behind abutment is saturated, the replacement will address concerns with the potential of abutments to topple over when the restraint of the superstructure is removed and would extend the structure service life by 50 years or more.

CPSC Recommendation: Advance to traditional Concept Development.

CPC Decision: Endorsed CPSC recommendation.

Rt. I-78 Rockfall Mitigation
DB: N/A UPC: N/A
Initiating Unit: DPM
County: Hunterdon
Municipalities: Bethleham Twp.
Milepost: 10.1 – 10.3 EB/WB
CIS Category: Road Assets
Structure: N/A
Project Status: Problem Statement
Estimated Project Cost: N/A

The Engineering Geology section of Structural Design & Geotechnical Engineering maintains a Rockfall Hazard Management System (RHMS) to evaluate & rank the stability of all rock cuts within the State highway system. These two rock cut slopes (EB & WB) are currently ranked the highest priority of the 444 highway cut slopes within the RHMS. The existing rock cuts exhibit over steepened slope angles and are in a highly fractured and weathered condition. The slopes average over 100' in height, and exhibit many loose boulders and overhanging blocks. The limited catch area at the toe (average 5' wide) does not sufficiently retain falling rock (see attached problem statement). In addition, the EB cut slope becomes completely ice covered during winter, causing ice jacking and displacement of large rock blocks. Falling rock often reaches the roadway surface. Rockfall mitigation measures are anticipated to include mass excavation, scaling, rock bolting, wire mesh drapes, and rock catch fences.

CPSC Recommendation: Create a New Project as DB # 15338/UPC # 153380, within Study & Development and advance to Concept Development.

CPC Decision: Endorsed CPSC recommendation.

Rt. 80, Rt. 46 Ledgewood Ave to Cherry Hill Rd (CR 654) –Guiderail Breakout
DB: 14376 UPC: 143760
Initiating Unit: DPM
County: Morris
Municipalities: Various
Milepost: 31.8 – 41.0 EB & 28.1 – 41.5 WB
CIS Category: Road Assets
Structure: N/A
Project Status: CD
Estimated Project Cost: $5.3M (CON. Total = $4.8M / FD Total = 0.5K))

Rt. 80 HPTO project was initiated based on Full CPC approval of Pavement preservation project as per pavement recommendation. FHWA review of the project's Concept Development Checklist for parent project of Rt. 80 HPTO was completed and as a result of FHWA comments, DPM is advancing this breakout for guiderail project. A revised CD checklist for parent project of Rt. 80 HPTO was approved by FHWA. Project was designed and Advertised and will be awarded soon. The guide rail for this project was assessed for entire project limits and found that they do not meet the current standards, and it will require independent project. This new break-out project needs to be designed, and plans, estimate and specification to be prepared. Based on the guide rail inventory conducted for this project, it has been determined that guiderail attachment to the bridge parapet will require upgrade, end terminals will need to be replaced, guiderail run need to be replaced, some steel block outs need to be replaced in this project. Surface treatments will be in-kind near Guiderail post to minimize the environmental impacts. This independent guiderail project will require minimum closure of right shoulder and/or may require right lane closure. Environmental Document (CED) and Final Design schedule for the project will be developed upon discussion with E-Team and Designer. This Limited Scope Guiderail project has completed the assessment phase. Final Design funding in the amount of $500,000 will be required. The anticipated NEPA document for the guiderail project is a Self-Certified Categorical Exclusion. The Final Design efforts will be initiated upon completion and/or approval of the CED.

CPSC Recommendation: Breakout guiderail project as DB # 14376A/UPC# 158050.
Name project: Rt. 80, Rt. 46 to Cherry Hill Rd. (CR654), Guiderail and advance to the Final Design.

CPC Decision: Endorsed CPSC recommendation.

Rt. 94, Jacksonburg Creek
DB: 11322 UPC: 113220
Initiating Unit: DPM
County: Warren
Municipalities: Blairstown
Milepost: 7.94 – 8.09
CIS Category: Bridge Assets
Structure: 2117-157
Project Status: CD
Estimated Project Cost: $2.8 (PE Total = $.45M; CON. Total =$2.1M)

The purpose of the project is to address structural deficiencies. CD study was initiated as a result of the poor condition of the structure. This project was initiated as a deck replacement project, during the course of the study; the project team concluded that the bridge should be replaced. The structure is situated adjacent to the intersection with NJ Rt. 94 and Jacksonburg Rd. It is functionally classified as a rural minor arterial with two lanes. It is a key link between New Jersey and New York and helps serve as one of the few trans-state connections in this part of New Jersey. The bridge was found to be structurally deficient due to the poor condition of the superstructure and deck. The condition of the bridge is rated as serious (3). The condition of the substructure is rated as fair (5). There are numerous areas of freeze thaw damage and vertical wide cracks throughout the abutments and center pier. These existing substructure units, which consist of unreinforced concrete, also exhibit evidence of scour. Based on NJDOT Bridge Scour Evaluation Program results, the structure is determined to be scour critical since the total estimated scour depth is below the footing limits. The PPA involves replacing the existing two-span structure with a single-span bridge consisting of spread box beams and will be slightly wider than the existing. The curb-to-curb width will be increased from approximately 40-feet on the existing bridge to 44-feet. The span length will be increased from 45-feet to 50-feet to address the skewed crossing of Jacksonburg Creek on the upstream side of the bridge. The cross-section provides one 12-foot lane in each direction, with an 8-foot shoulder on the NZB side of the bridge, and a 12-foot shoulder on the SB side. The SB shoulder is increased to improve the turning movements to and from Jacksonburg Road. A standard superelevation will be added to the roadway within the proposed limits. The new bridge will include 8-foot minimum shoulders; to accommodate bicycle/pedestrian access along Rt. 94. No ROW fee acquisition takings would be required for the PPA. An aerial easement will likely be required for the location of the aerial facilities along the west side. The preliminary survey efforts indicate that the existing aerial utilities are already outside the roadway ROW. The possibility of relocating the facilities underground to avoid easements will be explored during Preliminary Engineering studies. PPA involves replacement of the existing bridge, using a two-stage construction sequence. The use of alternating one-way traffic through the work zone was recommended by the design team, SME's, and the local officials. That method of traffic control has been used successfully with the Department's past projects within this region of the state. Screening was completed during the Concept Development Phase and CED will be prepared during PE phase. The project would require a Freshwater Wetlands Permit and a Flood Hazard Area Control Act Permit. During the course of the study, two public official meetings/status updates and a public official briefing with the governing body were held and one Public Information Center was also held. General consensus on the PPA was achieved. The project's Concept Development Report is approved by FHWA. If advanced to PE phase, the project will be included in a multi-selection with another bridge replacement project, Rt. 31 Bridge over Furnace Brook.

CPSC Recommendation: Name project: Rt. 94, Bridge over Jacksonburg Creek and advance to Preliminary Engineering.

CPC Decision: Endorsed CPSC recommendation.

Other Business

Rt. 77, Elmer-Shirley (CR611) to South of Gangemi Lane
DB: 12429 UPC: 124290
Initiating Unit: DPM
County: Gloucester; Salem
Municipalities: Harrison; Elk & Upper Pittsgrove Twp.
Milepost: 10.62 – 21.00
CIS Category: Road Assets
Structure: 1709-150; 1709-153; 1709-151; 1709-152
Project Status: CD
Estimated Project Cost: $5.8M (FD Total = $0.7K; CON Total = 4.3M)

The purpose of the project is to address the deteriorated pavement conditions within the project limit. The pavement recommendation is to Mill 2" and Pave 2" using Hot Mix Asphalt Surface Course for mainline, shoulders and ramps. Substandard and/or damaged guiderail within the project limit will be replaced or repaired. A 4' minimum width concrete apron is recommended around the inside perimeter of the traffic circle at the junction of Rt. 77, Rt. 40, CR 635 and CR 604 (MP 14.09). Existing inlets will be retro-fitted with NJDEP-approved inlet heads. Areas of roadside erosion shall be repaired. Based on the Drainage Management Unit no new drainage facilities will be constructed. One manhole with grate cover is damaged and will be repaired. Existing inlets will be retro-fitted with NJDEP-approved inlet heads. The 4' apron at the junction of Rte. 77, Rte.40, CR 635 and CR 604 will minimize soil erosion, sediment tracking and ponding of water. While the 2010 – 2012 accident rate is high than the statewide average, there have been recent signing improvements, that are now beginning to reflected a reduction in accidents. The highest number of crashes occurred at Elk Road/CR 538 (47%), an ALL WAY STOP intersection with flashing beacons. Intersection improvements are already planned for this intersection, as part of the Route 77/CR 538 Swedesboro-Hardingville Rd Project that is currently in design. It includes improving the turning radii for the intersection, shoulder improvements, utility relocations, minor Right of Way and converting a flashing beacon to a traffic signal with pedestrian push button and ADA access. The proposed improvements will not require any ROW. Utility impacts are anticipated to be limited to resetting of manholes, valves and inlets. The CD Report has been reviewed and was approved by FHWA on Oct. 6, 2014.

DPM Requests: Advance to Final Design.

CPC Decision: Endorsed DPM recommendation. It is noted that Complete Streets should be considered during project advancement.

Rt. 78, Drift Road/Dale Road to Rt. 124 (Springfield Ave.)
DB: 15308 UPC: 153080
Initiating Unit: DPM
County: Somerset, Union & Essex
Municipalities: Various
Milepost: 42.2 – 50.6
CIS Category: Road Assets
Structure: N/A
Project Status: CD
Estimated Project Cost: $6M (FD Total = $3M; CON Total = 5M)

This project primarily consists of micro-surfacing to improve ride quality and extend pavement service life of the roadway. The majority of work included in this project is the micro-surfacing of the pavement to improve its readability and to prolong the pavement service life. All ramps will be treated with Slurry Seal except two ramps which will be mill 2" and resurface with 2" HMA. No bridge deck repairs are included. No guiderail repairs are required. As per SLD, this section of highway is designated as Urban Interstate. No ADA improvements are required. This section of highway is not ranked on Safety Management System. Standard lane closures and ramp detours are expected. Night time construction is anticipated. All ramps will be detoured for an anticipated one night construction. Federal funds for design and construction are anticipated. Final Design will be performed by NJDOT in-house staff. The checklist has been approved by FHWA on October 9, 2014.

DPM Requests: Advance to Final Design.

CPC Decision: Endorsed DPM recommendation. It is noted that sidewalks should be considered during project advancement on Ramps.

FY 2015 Construction Contract Awards—Hammer / Lambert

CPM:

Construction Contracts	# of Projects	Value (millions $)
Awarded	19	128.8
Bids received	10	110.7
Advertised	4	173.5
Total	33	413.0
Goal	55	650

Operations: Tunnard/Kauffman

Construction Contracts	# of Projects	Value (millions $)
Awarded	6	8.7
Bids received	9	45.0
Advertised	3	14.5
Total	18	68.2
Goal	43	150

Federal and State 2015 Obligation Status— Powers

Federal Funds FY15	Amount (millions $)
Obligated	25.6
Unobligated	153.6
Pending	-1.8
Total Limitation	177.4

State Funds FY15	Amount (millions $)
Requisitioned/Obligated	292.8
Balance Available	457.8
Total	750.6

FY16 Capital Plan, CIS, STIP status—Vari

- **Projected Federal revenue for the FY 2016-2025 STIP and FY2016-2020 Capital Plans will be assumed to be flat for programming purposes.**
- **State resources are estimated at $1.6 billion annually for balance of the 10 year period, to be allocated among NJDOT, NJ Transit and Local Aid.**

Memorandums & Letters

New Jersey Department of Transportation
Office of Access Design
MEMORANDUM

TO: **Towfigh Molavi**
Senior Engineer
Division of Project Management

FROM: **Charles Isiadinso**
Senior Engineer
Office of Access Design

PHONE: 609-530-5376

DATE: **June 13, 2010**

SUBJECT: **Route 31 Over Furnace Brook –Oxford Twp**
Overall Access Plan & Access Impact Summary
Furnace Township, Warren County
Designer: Greenman-Pedersen Inc

The Office of Access Design (OAD) conducted a scoping of the project on June 8, 2011 and there are driveways present within the project limits. Four driveways will be impacted; therefore, pavement and traffic recommendation will require application of the Access Code.

Please request Designer to provide Project Access Plan (PAP) and Access Impact Summary (AIS) for the Access review. The OAD will review it with respect to the project's scope, safety and operation of the State Highways and may grant the waivers accordingly.

Charles Isiadinso
Office of Access Design
New Jersey Department of Transportation
PO Box 600
Trenton NJ 08625
Tel (609)-530-5376
E mail: charles.isiadinso@dot.state.nj.us

Cc: P. Ignarri

HPO Project# 13-1531-1
HPO-H2013-208 PROD

State of New Jersey

MAIL CODE 501-04B
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NATURAL & HISTORIC RESOURCES
HISTORIC PRESERVATION OFFICE
P.O. Box 420
Trenton, NJ 08625-0420
TEL. (609) 984-0176 FAX (609) 984-0578

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

August 27, 2013

Zack Asadpour
Supervisor
Bureau of Landscape Architecture and Environmental Solutions
New Jersey Department of Transportation
1035 Parkway Avenue
P.O. Box 600
Trenton, NJ 08625

Dear Mr. Asadpour:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40553-40555), I am providing consultation comments on the following proposed undertaking:

Warren County, Oxford Township
Route 31 over Furnace Brook
Structure #2111-154

These comments were prepared in response to your submission of a cover letter requesting review and comment pursuant to Section 106 of the National Historic Preservation Act and supporting documentation, received by the Historic Preservation Office (HPO) on July 18, 2013.

800.3 Initiation of the Section 106 Process

I concur with the lists of consulting and interested parties included in the submission. As always, the documentation of public participation in the evaluation of historical resources and project effects will substantially enhance the quality, timeliness, and public value of the Section 106 consultation.

The Areas of Potential Effects (APE) for both Architecture and Archaeology, as delineated in the submitted documentation, also appear to be appropriate.

800.4 Identification of Historic Properties

The proposed undertaking is located entirely within the boundaries of the Oxford Industrial Historic District, which was listed on the New Jersey Register of Historic Places on August 17, 1991 and the National Register of Historic Places on August 27, 1992. The undertaking is also adjacent to the Oxford Furnace Historic District, which was listed on the New Jersey Register of Historic Places on September 11, 1970.

Your letter states that no ground disturbance is proposed outside those areas previously disturbed during roadway construction. An HPO archaeologist has reviewed the submission and concurs with this assessment. Therefore, no additional work to identify archaeological resources is required at this time.

800.5 Assessment of Adverse Effects

The New Jersey Department of Transportation (NJDOT) proposes to replace the existing Route 31 over Furnace Brook Bridge (Structure No. 2111-154). NJDOT's preferred alternative, Alternative 9, will replace the existing bridge, which consists of several structures built and integrated during several different construction episodes (c1875, 1920, and 1943), with a pre-cast concrete rigid frame structure. The Route 31 over Furnace Brook Bridge was previously determined to be a non-contributing structure within the Oxford Industrial Historic District.

The project will also involve associated roadway and pedestrian improvements including bicycle and pedestrian accommodations, an upgraded traffic signal, depressed curbs and crosswalks for ADA compliance, and the introduction of an auxiliary lane along the northbound side of Route 31.

Based upon a review of the submitted documentation, HPO staff has concluded that the proposed undertaking will have **no adverse effect upon the Oxford Industrial Historic District or Oxford Furnace Historic District provided that following conditions are complied with:**

1. NJDOT shall ensure that the design, character, materials, quality, and workmanship of project construction and project components shall be compatible with the historic and architectural character, significance, and setting of both the Oxford Industrial Historic District and Oxford Furnace Historic District and that the proposed bridge replacement is responsive to the guidance and recommended practices found in the Secretary of the Interior's Standards for the Treatment of Historic Properties.

2. NJDOT shall finalize the design of the replacement Route 31 over Furnace Brook Bridge in consultation with the HPO and any consulting/interested parties that wish to participate.

3. NJDOT shall prepare final plans and specifications for the Route 31 over Furnace Brook Bridge project. A complete set of the final plans and specifications will be submitted to the HPO for review and approval prior to the construction bidding process, in order to ensure that the project is designed in conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

New Jersey Register of Historic Places Act

Public undertakings that may encroach upon properties listed on the New Jersey Register of Historic Places require prior written authorization from the Commissioner of the Department of Environmental Protection. Therefore, NJDOT must submit an Application for Project Authorization pursuant to the New Jersey Register of Historic Places Act (NJRHPA). The Application can be found at http://www.state.nj.us/dep/hpo/2protection/njrrevew.htm.

If the project is determined to be in conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* upon receipt of a technically and professionally complete and sufficient Application, the Application will be administratively approved. If the project is determined to constitute an encroachment upon the Oxford Industrial Historic District and/or the Oxford Furnace Historic District, the project must be reviewed by the New Jersey Historic Sites Council (HSC) at one of its regularly scheduled bi-monthly meetings. The HSC findings are then forwarded to the Commissioner who takes the final action.

Thank you for providing the opportunity to review and comment on the submitted documentation. Please do not hesitate to contact Jonathan Kinney of my staff at (609) 984-0141 with any questions. Please reference the HPO project number 13-1531 in any future calls, emails, or written correspondence in order to expedite our review and response.

Sincerely,

Daniel D. Saunders
Deputy State Historic
Preservation Officer

Cc:
Chair, Warren County Cultural and Heritage Commission
President, Warren County Historical Society
Clerk, Oxford Township
Clerk, Warren County

NEW JERSEY DEPARTMENT OF TRANSPORTATION

MEMORANDUM

TO: Joseph Sweger, Manager
Bureau of Landscape Architecture and Environmental Solutions

FROM: Sangaran Vijayakumar/Robert Lee
Division of Project Management – Group B

RECEIVED DEC 18 2013

DATE: November 13, 2013

PHONE: 530-2642

SUBJECT: **Request for Concurrence of Anticipated Environmental Document**
Route 31, Bridge over Furnace Brook, Structure No. 2111-154 (M.P. 46.83)
Oxford Township, Warren County
Concept Development (CD)

The Division of Project Management (DPM) is requesting your input for the constructability of the above subject project. DPMis in the process of finalizing Concept Development of this project and would like to obtain your comments, which are an integral part to the successful completion of the preliminary construction staging of this project.The following information may be helpful to you.

Project Need

The DOT Subject Matter Experts and DPMidentified Structure No. 2111-154, which carries Route 31 over Furnace Brook, as being in need of replacement. The structure has a deficiency rating of 48.2 according to the October 2010*16th Cycle Bridge Re-evaluation Report*due to the poor condition of the superstructure, the extensive deterioration of the substructure and the current undesirable configuration. The existing structure is actually composed of three distinctly different and adjoining structure types, as follows:

- A reinforced concrete deck supported on concrete encased steel stringers constructed in 1920;
- A stone masonry arch structure constructed c. 1875; and
- A reinforced concrete slab monolithic with concrete gravity abutments constructed in 1953with modifications to the other structures to interconnect and deck over the area between them.

Preliminary Preferred Alternative (PPA)

The PPA consists of replacing the existing bridge with a three-sided precast concrete structure consisting of three twelve-foot wide travel lanes, a twelve-foot shoulder and southbound sidewalk along Route 31. The proposed bridge also consists of two twelve-foot wide travel lanes and a ten-foot shoulder along

Wall Street. The project also includesreplacing the traffic signal at the Route 31 and Wall Streetintersection, associated roadway work and extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street.

The proposed staging consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 at all times. Access to and from Wall Street will be limitedwith a detour along Port Colden Road during Stage 1. Access to businesses along Route 31 will be maintained at all times.

It is anticipated that the project will result in new impervious area of less than ¼ acre and less than one acre of total land disturbance. Therefore, compliance with the NJDEP Stormwater Management Rules (SWM) will not be required.

Right of Way Requirements

This project requires easements from ten (10) properties. No permanent right of way acquisitions are anticipated. Of note, one property is Wilkinson Field (Block 42, Lot 14); however, the proposed easements will not negatively affect the ball field or property use. It is anticipated that the exact number of properties and areas will be determined during Preliminary Engineering.

Environmental Screening Summary

Potential environmental constraints identified within the Screening include freshwater wetlands, rare, threatened and/or endangered species/habitats and Section 4(f) land associated with Wilkinson Field. Furnace Brook is a Freshwater, Trout Production Category 1 waterway (FW2-TPC1). Therefore, riparian buffers along the watercourse are 300 feet. Due to the possible presence of the threatened and/or endangered species, the wetlands may have transition areas of 150 feet. Hazardous waste sites identified within the vicinity of the project include US Gas at the corner of Route 31 and Kent Street and American Mfg. Int., Inc. located along Wall Street.The Screening did not identify any "fatal flaws".

Anticipated Environmental Document

Based on the project need; environmental considerations and the PPA, this project does not individually or cumulatively have significant environmental impacts. Therefore, the National Environmental Policy Act (NEPA) document classification is anticipated to be a Categorical Exclusion.

Please find attached the PPA, project aerial, environmental screening andpreliminary R.O.W. and Access Impact plan for your information and review. The anticipated construction cost estimate is $3.0 million, not including right-of-way.If you need additional information, please contact me at 609-530-2642. We would appreciate your response by **December 12, 2013.**

Thanks.

Attachments
C: Bernie Boerchers, GPI

I CONCUR THAT THE NEPA CLASSIFICATION WILL BE A CATEGORICAL EXCLUSION.

MANAGER, BLAES

2 Dec 2013

NEW JERSEY DEPARTMENT OF TRANSPORTATION

MEMORANDUM

TO: Robert Britton,
Project Funding Section

FROM: Feraidoon Kashani, Manager
Northern District (prepared by Mr. Robert J. Mc Gill)

DATE: November 25, 2013

PHONE: 973-770-5179

SUBJECT: Right of Way Cost Estimate
Route 31 over Furnace Brook
Township of Oxford, Warren County
Job No. 2200168

Attached is the report requested.

The estimated amount is $246,000.

Sale # 10 and Sale # 11 are at the high end of the sales presented. They are corner lots with traffic lights. Sale # 10 and Sale # 11 are being improved with Quik Chek gasoline stations with convenience stores. These sales tend to be the highest sales in Warren County. It appears that Quik Chek paid a premium for these locations. Little weight was put on these 2 sales. Block 41, Lot 4 was purchased on 12/05/2012 for $395,000. It has a total area of .79+/-AC and is improved with a liquor store. This store was remodeled after purchase, according to some information provided to me.

During the time of construction, the gasoline station located at Block 6, Lot 16 will have its access changed on a temporary basis. Only one driveway on Route 31 will still be open. It also has access via Kent Street. This access is presently marked as one way going into the property. This estimate assumes that the tractor trailers will still be able to make deliveries into the property and be able to leave. The underground storage tanks are located on the side of the property closer to Furnace Brook. If this is not the case, then the State will have to pay the owner of the property rental income for the time that this access will be practical. Also, the State will have to pay the tenant, the loss of his income during the time of this shutdown.

Please have somebody put turning plates on the map to see if the delivery trucks can make their deliveries of gasoline to the tanks during the time of this change in access.

All of these properties are zoned B, Business, except for Block 44, Lot 1, which is zoned Industrial. All of these properties appear to have public sewers available. The minimum lot size is 10,000 SF with sanitary sewers and 20,000 SF without sanitary sewers.

I am assuming that no signs are affected by the proposed easements. I need better maps in order to make a determination if any signs are affected.

Relocation:

None

Environmental:

One gasoline station is located at Block 6, Lot 16

Maps:

The scale is small and the improvements are not clearly shown on the map. This makes it difficult to tell what improvements might be affected by the proposed easements. I am assuming that any signs and other site improvements will not be affected by the proposed utility easements. Block 6, Lots 7 & 8 can be combined into one parcel. They are contiguour and have the same owner. Signs are difficult to pinpoint on these maps.

Vacant Land Sales:

1. **21 Route 57, Hackettstown, Consideration $2,200,000 which reflects $7.95/SF, Deed Date 7/31/2009, Book 2267, Page 60, Block 129, Lot 26**

2. **30 Industrial Drive, Alpha, Consideration $115,512 which reflects $2.85/SF, Deed Date 4/21/2008, Book 2202, Page 244, Block 102, Lot 6**

3. **6 Jacksonburg Road, Blairstown, Consideration $187,000 which reflects $3.49/SF, Deed Date 7/26/10, Book 2328, Page 54, Block 904, Lot 7**

4. **301 Mountain Avenue, Hackettstown, Consideration $3,200,000 which reflects $5.25/SF, Deed Date 6/13/2008, Book 2211, Page 12, Block 125, Lot 9.01**

5. **48 Route 46, Washington (Morris County), Consideration $2,500,000 which reflects $4.24/SF, Deed Date 4/9/2010, Block 4, Lot 7, Book 21526, Page 1722**

6. **Route 57 & Main Street, Greenwich & Lopatcong (Warren County), Consideration $800,000 which reflects $19,021/AC, Block 5, Lot 2 & Block 97, Lot 2, Book 2355, Page 104, Deed Date 01/13/2011**

7. **Greenwich Street, Greenwich (Warren County), Consideration $850,000 which reflects $1.39/SF, Block 26, Lot 2, Book 2315, Page 67, Deed Date 05/14/2010**

8. **93 – 95 Main Street (Route 46, Hackettstown (Warren County) Consideration $1,100,000 plus $300,000 estimated demolition costs of a large old industrial building which reflects $3.00/SF, Book 2373, Page 170, Block 21, Lot 18, Deed Date 06/06/2011**

9. **2141 Route 57, Franklin (Warren County), Consideration $159,900 which reflects $2.25/SF, Block 17, Lot 1, Book 2341, Page 258, Deed Date 10/15/2010**

10. **Route 57, Washington Borough (Warren County), Consideration $276,000 which reflects $9.63/SF, Book 2373, page 121, Book 2.05, Lot 6, Deed Date $05/26/2011**

11. **442 - 448 Route 46, White Township, Warren County, Consideration $550,000 + $975,000 plus $30,000 estimated demolition costs which reflects $14.45/SF, Book 2403, Pages 243 & 255 Block 62, Lots 4 & 5, Deed Date 11/17/2011**

12. **19 Simpson Road, Knowlton, Warren County, Consideration $425,000 which reflects $5.14/SF, Book 2401, Page 40, Block 14, Lot 1, Deed Date 12/02/2011**

13. **24 Route 46, Knowlton, Warren County, Consideration $80,000 which reflects $2.09/SF, Deed Date 12/29/2008, Block 27, Lot 8, Book 2233, Page 53**

14. **600/689 Route 57 , Greenwich & Lopactong, Consideration $770,000 which reflects $22,312/AC, Block 94, Lot 22 & Block 97, Lot 1 (Greenwich) & Block 5, Lot 1 (Lopactong), Size 34.51+/-AC, Book 2466, Page 169, Deed Date 12/21/2012**

RIGHT OF WAY COST ESTIMATE
Route 31 Bridge over Furnace Brook
Township of Oxford, Warren County
JOB NO: 2200168

PARCEL	OWNER ADDRESS	ACQUISITION ACRES/SF	ESTIMATED VALUE
Block 6, Lot 7	Skyland Community Bank C/O Fulton Bank NJ 533 Fellowship Rd, Suite 250 Mount Laurel, NJ 08054	A utility easement of .033+/-AC	$3,000
Block 6, Lot 8	Skyland Community Bank C/O Fulton Bank NJ 533 Fellowship Rd, Suite 250 Mount Laurel, NJ 08054	A utility easement of .011+/-AC	$2,000
Block 6, Lot 15	Oxford Township 11 Green Street Oxford, NJ 07863	A utility easement of .009+/-AC	$2,000
Block 6, Lot 16	Ray M. Oostydyk 1952 Walnut Grove Church Mountvale, VA 24122	A utility easement of .025+/-AC	$3,000
Block 41, Lot 4	Davemart LLC 2026 Route 31 North Glen Gardner, NJ	A utility easement of .023+/-AC	$3,000
Block 41, Lot 5	Daniel C. Dalrymple PO Box 424 Oxford, NJ 07863	A utility easement of .041+/-AC	$3,000
Block 42, Lot 5	MNV Holdings, Inc. PO Box 90 Oxford, NJ 07863	A utility easement of .002+/-AC	$1,000
Block 42, Lot 13	Oxtech Industries Inc. TSC (94) TTL 228 Hoffman Road Port Murray, NJ 07865	A slope easement of .057+/-AC	$7,000
Block 42, Lot 14	Oxford Township 11 Green Street Oxford, NJ 07863	A slope easement of .032+/-AC	$4,000
Block 44, Lot 1	Oxford Township 11 Green Steet Oxford, NJ 07863	A temporary construction easement of .0004+/-AC	$1,000
Total			$29,0000

RIGHT OF WAY COST ESTIMATE SUMMARY
Route 31 over Furnace Brook
Township of Oxford (Warren County)
JOB NO: 2200168

RIGHT OF WAY COSTS		**$**	29,000
REPLACEMEMT HOUSING OWNER		**$**	0
REPLACEMENT HOUSING TENANT		**$**	0
RESIDENTIAL MOVING PAYMENT		**$**	0
BUSINESS AND FARM PAYMENTS		**$**	0
SIGNS & BUILDBOARDS note included in estimate		**$**	0
DEMOLITION COSTS		**$**	0
LAST RESORT HOUSING		**$**	0
APPRAISAL FEES (10) SPECIALIST(0)		**$**	25,000
AWARDS & JUDGEMENTS (35 %)		**$**	10,000
CONTINGENCIES (03%)		**$**	2,000
TOTAL		**$**	66,000
COST TO ACQUIRE (10k)	$180,000		
RELOCATION SERVICES COST	$0		
INCIDENTAL COSTS		**$**	180,000
GRAND TOTAL CAPITAL & INCIDENTALS		**$**	**246,000**

Relocation Cost Estimate

Parcel	Owner	Housing Payment Owner	Housing Payment Tenant	Moving Payment	Business Payment	Signs Billboards	Demolition	Last Resort Housing
		0	0	0	$0	$0	0	0
Total		$0	$0	$0	$0	$0	$0	$0

RELOCATION RECAPITULATION
Route 31 over Furnace Brook
Township of Oxford (Warren County)

NO. OF PAYMENTS	TYPE OF RELOCATION	RELO CODE	AMOUNT
	REPLACEMENT HOUSING PAYMENT --OWNERS	RHO	$0
	REPLACEMENT HOUSING PAYMENT-- TENANT	RHT	$0
	RESIDENTIAL MOVING PAYMENT	RMP	$0
	BUSINESS OR FARM PAYMENT	BFP	$0
	SIGNS & BILLBOARDS RELOCATION	SBR	$0
		SUB TOTAL	$0
	RELOCATION SERVICE COSTS	RSC	$0
		TOTAL	$0
	DEMOLITION COSTS	DEMO	$0
	LAST RESORT HOUSING	LRH	$0

OCCUPANTS TO BE RELOCATED		BUILDINGS TO BE DEMOLISHED	
RESIDENTIAL OWNERS	0	DWELLINGS	0
RESIDENTIAL TENANTS	0	GARAGES & BARNS	0
BUSINESSES	0	SHEDS	0
NON-PROFIT ORGANIZATIONS	0	COMMERCIAL BUILDINGS	0
TOTAL	**0**	TOTAL	0
		BILLBOARDS TO BE PURCHASED	0
		SIGNS TO BE RELOCATED	0

New Jersey Department of Transportation
Mobility and Systems Engineering
Memorandum

TO: Robert Lee
Project Management

FROM: Michael F. Pilsbury, P.E.
Supervising Engineer
Work Zone Management North

DATE: April 28, 2014

PHONE: 732-797-7076 FAX NUMBER: 201-797-8123

SUBJECT: **Route 31 Milepost 46.83**
Bridge over Furnace Brook
Structure 2111-154
Bridge Rehabilitation

As per your Memorandum Work Zone Management North personnel have completed a review of the above reference project and offer the following comments and recommendations:

1. Please use the following lane closure hours for this project:

   LANE CLOSURE HOURS

   Route 46 Eastbound and Westbound

   One Lane Sections (Milepost 21.24 – 22.10)

   Route 31 Northbound and Southbound

   (One Travel Lane Each Direction North of Furnace Brook)

   All Lanes Maintained (Each Direction – One Lane Section)

Monday to Friday	6:00 AM to 8:00 PM
Saturday	7:00 AM to 8:00 PM
Sunday	8:00 AM to 8:00 PM

   Alternating Traffic Pattern (Each Direction – One Lane Section)

Monday through Thursday	8:00 PM to 6:00 AM (Next Day)
Friday	8:00 PM to 7:00 AM (Saturday)
Saturday	8:00 PM to 8:00 AM (Sunday)
Sunday	8:00 PM to 6:00 AM (Monday)

(Two Travel Lanes Each Direction South of Furnace Brook)

All Lanes Maintained (Each Direction – Two Lane Section)

Monday to Friday	6:00 AM to 9:00 AM and
	3:00 PM to 8:00 PM
Saturday	8:00 AM to 8:00 PM
Sunday	9:00 AM to 8:00 PM

One Lane Maintained (Each Direction – Two Lane Section)

Monday through Thursday	9:00 AM to 3:00 PM and
	8:00 PM to 6:00 AM (Next Day)
Friday	9:00 AM to 3:00 PM and
	8:00 PM to 8:00 AM (Saturday)
Saturday	8:00 PM to 9:00 AM (Sunday)
Sunday	8:00 PM to 6:00 AM (Monday)

2. No lane, shoulder, or ramp closures will be permitted on the following holidays:

- Easter Sunday (including 6:00 AM Saturday until Noon Monday)
- Memorial Day (See Note Below)
- July 4th (See Note Below)
- Labor Day (See Note Below)
- Election Day (6:00 AM until 8:00 PM the day of)
- Thanksgiving Day (See Note Below)
- Christmas Day (See Note Below)
- New Years Day (See Note Below)

NOTE:

If Holiday Falls On	No Lane Closures Permitted
Sunday or Monday	6:00 AM Friday until Noon Tuesday
Tuesday	6:00 AM Friday until Noon Wednesday
Wednesday	6:00 AM Tuesday until Noon Thursday
Thursday	6:00 AM Wednesday until Noon Monday
Friday or Saturday	6:00 AM Thursday until Noon Monday

3. The proposed work must be coordinated with any other projects that may be underway at the same time near the project area.

4. Access to all driveways and fire lanes must be maintained at all times during business hours and one driveway and all fire lanes must be maintained at all times during construction.

5. For traffic shifts during construction signs will be needed to designate business driveways to minimize traffic confusion.

6. Ramps / Auxiliary Lanes / Side Streets may be closed between the hours of 10:00 PM and 6:00 AM the next day unless otherwise specified. A signed detour is required for all Ramps / Auxiliary Lanes / Side Streets closures. Two consecutive Ramps / Auxiliary Lanes / Side Streets may not be closed at the same time.

7. A traffic management plan will be required for this project in accordance with the NJDOT Traffic Mitigation Guidelines, BDC07T-07.

8. Please provide portable variable message signs of whose locations and messages will be included as part of the traffic mitigation plan.

9. Replace all damaged and missing mile markers within the project limits.

Should you have any questions or comments please feel free to contact Paul Hartle of my staff at (201) 475-3678.

Email

From:	Steponanko, Julia
To:	Sangaran Vijayakumar
Cc:	Robert Lee; Boerchers, Bernard
Subject:	Route 31, Bridge over Furnace Brook, Sidewalk
Date:	Wednesday, June 11, 2014 4:43:00 PM
Attachments:	RE Re Route 31 over Furnace Brook PE Scope Statement Review.msg image003.png

Hi Vijay,

We reviewed OBPP's request for sidewalk on structure along the northeast (Wall Street) side and offer the following. Of note is that sidewalk currently exists along the southern side of Wall Street where the majority of the pedestrian generators are located.

- Providing a six-foot minimum sidewalk on structure without further widening the same would result in a substandard shoulder width, which will require a design exception, along the westbound approach of Wall Street.
- Widening the structure to provide a six-foot minimum sidewalk along the northeast side would have additional right-of-way impacts and the potential for environmental impacts. It may also place the structure closer to the former hair salon building, which is already in close proximity to the existing bridge.
- There are only two businesses on the northern side of Wall Street (excluding Wilkinson Field) that have ample parking and are unlikely to be significant pedestrian generators.
- The proposed ten-foot shoulder is adequate to accommodate pedestrians and bicyclists. Conflicts with vehicular traffic would be minimal since the right turn volume along the Wall Street westbound approach are low based on the manual classified turning movement counts collected for this project (0/6/8 vehicles in the AM/MD/PM peak hours, respectively).

Therefore, due to the aforementioned impacts, existing sidewalk network and limited conflicts with vehicular traffic, we do not recommend adding sidewalk on structure along the northeast side.

In addition, please see the attached email that addressed all previous comments from OBPP. Please let Bernie or me know if you have any questions.

Thanks,

GPI

Julia Steponanko, E.I.T.

Greenman-Pedersen, Inc.
Engineering and Construction Services

100 Corporate Drive, Suite 301, Lebanon, NJ 08833
908.236.9001 – ext. 5064 | f 908.236.9669
jsteponanko@gpinet.com | www.gpinet.com

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From:	Steponanko, Julia
To:	Sangaran Vijayakumar
Cc:	Joseph Powell; Robert Lee; Boerchers, Bernard
Subject:	RE: Re: Route 31 over Furnace Brook, PE Scope Statement Review
Date:	Friday, May 23, 2014 9:50:00 AM
Attachments:	image003.png image002.png

Hi Vijay,

A road diet was not considered at this location for the following reasons:

1. The Route 31 southbound outside lane serves as a truck climbing lane due to the existing upgrade away from the intersection.

2. The Route 31 northbound outside lane was installed to reduce queues at the intersection due to a previous history of same direction rear end crashes.

Please note that the PPA includes a 12-foot wide southbound shoulder along Route 31 (providing a standard shoulder north of Wall Street and replacing the existing travel lane south of Wall Street). This will decrease the travel lanes for pedestrians to cross at the intersection. Since the proposed auxiliary lane along Route 31 north of Wall Street only requires minor widening, the crossing time will not be significantly increased.

The PPA also proposes a six-foot wide sidewalk on the west side of the structure, replacement of the traffic signal, ADA compliant curb ramps, pedestrian signals and pushbuttons and sidewalk in the northeast and northwest quadrants. (The basic layout on the PPA plan is only meant to indicate signal replacement and does not show all features. A full design would be performed in FD.)

The existing school crossing signs will be brought into conformance with current standards.

Please let Bernie or me know if you have any questions.

Thanks,

GPI | **Julia Steponanko, E.I.T.**
908.236.9001 - ext. 5064

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Thursday, May 22, 2014 1:57 PM
To: Steponanko, Julia
Cc: Joseph Powell; Robert Lee
Subject: Fwd: RE: Re: Route 31 over Furnace Brook, PE Scope Statement Review

Julia,

Please see below for the comments from OBPP.

Vijay

>>> Joseph Powell 5/22/2014 1:10 PM >>>
Sangaran Vijayakumar:
Traffic volume per the SLD indicates that a road diet may work at this location. Was a road diet considered? Also accommodations should be provided for the children that walk to school(per the Complete Streets checklist). Thank you.

Joseph Powell
New Jersey Department of Transportation
Office of Bicycle and Pedestrian Programs
609-530-5290

>>> "Steponanko, Julia" <jsteponanko@gpinet.com> 5/20/2014 4:14 PM >>>

Vijay,

Pedestrian travel from the Skyland Bank (Block 6, Lot 7) to the former hair salon (Block 42, Lot 1) is achieved by crossing the western leg of Wall Street and the northern leg of Route 31 (near the Wilkinson Field parking lot) and using the shoulder on the eastern leg of Wall Street. There is no suitable location and insufficient room to install a curb ramp near the salon. Installing a crosswalk along the eastern leg of Wall Street to the shoulder could be considered, but it would place the proposed stop bar closer to the existing driveway for Block 42, Lot 1, thereby potentially resulting in queues extending beyond the same.

The PPA, including pedestrian accommodations, is based on input received from the NJDOT SMEs who agreed to advance the same to PE. In accordance with the NJDOT Complete Streets Policy, a six-foot wide sidewalk will be provided along the southbound side of the proposed structure. A ten-foot wide shoulder will be provided on structure along Wall Street. Specifically, this project will address the following policy points:

- 2 – Provide safe and accessible accommodations for existing and future pedestrian, bicycle and transit facilities.
- 4 – The design of intersections, interchanges and bridges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.
- 6 – Transportation facilities are long-term investments that shall anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.
- 10 – Make provisions for pedestrians and bicyclists when closing roads, bridges or sidewalks for construction projects.

The attached complete streets checklist is included as Appendix R of the CD Report. Please let Bernie or me know if you have any questions.

Thanks,

GPI | **Julia Steponanko, E.I.T.**
908.236.9001 - ext. 5064

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Tuesday, May 20, 2014 12:48 PM
To: Steponanko, Julia
Cc: Joseph Powell; Robert Lee
Subject: Fwd: Re: Route 31 over Furnace Brook, PE Scope Statement Review

Julia,

Here is a question from OBPP. Would you please look at this issue?

Vijay

>>> Joseph Powell 5/20/2014 8:34 AM >>>
Sangaran Vijayakumar:
How would a pedestrian travel from Block 6, lot 7 to Block 42, lot 1? Has the Complete Streets checklist(see attached) been completed for this project? Thank you.

Joseph Powell
New Jersey Department of Transportation
Office of Bicycle and Pedestrian Programs
609-530-5290

>>> Sangaran Vijayakumar 5/14/2014 10:36 AM >>>
SMEs,

We are forwarding the PE scope Statement developed for this project for your review.

As you know, this project is near the completion of the CD phase. This project will follow the regular project delivery process and it will be advanced to Preliminary Engineering phase.

The overall purpose of this project is to replace Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83), to address its existing deficiencies. According to the 16th Cycle Report, the structure is structurally deficient due to the poor condition (advanced section loss to primary structural elements) of the superstructure with a sufficiency rating of 48.2. The 16th Cycle Report did not identify the bridge as scour critical based on the Bridge Scour Evaluation Program.

I have attached the plan that shows the proposed PPA. In addition, I have attached the summary of the proposed project.

Please get back to us with the review comments within two weeks. If we don't receive any comments by May 29, we will assume that you agree with the proposed FD Scope Statement.

Robert Lee is the PM for this project.

Thanks

Vijay
DPM
5-2642

From: Boerchers, Bernard
To: Steponanko, Julia; Lembersky, Lenny
Subject: FW: RE: RE: Route 31 Over Furnace Brook
Date: Tuesday, January 07, 2014 12:50:47 PM

FYI

From: Thomas Loftus [mailto:Thomas.Loftus@dot.state.nj.us]
Sent: Tuesday, January 07, 2014 11:11 AM
To: Robert Lee; Sangaran Vijayakumar
Cc: Robert Kopf; Boerchers, Bernard
Subject: Fwd: RE: RE: Route 31 Over Furnace Brook

Vijay/Bob,

We are satisfied that the designer performed the field measurements and agrees that the exact locations should be shown in a section view on the plans. We also feel that the field measurement is adequate at this stage in the project development. Thanks for getting back to us.

Tom

>>> Sangaran Vijayakumar 1/7/2014 10:43 AM >>>
Tom,

I am forwarding our consultant's (GPI) response to your comments [please see below for the consultant's response and your comments]

Robert Lee is the PM for this project.

Thanks

Vijay

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 12/23/2013 11:41 AM >>>
Hi Vijay and Bob,

We measured the joint locations in the field using a tape measure – see attached sketch. The measured joint locations are in line with what we had interpreted from the as-built plans, and therefore we do not propose any changes at this time to the preliminary staging plans. We agree that the substructure joints should be precisely located in the field and that a section view of the substructure showing the joint locations should be provided in the plans. However, we do not believe the supplemental survey and plan development for this effort is necessary for Concept Development. This effort is generally performed during Design. This information will be available prior to bidding so that interested contractors may accurately bid the project.

Should you have any additional questions or comments, please do not hesitate to contact me.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Wednesday, December 18, 2013 3:37 PM
To: Boerchers, Bernard; Steponanko, Julia
Cc: Robert Lee
Subject: Fwd: RE: Route 31 Over Furnace Brook

Bernie/Julia,

Please see below for the comments from Tom regarding the responses [constructability] provided by GPI.

I will call you tomorrow to discuss the comments.

Vijay

>>> Thomas Loftus 12/18/2013 2:54 PM >>>
Bob,

Below in blue font are our comments regarding the designer's response to our concerns.

Tom

>>> Sangaran Vijayakumar 12/11/2013 4:28 PM >>>
Tom,

Our consultant, GPI, responded to the comments raised by your office [see below].
We are forwarding the responses for your review.

Robert Lee is the PM for this project.

Thanks

Vijay

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 10/24/2013 2:35 PM >>>
Hi Vijay,

Please see our responses to the constructability comments below as noted in red italics and following the respective comment.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Thursday, October 17, 2013 11:31 AM
To: Boerchers, Bernard; Steponanko, Julia
Cc: Robert Lee
Subject: Fwd: Route 31 Over Furnace Brook

Constructability comments - pl see below

Vijay

>>> Thomas Loftus 10/17/2013 10:48 AM >>>
Bob,

We have reviewed the provided documents pertaining to the Route 31 Over Furnace Brook project and offer the following:

- A section view of the existing substructure showing joint locations where the three different structure types tie together was not provided. This may be a major factor in the staging scheme. The stage line should coincide with a vertical joint in the substructure. If the stage line lands not on but near an existing vertical joint, additional time, work, and expense may be required to shore up the existing substructure at the cut line.

  We fully agree. However, the location of the vertical joints is not clear from the as-built plans. Please find attached a copy of the as-built plans for Structure No. 2111-154, which indicates the limits of the beam, slab and stone portions of the structure, along with the Route 31 roadway as-built plans within the project limits. The structural as-built plans do not provide clear dimensions as to the width of each portion of the structure. However, based on the roadway as-built plans and the latest bridge inspection report we estimated that the joint line between the beam and slab portions of the existing structure is located approximately along the centerline for Route 31 which is also the line between the two proposed construction stages. A supplemental survey would need to be performed to accurately determine the limits of each section of the existing structure. This type of supplemental survey is generally performed in Preliminary Engineering. We opinioned that if some of the slab section of the existing structure had to be removed to construct the proposed structure, while adding additional expense and time, that it would not be a fatal flaw. It also may be feasible to adjust the limits of the construction staging to line up with the vertical joint between the beam and slab sections of the existing bridge. Once again field survey would be needed to confirm the location of the vertical joint, but based on the information available during Concept Development it appears that the construction staging limits can be placed on the vertical joint between the beam and slab sections. Please confirm if we need to prepare a section view as part of the Concept Development.

  We understand that the as-built plans are not clear with respect to the vertical joint locations. As the designer has indicated, it would not be a fatal flaw if some of the slab section had to be removed to construct the proposed structure. However, with this not being known at the time of bid, it would mean extra work for the contractor, impact to the construction schedule, and a possible claim. We strongly recommend precisely locating the substructure joints in the field. A section view of the substructure showing the joint locations should be provided in the plans.

  In reevaluating the joints and construction staging limits, we further assessed the feasibility of constructing the proposed structure in two stages. To simplify the construction of the proposed three-sided precast structure and the footings while maintaining two stages, we have proposed a modification to the Concept Development construction staging plans by which we modify the westbound approach of Wall Street to a westbound left turn only and eliminate the receiving lane. All traffic destined for Wall Street east of Route 31 would be redirected to Port Colden Street. This would provide for a larger work zone which may be necessary to construct the proposed culvert in Stage 1. I have attached the revised construction staging plans for approval

or comment.

We are definitely in favor of a two stage construction method with the large stage 1 work area. This would simplify construction and traffic safety.

- The firehouse near the intersection only has access to Wall Street/Port Colden Road. With this road closed during stage 1, emergency response times may be significantly impacted. Has a temporary driveway directly onto Route 31 been considered? The grass area between the firehouse pavement and Route 31 is relatively flat and would be acceptable for a temporary driveway. Communication about this issue with local officials and emergency response units is necessary during preliminary design.

  It was agreed at the June 22, 2011 meeting with local officials that full or partial access to and from the firehouse along Wall Street to Route 31 should be maintained during construction given that the existing traffic signal has emergency preemption. Given the location of the structure within the intersection, it is only possible to maintain a left turn westbound from Wall Street onto Route 31 southbound during Stage 1. This is the most critical movement as emergency vehicles need to cross Route 31 northbound traffic. Emergency vehicles headed north on Route 31 or into the business district would be directed onto Route 31 northbound from Port Colden Street which is located approximately 1,500 feet south of Wall Street along Route 31. Returning vehicles would also be directed to Port Colden Street. During Stage 2 all movements from Wall Street would be maintained.

- The Preliminary Preferred Alternative indicates that aerial utilities may need to be relocated during construction. Section 100 of the 2007 Standard Specifications provides for time extensions and compensation for utility delays once certain time frames have elapsed. However, the FHWA will only participate if the extension and compensation is due to changed site conditions and it was not possible to perform advanced utility relocations. In order to maximize our federal reimbursement, we will need to show that advanced utility relocation was considered and if not possible, document the reasons why.

  Understood. Utility coordination is to begin in Preliminary Engineering.

Please feel free to contact us with any questions.

Tom

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No #

San. M.H.

S.H.D. Elect.

Guy

T.C.B.

#231
w/Light

Post

S.H.D. Elect.

220

Guy

Monitor Well

#90

S.H.D. Elect.

San. M.H.

37'-2"

ARCH

37'-8"

S.H.D. Elect.

PG ℄ Sta.218+85.92

SLAB

22'-5"

33'-3"

STRINGER

35'-6"

25'-4"

219

218

ROUTE 31 NB

N47°03'12"W (C) 253.92'(REF.1)

ROUTE 31 SB

S.H.D. Elect.

San. M.H.

#NJ 141 OT

Guy

Flag Pole

Monitor Well

S.H.D. Elect.

Post

#NJ 304 OT

Post

Post

J.B.

W

Lamp

No # Light Pole

#101
w/Light

J.B.

S.H.D. Elect.

Posts

W

Lamp

Utility B.

Monitor Well

Utility B.

Monitor Wells

Monitor

20' 10' 0 20' 40'

From:	Boerchers, Bernard
To:	Sangaran Vijayakumar
Cc:	Lee, Robert (robert.lee@dot.state.nj.us); Zakrollah Asadpour (Zakrollah.Asadpour@dot.state.nj.us); Steponanko, Julia; Lembersky, Lenny; Johnsen, Scott; Marra, Christopher
Subject:	RE: Route 31 over Furnace Brook - CD: SHPO Comments
Date:	Thursday, November 21, 2013 3:02:01 PM
Attachments:	01-GPE_CM Arch Treatments Revised 11-20-2013.pdf image001.png

Hi Vijay,

Please find attached the revised file as requested. Should you have any questions please do not hesitate to contact me.

Thanks,
Bernie

From: Boerchers, Bernard
Sent: Wednesday, November 20, 2013 3:06 PM
To: 'Sangaran Vijayakumar'
Cc: Lee, Robert (robert.lee@dot.state.nj.us); Zakrollah Asadpour (Zakrollah.Asadpour@dot.state.nj.us); Steponanko, Julia; Lembersky, Lenny; Johnsen, Scott; Marra, Christopher
Subject: RE: Route 31 over Furnace Brook - CD: SHPO Comments

Hi Vijay,

As per the NJDOT Design Manual for Bridges and Structures, concrete parapet with NJ barrier curb (Type 5) is generally used on bridges which do not have sidewalks. Architectural treatments, such as the provision of recess patterns, are permitted as long as they do not exceed one (1) inch maximum depth and have a 45 degree chamfered or beveled edge. I have attached the relevant pages from the Bridge Design Manual and highlighted the pertinent sections. However, the Bridge Design Manual does allow for a vertical face (Type 4) on low level, short span bridges over a shallow stream which I opinion is the case here based on these subjective guidelines. Therefore, we are modifying the parapet section as requested with a note that the architectural treatment must be consistent with the Bridge Design Manual. We will have the revised plan to you shortly.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Tuesday, November 19, 2013 1:33 PM
To: Boerchers, Bernard
Cc: Robert Lee; Zakrollah Asadpour
Subject: Re: Route 31 over Furnace Brook - CD: SHPO Comments

Bernie,

Thanks for the plans/comment-responses.

We just discussed this with the in-house designers. There is a question came up.

The question is related to the inside face of the parapet wall along Wall St [downstream parapet]. The proposal include a Jersey Barrier Shape with no architectural Treatment. Based on the loading condition for Wall Street, it would be possible to keep a vertical face with architectural treatment [some form-liner]. Is this possible

If that is the case, would you please revise the Section BB showing a vertical face - no Jersey barrier Shape. Also, show architectural tearment for the subject face.

Thanks

Vijay

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 11/6/2013 11:45 AM >>>
Hi Vijay,

The following are the comments from SHPO on the subject project as relayed to me by you and Zak on Monday, November 4th followed by my response to each as denoted in italics. In addition, please find attached a revised GP&E of the proposed structure based on these comments and with sections added as requested on Monday.

1. SHPO: Convert the proposed arch opening to rectangular.
   Response: Opening has been converted to a rectangular opening and the GP&E has been modified to indicate the same.

2. SHPO: Provide a consistent number of rails on both proposed parapets.
   Response: The proposed upstream parapet is adjacent to a sidewalk and the proposed downstream parapet is adjacent to a shoulder. As per the NJDOT Standard Bridge Construction Details the minimum combined height of the parapet and rail for bicycle and pedestrian traffic is 4'-6" and 3'-6", respectively. BCD-509-3 1-Rail Aluminum Railing and BCD-509-4 2-Rail Aluminum Railing meet the requirements for pedestrian and bicycle traffic, respectively. However, we do not anticipate an issue with using a 2-Rail Aluminum Railing design for both pedestrian and bicycle traffic. The only difference between the two parapets would then be that the parapet height (not including the rails) adjacent to the sidewalk and shoulder would be 2'-8" above sidewalk and 2'-10" above deck slab, respectively. This change is indicated on the attached GP&E and should be approved by the appropriate SME.

3. SHPO: Provide architectural treatment on the portion of the parapet facing the roadway similar to the treatment provided on the fascia.
   Response: Similar architectural treatment will be provided on the parapet facing the sidewalk on the upstream side. However, it is our recommendation that if an architectural treatment is to be provide on the parapet facing the shoulder on the downstream side, which is a concrete safety shape barrier, that the proposed architectural treatment be consistent with Appendix A of NCHRP Report 554 - Aesthetic Concrete Barrier Design. A copy of this appendix is attached for your reference. This type of detailed design would begin in Preliminary Engineering.

Should you have any questions or comments to these responses, please do not hesitate to contact me.

Thanks,
Bernie

Bernard J. Boerchers, P.E., P.T.O.E.
Vice President, Senior Project Manager

Greenman-Pedersen, Inc.
Engineering and Construction Services

100 Corporate Drive, Suite 301, Lebanon, NJ 08833
908.236.9001 – 5008 | f 908.236.9669
bboerchers@gpinet.com | www.gpinet.com

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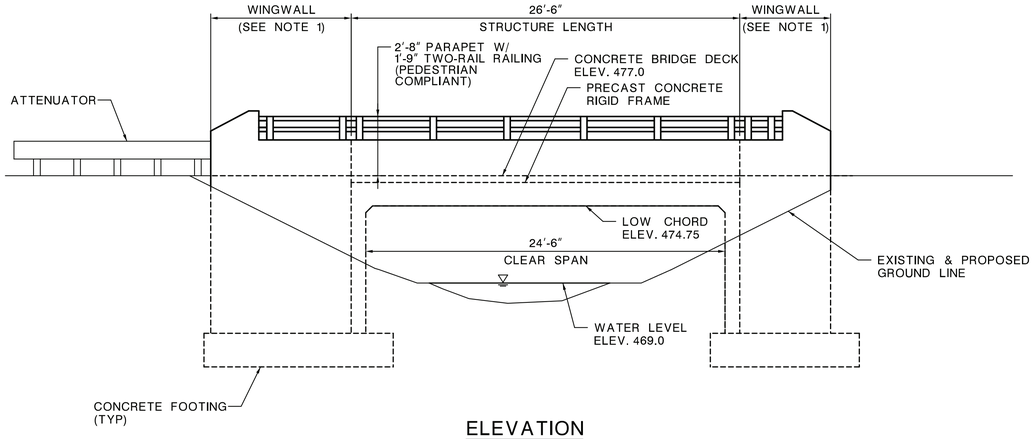
OXFORD TOWNSHIP

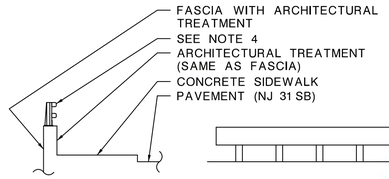
WARREN COUNTY



ELEVATION

(UPSTREAM ELEVATION)

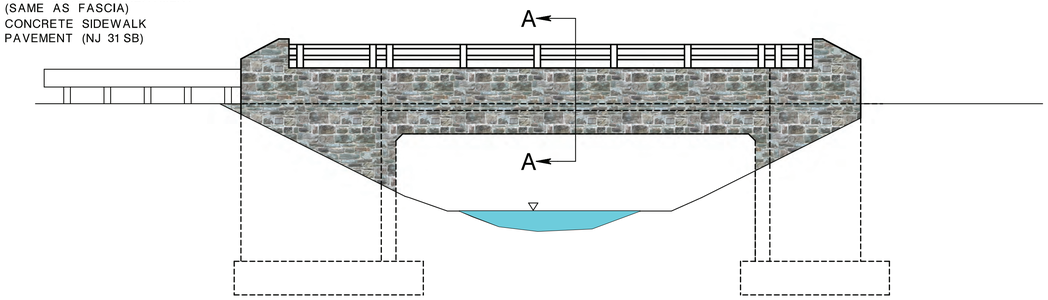
3/16"=1'-0"



SECTION A-A

(UPSTREAM PARAPET)

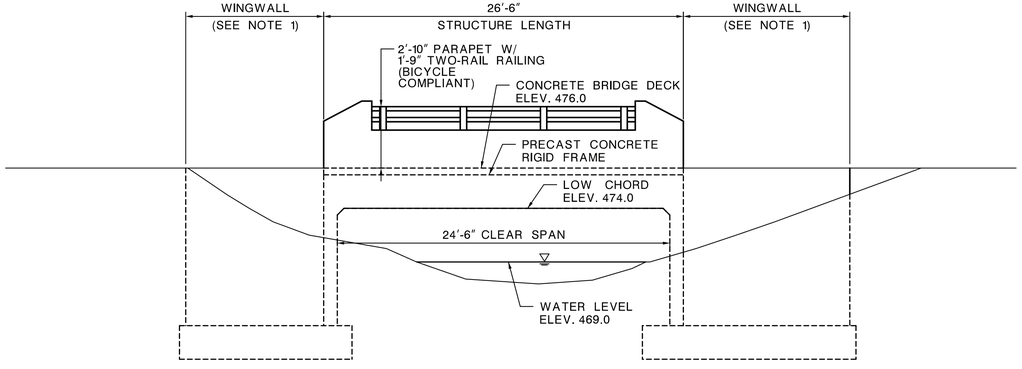
3/16"=1'-0"



ELEVATION

(UPSTREAM ELEVATION)

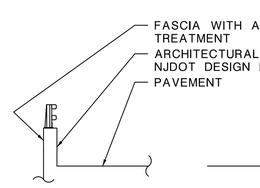
3/16"=1'-0"



ELEVATION

(DOWNSTREAM ELEVATION)

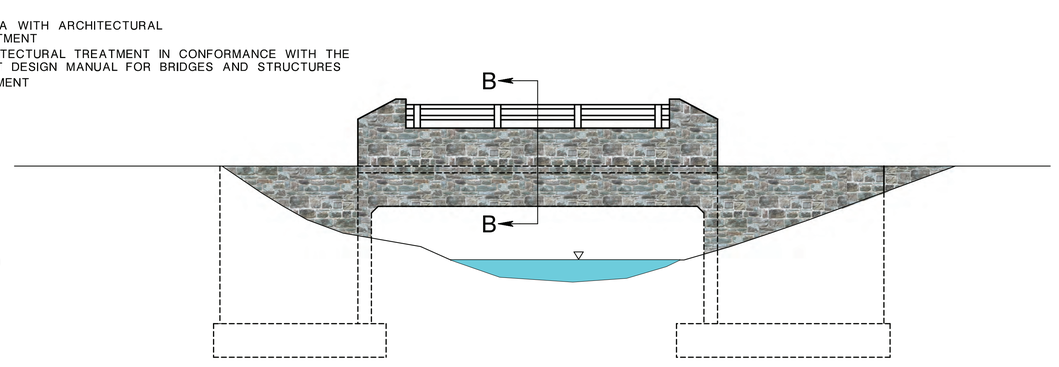
3/16"=1'-0"



SECTION B-B

(DOWNSTREAM PARAPET)

3/16"=1'-0"



ELEVATION

(DOWNSTREAM ELEVATION)

3/16"=1'-0"

NOTES:

1. WINGWALLS SHOWN ARE CAST-IN-PLACE CONCRETE. HOWEVER, STEEL SHEET PILING OR OTHER ALTERNATIVES MAY ALSO BE SPECIFIED.
2. DIMENSIONS ARE MEASURED PERPENDICULAR TO STRUCTURE AND NOT ALONG THE BASELINE.
3. ALL ELEVATIONS ARE APPROXIMATE.
4. TWO RAILS PROVIDED AS REQUESTED BY SHPO. ONLY ONE RAIL REQUIRED FOR PEDESTRIAN COMPLIANCE AS PER NJDOT STANDARD DETAILS.

20' 0 20' 40'

DEPARTMENT OF TRANSPORTATION
THE STATE OF NEW JERSEY

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

ROUTE 31 OVER FURNACE BROOK
CONCEPT DEVELOPMENT

OXFORD TOWNSHIP, WARREN COUNTY

PRECAST CONCRETE RIGID FRAME
GENERAL PLAN, ELEVATION, AND SECTION

Division of Project Development

Scale: AS NOTED Date: March 2012

NCHRP
REPORT 554

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Aesthetic Concrete Barrier Design

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

APPENDIX

GUIDELINES FOR AESTHETIC BARRIER DESIGN

The guidelines presented herein were developed for use by engineers and designers applying aesthetic surface treatments to safety shape, single-slope, and vertical-face concrete barriers. In addition, guidelines for stone masonry guardwalls are presented. The guidelines were developed for specific barrier shapes, and careful attention to applying the appropriate guidance to the correct barrier shape should be exercised.

The development of the guidelines for each barrier type was supported by performing full-scale crash tests and in some instances using computer simulation. These guidelines, when appropriately applied, satisfy the performance evaluation criteria for *NCHRP Report 350: Recommended Procedures for the Safety Performance Evaluation of Highway Features* Test Level 3 (i.e., 100 km/h [62 mph]).[1] These guidelines do not address the structural design of any type of barrier.

GUIDELINES FOR SAFETY SHAPE BARRIERS

Guidelines for safety shape concrete barriers presented herein were developed by Texas Transportation Institute under NCHRP Project 22-19. These guidelines apply to the New Jersey and the F-shape concrete barriers and were developed for Test Level 3 (TL-3) of *NCHRP Report 350.* The guidelines also apply to service levels higher and lower than TL-3. For service levels lower than TL-3, the presented guidelines may be conservative.

The guidelines for aesthetic surface treatment of the safety shape barriers are defined as a set of relationships between different surface asperity parameters. All generalized surface asperities (i.e., perpendicular, rounded, or angled surface interruptions) are defined in terms of the depth d and angle θ, as shown in Figure A-1.

The perpendicular asperity is a subset of the angled asperity with $\theta = 90$ degrees. The rounded asperity can be approximated as an angled surface asperity by selecting an effective angle θ. Figure A-1 uses a tangent to the rounded surface at half the depth d to define an effective angle θ.

Guidelines for the safety shape barriers were developed for 90-, 45-, and 30-degree asperity angles. Use of these guidelines is restricted to the specified angles, and interpolation between relationships for use with other asperity angles is not recommended.

These guidelines define the surface asperity as the portion of the barrier that is recessed into the barrier surface. In other words, an asperity is to be considered a depression in the surface of the barrier. Thus, the width of the asperity, W, has been defined as the distance between the outer edges of the asperity, as shown in Figure A-2. Additionally, the asperities are only introduced into the very uppermost flat portion of the barrier face (above the barrier break point).

The developed guidelines are independent of the asperity spacing (W_s), which is the distance between two adjacent asperities, as shown in Figure A-2.

The design guidelines are presented in Figure A-3 (in metric units) and Figure A-4 (in English units). Asperity depth, d, has been plotted as a function of asperity width, W, for asperity angles of 90, 45, and 30 degrees. For each of these curves, "acceptable" and "not recommended" regions have been indicated. All aesthetic surface treatments done to safety shape barriers should lie in the "acceptable" region. In Figure A-3, lines representing the "geometric boundary" for the 45- and 30-degree asperities are also shown. These lines simply imply that for the specified asperity angle, an asperity configuration to the left of the line is geometrically not possible.

In addition to meeting the requirements specified in Figure A-3, care must be taken to ensure that no patterns of surface asperity have repeating upward sloping edges. Such patterns are likely to cause vehicle instability and high roll angles on impact, possibly resulting in vehicle rollover.

Examples of Using the Aesthetic Design Guidelines for Safety Shape Barriers

Two sample design exercises are presented to demonstrate the use of the aesthetic design guidelines in applying aesthetic surface treatments to concrete safety shape barriers.

Example 1

An aesthetic surface treatment shown in Figure A-5 is evaluated and modified using the aesthetic design guidelines in this example. The initial design consists of repetitive asperities cast into the barrier top. The width of the asperities is 300 mm, and a gap of 100 mm exists between adjacent asperities. The asperities are 19 mm deep, and the edges of the asperities are cast at an angle of 45 degrees.

Using the design guidelines in Figure A-3, it can be seen that, for the 45-degree asperities, asperity width (W) of 300 mm and asperity depth (d) of 19 mm exists in the "not recommended" region. Therefore, modifications to the initial design are necessary.

Figure A-6(a) shows a modified design in which the asperity width was increased to 350 mm while the depth remained the same. This modified configuration now exists in the "acceptable" region of the aesthetic design guidelines. In Figure A-6(b), the width of the asperities was kept the same

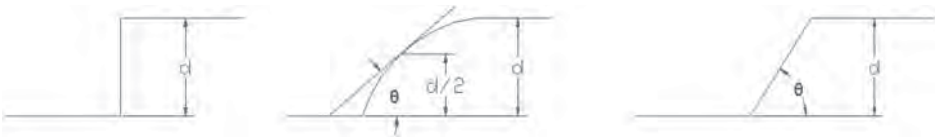


Figure A-1. Generalized types of surface asperities for safety shape barriers.

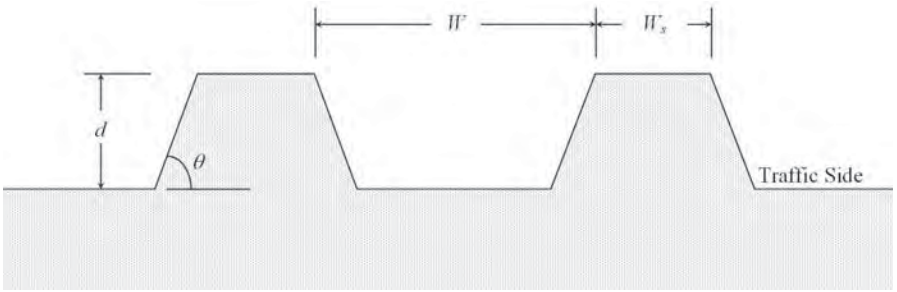


Figure A-2. Surface asperity geometry variables for safety shape barriers.

(i.e., 300 mm), but the depth of the asperities was reduced to 13 mm. This modification also results in a configuration that exists in the "acceptable" region of the design guidelines.

Example 2

In this example, the initial design shown in Figure A-7 consists of two types of asperity. The first type of asperity is 350 mm wide and 25 mm deep and has 45-degree asperity edges. The second type of asperity is 100 mm wide and 25 mm deep and has 90-degree asperity edges. Gaps between adjacent asperities are 100 mm wide.

Using the design guidelines in Figure A-3, it can be seen that, for the 45-degree asperities, asperity width (W) of 350 mm and asperity depth (d) of 25 mm exists in the "not recommended" region. Similarly, the 90-degree asperities that are 100 mm wide and 25 mm deep also exist in the "not recommended" region of the design guidelines.

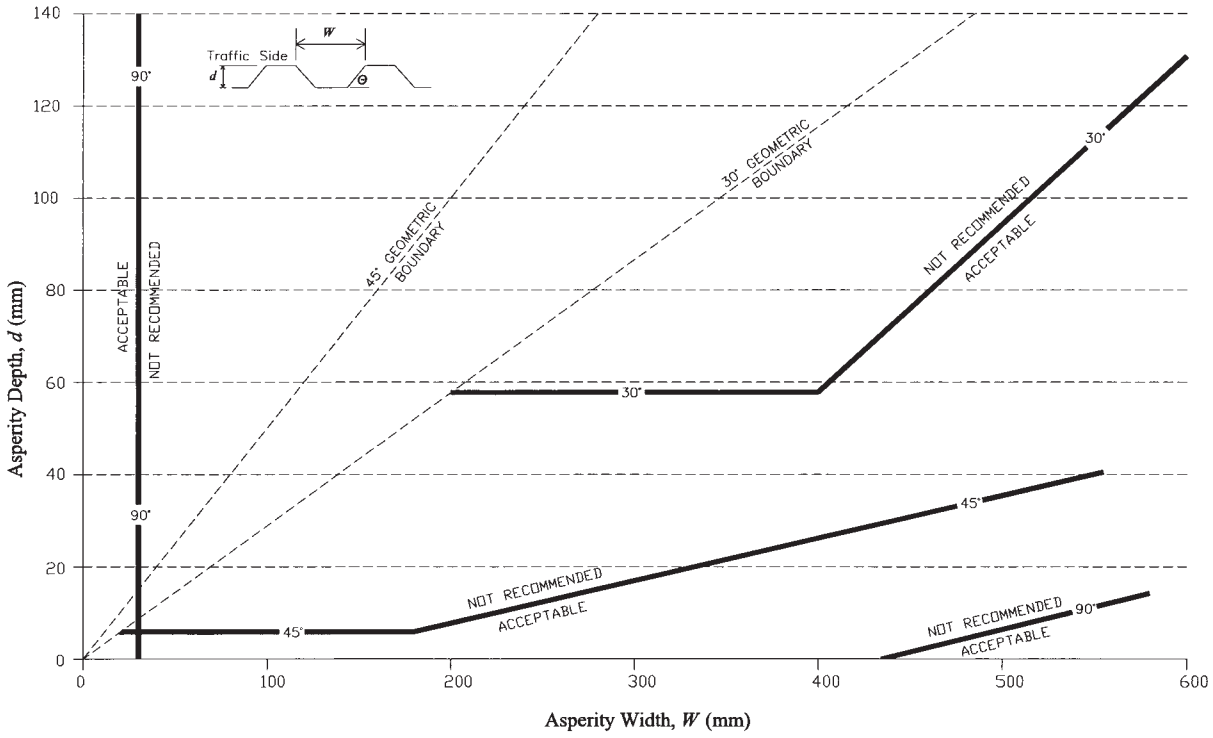


Figure A-3. Final design guidelines for aesthetic surface treatment of safety shape concrete barrier (metric).

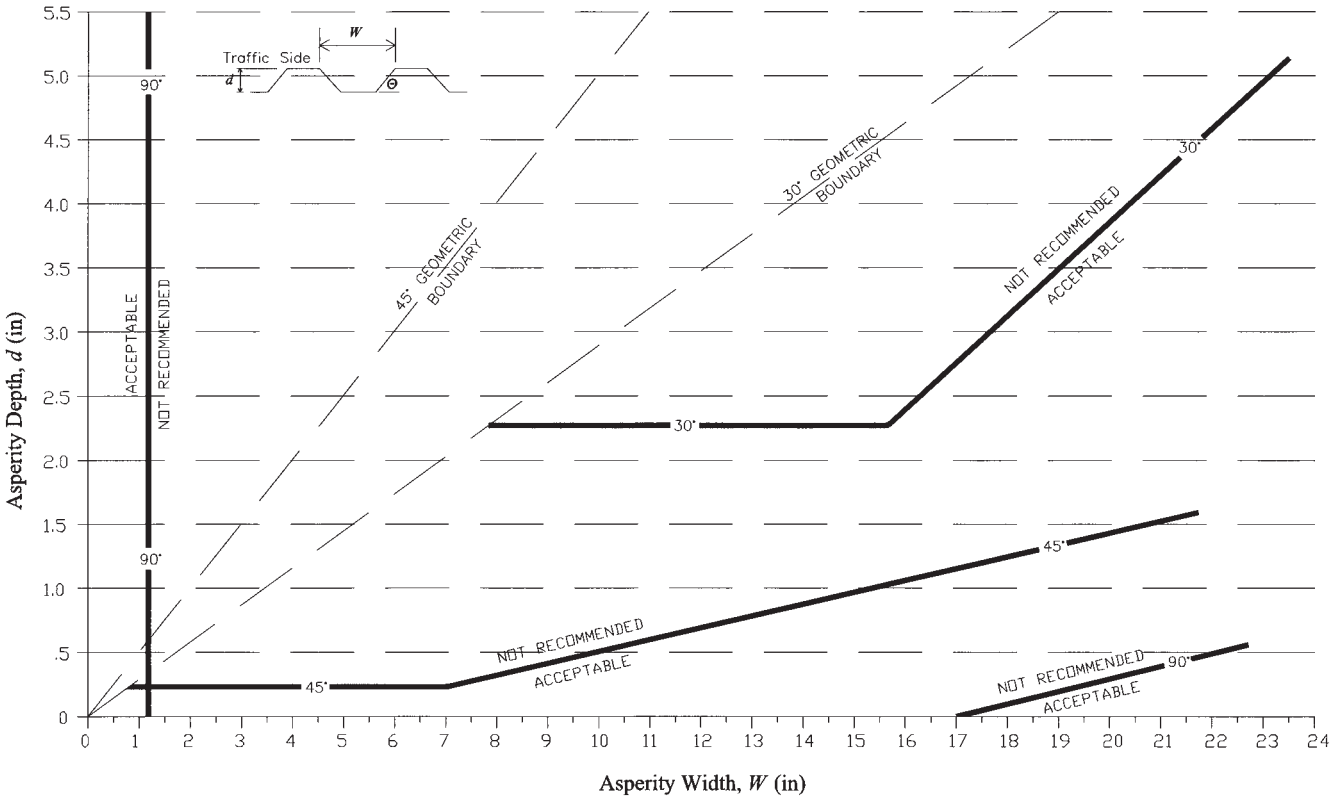


Figure A-4. Final design guidelines for aesthetic surface treatment of safety shape concrete barrier (English).

Figure A-8 shows a modification to the original design. The width of the 45-degree asperities was increased to 400 mm, while the depth was kept the same (25 mm). In addition, the width of the 90-degree asperities was reduced to 30 mm, while the depth was kept the same (25 mm). Making this modification shifts the asperity configurations for both angles to the "acceptable" regions in the final design guidelines.

If a width of 30 mm for the 90-degree asperities appears too small, the designer may consider changing the asperity angle to 45 degrees and increasing the asperity width. As an example, Figure A-9 shows one such modification in which the original 90-degree asperities have been replaced by the 45-degree asperities that are 200 mm wide and 7 mm deep. This modification also shifts the asperity configuration to the "acceptable" region in the design guidelines.

GUIDELINES FOR SINGLE-SLOPE AND VERTICAL-FACE BARRIERS

Guidelines for single-slope and vertical-face barriers were developed by Caltrans[2] and approved by the FHWA in acceptance letter B-110. These guidelines permit the fol-

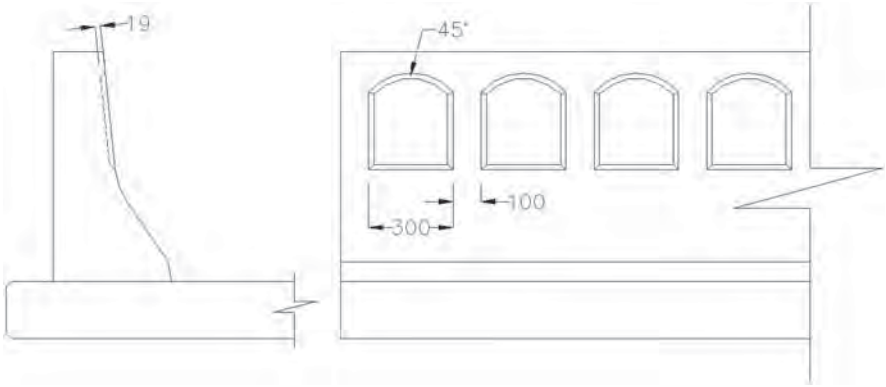


Figure A-5. Initial aesthetic barrier design.

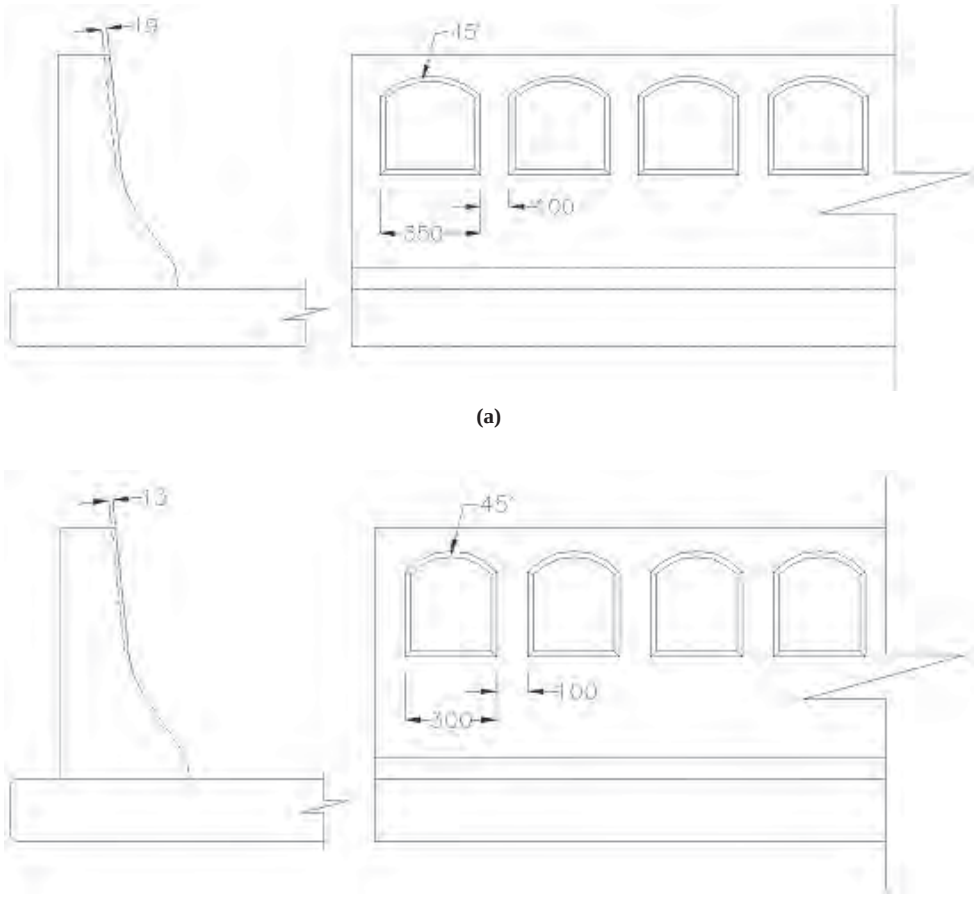


Figure A-6. Suggested modifications to the initial design using the aesthetic design guidelines.

lowing types of surface treatments to single-slope and vertical-face barriers:

- Sandblasted textures with a maximum relief of 9.5 mm.
- Images or geometric patterns cut into the face of the barrier 25 mm or less and having 45-degree or flatter chamfered or beveled edges to minimize vehicular sheet metal or wheel snagging.
- Textures or patterns of any shape and length inset into the face of the barrier up to 13 mm deep and 25 mm wide. (Geometric insets with an upstream edge and an angle of up to 90 degrees should be less than 13 mm.)
- Any pattern or texture with gradual undulations that have a maximum relief of 20 mm over a distance of 300 mm.

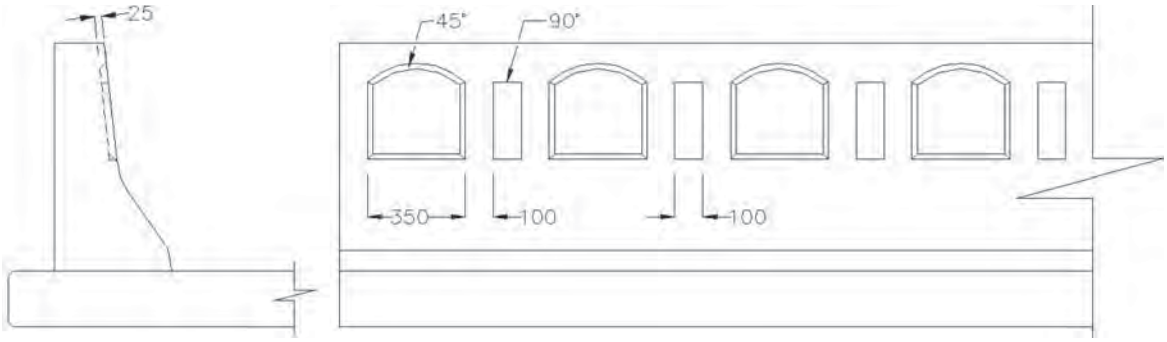


Figure A-7. Initial aesthetic barrier design.

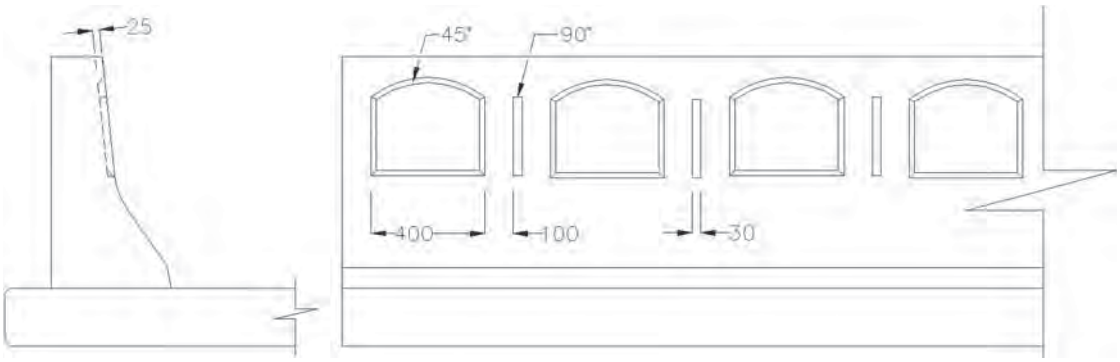


Figure A-8. Suggested modifications to the initial design using the aesthetic design guidelines.

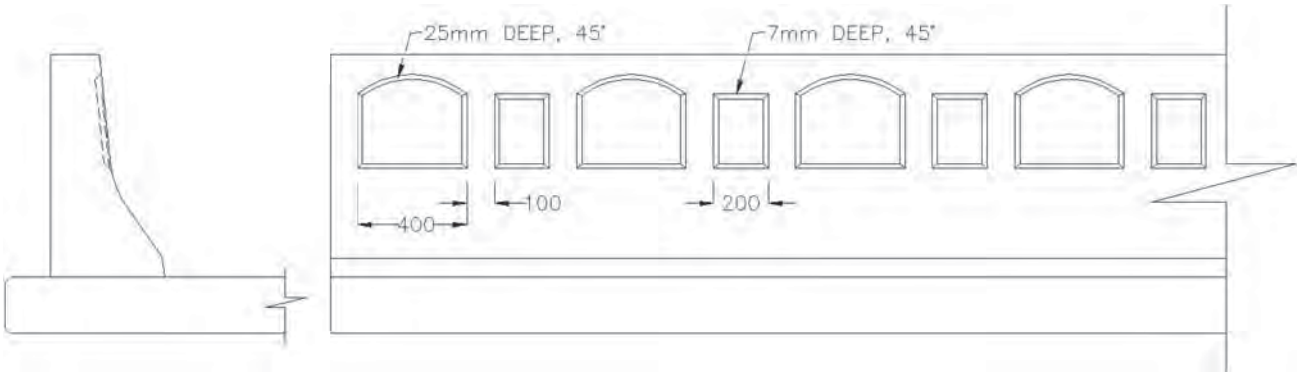


Figure A-9. Suggested modifications to the initial design using the aesthetic design guidelines.

- Gaps, slots, grooves, or joints of any depth with a maximum width of 20 mm and a maximum surface differential across these features of 5 mm.
- No patterns with a repeating upward sloping edge or ridge.
- Any pattern or texture with a maximum relief of 64 mm, if such a pattern begins 610 mm or more above the base of the barrier and if all leading edges are rounded or sloped to minimize any vehicle snagging potential. (No part of this pattern or texture should protrude below the plane of the lower, untextured portion of the barrier.)

GUIDELINES FOR STONE MASONRY GUARDWALLS

Guidelines for stone masonry guardwalls were developed by the FHWA.[3] Native area stones are applied as a veneer to enhance the appearance of concrete barriers in this type of aesthetic treatment. Following are the guidelines for applying this treatment.

- Construct the guardwall true and uniform along its length, with no stone projecting more than 38 mm beyond the neat line.
- Rake the joints and beds to a depth of 50 mm on the front and top sides and to 38 mm on the back.
- Make mortar beds and joints according to Table A-1.[3]
- Use a one-piece capstone for the full width of the guardwall for at least 25% of the total length. Use a two-piece capstone with the joint within 100 mm of the guardwall center for the remaining length.
- Place all stones, including the capstones, randomly to avoid a pattern.
- Lay stones to reflect the width of the expansion joints.
- Do not leave a gap or a mortar edge at the expansion joint.
- Use various sizes of stones to coin or key the corners of the guardwall.

Stones that create protrusions greater than those described are not considered crashworthy. Based on aesthetics and stone

TABLE A-1 Masonry bed and joint thicknesses

Class	Beds (inches)	Joints (inches)
Rubble	0.50 - 2.50	0.50 - 2.50
Class B	0.50 - 2.00	0.50 - 2.00
Class A	0.50 - 2.00	0.50 - 1.50
Dimensioned	0.38 - 1.00	0.75 - 1.00

availability, a smoother stone face may be used, such as Class A or B masonry.

REFERENCES

1. Ross, H. E., Jr., Sicking, D. L., Zimmer, R. A., and Michie, J. D., *NCHRP Report 350: Recommended Procedures for the Safety Performance Evaluation of Highway Features,* Transportation Research Board, National Research Council, Washington, D.C., 1993.
2. White, M., Jewell, J., and Peter, R. "Crash Testing of Various Textured Barriers." Contract No. F2001TL17, California Department of Transportation, Sacramento, CA (2002), 126 pp.
3. "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects: FP-96." Federal Highway Administration, Washington, DC (1996).

Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation

From: Boerchers, Bernard
To: Sangaran Vijayakumar
Cc: Robert Lee; Steponanko, Julia
Subject: RE: Rt 31 Furnace Brook - Reasonable Assurance
Date: Friday, November 08, 2013 9:32:14 AM

Hi Vijay,

I assume that Bob is referring to the difference between the existing outside lane width of Route 31 northbound south of Wall Street, which is 12 feet, and the proposed outside lane width of Route 31 northbound (the proposed auxiliary lane) north of Wall Street which is 15 feet. Please note that shoulder neither exists south of Wall Street or is proposed north of Wall Street along Route 31 northbound . The reason for the difference is that we needed to widen Route 31 northbound for the proposed auxiliary lane north of Wall Street, and in doing so it was deemed that it would be best to provide a standard outside lane width of 15 feet as it was reasonably feasible. We maintained the existing outside lane width of 12 feet south of Wall Street since 1. It is outside the project limits. 2. It is not a significant crash generator. And 3. It would impact the access for the liquor store, require significant grading and drainage modifications, and most likely push the project over the trigger values for stormwater management.

Hopefully this addresses Bob's comments. If you have any questions please do not hesitate to contact me.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Friday, November 08, 2013 8:44 AM
To: Boerchers, Bernard
Cc: Robert Lee; Steponanko, Julia
Subject: Fwd: Rt 31 Furnace Brook - Reasonable Assurance

Bernie,

Please see below the comment from Bob Abitz.

Vijay

>>> Robert Abitz 11/7/2013 5:06 PM >>>
Vijay/Bob
Reasonable Assurance, as per your Oct 2, 2013 request, is approved (Superelevation and shoulder width). However, it seems that we are being inconsistent with our outside lane widths. Are we widening for traffic staging or is it just because we can without impacting ROW and utilities?

Robert Abitz, Jr.
Value Solutions
Capital Program Support

From:	Boerchers, Bernard
To:	Sangaran Vijayakumar (Sangaran.Vijayakumar@dot.state.nj.us); Lee, Robert (robert.lee@dot.state.nj.us)
Cc:	Zakrollah Asadpour (Zakrollah.Asadpour@dot.state.nj.us); Steponanko, Julia; Marra, Christopher; Lembersky, Lenny; Minnich, Scott
Subject:	RE: Route 31 over Furnace Brook - CD: Structure Elevations
Date:	Wednesday, October 16, 2013 9:24:37 AM
Attachments:	01-GPE_CM Arch Treatments.pdf image001.png

Hi Vijay and Bob,

Please find the revised elevations plan. The low chord elevations have been corrected to match the hydraulic analysis.

Thanks,
Bernie

From: Boerchers, Bernard
Sent: Tuesday, October 15, 2013 10:17 AM
To: Sangaran Vijayakumar (Sangaran.Vijayakumar@dot.state.nj.us); Lee, Robert (robert.lee@dot.state.nj.us)
Cc: Zakrollah Asadpour (Zakrollah.Asadpour@dot.state.nj.us); Steponanko, Julia; Marra, Christopher; Lembersky, Lenny; Minnich, Scott
Subject: RE: Route 31 over Furnace Brook - CD: Structure Elevations

Hi Vijay and Bob,

Please disregard the elevations plan. The low chord elevation shown on the plans may be incorrect. We will send a new plan shortly.

Thanks,
Bernie

From: Boerchers, Bernard
Sent: Tuesday, October 15, 2013 9:09 AM
To: Sangaran Vijayakumar (Sangaran.Vijayakumar@dot.state.nj.us); Lee, Robert (robert.lee@dot.state.nj.us)
Cc: Zakrollah Asadpour (Zakrollah.Asadpour@dot.state.nj.us); Steponanko, Julia; Marra, Christopher; Lembersky, Lenny; Minnich, Scott
Subject: Route 31 over Furnace Brook - CD: Structure Elevations

Hi Vijay and Bob,

Please find attached a plan indicating the elevations for the proposed structure for the subject project. The elevations on the left side of the plan provide the approximate dimensions of the proposed upstream and downstream elevations while the elevations on the right side of the plan indicate a potential architectural treatment. Since the existing upstream hydraulic opening characteristics will be replicated at both the upstream and downstream ends of the bridge, the existing downstream opening will be enlarged in the proposed condition, thereby making it impossible to achieve the exact arch dimensions of the existing condition. With respect to the

parapet features facing the roadway, the upstream parapet will have an architectural treatment identical to the elevations shown on the plan as it abuts a proposed sidewalk, and the downstream parapet will have a jersey barrier face as it abuts a shoulder. Hopefully SHPO will find the proposed treatment acceptable.

Should you have any questions or comments please do not hesitate to contact me.

Thanks,
Bernie

GPI

Bernard J. Boerchers, P.E., P.T.O.E.
Vice President, Senior Project Manager

Greenman-Pedersen, Inc.
Engineering and Construction Services

100 Corporate Drive, Suite 301, Lebanon, NJ 08833
908.236.9001 – 5008 | f 908.236.9669
bboerchers@gpinet.com | www.gpinet.com

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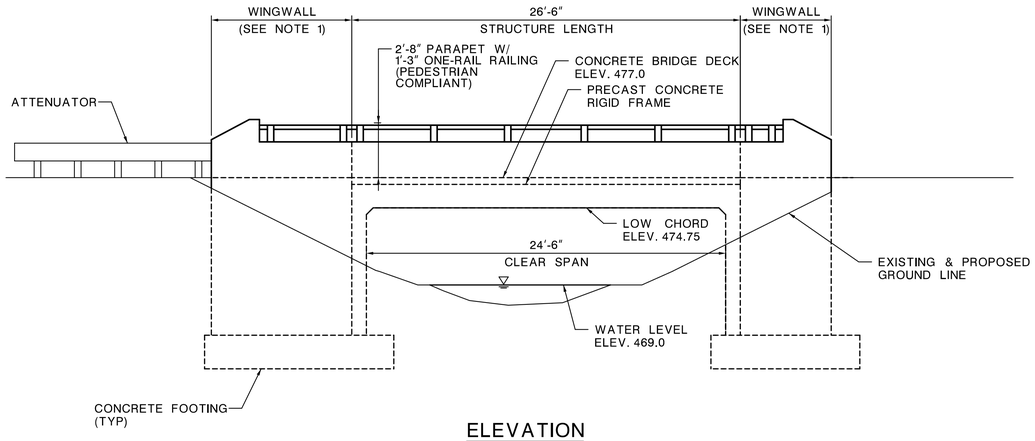
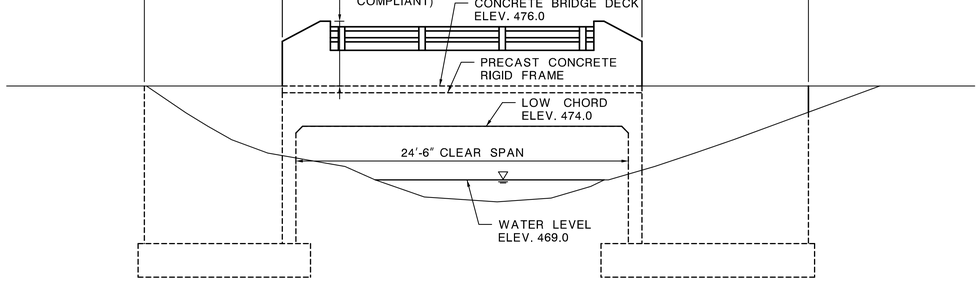
OXFORD TOWNSHIP



ELEVATION

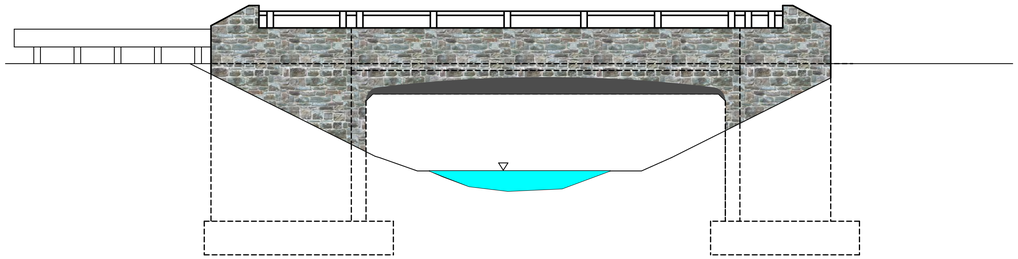
(UPSTREAM ELEVATION)
$\frac{3}{16}$"=1'-0"



ELEVATION

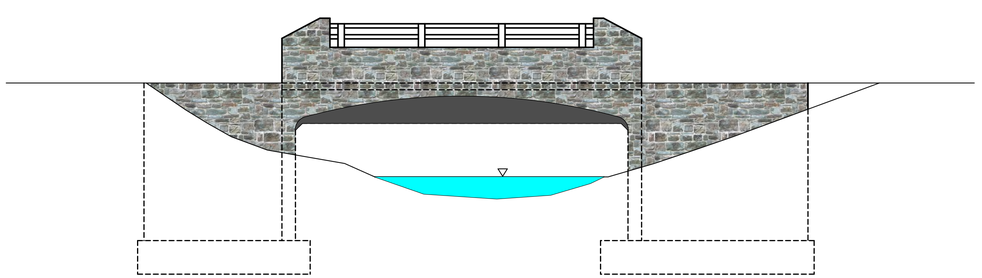
(DOWNSTREAM ELEVATION)
$\frac{3}{16}$"=1'-0"

WARREN COUNTY



ELEVATION

(UPSTREAM ELEVATION)
$\frac{3}{16}$"=1'-0"



ELEVATION

(DOWNSTREAM ELEVATION)
$\frac{3}{16}$"=1'-0"

NOTES:

1. WINGWALLS SHOWN ARE CAST-IN-PLACE CONCRETE. HOWEVER, STEEL SHEET PILING OR OTHER ALTERNATIVES MAY ALSO BE SPECIFIED.
2. DIMENSIONS ARE MEASURED PERPENDICULAR TO STRUCTURE AND NOT ALONG THE BASELINE.
3. ALL ELEVATIONS ARE APPROXIMATE.

20' 0 20' 40'

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

ROUTE 31 OVER FURNACE BROOK
CONCEPT DEVELOPMENT

OXFORD TOWNSHIP, WARREN COUNTY

PRECAST CONCRETE RIGID FRAME
GENERAL PLAN, ELEVATION, AND SECTION

Division of Project Development

Scale: AS NOTED Date: October 2013

From:	Sangaran Vijayakumar
To:	Boerchers, Bernard
Cc:	Anil Desai; Deborah Hirt; Robert Lee; Steponanko, Julia; Lembersky, Lenny
Subject:	RE: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List
Date:	Tuesday, September 03, 2013 11:32:12 AM

Bernie,

Our Major Access Unit has no records regarding the expansion of the liquor store.
Major Access unit contact is Anil Desai.

Vijay

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 8/29/2013 9:09 AM >>>
Hi Vijay,

So as you can see from the previous emails, we had completed and submitted the PIC mailing list to Oxford about a month ago, but have not yet received their confirmation of the same. Debbie is helping us by trying to get them to confirm the list and set up a PIC date.

Also I forgot to ask yesterday, but have you requested / received any plans from Major Access regarding the expansion of the liquor store?

We will attempt to obtain input from a manufacturer today on precast units for a skewed bridge.

Thanks,
Bernie

-----Original Message-----
From: Steponanko, Julia
Sent: Wednesday, August 28, 2013 4:48 PM
To: Sangaran Vijayakumar
Cc: Robert Lee; Boerchers, Bernard
Subject: FW: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

FYI regarding the PIC mailing list.

Julia Steponanko, E.I.T.
908.236.9001 - ext. 5064

-----Original Message-----
From: Deborah Hirt [mailto:Deborah.Hirt@dot.state.nj.us]
Sent: Wednesday, August 21, 2013 9:21 PM
To: Steponanko, Julia
Subject: Re: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

I will call Sheila in Oxford on Thurs to see what the matter is. Need to call her anyway about a date for the PIC. Will keep you posted.
Deb
-----Original Message-----
From: "Steponanko, Julia" <jsteponanko@gpinet.com>
To: Deborah Hirt <Deborah.Hirt@dot.state.nj.us>

Sent: 8/21/2013 1:52:10 PM
Subject: RE: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

Hi Debbie,

No they have not; nor have they replied to my emails. I was going to follow up via phone this week, unless you would like to do so.

Thanks,

Julia Steponanko, E.I.T.
908.236.9001 - ext. 5064

From: Deborah Hirt [mailto:Deborah.Hirt@dot.state.nj.us]
Sent: Wednesday, August 21, 2013 1:43 PM
To: Steponanko, Julia
Subject: Re: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

Hi Julia,
Did Oxford ever send you the list of property owners yet for the above subject?

Deb

>>> "Steponanko, Julia" <jsteponanko@gpinet.com<mailto:jsteponanko@gpinet.com>> 8/13/2013 10:12 AM >>>
Ms. Oberly,

This is a follow up to my original email below to confirm receipt of the same and see if you had any questions. Please do not hesitate to contact me.

Julia Steponanko, E.I.T.
908.236.9001 - ext. 5064

From: Steponanko, Julia
Sent: Thursday, August 01, 2013 1:54 PM
To: 'townclerk@oxfordnj.org'
Subject: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

Ms. Oberly,

Greenman-Pedersen, Inc. (GPI) is working with the NJDOT's Division of Project Management for the above subject project. We need to obtain a certified list of approximately 180 property owners within 500 feet of the project boundary in preparation for a Public Information Center (PIC) in September 2013.

I have attached a letter, addressed to the attention of the tax assessor, requesting property owners as well as the tax maps utilized for developing the block and lot numbers. Please let me know if this is the correct contact. We would also like to confirm the processing fee, if any, associated with this list.

We respectfully request a response at your earliest convenience. Should you have any questions, please do not hesitate to contact me using the below information.

Regards,

Julia Steponanko, E.I.T.

Greenman-Pedersen, Inc.
Engineering and Construction Services

100 Corporate Drive, Suite 301, Lebanon, NJ 08833
908.236.9001 - ext. 5064 | f 908.236.9669
jsteponanko@gpinet.com<mailto:jsteponanko@gpinet.com> | www.gpinet.com<http://www.gpinet.com>

From:	Sangaran Vijayakumar
To:	Boerchers, Bernard
Cc:	Robert Lee
Subject:	Re: Fwd: FW: FW: NJDOT Route 31, Bridge over Furnace Brook
Date:	Wednesday, September 04, 2013 9:07:57 AM

Bernie,

Please see Hector's comments, below, regarding bridge parapets.

Vijay

>>> Hector Rodriguez 9/4/2013 9:05 AM >>>
I concur with the designer's recommendation. We also need to know the type of bridge parapets GPI is recommending at this time. This was briefly discussed during our meeting with Jayant Dalal last week .

Hector Rodriguez
(609) 530 -5593

>>> Sangaran Vijayakumar 9/3/2013 10:46 AM >>>
Hector/Shirish,

Please see our consultant's [GPI] below regarding the precast units for bridges with skew.

Please let us know if you have any comments.

Vijay

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 9/3/2013 10:18 AM >>>
Hi Vijay and Bob,

As per our meeting last week, GPI has confirmed with a manufacturer (Con-Tech - you can go to their website for additional information) that the proposed precast unit for the subject project can be constructed on a skew - see email below. Also various architectural treatment types can be accommodated on the fascia of the proposed structure. An arch may be possible, but that would require additional H&H analysis to confirm. I would recommend proceeding with a rectangular opening unless SHPO is adamant about an arch shaped opening.

Should you need any additional information, please do not hesitate to contact me.

Thanks,
Bernie

-----Original Message-----
From: Lembersky, Lenny
Sent: Friday, August 30, 2013 10:39 AM
To: Boerchers, Bernard
Subject: RE: FW: NJDOT Route 31, Bridge over Furnace Brook

Bernie.
I called Gerry Scheider the NJ Con-tech representative about fabrication of the skewed precast units. Gerry stated that Con-span type precast units can be fabricated on a skew. If skew gets large (20-30 degrees) they may have to flare more than one segment to accommodate it.
Architectural treatment such as form liners or a ledge with architectural masonry can be done.
<LL>

Lenny Lembersky, PE

Greenman-Pedersen, Inc.
Engineering and Construction Services

100 Corporate Drive, Suite 301, Lebanon, NJ 08833
908.236.9001 - ext. 5036 | f 908.236.9669 llembersky@gpinet.com | www.gpinet.com

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-----Original Message-----
From: Boerchers, Bernard
Sent: Thursday, August 29, 2013 09:10
To: Sangaran Vijayakumar
Cc: Robert Lee; Steponanko, Julia; Deborah.Hirt@dot.state.nj.us; Lembersky, Lenny
Subject: RE: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

Hi Vijay,

So as you can see from the previous emails, we had completed and submitted the PIC mailing list to Oxford about a month ago, but have not yet received their confirmation of the same. Debbie is helping us by trying to get them to confirm the list and set up a PIC date.

Also I forgot to ask yesterday, but have you requested / received any plans from Major Access regarding the expansion of the liquor store?

We will attempt to obtain input from a manufacturer today on precast units for a skewed bridge.

Thanks,
Bernie

-----Original Message-----
From: Steponanko, Julia
Sent: Wednesday, August 28, 2013 4:48 PM
To: Sangaran Vijayakumar
Cc: Robert Lee; Boerchers, Bernard
Subject: FW: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

FYI regarding the PIC mailing list.

Julia Steponanko, E.I.T.
908.236.9001 - ext. 5064

-----Original Message-----
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Sent: Wednesday, August 21, 2013 9:21 PM
To: Steponanko, Julia
Subject: Re: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

I will call Sheila in Oxford on Thurs to see what the matter is. Need to call her anyway about a date for the PIC. Will keep you posted.
Deb
-----Original Message-----
From: "Steponanko, Julia" <jsteponanko@gpinet.com>
To: Deborah Hirt <Deborah.Hirt@dot.state.nj.us>

Sent: 8/21/2013 1:52:10 PM

Subject: RE: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

Hi Debbie,

No they have not; nor have they replied to my emails. I was going to follow up via phone this week, unless you would like to do so.

Thanks,

Julia Steponanko, E.I.T.
908.236.9001 - ext. 5064

From: Deborah Hirt [mailto:Deborah.Hirt@dot.state.nj.us]
Sent: Wednesday, August 21, 2013 1:43 PM
To: Steponanko, Julia
Subject: Re: FW: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

Hi Julia,
Did Oxford ever send you the list of property owners yet for the above subject?

Deb

>>> "Steponanko, Julia"
>>> <jsteponanko@gpinet.com<mailto:jsteponanko@gpinet.com>> 8/13/2013
>>> 10:12 AM >>>
Ms. Oberly,

This is a follow up to my original email below to confirm receipt of the same and see if you had any questions. Please do not hesitate to contact me.

Julia Steponanko, E.I.T.
908.236.9001 - ext. 5064

From: Steponanko, Julia
Sent: Thursday, August 01, 2013 1:54 PM
To: 'townclerk@oxfordnj.org'
Subject: NJDOT Route 31, Bridge over Furnace Brook: PIC Property Owners List

Ms. Oberly,

Greenman-Pedersen, Inc. (GPI) is working with the NJDOT's Division of Project Management for the above subject project. We need to obtain a certified list of approximately 180 property owners within 500 feet of the project boundary in preparation for a Public Information Center (PIC) in September 2013.

I have attached a letter, addressed to the attention of the tax assessor, requesting property owners as well as the tax maps utilized for developing the block and lot numbers. Please let me know if this is the correct contact. We would also like to confirm the processing fee, if any, associated with this list.

We respectfully request a response at your earliest convenience. Should you have any questions, please do not hesitate to contact me using the below information.

Regards,

Julia Steponanko, E.I.T.

Greenman-Pedersen, Inc.

From:	Boerchers, Bernard
To:	Sangaran Vijayakumar (Sangaran.Vijayakumar@dot.state.nj.us); David Ahdout (David.Ahdout@dot.state.nj.us)
Cc:	Lee, Robert (robert.lee@dot.state.nj.us); Steponanko, Julia; Hrabal, Valerie; Jayant Dalal (Jayant.Dalal@dot.state.nj.us)
Subject:	Route 31 over Furnace Brook - CD: Existing Drainage
Date:	Thursday, March 21, 2013 10:41:00 AM
Attachments:	GPI Drainage Field Notes 3-20-2013.pdf image001.png 31 Furnace Brook As-Built Plans.pdf

Hi Vijay and David,

As a follow up to David's comments and questions at the Core Group meeting on Tuesday, we reviewed the as-built plans and performed a field investigation of the existing drainage system within the project area for the subject project. We looked into the inlets and located outfalls. An outfall does exist under the structure (see 2nd sheet of as-built plans and photo on sketch). However, it is for runoff collected south of the structure. Due to sediment in the existing inlets it was difficult to verify / determine the outfall for runoff collected north of the structure. An outfall into the waterway does exist along the north bank east of the structure, but we could not verify that all or part of the runoff north of the structure went to this outfall. See attached sketch and as-built plans.

Should you have any questions please do not hesitate to contact me.

Thanks,
Bernie

GPI

Bernard J. Boerchers, P.E., P.T.O.E.
Vice President, Senior Project Manager

Greenman-Pedersen, Inc.
Engineering and Construction Services

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908.236.9001 – 239 | f 908.236.9669
bboerchers@gpinet.com | www.gpinet.com

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15" RCCP
INV. UNK

INLET PARTIALLY FILLED
WITH SEDIMENT

12" CMP
INV. 2.29'

15" RCCP
INV. UNK

INLET PARTIALLY FILLED
WITH SEDIMENT

15" RCCP
INV. 2.88'

15" RCCP
INV. 2.79'

CONCRETE HEADWALL
(PARTIALLY FILLED
WITH SEDIMENT)

18" RCCP
INV. 5.08'

CONCRETE RCCP OUTFALL
LOCATED UNDER STRUCTURE

21" RCCP
INV. 4.50'

30' 20' 10' 0 30' 60'

GPI FIELD NOTES

Project: ROUTE 31 OVER
FURNACE BROOK

Date: 3/20/2013

From:	Boerchers, Bernard
To:	Sangaran Vijayakumar
Cc:	Robert Lee; Steponanko, Julia
Subject:	RE: Rt 31 Furnace Brook Bridge Replacement
Date:	Friday, March 15, 2013 2:43:00 PM

Hi Vijay,

Based on the GPPM, the driveway to Wilkinson Field is labeled "Driveway to Ball Fields". Also it is not identified as a street on the available tax maps.

Please do not hesitate to contact me with any questions or comments.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Thursday, March 14, 2013 11:07 AM
To: Boerchers, Bernard
Cc: Robert Lee
Subject: RE: Rt 31 Furnace Brook Bridge Replacement

Bernie,

Here is a question about the the access to Wilkinson Field.

Is the access driveway a public roadway?

Vijay

>>> "Boerchers, Bernard" bboerchers@gpinet.com> 3/13/2013 1:18 PM >>

From:	Boerchers, Bernard
To:	Sangaran Vijayakumar
Cc:	Robert Lee; Steponanko, Julia; Hrabal, Valerie; Minnich, Scott; "David Ahdout"
Subject:	FW: Route 31 over Furnace Brook
Date:	Friday, May 04, 2012 11:42:00 AM
Attachments:	Rt. 31 over Furnace Brook.DOCX

Hi Vijay,

The H&H memorandum that we previously provided to you was not the final H&H Report. We are completing the H&H Report now, except that it may change / expand depending on if we are to incorporate the additional work requested by Jayant. The Cherry, Weber & Associates study was used to extend the limits of our study. Surveyed stream sections and bridge dimensions of the Route 31 crossing are based on current field conditions. The watershed area below the Washington Avenue crossing to the Route 31 crossing was analyzed. The Furnace Lake outfall controls much of the upstream drainage area to the Washington Avenue crossing. The additional watershed area below the lake outfall will be verified in our final report. The existing and proposed HEC-RAS model of the Furnace Brook for the 2, 10, 25 and 100 year frequency events will be included in the final report along with supporting calculations.

I hope this addresses David's comment.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Tuesday, May 01, 2012 2:27 PM
To: Boerchers, Bernard; Steponanko, Julia
Cc: Robert Lee
Subject: Fwd: Route 31 over Furnace Brook

Here is the review comments on the hydraulic analysis .

Vijay

>>> Kevin Bancroft 5/1/2012 1:35 PM >>>
Vijay,

Attached please find the electronic file of the comments for the following project:

Initial Assessment of Hydraulic Capacity and Rehabilitation/Replacement Options
Bridge Structure No. 2111-154
Route 31 over Furnace Brook
Oxford, Warren County

A signed hard copy has been mailed to your office as well.

KB

Kevin Bancroft
Environmental Specialist 1
Hydrology and Hydraulics Unit
Capital Program Support
New Jersey Department of Transportation
Phone: 609-530-2459
Fax: 609-530-3840
kevin.bancroft@dot.state.nj.us

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SOLUTIONS AND LANDSCAPE DESIGN
STREAM ENCROACHMENT AND STORMWATER UNIT

MEMORANDUM

TO: **Sangaran Vijayakumar**
Division of Project Management

FROM: **David Ahdout**
Bureau of Environmental Solutions and Landscape Design
Stream Encroachment and Stormwater Unit

DATE: **May 1, 2012**

PHONE: **(609) 530-2283**

SUBJECT: **Initial Assessment of Hydraulic Capacity and Rehabilitation/Replacement Options**
Bridge Structure No. 2111-154
Route 31 over Furnace Brook
Oxford, Warren County

This office has completed its review of the Initial Assessment of Hydraulic Capacity and Rehabilitation/Replacement Options for Bridge Structure No. 2111-154, Route 31 over Furnace Brook, Oxford, Warren County and we offer these following comments and questions:

1. DOT will not accept the use of the January 1999 study by Cherry, Weber & Associates, in conjunction with the recently submitted analysis performed by Greenman-Pederson, Inc. A new study of the watershed drainage area to the Route 31 bridge must be undertaken using data reflective of existing conditions as of 2012. A new HEC-RAS model of Furnace Brook for the 2, 10, 25 and 100 year storm event must be developed and back up calculations must accompany the findings given in each summary.

If any clarifications are required, or if further questions should arise regarding these questions and comments, please call Kevin Bancroft at (609) 530-2459.

From:	Boerchers, Bernard
To:	Sangaran Vijayakumar
Cc:	Robert Lee; Steponanko, Julia; Hrabal, Valerie; Johnson, Greg; Jayant Dalal
Subject:	RE: Re: Route 31 over Furnace Brook, Oxford Twp, warren County
Date:	Friday, May 04, 2012 11:28:23 AM
Attachments:	Prop furnace bridge output from HECRAS cross sections.pdf

Hi Vijay,

I apologize for the delay. We were considering this request along with a similar request from Jayant on another project.

GPI has prepared a field surveyed HEC-RAS model for this crossing. The profile of the roadway, the existing low chord elevation, and the development on both stream banks preclude the consideration of an arch-type fabricated shape at this location. It is also unlikely that more than one option exists for a rigid frame design due to these same limitations. GPI will therefore fine tune the HEC-RAS model to reflect the preliminary structural geometry for a precast rigid frame opening, including haunches, based on the recommendations of our structural design team. This configuration will be evaluated to assure compliance with NJDEP's "no net increase in water elevation" standard as per the NJDEP Flood Hazard Area Individual Permit rule. GPI will also prepare scour computations concurrently.

We will also need to perform a preliminary structural analysis to determine the precast rigid frame opening based on span length, height and NJDOT/AASHTO design standards. This preliminary analysis will provide the opening that will be used in the hydraulic model. The preliminary structural analysis/rigid frame opening will be refined based on the results of the hydraulic analysis with the result to be used for developing the final rigid frame design and plans.

The preliminary structural analysis is a design effort not included in our current signed task order as is the scour analysis. Please let me know how you would like to proceed.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Wednesday, April 25, 2012 2:12 PM
To: Boerchers, Bernard
Cc: Robert Lee; Steponanko, Julia
Subject: Fwd: Re: Route 31 over Furnace Brook, Oxford Twp, warren County

Bernie,

We received a comment from Structures.

Vijay

>>> Shirish Patel 4/25/2012 1:55 PM >>>
Vijay:

1. We recommend the hydraulic calculations be performed for at least one three-sided culvert shape that can be fabricated, be available, can meet the structural design and DEP requirements. This will avoid repetition of the hydraulic analysis for DEP permit requirements.

2 We would also like, if possible, to have the preliminary scour analysis performed with the selected culvert since it is more efficient to have it done along with hydraulic analysis.

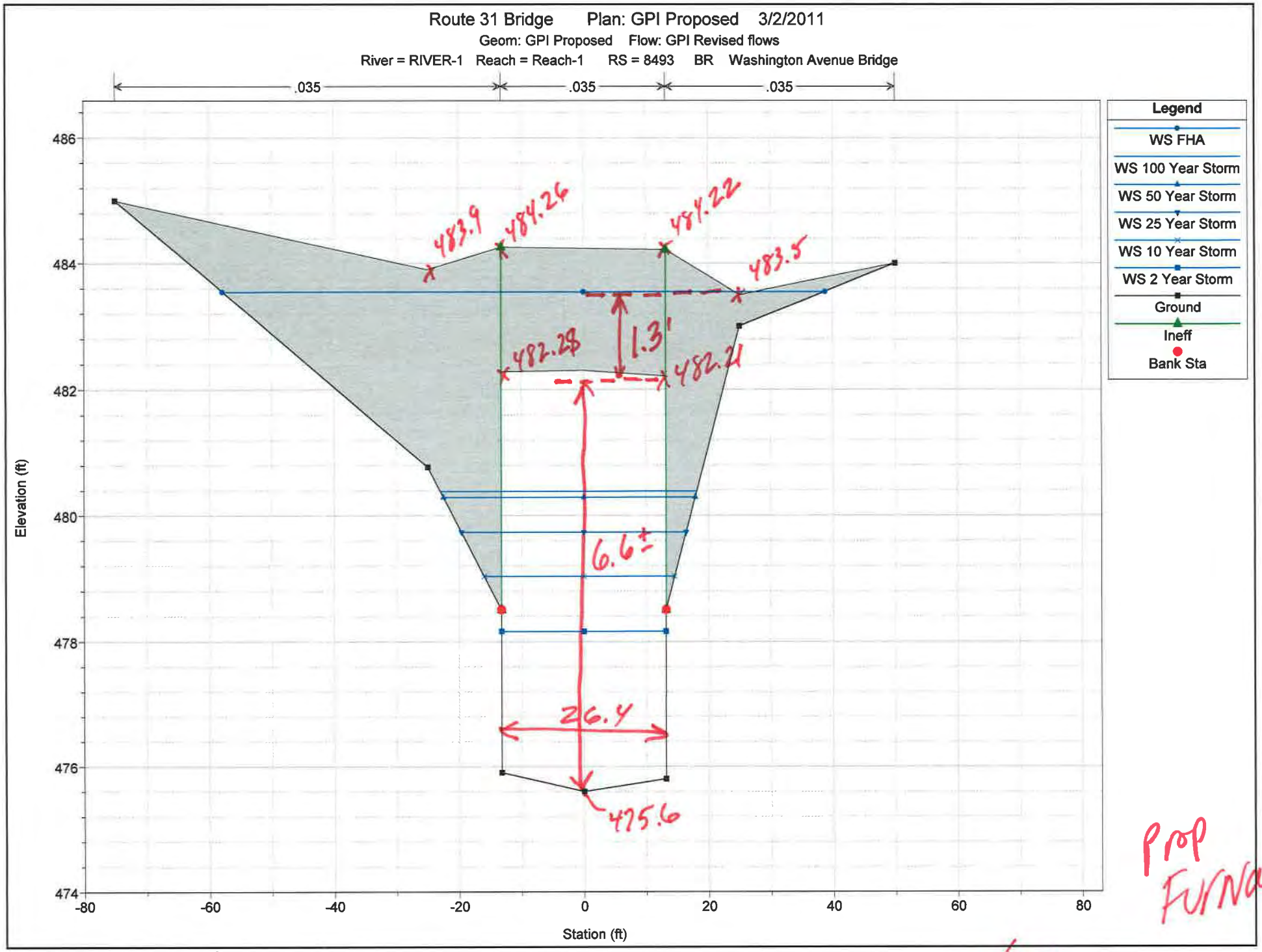
Shirish

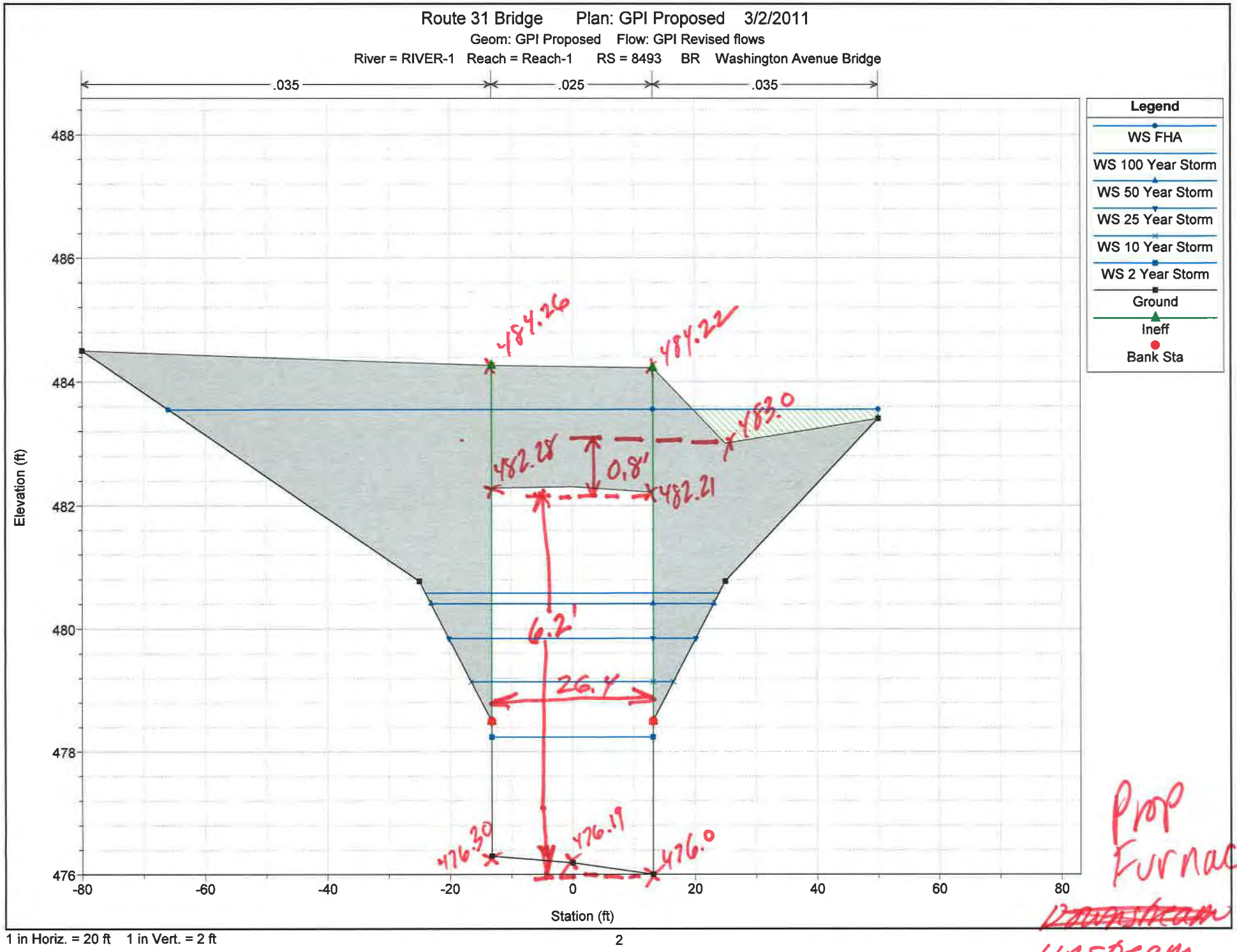
>>> Sangaran Vijayakumar 4/24/2012 12:08 PM >>>
I have attached the April 11, 2012 Core Group Meeting Minutes for your review.

If you have any comments, please get back to us within 5 days of receipt of minutes.

Thanks

Vijay
DPM
5-2642


Route 31 Bridge Plan: GPI Proposed 3/2/2011
Geom: GPI Proposed Flow: GPI Revised flows
River = RIVER-1 Reach = Reach-1 RS = 8493 BR Washington Avenue Bridge
.035
.035
.035
Legend
WS FHA
WS 100 Year Storm
WS 50 Year Storm
WS 25 Year Storm
WS 10 Year Storm
WS 2 Year Storm
Ground
Ineff
Bank Sta
483.9
484.26
484.22
483.5
482.28
482.21
1.3'
6.6±
26.4
475.6
Elevation (ft)
Station (ft)
486
484
482
480
478
476
474
-80
-60
-40
-20
0
20
40
60
80
Prop Furnace
downstream
1 in Horiz. = 20 ft 1 in Vert. = 2 ft


Route 31 Bridge Plan: GPI Proposed 3/2/2011
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River = RIVER-1 Reach = Reach-1 RS = 8493 BR Washington Avenue Bridge
.035
.025
.035
Legend
WS FHA
WS 100 Year Storm
WS 50 Year Storm
WS 25 Year Storm
WS 10 Year Storm
WS 2 Year Storm
Ground
Ineff
Bank Sta
Elevation (ft)
488
486
484
482
480
478
476
-80
-60
-40
-20
0
20
40
60
80
Station (ft)
484.26
484.22
483.0
482.28
0.8'
482.21
6.2'
26.4'
476.30
476.19
476.0
Prop Furnace
~~Downstream~~
Upstream
1 in Horiz. = 20 ft 1 in Vert. = 2 ft

From:	Robert Lee
To:	Boerchers, Bernard
Subject:	Re: 31 Furnace Brook - CD
Date:	Monday, April 09, 2012 7:51:43 AM

Bernie;
No problem. Thank you for the quick turn around.

Robert WK Lee
Project Manager
Phone: (609) 530-3813
Fax: (609) 530-5787
Robert.Lee@dot.state.nj.us

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 4/6/2012 7:49 AM >>>
Hi Bob,

After our phone call yesterday I noticed that you had left a voice message and had sent me an email requesting a return call. I apologize for not getting back to you sooner. I was out at a meeting in Newark and had just walked in when you called a second time. The plans and cost estimates have been changed to reflect a spread footing as discussed. I just want to check them first and we will send them to you either today or on Monday.

Thanks,
Bernie

Bernard J. Boerchers, P.E., PTOE
Vice President / Senior Project Manager
GPI/Greenman-Pedersen, Inc.
Engineering and Construction Services
100 Corporate Drive, Suite 301, Lebanon, NJ 08833
p: (908) 236-9001 x239
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Email: bboerchers@gpinet.com
Web address: www.gpinet.com

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From: Boerchers, Bernard
To: Sangaran Vijayakumar
Cc: Robert Lee; Steponanko, Julia; Lembersky, Lenny
Subject: RE: Route 31 over Furnace Brook
Date: Tuesday, April 03, 2012 2:52:22 PM

Hi Vijay,

As requested during our phone conversation on March 23rd, I did discuss the issue of concrete piles and potential ROW and/or easements with our Structural Group. I apologize for not communicating with you sooner. Since we do not have geotechnical information at the bridge and since standards for bridge design are significantly different then they were when the bridge was originally constructed, we took the conservative route and assumed piles. I would think that we would want to cover the worst case feasible scenario with respect to cost. At this point in the project delivery process, I would recommend that we add a note to the structural plan stating that the installation of piles are subject to the geotechnical investigation to be performed during Preliminary Engineering.

Also we investigated further any potential right of way impacts and/or easements. It appears possible that the Contractor can perform all work from above and along with sheeting avoid the need for ROW or easements. Silt fence will be placed at the ROW line.

Please let me know if you agree with the aforementioned.

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Tuesday, April 03, 2012 12:09 PM
To: Steponanko, Julia
Cc: Robert Lee; Boerchers, Bernard
Subject: Re: Route 31 over Furnace Brook

Julia,

Here are some questions/Comments:

1. The plans show that the proposed bridge will be supported by concrete piles. What is the basis for this assumption?

2. Is the Project Purpose & Need included in the meeting handout?

3. Alternatives Impact Matrix is not included?

4. Are there any ROW /Easements needed?

5. Initially, this project was originated as a super structure/deck replacement project - I provided this info last week.

Vijay

>>> "Steponanko, Julia" <jsteponanko@gpinet.com> 4/3/2012 11:41 AM >>>
Hi Vijay,

Please find attached the Core Group meeting handout and associated materials for distribution. Please let me know if you have any questions or require additional information.

Thanks,

Julia Steponanko, E.I.T.
GPI/Greenman-Pedersen, Inc.
Engineering and Construction Services
100 Corporate Drive, Suite 301, Lebanon, NJ 08833
(p) 908-236-9001 x283
(f) 908-236-9669

Email: jsteponanko@gpinet.com
Web Address: www.gpinet.com

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From:	Sangaran Vijayakumar
To:	Boerchers, Bernard
Cc:	Chris Barretts; Dominique Deloatch; Robert Lee; Steponanko, Julia
Subject:	RE: Route 31 over Furnace Brook, Concept Development
Date:	Friday, October 14, 2011 1:45:03 PM

That is correct - only minor revisions to the signal.

Vijay

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 10/14/2011 1:34 PM >>>
Thanks Vijay – So in short we are to only consider the necessary revisions to the signal, not a complete replacement, so as to rehab or replace the structure – correct?

Thanks,
Bernie

From: Sangaran Vijayakumar [mailto:Sangaran.Vijayakumar@dot.state.nj.us]
Sent: Friday, October 14, 2011 12:30 PM
To: Boerchers, Bernard
Cc: Chris Barretts; Dominique Deloatch; Robert Lee
Subject: Route 31 over Furnace Brook, Concept Development

Hi Bernie,

Today, we met with Chris Barretts to discuss the impacts of this bridge rehab/replacement project on the traffic signal at the Route 31/Wall Street Intersection.

Here is the summary of the meeting:

1. The bridge project would impact two signal poles - one on the bridge parapet [Signal indications # 6&11] and the other in the island in the SE corner [Signal indications #5&10] . These poles can be replaced at the existing locations.

2. The existing signal heads may not follow the near left/far right layout - which is the NJDOT's preference. There is no need to revise the existing signal layout, as part of this project, to meet the left/far right convention.

3. The cross streets have 8" signal indications. The consultant need check whether the speed limits on the cross streets are consistent with the signal indication size.

4. The consultant should check whether the primary signal indications are within the cone of vision. It appears that Signal indication #2 is not in the cone of vision. This can be mitigated by moving this indication on the mast arm.

5. The existing loop detection should be replaced with video detection.

6. The pedestrian signal heads should meet the current standards.

7. Intersection crashes should be reviewed to make sure there are no issues with the current signal.

Please contact us if you have any questions.

Vijay

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From:	Towfigh Molavi
To:	Boerchers, Bernard
Cc:	Bhavesh Shah; Kamlesh Shah
Subject:	Fwd: Re: Rt.31 over Furnace Brook
Date:	Tuesday, August 23, 2011 11:26:37 AM
Attachments:	Charles Isiadinso.vcf

FYI. and use.
Thanks.

Towfigh Molavi
Senior Engineer
NJDOT
Division of Project Development
Phone: (609)- 530- 4880
Fax: (609)- 530- 3595
e-mail: Towfigh.Molavi@dot.state.nj

>>> Charles Isiadinso 8/23/2011 11:07 AM >>>
Mr. Molavi,

The OAD spoke with the Deputy Mayor of the Town Ms Bonnie Riley regarding the Oxford Youth Association " Wilkinson Field ". She estimated about 2-3 vehicles on daily basis comes in to drop off equipment or uniform. However, the traffic volume increases from 25 to 100 vehicles depending on the number of game schedules during the baseball season. The OAD recommends a closure of one the three access points for the US Gas Station, one access point located on the exit ramp for the Liquor Store and widens the radius of southerly driveway on Route 31. The project Manager with the Office of Traffic Operations need to develop a plan with Township on how to handle traffic about the Youth Association " Wilkinson Field ".

Thank you,
Charles Isiadinso

Charles Isiadinso
Office of Access Design
New Jersey Department of Transportation
PO Box 600
Trenton NJ 08625
Tel (609)-530-5376
E mail : charles.isiadinso@dot.state.nj.us

>>> Towfigh Molavi<Towfigh.Molavi@dot.state.nj.us> (Towfigh Molavi) 8/16/2011 1:24 PM >>>
Good after noon,
on June 8th. we had a field visit with you. We need your comments and recommendations regarding the access point. Will you provide us with your comments?
Thank You.

Towfigh Molavi
Senior Engineer

From:	Towfigh Molavi
To:	Bhavesh Shah; Kamlesh Shah; Boerchers, Bernard
Subject:	Re: Fwd: Route 31 over Furnace Brook CD: Structure PPA and Staging Alternatives
Date:	Thursday, August 11, 2011 2:58:36 PM

FYI.

Towfigh Molavi
Senior Engineer
NJDOT
Division of Project Development
Phone: (609)- 530- 4880
Fax: (609)- 530- 3595
e-mail: Towfigh.Molavi@dot.state.nj

>>> Chris Barretts 8/11/2011 2:03 PM >>>
You have our concurrence for a full signal replacement.
FYI - This office is not the SME for guiderail.

>>> Towfigh Molavi 8/11/2011 1:47 PM >>>
Good after noon, will you PLS. provide our Bernard Boercher(consultant) with his request.
Thank You.

Towfigh Molavi
Senior Engineer
NJDOT
Division of Project Development
Phone: (609)- 530- 4880
Fax: (609)- 530- 3595
e-mail: Towfigh.Molavi@dot.state.nj

>>> "Boerchers, Bernard" <bboerchers@gpinet.com> 7/27/2011 4:28 PM >>>

Hi Towfigh,

Please find attached a GPE plan of the structure PPA, a precast three-sided rigid frame, as selected by the SME at the Scope Team meeting. Also attached are two alternatives for the construction staging. Both staging alternatives propose to reduce Route 31 to two lanes during construction. We verified that the intersection of Route 31 and Wall Street would operate at acceptable levels of service ('C' or better) during each of the peak hours with one lane in each direction.

We are currently working on the construction cost estimate and request for Reasonable Assurance for Design Exceptions.

I need input from the SME with respect to the complete or partial replacement of the traffic signal. The replacement of the structure will impact two traffic signal standards. Considering the traffic signal layout is undesirable and the intersection noncompliant with the ADA, it is my recommendation to replace the entire traffic signal and provide ADA compliant handicap ramps.

In addition, bridge transition guide rail and a CRT will not fit between the structure and the bank driveway along Route 31 southbound. Also we would need to relocate the driveway for the salon along Wall Street westbound to install guide rail with a CRT or another type of end terminal. Obviously CRTs will require right of way acquisition. The remaining parapet ends appear to be out of the clear zone. Please discuss with the appropriate SME on how we should address the guide rail issues and let me know how to proceed.

I need SME input regarding the traffic signal and guide rail to accurately complete the construction cost estimate.

Please do not hesitate to contact me with any questions or comments.

Thanks,

Bernie

Bernard J. Boerchers, P.E., PTOE

Director Traffic Engineering / Vice President

Greenman-Pedersen, Inc.

100 Corporate Drive, Suite 301, Lebanon, NJ 08833

ph: (908) 236-9001 x239

fax: (908) 236-9669

email: bboerchers@gpinet.com

web: www.gpinet.com

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From:	Towfigh Molavi
To:	Boerchers, Bernard
Cc:	Bhavesh Shah
Subject:	Environmental Survey
Date:	Friday, May 20, 2011 9:18:52 AM
Attachments:	Route 31-Env..PDF

Good morning, A copy is attached. PLS. provide me the presentation board. As I told you,I need it in my meetings.
Thank you.

Towfigh Molavi
Senior Engineer
NJDOT
Division of Project Development
Phone: (609)- 530- 4880
Fax: (609)- 530- 3595
e-mail: Towfigh.Molavi@dot.state.nj

NEW JERSEY DEPARTMENT OF TRANSPORTATION
BUREAU OF ENVIRONMENTAL SERVICES

NEW JERSEY HISTORIC BRIDGE DATA

STRUCTURE # 2111154 **CO** WARREN **OWNER** NJDOT **MILEPOINT** 46.87
NAME & FEATURE INTERSECTED NJ 31 OVER FURNACE BROOK **FACILITY** NJ 31
TOWNSHIP OXFORD TOWNSHIP
TYPE STRINGER **DESIGN** **MATERIAL** Steel, Concrete,
 # SPANS 1 **LENGTH** 30 ft **WIDTH** 82 ft
CONSTRUCTION DT 1920 **ALTERATION DT** 1953 **SOURCE** PLANS
DESIGNER/PATENT H. W. VETTER, COUNTY ENGINEER **BUILDER**

SETTING / CONTEXT The bridge is located at the intersection of a state highway and local roads. The large intersection is surrounded by 19th and 20th century commercial structures, and lies within the boundaries of the Oxford Historic District. The period of significance of the State Register district includes the years of 1741-1930, when the iron industry in the area was prospering. There was mining and furnace blasting dominating the town during those years.

1995 SURVEY RECOMMENDATION Not Eligible **HISTORIC BRIDGE MANAGEMENT PLAN (EVALUATED)** No
CONSULT STATUS Not Individually Eligible. Listed. Oxford Industrial Historic District 08/27/1992. Noncontributing.
CONSULT DOCUMENTS SHPO Letter 6/30/95

SUMMARY The single span bridge is a combination of several structures and has been altered such that although within the time period and boundaries of the Oxford Historic District it is not a contributing structure. The 1920 bridge was a steel stringer on concrete abutments built near a short-span stone arch bridge (c.1875) carrying an adjacent street. In 1953 a concrete slab was built between the two bridges to form a larger intersection of the two roads. The bridge is not historically distinguished.

INFOR MATION

Bibliography:
Bridge Files and Plans, No. 2111154. NJDOT. 1920, 1953.
"Oxford Industrial District." National Register Nomination. NJ SHPO. 1992.

Physical Description: The single-span bridge is a composite of stone arch, steel stringer, and reinforced-concrete slab construction. The oldest northern portion of the bridge is an approximately 19'-span stone arch (c.1875) that carries Mill Street into the intersection with NJ 31. The southern end is a skewed 30'-span encased steel stringer (1920) built from approximately 18' to 53' upstream from the stone arch. The middle section of the bridge is a reinforced concrete slab infill (1953) connecting the stone arch and steel stringer portions to form a larger intersection. A concrete post and pipe railing remains at the face of the steel stringer, and a stone parapet at the face of the arch.

The stone arch has been repeatedly repaired and repointed. Portions of the wing walls, spandrel walls, and parapets that were originally coursed have been replaced with uncoursed field stone.

Historical and Technological Significance: The bridge, which has been significantly altered and lacks integrity, is not individually eligible and does not contribute to the Oxford Industrial Historic District. The historic district's areas of significance include industry, community development, and rail transportation, and primarily focus on the local iron furnace and foundry and its various phases of growth and decline. The older portions of the bridge fall within the district's period of significance (1741-1930), but are not well-preserved. Highway transportation systems are not a major theme of the historic district, and the NJ 31 right-of-way carried by the bridge's steel stringer portion was not developed until 1920. The bridge is not directly related to the town's historic landscape as it grew up around the iron industry. The factories shut down in the 1920s, and the construction of the state highways is not an important story to the impact of the iron industry's decline on the community's development. The bridge is not a contributing resource to the historic district.

Another bridge in the historic district, Washington Avenue over Furnace Brook (2101719, c.1910, Oxford Township), is a well-preserved steel stringer with original lattice railings. It carries the town's historic main thoroughfare over Furnace Brook and is rated a contributing structure.

PHOTO: 177:36-39 (08/92) REVISED BY (DATE): QUAD: Washington

A. G. Lichtenstein & Associates, Inc. performed initial survery.
NJDOT updated data 03-01-2001

Correction Updates Etc should be sent to
Correspondence.Unit@DOT.State.NJ.US

November 12 , 2002

From:	Matthew Wilityer
To:	Boerchers, Bernard
Cc:	Towfigh Molavi
Subject:	Rt. 31 Furnace Brook Green Acres Property
Date:	Wednesday, May 18, 2011 3:30:01 PM
Attachments:	Rt. 31 Furnace Brook Block 6 Lot 15 G.A..PDF

Bernie,

As per our discussion at the end of the meeting, I confirmed on GeoWeb that Block 6, Lot 15 is Green Acres encumbered. I've attached the property boundaries.

Here's the full list of Green Acres encumbered properties as per the Green Acres website:

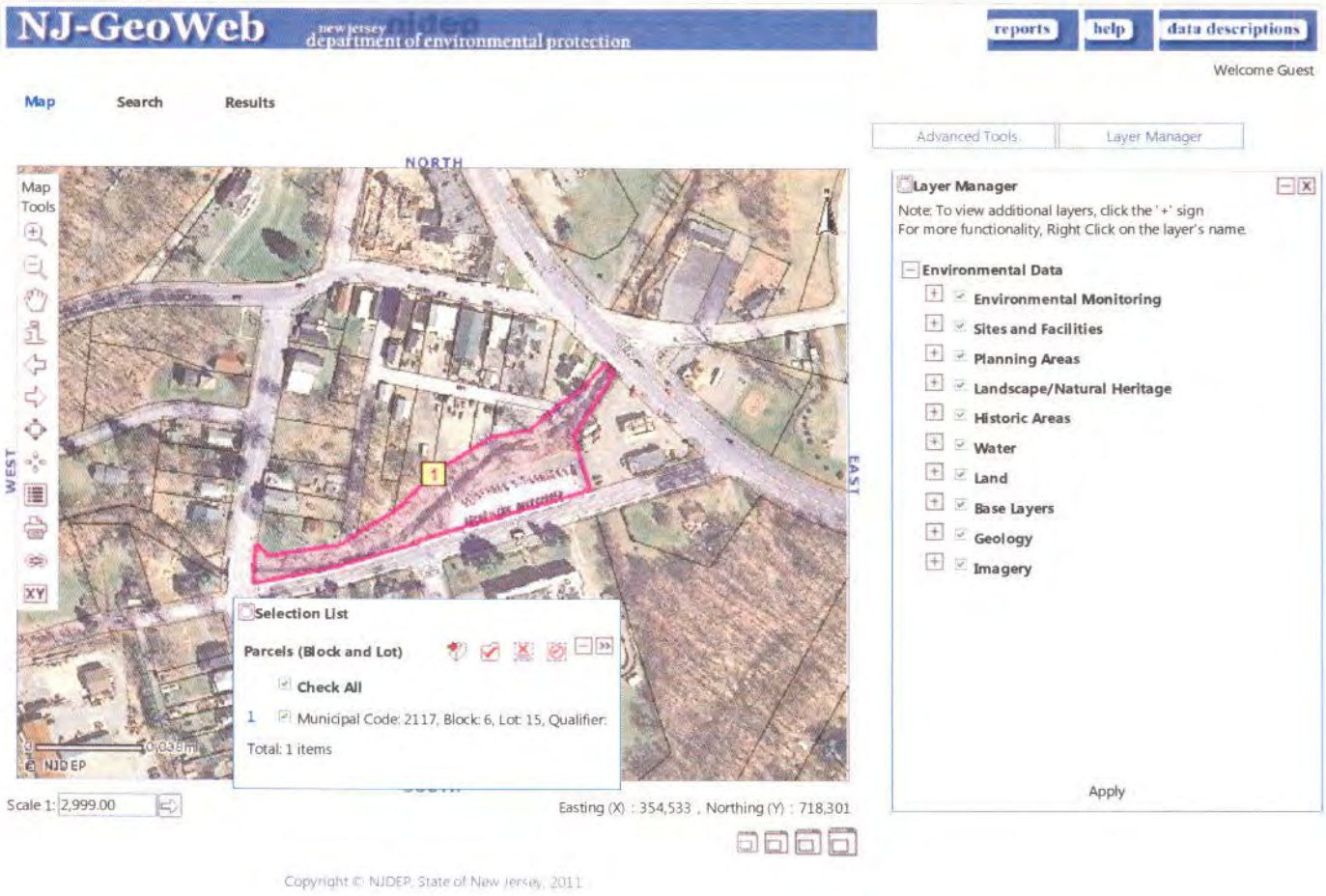
2	18.02	FURNACE LAKE REC AREA	ET/FE	M	Y	05-Jan-10
3	17	WEST OXFORD MTN NATURAL AREA	ET/FE	C	N	06-Jan-10
6	15	KENT ROAD	ET/FE	M	N	05-Jan-10
42	14	BALLFIELD	ET/FE	M	N	05-Jan-10

The two in red are the ones we're dealing with (the other being the ballfield to the north).

Thanks.

Matt

Matt Wilityer
Principal Environmental Specialist
N.J. Dept. of Transportation
Phone: (609) 530-4550
Fax: (609) 530-5774


NJ-GeoWeb
new jersey department of environmental protection
njdep
reports
help
data descriptions
Welcome Guest
Map
Search
Results
Advanced Tools
Layer Manager
NORTH
WEST
EAST
Map Tools
XY
1
Selection List
Parcels (Block and Lot)
Check All
1 Municipal Code: 2117, Block: 6, Lot: 15, Qualifier:
Total: 1 items
0.038mi
NJDEP
Layer Manager
Note: To view additional layers, click the '+' sign
For more functionality, Right Click on the layer's name.
Environmental Data
Environmental Monitoring
Sites and Facilities
Planning Areas
Landscape/Natural Heritage
Historic Areas
Water
Land
Base Layers
Geology
Imagery
Apply
Scale 1: 2,999.00
Easting (X) : 354,533 , Northing (Y) : 718,301
Copyright © NJDEP, State of New Jersey, 2011

From:	Veronica Murphy
To:	Boerchers, Bernard; Steponanko, Julia
Subject:	Fwd: Re: Route 31(Structure # : 2111-154 at MP 46.83)Over Furnace Brook
Date:	Monday, May 10, 2010 12:05:19 PM

FYI- Additional MS Request information

>>> Michael Pilsbury 5/10/2010 11:52 AM >>>
Veronica, from April 2003 to March 2008 we only had one incident, with the details listed below. Traffic impact was heavy.

2/2/2007 Emergency Roadwork - Down Power Line
5:21PM Initial: NB lanes closed/Down power line. Local Police on scene with detour. Utility company enroute. NJDOT not needed. 6:22PM Update#1: NB lanes reopened but right lane will be closed again for repairs. ED 1 hour. Utility company on scene. 7:45PM Update#2: NB right lane closed for repairs. ED 1 hour. 8:17PM Final: Incident cleared, right lane reopened.

>>> Veronica Murphy 4/29/2010 11:42 AM >>>
All,

The Division of Project Development has initiated a Concept Development Study for the **Rt 31 Over Furnace Brook structure (# 2111-154) at MP 46.83** in Oxford Township, Warren County. I am requesting any available data from your respective units. Please see the attached Memo.
If you have any questions please do not hesitate to contact me.

Thanks

Veronica Murphy
Sr. Transportation Planner
New Jersey DOT
Division of Project Development
North Region
Tel: (609) 530-8142
Fax: (609)530-3595
veronica.murphy@dot.state.nj.us

Federal Highway Administration (FHWA)

Correspondence & Report Approval

U.S. Department of Transportation
Federal Highway Administration

New Jersey Division

840 Bear Tavern Road
Suite 202
West Trenton, New Jersey 08628
609 637-4200

September 5, 2014

In Reply Refer To:
HAD-NJ

Robert Lee, Project Manager
Division of Project Management, Group B
New Jersey Department of Transportation
P.O. Box 600
Trenton, New Jersey 08625-0600

Re: Draft Concept Development Report
Route 31 over Furnace Brook Str. No. 2111-154 (M.P. 46.83)
Township of Oxford, Warren County

Dear Mr. Lee:

We have completed our review of the Draft Concept Development Report for the Route 31 over Furnace Brook Project in the Township of Oxford, Warren County. Enclosed please find our comments. Prior to revising the CDR, please submit a Comment Resolution Summary denoting your responses for each comment. If you have any questions, please feel free to contact me at (609) 637-4237.

Sincerely yours,

Brett Steinberg
Area Engineer

Cc: HNG, PF, RF

Route 31 over Furnace Brook Str. No. 2111-154 (M.P. 46.83)
Township of Oxford, Warren County
Draft Concept Development Report Comments
September 2014

1) The report references the need to prepare a De Minimus Section 4(F) Evaluation. Please ensure the most recent Section 4(F) Policy Paper dated July 20, 2012 is utilized during preparation. http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp#determine
2) Staging plans show placement of a temporary construction barrier during construction but barrier type is not defined. Please note all temporary construction barrier must comply with NCHRP Report 350 or MASH Criteria for roadside safety hardware to be eligible for Federal participation.
3) As a result of MAP-21 changes and additionally changes to the Stewardship Agreement between FHWA and NJDOT this project will advance forward as a State Delegated project. With that being said, Page 46 of 50 of the PE Scope Statement Activity No. 3210 a check mark should be placed in the "NO" category for FHWA reviewing and approving the PE Report.

State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O. Box 600
Trenton, New Jersey 08625-0600

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

JOSEPH D. BERTONI
Acting Commissioner

September 10, 2014

Mr. Brett Steinberg
Federal Highway Administration
840 Bear Tavern Road
Trenton, New Jersey 08628

Re: HDA-NJ
Draft Concept Development Report
Route 31, Bridge over Furnace Brook
Oxford Township, Monmouth County

Subject: Comment Resolution Summary
FHWA draft report comments dated September 5, 2014

Dear Mr. Steinberg:

The following is our comment resolution summary addressing the comments in your letter dated September 5, 2014 regarding the draft Concept Development Report for the above referenced project. The comments from your letter are repeated below with our corresponding disposition or resolution immediately following in italicized type.

1) The report references the need to prepare a De Minimus Section 4(F) Evaluation. Please ensure the most recent Section 4(F) Policy Paper dated July 20, 2012 is utilized during preparation. http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp#determine.

   The June 20, 2012 Section 4(f) Policy Paper, as found on the above listed webpage, will be utilized during the preparation of the De Minimus Evaluation. This will be noted in Section VI.P.12 of the CD Report.

2) Staging plans show placement of a temporary construction barrier during construction but barrier type is not defined. Please note all temporary construction barrier must comply with NCHRP Report 350 or MASH Criteria for roadside safety hardware to be eligible for Federal participation.

   While barrier type was not identified during Concept Development, all temporary construction barrier will be MASH and/or NCHRP-350 compliant. This will be noted in Section VI.K and VI.P.5 of the CD Report.

3) As a result of MAP-21 changes and additionally changes to the Stewardship Agreement between FHWA and NJDOT this project will advance forward as a State Delegated project. With that being said, Page 46 of 50 of the PE Scope Statement Activity No. 3210 a check mark should be placed in the "NO" category for FHWA reviewing and approving the PE Report.

   Activity No. 3210, listed on page 46 of the PE Scope Statement, will be revised as requested. It is understood that FHWA will not review or approve the PE Report.

Should you have any questions please do not hesitate to contact me.

Sincerely,

Robert Lee
Project Manager
Division of Project Management

From:	Vijayakumar, Sangaran
To:	Boerchers, Bernard; Steponanko, Julia
Cc:	Lee, Robert
Subject:	FW: Rt. 31 Bridge over Furnace Brook - CRS (CD Draft Report)
Date:	Wednesday, October 08, 2014 9:44:11 AM
Attachments:	image001.png

From: Lee, Robert
Sent: Wednesday, October 08, 2014 9:38 AM
To: brett.steinberg@dot.gov
Cc: Vijayakumar, Sangaran
Subject: RE: Rt. 31 Bridge over Furnace Brook - CRS (CD Draft Report)

Brett;
Thank you.

Bob

From: brett.steinberg@dot.gov [mailto:brett.steinberg@dot.gov]
Sent: Wednesday, October 08, 2014 8:36 AM
To: Lee, Robert
Subject: RE: Rt. 31 Bridge over Furnace Brook - CRS (CD Draft Report)

Bob,

We have reviewed the pages submitted with CRS revisions incorporated and have no further comments. Therefore, pursuant to the Capital Project Delivery Process for the Route 31 over Furnace Brook Project, we hereby provide our approval for the Concept Development Report dated August 2014 (revisions incorporated). Additionally, this project will not be considered a PoDI under the new RBSO process and shall proceed as a State Delegated project. If you have any questions feel free to contact me at your convenience.

Thank You.

Sincerely,

Brett D. Steinberg
Area Engineer
FHWA - NJ Division
840 Bear Tavern Road, Suite 202
West Trenton, NJ 08628

Phone: 609-637-4237
Fax: 609-538-4919
Brett.Steinberg@dot.gov

From: Lee, Robert [mailto:robert.lee@dot.nj.gov]
Sent: Wednesday, September 10, 2014 12:50 PM
To: Steinberg, Brett (FHWA)
Cc: Vijayakumar, Sangaran
Subject: Rt. 31 Bridge over Furnace Brook - CRS (CD Draft Report)

Brett;
Please see attached file for the CRS to your comments for the Draft CD Report for the subject project.

Bob

STIP Project Sheet

FY 2014 – 2023

FY 2014-2023 DRAFT STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM
New Jersey Department of Transportation

Route 31, Bridge over Furnace Brook

DB # 09325 **UPC 093250** **MILEPOST(S) 46.83**

COUNTY: Warren **MUNICIPALITY: Oxford Twp**

The proposed project consists of total replacement of existing Route 31 bridge over Furnace Brook. In addition, pedestrian facilities on the bridge and at the adjacent Route 31/Wall Street intersection will be upgraded to meet the current standards and ADA compliance.(Structure Number 2111154).

Total construction funding needed is expected to be $3,100,000.

ASSET MANAGEMENT CATEGORY: Bridge Assets-Bridge Rehab and Replacement **LEGISLATIVE DISTRICT:** 24

AIR QUALITY CODE (NON-EXEMPT/EXEMPT):

FINANCIAL PLAN REQUIREMENT:

SPONSOR: NJDOT **STRUCTURE NO.:** 2111154

			Amounts in Millions of Dollars									
MPO	Phase	Fund	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
NJTPA	PE	NHPP	$0.300									
NJTPA	DES	NHPP			$0.400							
NJTPA	ROW	NHPP				$0.200						
NJTPA	CON	NHPP						$3.100				

Appendix M

Management Systems

NEW JERSEY DEPARTMENT OF TRANSPORTATION

MEMORANDUM

TO: Sangaran Vijayakumar
Assistant Project Manager
Division of Project Management

FROM: Raj Patel
Drainage Unit
Division of Design Services

DATE: May 14, 2013

PHONE: 609-530- 2198

SUBJECT:
Route 31 and Furnace Brook DMS Request

In response to your email dated May 13, 2013, Route 31 MP 46.60 - 47.0 does not rank in Drainage Management Unit's DMS Ranking List. Flooding, Maintenance Crew Expenditure and Icing records for project limit are attached.

CC: Manager, K. Chan, file

Date_Of_Incident	County	Municipality	Route	Direction	MilePoint	Limits	Lanes_Affected	Description	Crew_At_Incident	No_Of_Calls	Notes	Incident_Complete	Other_List_Names	Preferred_Not_To_Say	Transfer_To_Region	Completed_User	Weekend
10/30/2012	WARREN	OXFORD TWP.	31	N	46.56	ACADEMY ST/ CR 625	All	Flooding	224		REQUESTING A ROAD CLOSED SIGN FOR FLOODING. STMC ADVISED	TRUE		FALSE	FALSE		FALSE

Date_Of_Incident	Municipality	Route	Direction	MilePoint	Limits	Lanes_Affected	Description	Notes
3/9/2011	OXFORD TWP.	31	S	46.5	ACADEMY ST.	All	Icing Conditions	
2/9/2011	OXFORD TWP.	31		46.56	Academy/Axford		Icing Conditions	large piles of snow blocking visibility.
12/24/2012	OXFORD TWP.	31	N	47	Wall / PEQUEST RD		Icing Conditions	ice due to truck leaking water PD asking for
1/30/2010	OXFORD TWP.	31	S	47		Right	Icing Conditions	in front of delta gas station the fire dept
2/11/2010	CLINTON TWP.	31	N&S	31.9-48.9		All	Icing Conditions	REOC OPEN
12/29/2012	WASHINGTON TWP.	31	N&S	39.-49	entire section		Icing Conditions	nreoc open
2/18/2009	WHITE TWP.	31	N&S	48.0-49.0			Icing Conditions	

DATE	CREW#	ACTIVITY#	ACTIVITY DESCRIPTION	ROUTE	BEGIN MP	END MP	LABOR $	EQUIPMENT $	MATERIAL $
01-Jun-10	2560	414	RECONSTRUCT INLET/MANHOLE	31	46.8	46.8	90	19	0

Pavement Management & Technology Unit
Skid/Roughness/Surface Distress/Rut Data
Route 31 over Furnance Brook Milepost 46.83

Note: IRI = International Roughness Index (in/mile); SDI = Surface Distress Index (0-5 scale)

Route	Dir	MP Start	MP End	Speed Limit	Skid Test Date	Skid Value (SN40R)	Profiler Test Date	IRI	SDI	Avg Rut Depth (In)
031	N	46.3	46.4	40	4/17/2009	51	4/28/2009	96	4.96	0.1
031	N	46.4	46.5	40	4/17/2009	51	4/28/2009	104	4.96	0.1
031	N	46.5	46.6	40	4/17/2009	46	4/28/2009	97	4.98	0.1
031	N	46.6	46.7	40	4/17/2009	46	4/28/2009	119	5.00	0.2
031	N	46.7	46.8	40	4/17/2009	42	4/28/2009	126	5.00	0.2
031	N	46.8	46.9	40	4/17/2009	42	4/28/2009	142	4.99	0.1
031	N	46.9	47.0	40	4/17/2009	51	4/28/2009	111	4.96	0.1
031	N	47.0	47.1	45	4/17/2009	51	4/28/2009	91	4.96	0.1
031	N	47.1	47.2	45	4/17/2009	43	4/28/2009	85	4.96	0.2
031	N	47.2	47.3	45	4/17/2009	43	4/28/2009	89	4.96	0.1
031	S	46.3	46.4	40	4/13/2005	*	4/28/2009	162	5.00	0.2
031	S	46.4	46.5	40	4/13/2005	*	4/28/2009	90	5.00	0.1
031	S	46.5	46.6	40	4/13/2005	*	4/28/2009	149	5.00	0.2
031	S	46.6	46.7	40	4/13/2005	*	4/28/2009	115	4.70	0.3
031	S	46.7	46.8	40	4/13/2005	*	4/28/2009	109	4.15	0.5
031	S	46.8	46.9	40	4/13/2005	*	4/28/2009	125	4.97	0.2
031	S	46.9	47.0	40	4/13/2005	*	4/28/2009	108	4.96	0.2
031	S	47.0	47.1	45	4/13/2005	*	4/28/2009	123	4.96	0.2
031	S	47.1	47.2	45	4/13/2005	*	4/28/2009	98	3.40	0.2
031	S	47.2	47.3	45	4/13/2005	*	4/28/2009	104	0.87	0.2

*** Note: Skid values available are too old to be reliable**

Mileposts 46.3 to 47.3				
Dir	**Avg IRI**	**Rating**	**Avg SDI**	**Rating**
N	106	Fair	4.97	Good
S	118	Fair	4.30	Good

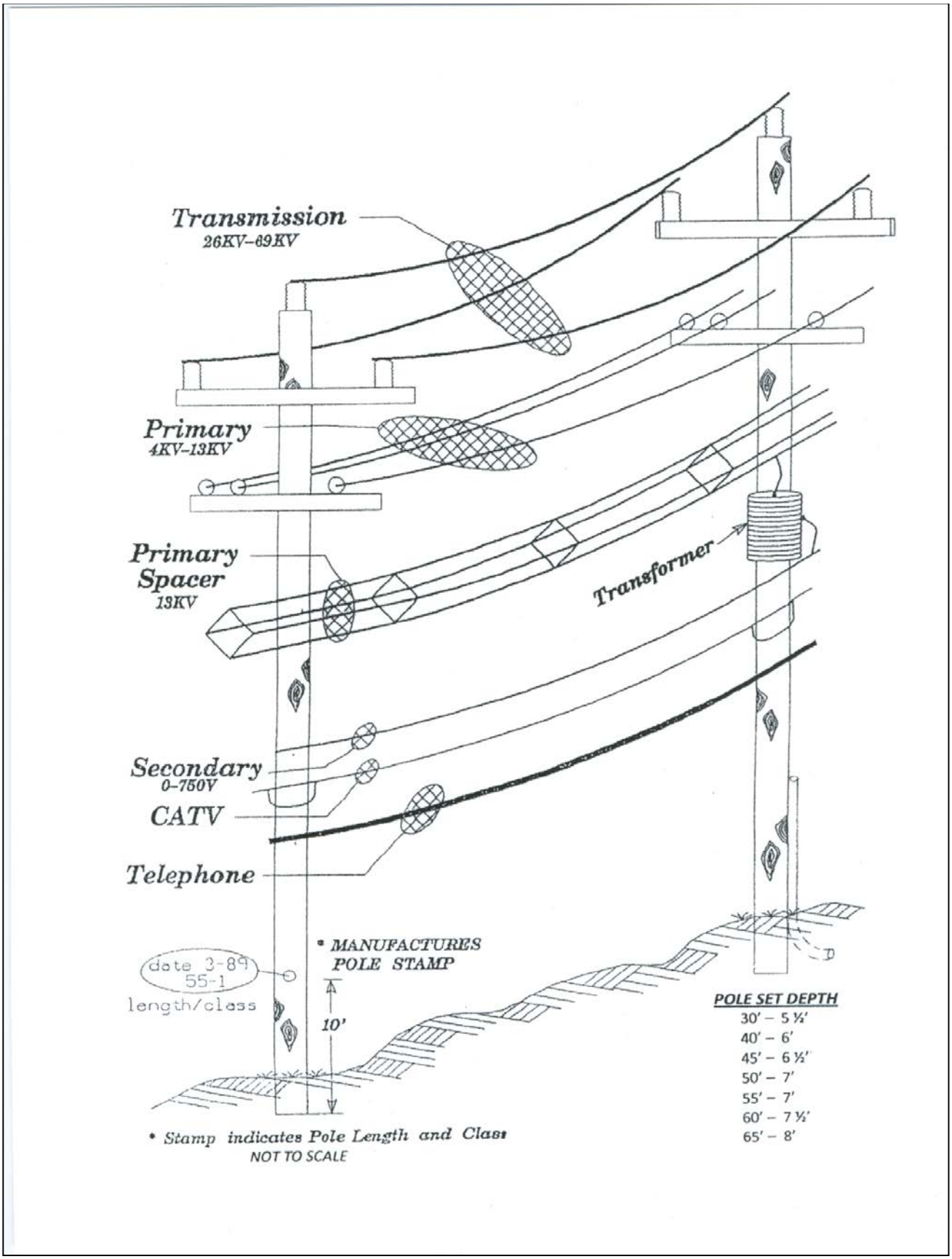
Color Code	
	Substandard Skid Value (speed dependent)
	Deficient Roughness (IRI) > 170 in/mi
	Deficient Surface Distress (SDI) ≤ 2.4
	Excessive Rut ≥ 0.5 in

Utility Field Checklist- Date: 4/26/11

PROJECT: Route 31 over Furnace Creek

Yes	No	Description	Comments
X		Are there electric Facilities (transmission, distribution)?	within 15' of structure
X		Are there communication facilities (copper and fiber optic)? Count the Cables. Check for tags on poles for ownership of cables.	
X		Any Cable TV facilites?	
		Any Riser Poles (underground feeds)? Where is it going? Who is the owner?	
X		Any Street Lights (state, town or owner owned, type of facilities)?	
X		Are there other utilities, appurtenances or unique facilities (e.g., Fire Alarm box)?	
X		Are there anything unusual about the poles or the appurtenances (non-wood, height, transformers, switches, regulators, guy wires, etc.)?	
X		Are poles located inside small islands, gore areas, and/or within 40 feet of a structure?	
	X	Are utility poles located in front of guide rail, are the poles or guy wires located in the clear area of the end treatment or less than 25 feet before or after the terminal?	
X		Are aerial electrical wires within 10 feet of traffic signals or sign structures?	
	X	Do communication or cable facilities conflict with traffic signals or sign structures?	
	X	Will longer (taller) poles be needed to meet clearances at signalization intersections or sign structures? How will taller poles impact existing pole line?	
X		Are or will poles or pole lines be near other utilities or buildings? If yes, what and how far from pole.	
		Will there be a change in profile that affects aerial clearances?	unknown
X		Is there any evidence of utility pole hits?	
		Have utility pole accidents been investigated for project limits?	
X		Will aerial electric facilities interfere with construction equipment?	
X		Any excavation proposed that would undermine the poles?	
		Check utility pole offsets behind curb, guide rail, or edge of pavement.	
		Check ID tag and stamps on pole for information on ownership, height, year and pole number.	

Utility Field Checklist- Date: 4/26/11



Utility Field Checklist- Date: 4/26/11

UNDERGROUND
Look Down!
Identify evidence of underground facilities

Yes	No	Description	Comments
X		Are there any water facilities (valve boxes or hydrants)?	
		Are there any gas utilities (valve boxes, cathodic protection, markers, vents)?	
X		Are there any sanitary sewer facilities (manholes, pumping stations)?	
	X	Are there any underground communication lines (manholes, vaults, handholds, markers)?	
	X	Any surface or underground electric facilities (manholes, vaults, boxes, substations)?	
	X	Are there any Cable TV facilities (manholes, handholes, markers)	
X		Are there DOT facilities; Traffic Signals and ITS equipment (junction boxes, controller cabinets, handholds, loop detectors)?	
X		Are there any Storm Sewer facilites (pumping stations, manholes, inlets)?	
		Are there any other pipelines or facilities; Fuel, Petroleum, etc. (vents and markers)	Propane tanks seen.
	X	Will there be a realignment, widening or change in profile that will impact underground facilities?	
	X	Is drainage, guide rail, or other roadside hardware proposed that will impact underground utilities?	
		Does age of facilities become a factor with construction equipment or highway loads?	
	X	Should subsurface utility engineering (SUE) be done?	

RAILROADS

Yes	No	Description	Comments
		If railroad is involved, note if line is active and if it is electrified.	
		If there is a railroad at-grade crossing, note crossing and condition.	
		Are there any aerial or underground facilities on railroad righ of way?	

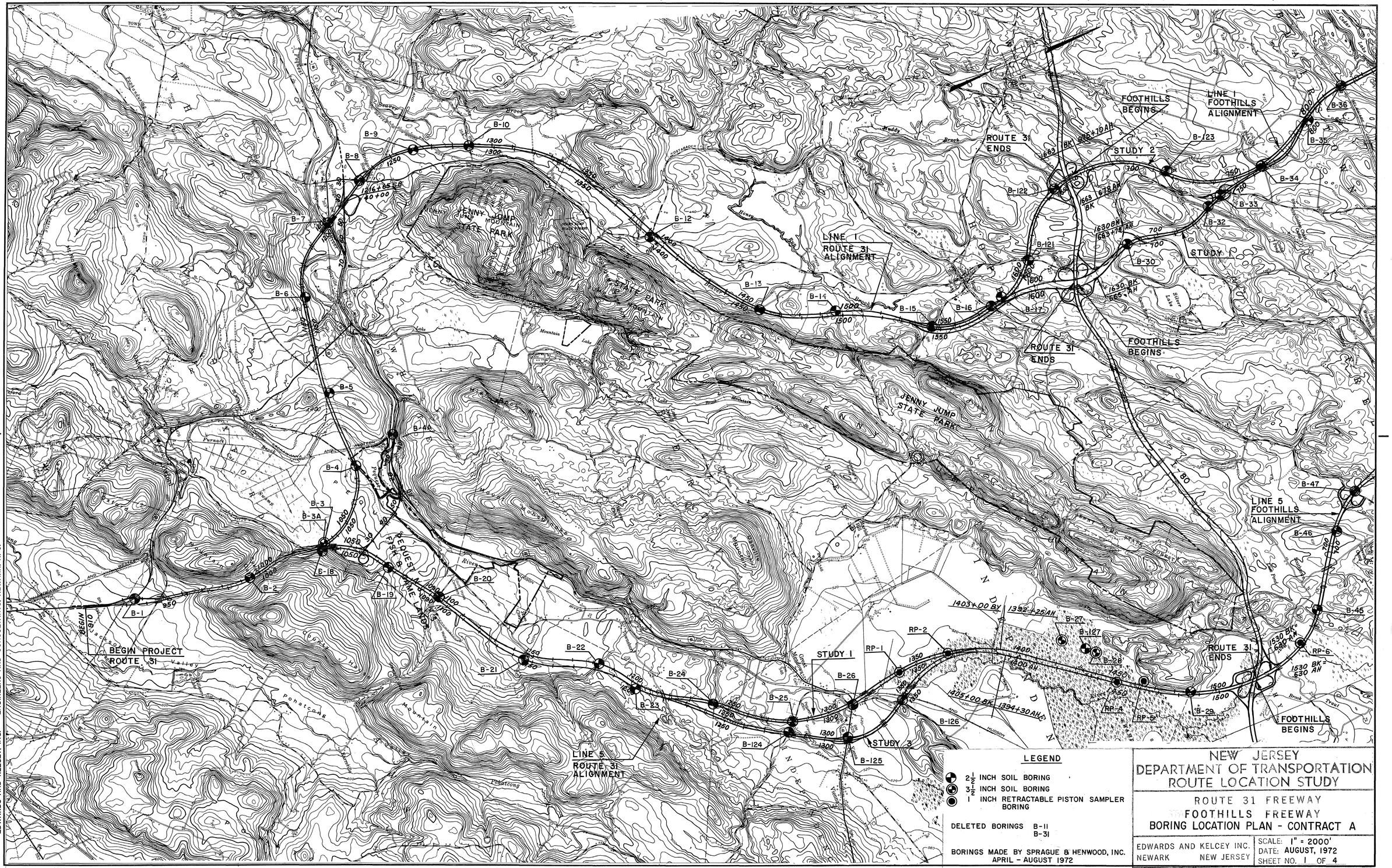
Utility Field Checklist- Date: 4/26/11

STRUCTURES Removal, Replacement or Rehabilitation of a Structure			
Yes	No	Description	Comments
	X	Are there any utility facilities through the structure, hanging beneath the deck or off the side of the structure? If yes, identify what facilities and where.	
X		Are there any aerial facilities in proximity of structure?	
	X	Are underground facilities in close proximity to footings?	
		Can utilities be supported on the proposed structure?	
		How will existing facilities be supported or relocated through the various stages of construction?	
		How will the structure be constructed around aerial electrical facilities?	

GENERAL NOTES:

1. Review memorandum provided by the lead unit giving background information on the proposed project and existing conditions.
2. Familiarize yourself with location of project and utility owners which service that area.
3. Call municipality for utilities in area. Check on age and material of municipal facilities (water & sewer).
4. Check with Railroad Engineering and Safety unit to determine any ownership of railroads within project limits. Also, if there is a need to initiate the Diagnostic Team meeting process for at-grade intersections.
5. In addition to field attire and safety equipment; bring measuring tape or wheel, camera and binoculars.

Notes:



LEGEND

- $2\frac{1}{2}$ INCH SOIL BORING
- $3\frac{1}{2}$ INCH SOIL BORING
- 1 INCH RETRACTABLE PISTON SAMPLER BORING

DELETED BORINGS B-11, B-31

BORINGS MADE BY SPRAGUE & HENWOOD, INC. APRIL – AUGUST 1972

NEW JERSEY DEPARTMENT OF TRANSPORTATION ROUTE LOCATION STUDY

ROUTE 31 FREEWAY

FOOTHILLS FREEWAY

BORING LOCATION PLAN - CONTRACT A

EDWARDS AND KELCEY INC. NEWARK NEW JERSEY

SCALE: 1" = 2000'
DATE: AUGUST, 1972
SHEET NO. 1 OF 4

EDWARDS AND KELCEY, INC. — ENGINEERS AND CONSULTANTS, NEWARK, N. J.

BRUNING 12873

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA — TEST HOLE NO. B-19

Rt.: 31 Section: Line 5 Local Name: Roadway Cut

Station: 1065+20 Offset: 20' L Reference Line: NB BL Ground Line Elevation: 558.0

Borings made by Sprague&Henwood Date Started: 6/28/72 El. G.W.T. 533.5 Date: 7/5

Inspector: G. Bayne Date Completed: 7/5 El. G.W.T. 532.4 Date: 7/6

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	Depth in Feet
	7	S-1	0	1.5	1	2	2	5"	Dark Brown m-f SAND, s. Silt	
	12	Note (1)								
	15									
	17									
	20									
5	34	S-2	5.0	6.5	14	9	16	10"	Yellow c-f SAND, s. Silt	
	61									
	84									
	79									
	72									
10	50	S-3	10.0	11.5	17	19	27	10"	Brown c-f SAND, s. Silt, l. m-f Gravel	
	31									
	17									
	29									
	30									15.0
15	216	-	15.0	-	50/0	-	-	0	Rec.=17%	
	287		15.0	18.0	Core			6"	COBBLES (Gneiss a. Sandstone)	
	309	S-4	18.0	18.5	72/5"	-		2"	Brown m-f GRAVEL, s. c-f Sand, l. Silt	
	285									20.0
	229									
20	202		20.0	31.5	11	15	17	0		
	196	S-5			*			7"	Brown c-f SAND, s. Silt	
	123									
	120									
	106									
25	93									
	88	S-6	26.0	27.5	11	16	50	3"	Brown c-f SAND, a. m-f Gravel Note (2)	
	106									
	101									
	96									
30	34	S-7	30.0	31.5	26	18	18	5"	Yellow c-f SAND, s. Silt, l. m-f Gravel	
	55									
	59									
	60									
	60									
35	57	S-8	35.0	36.0	9	14	50/0	4"	Same	
	112									
	80									
	88									
	92									
40										

I.D. Casing 4&2-3/8"	Wgt. Hammer on Casing	300#	Symbol: a. and; s. same; l. little; t. trace
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	Proportions: 35 to 50; 20 to 35; 10 to 20; 1 to 10
Type Core Drill AX	Drop Hammer on Casing	24"	% By Wgt.
Core Dia. 1-1/8"	" " Spoon	30"	c-coarse; f-fine; m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA — TEST HOLE NO. B-19

Rt.: 31 Section: Line 5 Local Name: Roadway Cut

Station: 1065+20 Offset: 20' L Reference Line: NB BL Ground Line Elevation: 558.0

Borings made by: Sprague&Henwood Date Started: 6/28/72 El. G.W.T. 533.5 Date: 7/5

Inspector: G. Bayne Date Completed: 7/5 El. G.W.T. 532.4 Date: 7/6

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
	24									
	26		41.0	42.5	12	9	9	0	Brown c-f SAND, s. m-f Gravel,	
	14	S-9			*			3"	Brown c-f SAND, s. m-f Gravel	
	15									
45	17									
	26	S-10	45.0	46.5	14	15	20	4"	Yellow c-f SAND, s. Silt, s. m-f Gravel	
	35									
	47									
	92									
50	123									50.0
	44	S-11	50.0	51.5	14	12	26	18"	Yellow SILT & CLAY, t. f-Sand	
	50									
	77									
	95									
55	103									
	72	S-12	55.0	56.5	36	45	63	18"	Same	
	96									
	111									
	121									
60	126									
		S-13	60.0	61.5	21	27	30	14"	Yellow CLAYEY SILT, s. c-f Sand	61.5
									BOTTOM OF HOLE	
65										
									Notes:	
									*No recovery on first attempt; overdrove 12".	
									(1) 4" casing used 0 to 28'; BX casing 28 to 60'. Drilled ahead of casing 15 to 18'.	
70									(2) Lost water while cleaning inside of casing from 27.5 to 30'.	
									(3) Observation well installed, perforated 1-1/4" I.D. plastic tubing 59' long.	
75										
80										

I.D. Casing 4&2-3/8"	Wgt. Hammer on Casing	300#	Symbol	a.	s.	l.	t.
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	Proportions	and	some	little	trace
Type Core Drill AX	Drop Hammer on Casing	24"	% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10
Core Dia. 1-1/8"	" " Spoon	30"	c-coarse	f-fine		m-medium	

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-19

Rt.: 31 Section: Line 5 Local Name: Roadway Cut

Station: 1065+20 Offset: 20' L Reference Line: NB BL Ground Line Elevation: 558.0

Borings made by: Sprague&Henwood Date Started: 6/28/72 El. G.W.T. 533.5 Date: 7/5

Inspector: G. Bayne Date Completed: 7/5 El. G.W.T. 532.4 Date: 7/6

Casing Blows	Sample NO. Depth	Blows on Spoon 0/6 6/12 12/18	Rec.	Sample Identification and Profile Change
				Percolation Tests:
				#1 Hole at 31.5', BX casing at 30'
				Elapsed Time in minutes — Drop in W. L. from ground level
				0 — 0
				1 — 0
				3 — 1"
				5 — 1-1/4"
				15 — 3"
				30 — 4-1/2"
				#2 Hole at 61.5', BX casing at 60'
				Elapsed Time in minutes — Drop in W. L. from ground level
				0 — 0
				1 — 5"
				3 — 3'-02"
				5 — 7'-01"
				15 — 18'-03"
				30 — 24'-06"

Depth in Feet

I.D. Casing 4&2-3/8"	Wgt. Hammer on Casing	300#	Symbol: a. s. l. t.
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	Proportions: and some little trace
Type Core Drill AX	Drop Hammer on Casing	24"	% By Wgt.: 35 to 50 / 20 to 35 / 10 to 20 / 1 to 10
Core Dia. 1-1/8"	" " Spoon	30"	c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-5

Rt.: 31 Section: Line 1 Local Name: Roadway Cut

Station: 1115+60 Offset 20' R Reference Line: NB BL Ground Line Elevation: 575.0

Borings made by Sprague&Henwood Date Started: 6/2/72 El. G.W.T. Note (1) Date: 6/7

Inspector G. Bayne Date Completed: 6/7 El. G.W.T. 560.3 Date: 6/8

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
5	11	S-1	0	1.5	4	12	17	18"	Yellow-Brown CLAYEY SILT, s. c-f Sand, t. f-Gravel	
	19									
	25									
	30									
	32									
	39	S-2	5.0	6.5	11	15	28	18"	Yellow-Brown CLAYEY SILT, a. c-f Sand, l. m-f Gravel	
	47									
	54									8.0
10	151	C-1	8.0	9.0	Core			10"	BOULDERS (6 pcs 1" to 9" fragments) Rec.=88%	
	234	C-2	9.0	10.0	Core			11"		10.0
	102	S-3	10.0	11.5	20	29	33	4"	Yellow c-f SAND, s. m-f Gravel, s. Silt	
	68									
	54									
	63									
15	71									
	40	S-4	15.0	16.5	11	10	11	18"	Brown c-f SAND, a. Silt	
	37									
	34									
	35									
	33									
20	30	S-5	20.0	21.5	14	21	25	18"	Reddish-Brown SILT, a. m-f Sand	
	38									
	55									
	63									
	60									
25	52		25.0	26.5	13	18	15	0"		
	55	S-6		Note (2)				18"	Same	
	63									
	64									
	78									
30	67	S-7	30.0	31.5	25	43	60	12"	Reddish-Brown c-f SAND, a. m-f Gravel, t. Silt	32.0
	100									
		C-3	32.0	33.0	Core			9"	Gray seamy GNEISS	
			Rec. =75% RQD=					0		
		C-4	33.0	35.0	Core			13"	Same (Rec.=54% RQD=0%	
35		C-5	35.0	35.5	Core			6"	Same	
			Rec. =100% RQD=					0	(Note (4)	
		C-6	35.5	38.0	Core			18"	Same	
			Rec. =60% RQD=					0		
40										

I.D. Casing Note (3)	Wgt. Hammer on Casing	300#	
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	
Type Core Drill AX	Drop Hammer on Casing	24"	
Core Dia. 1-1/8"	" " " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10

c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-5

Rt.: 31 Section: Line 1 Local Name: Roadway Cut

Station: 1115+60 Offset: 20' R Reference Line: NB BL Ground Line Elevation: 575.0

Borings made by Sprague&Henwood Date Started: 6/2/72 El. G.W.T. Note (1) Date: 6/7

Inspector: G. Bayne Date Completed: 6/7 El. G.W.T. 560.3 Date: 6/8

Depth in Feet	Casing Blows	Sample NO.	Depth	Blows on Spoon 0/6 6/12 12/18	Rec.	Sample Identification and Profile Change	Depth in Feet
		C-7	38.0 43.0	Core	32"	Same	
			Rec.=53% RQD=		0		
45							
		C-8	43.0 47.0	Core	28"	Same	
			Rec.=58% RQD=		7%		
50		C-9	47.0 50.0	Core	25"	Same	
			Rec.=70% RQD=		25%		
		C-10	50.0 52.0	Core	24"	Same	
			Rec.=100% RQD=		96%		
55		C-11	52.0 55.0	Core	34"	Same	
			Rec.=94% RQD=		42%		
		C-12	55.0 57.0	Core	18"	Same	57.0
			Rec.=75% RQD=		42%	BOTTOM OF HOLE	
60							

Notes:

(1) Perforated observation pipe installed: I.D. 1-1/4", length 36'. Hole caved-in at 41' and dry.

(2) Overdrove 12" to obtain Sample S-6.

(3) Drove NX casing to 32'. Bx casing drilled-in to 35'.

(4) Lost water 32 to 38'; and 44 to 57'.

I.D. Casing Note (3)	Wgt. Hammer on Casing	300#	
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	
Type Core Drill AX	Drop Hammer on Casing	24"	
Core Dia. 1-1/8"	" " " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10

c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA · TEST HOLE NO. B-4

Rt.: 31 Section: Line 1 Local Name: Bridge over Reloc. Axford-Pequest Rd.

Station: 1076+25 Offset: 40' R Reference Line: SB BL Ground Line Elevation: 425.0

Borings made by Sprague&Henwood Date Started: 6/7/72 El. G.W.T. 414.0 Date: 6/8

Inspector: G. Bayne Date Completed: 6/8 El. G.W.T. Note (2) Date: 6/9

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
	10	S-1	0	1.5	3	5	8	18"	Dark Brown c-f SAND, s. f-Gravel, t. Silt	
	14									
	19									
	27									
	32									
5	25	S-2	5.0	6.5	7	7	12	12"	Brown c-f SAND, a. c-f Gravel, s. Silt	
	28									
	37									
	70									
	85	Note (1)								
10	47	S-3	10.0	11.5	30	32	41	10"	Yellow c-f SAND, a. m-f Gravel t. Silt	
	43									
	25									
	18									
	15									
15	13	S-4	15.0	16.5	13	11	12	12"	Same	
	13									
	14									
	11									
	10									
20	7	S-5	20.0	21.5	6	3	6	5"	Same	
	5									
	8									
	13									
	12									
25	14	S-6	25.0	26.5	14	14	20	12"	Same	
	13									
	20									
	48									
	35								Yellow m-f GRAVEL, l. (+) c-f Sand (Shale fragments), t. (-) Silt	
30	41	S-7	30.0	31.5	40	37	45	13"		
	27									
	25									
	40									
	43									
35		S-8	35.0	36.5	23	23	15	14"	Yellow f-GRAVEL, l. (+) c-f Sand, (Shale fragments), l. Silt	
										36.5
									BOTTOM OF HOLE	
								Note	(1) NX casing used) to 10', pulled out and replaced with BX to 35'.	
40										

I.D. Casing NX & BX	Wgt. Hammer on Casing	300#	
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	
Type Core Drill	Drop Hammer on Casing	24"	
Core Dia.	" " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10

c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

Sheet 2 of 2

TEST BORING DATA — **TEST HOLE NO. B-4**

Rt. 30 / Section: Line 1 Local Name: Bridge [illegible] Reloc. Axford-Pequest Rd.

Station: 1076+25 Offset: 40' R Reference Line: SB BL Ground Line Elevation: 425.0

Borings made by Sprague&Henwood Date Started: 6/7/72 El. G.W.T. 414.0 Date: 6/8

Inspector: G. Bayne Date Completed: 6/8 El. G.W.T. Note (2) Date: 6/9

Casing Blows	Sample NO. Depth	Blows on Spoon 0/6 6/12 12/18	Rec.	Sample Identification and Profile Change
				Note (2) Hole backfilled by County Road Maintenance crew.

Depth in Feet

5 10 15 20 25 30 35 40

I.D. Casing NX & BX	Wgt. Hammer on Casing	300 #	
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140 #	
Type Core Drill	Drop Hammer on Casing	24"	
Core Dia.	" " " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% by Wgt.	35 to 50	20 to 35	10 to 20	1 to 10
c-coarse	f-fine		m-medium	

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

Sheet 1 of 1

TEST BORING DATA

TEST HOLE NO. B-1

Rt.: 31 Section: Line 1 Local Name: Bridge-Existing Rt. 31

Station: 935+70 Offset: 30' L Reference Line: SB BL Ground Line Elevation: 500.0

Borings made by Sprague&Henwood Date Started: 6/8/72 El. G.W.T. 482.3 Date: 6/9

Inspector: G. Bayne Date Completed: 6/9 El. G.W.T. Dry Date: 6/12

Depth in Feet

Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
18	S-1	0	1.5	12	9	16	10"	Brown c-f SAND, t. f-Gravel	
23									
27									
22									
19									
23	S-2	5.0	6.5	22	15	13	14"	Red-Brown c-f SAND, l.(+) Silt	
26									
42									
47									
54									
40	S-3	10.0	11.5	20	14	35	6"	Yellow c-f SAND, s. Silt, l. f-Gravel	
46									
90	Note (1)								13.0
74									
63									
35	C-1	13.0	16.5	Core			3"	BOULDER	
28		Rec=7%							16.5
24	S-4	16.5	18.0	11	17	23	8"	Yellow c-f SAND, s. Clayey Silt	
22									
25									
24	S-5	20.0	21.5	12	24	30	15"	Same	
37									
50									
53									
46									
51	S-6	25.0	26.5	15	12	20	15"	Yellow c-f SAND, s. Silt & Clay, t. f-Gravel	
68									
74									
45									
87									
60	S-7	30.0	31.5	19	14	31	18"	Yellow c-f SAND, s. Clayey Silt	
63									
144									
107									
105									
	S-8	35.0	36.5	15	15	21	14"	Yellow c-f SAND, s. Silt	
									36.5
								BOTTOM OF HOLE	
							Note	(1) Casing at 13.0', no penetration last 25 blows; cored ahead of casing 13.0' to 16.5'	

I.D. Casing 2-1/2"	Wgt. Hammer on Casing	300#	
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	
Type Core Drill AX	Drop Hammer on Casing	24"	
Core Dia. 1-1/8"	" " " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10
c-coarse	f-fine		m-medium	

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

Sheet 1 of 1

TEST BORING DATA

TEST HOLE NO. B-20

Rt.: 31 Section: Line 5 Local Name: Bridge over Axford Rd.

Station: 1095+20 Offset: On BL Reference Line: SB BL Ground Line Elevation: 451.0

Borings made by Sprague&Henwood Date Started: 6/9/72 El. G.W.T. 537.6 Date: 6/12

Inspector: G. Bayne Date Completed: 6/12 El. G.W.T. 537.0 Date: 6/13

Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	Depth in Feet
7	S-1	0	1.5	4	5	4	18"	Brown m-f SAND, s. Silt	
11									
9									
20									
23									5
7	S-2	5.0	6.5	7	6	7	18"	Brown m-f SAND, s. Clayey Silt	
12									
18									
25									
27									
12	S-3	10.0	11.5	4	4	6	0"	Brown c-f SAND, s. Silt	10
13							10"	Note (1)	
11									
15									
18									
11	S-4	15.0	16.5	6	5	18	9"	Brown c-f GRAVEL,a. c-f Sand, t. Silt	15
14									
16									
15									
21									
23	S-5	20.0	21.5	12	15	21	8"	Gray-Brown c-f SAND,a. c-f Gravel, t. Silt	20
25									
22									
26									
20									
34	S-6	25.0	26.5	18	12	23	10"	Brown CLAYEY SILT a. c-f Sand	25
57									27.0
91									
115									
118									
104	S-7	30.0	31.5	45	63	65	18"	Gray CLAY, a. Silt	30
123									
146									
172									
175									
	S-8	35.0	36.5	50	58	63	18"	Same	35
									36.5
								BOTTOM OF HOLE	
								Note (1) No recovery first attempt drove 12".	

40

I.D.Casing 2-1/2"	Wgt.Hammer on Casing	300#	
I.D.Spoon 1-3/8"	Wgt.Hammer on Spoon	140#	
Type Core Drill	Drop Hammer on Casing	24"	
Core Dia.	" " " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10

c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

Sheet 1 of 1

TEST BORING DATA

TEST HOLE NO. B-3A

Rt.: 31 Section: Line 1 Local Name: Bridge over Reloc. Axford Road

Station: 1033+25 Offset: 20' L Reference Line: SB BL Ground Line Elevation: 468.0

Borings made by: Sprague&Henwood Date Started: 6/13/7[illegible] El. G.W.T. 453.8 Date: 6/14

Inspector: J. G. Toth Date Completed: 6/14 El. G.W.T. 453.0 Date: 6/15

465.3 6/16

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change
	5	S-1	0	1.5	1	1	3	12"	Brown SILT & CLAY, t. f-Sand
	9								
	20								
	29								
	32								
5	42	S-2	5.0	6.5	3	6	8	12"	Same
	49								
	55								
	46	UD-1	8.0	9.25	275 psi*			15"	Brown SILT & CLAY, t. f-Sand
	57								
10	42	S-3	9.5	11.0	10	10	14	13"	Same
	59								
	62								
	70								
	73								
15	69	UD-2	15.0	16.8	300 psi			22"	Gray SILT & CLAY
	88								
	105	S-4	16.8	18.3	11	13	15	15"	Same
	131								
	147								
20	91	UD-3	20.0	22.0	300 psi			24"	Same
	123								
	147	S-5	22.0	23.5	9	12	14	14"	Same
	150								
	166								
25	101	UD-4	25.0	27.0	280 psi			22"	Same
	120								
	139	UD-5	27.0	29.0	290 psi			18"	Same
	156								
	179	S-6	29.0	30.5	7	10	13	15"	Gray-Brown CLAYEY SILT
30		S-7	30.5	32.0	12	12	17	14"	30.5 Brown m-f SAND, s. Clayey Silt 32.0
									BOTTOM OF HOLE
									*Pressure indicated in hydraulic system of drill rig.
35									
40									

I.D.Casing 4"	Wgt.Hammer on Casing	300#	Symbol a. s. l. t.
I.D.Spoon 1-3/8"	Wgt.Hammer on Spoon	140#	Proportions and some little trace
Type Core Drill	Drop Hammer on Casing	24"	% By Wgt. 35 to 50 20 to 35 10 to 20 1 to 10
Core Dia.	" " " Spoon	30"	c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-18

Rt.: 31 Section: Line 5 Local Name: Sidehill Cut

Station: 1030+00 Offset: 25' R Reference Line: NB BL Ground Line Elevation: 560.0

Borings made by Sprague & Henwood Date Started: 6/29/72 El. G.W.T. 550.0 Date: 7/6

Inspector: G. Bayne Date Completed: 7/6 El. G.W.T. 527.4 Date: 7/7

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
		S-1	0	1.5	1	1	2	12"	Dark Brown m-f SAND, a. Silt	
		C-1	1.5	4.0	NX Core			10"	BOULDER (Gneiss, 1 to 4" fragments)	
		Note	(1) Rec. = 33%							
5		C-2	4.0	5.0	NX Core			6"	Same Note (2)	5.0
			Rec. = 50%							
		C-3	5.0	10.0	NX Core			48"	Weathered GNEISS	
			Rec. = 80% RQD=					48%		
10		C-4	10.0	11.5	BX Core			7"	Same	
			Rec. = 39% RQD=					0		
15		C-5	11.5	15.0	AX Core			21"	Same	
			Rec. = 50% RQD=					9%		
20		C-6	15.0	20.0	AX Core			48"	Same	20.0
			Rec. = 80% RQD=					8%		
25		C-7	20.0	25.0	AX Core			60"	Gray GNEISS	
			Rec. = 100% RQD=					46%		
		C-8	25.0	28.5	AX Core			41"	Same	
30			Rec. = 98% RQD=					64%		
		C-9	28.5	33.5	AX Core			54"	Same	
			Rec. = 90% RQD=					73%		
35		C-10	33.5	36.0	AX Core			30"	Same	36.0
			Rec. = 100% RQD=					93%		
40										

I.D. Casing 3" & 2-3/8"	Wgt. Hammer on Casing	300#	Symbol	a.	s.	l.	t.
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	Proportions	and	some	little	trace
Type Core Drill NX, BX	Drop Hammer on Casing	24"	% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10
Core Dia. 2-1/8", 1-5/8",	1-1/8" Spoon	30"	c-coarse	f-fine		m-medium	

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-18

Rt.: 31 Section: Line 5 Local Name: Sidehill Cut

Station: 1030+00 Offset: 25' R Reference Line: NB BL Ground Line Elevation: 560.0

Borings made by Sprague&Henwood Date Started: 6/29/72 El. G.W.T. 550.0 Date: 7/6

Inspector: G. Bayne Date Completed: 7/6 El. G.W.T. 527.4 Date: 7/7

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6 6/12 12/18	Rec.	Sample Identification and Profile Change	
		C-11	36.0	41.0	AX Core	59"	Gray GNEISS (fractured)	41.0
			Rec.=98%		RQD=	25%		
45		C-12	41.0	46.0	AX Core	54"	Gray GNEISS	
			Rec.=90%		RQD=	55%		
50		C-13	46.0	50.0	AX Core	48"	Same	50.0
			Rec.-100%		RQD=	71%	BOTTOM OF HOLE	

Notes:
(1) NX casing drilled-in 1.5 to 5'; BX casing drilled-in 5 to 10'.
(2) GNEISS boulder approxima tely 10' Diameter found beside the hole.
(3) Water lost at 28 to 30', ±10% return 39 to 50'.

Percolation Tests:
a. Hole at 28.5', casing at 10', flow to maintain constant water level at ground surface=12 cu ft/min.
b. Hole at 50', casing at 10', flow=12 cu ft/min.

(4) Observation well installed, perforated 1-1/4" I.D. plastic tubing 24' long.

I.D.Casing 3"&2-3/8	Wgt.Hammer on Casing	300#	Symbol	a.	s.	l.	t.
I.D.Spoon 1-3/8"	Wgt.Hammer on Spoon	140#	Proportions	and	some	little	trace
Type Core Drill NX BX	Drop Hammer on Casing	24"	% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10
Core Dia. 2-1/8, 1-5/8, 1"-1/8"	Spoon	30"	c-coarse	f-fine		m-medium	

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-4A

Rt.: 31 Section: Local Name:

Station: 1084+70 Offset: 2220' R Reference Line: NB BL Ground Line Elevation: 403.0

Borings made by Sprague&Henwood Date Started: 8/2/72 El. G.W.T. 400.7 Date: 8/4

Inspector: N. Cairme Date Completed: 8/4 El. G.W.T. 400.5 Date: 8/7

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
	5	S-1	0	1.5	1	1	1	6"	Gray f-SAND, a. (-) Silt	
	5									
	8									
	12									4.0
5	32									
	40	S-2	5.0	6.5	11	15	19	5"	Brown c-f GRAVEL, s. c-f Sand, t. Silt Note (1)	
	83									
	70									
	80									
	77									
10	67	S-3	10.0	11.2	36	38	100/2"	6"	Same	11.2
	370								Note (2)	
	440	C-1	11.2	14.5	NX Core			20"	BOULDERY MATERIAL (Gneiss, Dolomite, Quartzite fragments)	
	+500		Rec. = 50%							
	+500									
15	200	C-2	14.5	17.0	BX Core			16"	Same Note (3)	
	202		Rec. = 53%							
	200	C-3	17.0	18.0	BX Core			4"	Same Note (4)	
	205		Rec. = 33%							
	265	C-4	18.0	20.0	NX Core			14"	Same	
20			Rec. = 58%							
		C-5	20.0	25.0	NX Core			14"	(Gneiss fragments) Note (5)	
			Rec. = 23%							
25									Note (6)	
		C-6	25.0	30.0	BX Core			6"	(Gneiss, Dolomite fragments)	
			Rec. = 10%						Note (7)	
30										31.0
			31.0	32.5	23	13	22	0	Note (8)	
		S-4	32.5	34.0	20	23	19	3"	Gray c-f GRAVEL, s. c-f Sand, t. Silt	
35										
			37.5	39.0	21	35	52	0	Note (9)	
		S-5	39.0	40.5	21	42	36	8"	Gray m-f GRAVEL, l. c-f Sand, t. Silt	
40									BOTTOM OF HOLE	40.5

I.D. Casing 4" & 2-3/8" Wgt. Hammer on Casing

I.D. Spoon 1-3/8" Wgt. Hammer on Spoon

Type Core Drill NX BX Drop Hammer on Casing

Core Dia. 2-1/8" & 1-5/8" " Spoon

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10

c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-4A

Rt.: 31 Section: Local Name:

Station: 1084+70 Offset: 2220' R Reference Line: NB BL Ground Line Elevation: 403.0

Borings made by Sprague&Henwood Date Started: 8/2/72 El. G.W.T. 400.7 Date: 8/4

Inspector: N. Cairme Date Completed: 8/4 El. G.W.T. 400.5 Date: 8/7

Casing Blows	Sample NO. Depth	Blows on Spoon 0/6 6/12 12/18	Rec.	Sample Identification and Profile Change
				Notes: (1) 1-1/2" rock fragment at tip of spoon (2) 4" Casing used to 10'. Drilled ahead of casing 11.2 to 14.5' after taking Sample S-2, using NX bit. Steady hard drilling thru bouldery material. Core barrel blocked at 14.5', pulled out. (3) BX casing drilled-in to 17' after coring run C-2. Spoon sample attempted at 17' but bounced after third blow. (4) Bit burned up at end of coring run C-3. (5) BX casing pulled out after coring run C-4; 4" casing driven to 20' using cable. Spoon attempt at 25'. (6) BX casing drilled-in to 30' after coring runs C-5 and C-6. (7) Washed ahead of casing 30 to 31' and 34 to 37.5'. (8) Spoon blocked by a piece of gravel in two attempts. (9) Hole remained open after spoon driven 37.5 to 39'; redrove to 40.5'. (10) Perforated observation pipe installed: I.D. 1-1/4", length 35'.

Depth in Feet

I.D. Casing 4" & 2-3/8	Wgt. Hammer on Casing	Symbol	a.	s.	l.	t.
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	Proportions	and	some	little	trace
Type Core Drill NX BX	Drop Hammer on Casing	% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10
Core Dia. 2-3/8" & 1"-5/8"	" Spoon	c-coarse	f-fine		m-medium	

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-3

Rt.: 31 Section: Line 1 Local Name: Bridge over Axford Ave.

Station: 1033+80 Offset: 20' L Reference Line: SB BL Ground Line Elevation: 468.0

Borings made by Sprague & Henwood Date Started: 6/9/72 El. G.W.T. 424.3 Date: 6/13

Inspector: G. Bayne Date Completed: 6/13 El. G.W.T. 465.6 Date: 6/14

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
	3	S-1	0	1.5	2	3	3	12"	Yellow & Brown CLAYEY SILT, l. m-f Sand	
	5									
	7									
	12									
	16									
5	17	S-2	5.0	6.5	4	4	4	10"	Brown & Gray CLAYEY SILT, s. c-f Sand, t. f-Gravel	
	16									
	28									
	40									
	43									
10	27	S-3	10.0	11.5	6	9	10	13"	Gray SILT & CLAY	
	29									
	40									
	42									
	45									
15	43	S-4	15.0	16.5	7	9	11	15"	Same	
	45									
	51	S-5	17.0	18.5	10	10	13	10"	Same	
	48	S-6	18.5	20.0	9	11	12	15"	CLAY & SILT, t.(-) f-Sand	
	38									
20	46	S-7	20.0	21.5	12	12	13	12"	Same	
	39									
	44	S-8	21.5	23.0	11	15	20	15"	Same	
	50	S-9	23.0	24.5	3	2	3	12"	Same	
	55									
25	59	S-10	25.0	26.5	3	4	9	14"	Same	
	60									
	41	S-11	26.5	28.0	3	5	5	11"	Same	
	35	S-12	28.0	29.5	6	7	9	18"	CLAY & SILT	
	51									
30	43	S-13	30.0	31.5	8	10	10	11"	Same	
	47									
	56	S-14	32.0	33.5	3	5	10	9"	Same	33.0
	77									
35	90	S-15	34.0	35.5	12	15	26	12"	Brown m-f SAND, s. Silt	
	126									
	131	S-16	36.0	37.5	28	30	31	10"	Same	
	144									
	106	S-17	38.0	39.5	31	35	38	8"	Same	
40	93									

I.D. Casing 2-1/2"	Wgt. Hammer on Casing	300#	Symbol: a. and; s. some; l. little; t. trace
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	Proportions: and; some; little; trace
Type Core Drill	Drop Hammer on Casing	24"	% By Wgt.: 35 to 50; 20 to 35; 10 to 20; 1 to 10
Core Dia.	" " " Spoon	30"	c-coarse; f-fine; m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA — TEST HOLE NO. B-3

Rt.: 31 Section: Line 1 Local Name: Bridge over Axford Ave.

Station: 1033+80 Offset: 20' L Reference Line: SB BL Ground Line Elevation: 468.0

Borings made by: Sprague&Henwood Date Started: 6/9/72 El. G.W.T. 424.3 Date: 6/13

Inspector: G. Bayne Date Completed: 6/13 El. G.W.T. 465.6 Date: 6/14

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
	89	S-18	40.0	41.5	25	17	20	9"	Same	
	91									
	97	S-19	42.0	43.5	15	16	19	8"	Brown c-f SAND, t. Silt	
	102									
45	107	S-20	44.0	45.5	13	15	15	7"	Same	
	103									
	98	S-21	46.0	47.5	16	14	19	6"	Same	
	95									
	116	S-22	48.0	49.5	17	19	21	8"	Brown m-f SAND, s. Silt	
50	123									
	141	S-23	50.0	51.5	18	20	21	6"	Same	
	153									
	159		52.0	53.5	3	4	4	0"		
	166									
55	171		54.0	55.5	9	15	29	0"	Gray m-f SAND, s. Silt	
	177	S-24*						6"		
	193									
	92/6"								Gray c-f GRAVEL, a.c-f-Sand	
		S-25	57.5	59.0	12	20	23	3"	t. Silt	59.0
60									BOTTOM OF HOLE	
									*No recovery first attempt; overdrove 12".	

I.D.Casing 2-1/2"	Wgt.Hammer on Casing	300#	Symbol a. s. l. t.
I.D.Spoon 1-3/8"	Wgt.Hammer on Spoon	140#	Proportions and some little trace
Type Core Drill	Drop Hammer on Casing	24"	% By Wgt. 35 to 50 20 to 35 10 to 20 1 to 10
Core Dia.	" " " Spoon	30"	c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA

TEST HOLE NO. B-2

Rt.: 31 Section: Line 1 Local Name: Roadway Cut at Sykes Gap

Station: 995+10 Offset: 10' L Reference Line: SB BL Ground Line Elevation: 703.0

Borings made by: Sprague&Henwood Date Started: 6/19/72 El. G.W.T. 700.0 Date: 6/27

Inspector: J. G. Toth Date Completed: 6/27 El. G.W.T. 697.0 Date: 6/29

Depth in Feet	Casing Blows	Sample NO.	Depth		Blows on Spoon 0/6	6/12	12/18	Rec.	Sample Identification and Profile Change	
	7								6" Gray TOPSOIL	0.5
	9	S-1	0	1.5	3	3	2	18"	Yellow m-f SAND, a. Silt, l. f-Gravel	
	26									
	43									
5	68									
	48	S-2	5.0	6.5	11	16	19	18"	Yellow c-f SAND, s.(-) m-f Gravel, l. Clayey Silt	
	53									
	81									
	77									
10	69									
	70	S-3	10.0	11.5	19	18	12	8"	Yellow f-SAND, a. Clayey Silt, t. f-Gravel	
	94									
	77									
	112									
15	104									
	81	S-4	15.0	16.5	16	18	18	10"	Yellow c-f SAND, a. Clayey Silt	
	88									
	94									
	102									
20	70									
	83	S-5	20.0	21.5	25	29	34	12"	Yellow c-f SAND, a. Clayey Silt, t. f. Gravel	
	86									
	105									
	111									
25	109									
	43	S-6	25.0	26.5	22	27	35	8"	Yellow c-f SAND, a. m-f Gravel, t. Clayey Silt	
	52									
	65									
	86									
30	80									
	65	S-7	30.0	31.5	19	18	23	4"	Gray-Brown c-f SAND, l. Clayey Silt, t. m-f Gravel	
	102									
	115									
	106									
	87									
35	50	S-8	35.0	36.5	11	21	39	16"	Brown c-f SAND, s. m-f Gravel, l. Clayey Silt	
	78									
	66									
	35/6"	S-9	38.5	40.0	12	20	22	6"	Same	
40									BOTTOM OF HOLE	40.0

I.D.Casing 2-1/2"	Wgt.Hammer on Casing	300#	
I.D.Spoon 1-3/8"	Wgt.Hammer on Spoon	140#	
Type Core Drill	Drop Hammer on Casing	24"	
Core Dia.	" " " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10

c-coarse f-fine m-medium

EDWARDS AND KELCEY, INC.

SOILS ENGINEERING DIVISION

TEST BORING DATA — TEST HOLE NO. B-2

Rt.: 31 Section: Line 1 Local Name: Roadway Cut at Sykes Gap

Station: 995+10 Offset: 10' L Reference Line: SB BL Ground Line Elevation: 703.0

Borings made by: Sprague&Henwood Date Started: 6/19/72 El. G.W.T. 700.0 Date: 6/27

Inspector: J. G. Toth Date Completed: 6/27 El. G.W.T. 697.0 Date: 6/29

Casing Blows	Sample NO. Depth	Blows on Spoon 0/6 6/12 12/18	Rec.	Sample Identification and Profile Change
				Notes: (1) 4" casing driven 0 to 38.5'. (2) 3" saw-tooth bit used to clean out casing 31.5 to 38.5'. Gneiss cobbles recovered during cleanout from 31.5 to 35.0', and 36.5 to 38.5'.
				Percolation Test: Casing at 38.5', hole at 40.0'
				Elapsed Time in minutes — Drop in W.L. from ground level
				0 — 0
				1 — 1-1/4"
				3 — 3-1/4"
				5 — 6-3/4"
				15 — 13-3/4"
				30 — 28-1/2"
				(3) Perforated observation pipe installed: I.D. 1-1/4" length 35'.

Depth in Feet

I.D. Casing 2-1/2"	Wgt. Hammer on Casing	300#	
I.D. Spoon 1-3/8"	Wgt. Hammer on Spoon	140#	
Type Core Drill	Drop Hammer on Casing	24"	
Core Dia.	" " " Spoon	30"	

Symbol	a.	s.	l.	t.
Proportions	and	some	little	trace
% By Wgt.	35 to 50	20 to 35	10 to 20	1 to 10

c-coarse f-fine m-medium

Appendix N

Cost Estimates

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job	Route 31, Bridge over Furnace Brook		
Sheet No.	1	of	1
Calculated By	JS	Date	3/14/2013
Checked By		Date	
Scale	Project No.:	2009658.06	

Alternative No. 1

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	7	CY	$ 50.02	$ 350.14
202021P	REMOVAL OF PAVEMENT	52	SY	$ 8.11	$ 421.72
401009P	HMA MILLING, 3" OR LESS	447	SY	$ 100.37	$ 44,865.39
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	58	T	$ 70.87	$ 4,110.46
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	9	T	$ 1.22	$ 10.98
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	21	T	$ 6.60	$ 138.60
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	93	LF	$ 29.74	$ 2,765.82
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	2030	LF	$ 1.22	$ 2,476.60
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	180	SF	$ 5.56	$ 1,000.80
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16
				Subtotal from Trns-port	**$ 135,536.74**
Additional Items:					
	Multi-Girder Steel Beam				$ 1,066,184.38
				Sub-Total of Add'l Items	**$ 1,066,184.38**
				Estimated Cost	**$ 1,201,721.12**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 1

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,201,721

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$120,200

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$327,200

Cost Estimate Total	**$1,528,921**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 1

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$1,528,921	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$1,574,789**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$277,163**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$68,000**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$1,574,789	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$188,975**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$1,574,789
Construction Engineering (CE)	$277,163
Construction Change Order Contingencies	$68,000
Utilities Relocation Cost	$188,975
Total Construction Cost	**$2,108,926**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: JS Date: 3/14/2013
Checked By: Date:
Scale: Project No.: 2009658.06

Alternative No. 2

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	7	CY	$ 50.02	$ 350.14
202021P	REMOVAL OF PAVEMENT	52	SY	$ 8.11	$ 421.72
401009P	HMA MILLING, 3" OR LESS	447	SY	$ 100.37	$ 44,865.39
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	58	T	$ 70.87	$ 4,110.46
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	9	T	$ 1.22	$ 10.98
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	21	T	$ 6.60	$ 138.60
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	93	LF	$ 29.74	$ 2,765.82
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	2030	LF	$ 1.22	$ 2,476.60
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	180	SF	$ 5.56	$ 1,000.80
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16

Subtotal from Trns-port	**$ 135,536.74**

Additional Items:

Voided Slab Structure	$ 1,080,996.88
Sub-Total of Add'l Items	**$ 1,080,996.88**
Estimated Cost	**$ 1,216,533.62**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 2

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,216,534

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$121,700

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$328,700

Cost Estimate Total	**$1,545,234**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 2

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$1,545,234	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$1,591,591**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$280,120**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$68,700**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$1,591,591	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$190,991**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$1,591,591
Construction Engineering (CE)	$280,120
Construction Change Order Contingencies	$68,700
Utilities Relocation Cost	$190,991
Total Construction Cost	**$2,131,401**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: JS Date: 3/14/2013
Checked By: Date:
Scale: Project No.: 2009658.06
Alternative No. 3

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	7	CY	$ 50.02	$ 350.14
202021P	REMOVAL OF PAVEMENT	52	SY	$ 8.11	$ 421.72
401009P	HMA MILLING, 3" OR LESS	447	SY	$ 100.37	$ 44,865.39
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	58	T	$ 70.87	$ 4,110.46
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	9	T	$ 1.22	$ 10.98
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	21	T	$ 6.60	$ 138.60
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	93	LF	$ 29.74	$ 2,765.82
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	2030	LF	$ 1.22	$ 2,476.60
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	180	SF	$ 5.56	$ 1,000.80
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16
				Subtotal from Trns-port	**$ 135,536.74**
Additional Items:					
	Precast Rigid Frame Structure				$ 987,787.50
				Sub-Total of Add'l Items	**$ 987,787.50**
				Estimated Cost	**$ 1,123,324.24**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 3

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,123,324

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$112,400

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$319,400

Cost Estimate Total	**$1,442,724**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 3

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$1,442,724	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$1,486,006**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$261,537**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$64,400**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$1,486,006	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$178,321**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$1,486,006
Construction Engineering (CE)	$261,537
Construction Change Order Contingencies	$64,400
Utilities Relocation Cost	$178,321
Total Construction Cost	**$1,990,264**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: C. Marra Date: 6/21/2011
Checked By: Date:
Scale: Project No.: 2009658.06
Alternative No. 4

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	7	CY	$ 50.02	$ 350.14
202021P	REMOVAL OF PAVEMENT	360	SY	$ 8.11	$ 2,919.60
401009P	HMA MILLING, 3" OR LESS	447	SY	$ 100.37	$ 44,865.39
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	58	T	$ 70.87	$ 4,110.46
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	9	T	$ 1.22	$ 10.98
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	21	T	$ 6.60	$ 138.60
606012P	CONCRETE SIDEWALK, 4" THICK	146	SY	$ 68.61	$ 10,017.06
606039P	HOT MIX ASPHALT DRIVEWAY, 6" THICK	61	SY	$ 57.80	$ 3,525.80
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	517	LF	$ 29.74	$ 15,375.58
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	2090	LF	$ 1.22	$ 2,549.80
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	460	SF	$ 5.56	$ 2,557.60
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
804006P	TOPSOILING, 4" THICK	295	SY	$ 4.48	$ 1,321.60
806006P	FERTILIZING AND SEEDING, TYPE A-3	295	SY	$ 0.86	$ 253.70
809003M	STRAW MULCHING	295	SY	$ 0.71	$ 209.45
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16

Subtotal from Trns-port	**$ 167,601.99**

Additional Items:

Multi-Girder Steel Beam Structure	$ 1,066,184.38
Traffic Signal System	$ 250,000.00
Sub-Total of Add'l Items	**$ 1,316,184.38**
Estimated Cost	**$ 1,483,786.37**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 4

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,483,786

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$148,400

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$355,400

Cost Estimate Total	**$1,839,186**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 4

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$1,839,186	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$1,894,362**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$333,408**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$80,800**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$1,894,362	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$227,323**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$1,894,362
Construction Engineering (CE)	$333,408
Construction Change Order Contingencies	$80,800
Utilities Relocation Cost	$227,323
Total Construction Cost	**$2,535,893**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: C. Marra Date: 6/21/2011
Checked By: Date:
Scale: Project No.: 2009658.06
Alternative No. 5

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	7	CY	$ 50.02	$ 350.14
202021P	REMOVAL OF PAVEMENT	360	SY	$ 8.11	$ 2,919.60
401009P	HMA MILLING, 3" OR LESS	447	SY	$ 100.37	$ 44,865.39
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	58	T	$ 70.87	$ 4,110.46
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	9	T	$ 1.22	$ 10.98
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	21	T	$ 6.60	$ 138.60
606012P	CONCRETE SIDEWALK, 4" THICK	146	SY	$ 68.61	$ 10,017.06
606039P	HOT MIX ASPHALT DRIVEWAY, 6" THICK	61	SY	$ 57.80	$ 3,525.80
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	517	LF	$ 29.74	$ 15,375.58
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	2090	LF	$ 1.22	$ 2,549.80
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	460	SF	$ 5.56	$ 2,557.60
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
804006P	TOPSOILING, 4" THICK	295	SY	$ 4.48	$ 1,321.60
806006P	FERTILIZING AND SEEDING, TYPE A-3	295	SY	$ 0.86	$ 253.70
809003M	STRAW MULCHING	295	SY	$ 0.71	$ 209.45
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16

Subtotal from Trns-port	**$ 167,601.99**

Additional Items:

Voided Slab Structure	$ 1,080,996.88
Traffic Signal System	$ 250,000.00
Sub-Total of Add'l Items	**$ 1,330,996.88**
Estimated Cost	**$ 1,498,598.87**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 5

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,498,599

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$149,900

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$356,900

Cost Estimate Total	**$1,855,499**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 5

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$1,855,499	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$1,911,164**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$336,365**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$81,400**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$1,911,164	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$229,340**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$1,911,164
Construction Engineering (CE)	$336,365
Construction Change Order Contingencies	$81,400
Utilities Relocation Cost	$229,340
Total Construction Cost	**$2,558,268**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: C. Marra Date: 6/21/2011
Checked By: Date:
Scale: Project No.: 2009658.06
Alternative No. 6

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	7	CY	$ 50.02	$ 350.14
202021P	REMOVAL OF PAVEMENT	360	SY	$ 8.11	$ 2,919.60
401009P	HMA MILLING, 3" OR LESS	447	SY	$ 100.37	$ 44,865.39
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	58	T	$ 70.87	$ 4,110.46
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	9	T	$ 1.22	$ 10.98
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	21	T	$ 6.60	$ 138.60
606012P	CONCRETE SIDEWALK, 4" THICK	146	SY	$ 68.61	$ 10,017.06
606039P	HOT MIX ASPHALT DRIVEWAY, 6" THICK	61	SY	$ 57.80	$ 3,525.80
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	517	LF	$ 29.74	$ 15,375.58
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	2090	LF	$ 1.22	$ 2,549.80
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	460	SF	$ 5.56	$ 2,557.60
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
804006P	TOPSOILING, 4" THICK	295	SY	$ 4.48	$ 1,321.60
806006P	FERTILIZING AND SEEDING, TYPE A-3	295	SY	$ 0.86	$ 253.70
809003M	STRAW MULCHING	295	SY	$ 0.71	$ 209.45
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16

Subtotal from Trns-port	**$ 167,601.99**

Additional Items:

Precast Rigid Frame Structure	$ 987,787.50
Traffic Signal System	$ 250,000.00
Sub-Total of Add'l Items	**$ 1,237,787.50**
Estimated Cost	**$ 1,405,389.49**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 6

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,405,389

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$140,600

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$347,600

Cost Estimate Total	**$1,752,989**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 6

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$1,752,989	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$1,805,579**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$317,782**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$77,200**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$1,805,579	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$216,670**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$1,805,579
Construction Engineering (CE)	$317,782
Construction Change Order Contingencies	$77,200
Utilities Relocation Cost	$216,670
Total Construction Cost	**$2,417,231**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: C. Marra Date: 6/21/2011
Checked By: Date:
Scale: Project No.: 2009658.06
Alternative No. 7

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	147	CY	$ 50.02	$ 7,352.94
202021P	REMOVAL OF PAVEMENT	364	SY	$ 8.11	$ 2,952.04
302042P	DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK	550	SY	$ 52.02	$ 28,611.00
401009P	HMA MILLING, 3" OR LESS	990	SY	$ 100.37	$ 99,366.30
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	121	T	$ 70.87	$ 8,575.27
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	103	T	$ 1.22	$ 125.66
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	240	T	$ 6.60	$ 1,584.00
606012P	CONCRETE SIDEWALK, 4" THICK	146	SY	$ 7.60	$ 1,109.60
606039P	HOT MIX ASPHALT DRIVEWAY, 6" THICK	136	SY	$ 8.60	$ 1,169.60
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 9.60	$ 470.40
607018P	9" X 16" CONCRETE VERTICAL CURB	852	LF	$ 10.60	$ 9,031.20
608003P	NONVEGETATIVE SURFACE, HOT MIX ASPHALT	2989	SY	$ 25.55	$ 76,368.95
609003M	BEAM GUIDE RAIL	720	LF	$ 15.34	$ 11,044.80
609021M	RUB RAIL	720	LF	$ 6.80	$ 4,896.00
609024M	FLARED GUIDE RAIL TERMINAL	1	U	$ 2,349.55	$ 2,349.55
609039M	BEAM GUIDE RAIL ANCHORAGE	1	U	$ 741.67	$ 741.67
609075M	REMOVAL OF BEAM GUIDE RAIL	720	LF	$ 1.94	$ 1,396.80
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	6220	LF	$ 1.22	$ 7,588.40
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	900	SF	$ 5.56	$ 5,004.00
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
804006P	TOPSOILING, 4" THICK	565	SY	$ 4.48	$ 2,531.20
806006P	FERTILIZING AND SEEDING, TYPE A-3	565	SY	$ 0.86	$ 485.90
809003M	STRAW MULCHING	565	SY	$ 0.71	$ 401.15
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16

Subtotal from Trns-port	**$ 349,080.03**

Additional Items:

Multi-Girder Steel Beam Structure	$ 1,066,184.38
Traffic Signal System	$ 250,000.00
Sub-Total of Add'l Items	**$ 1,316,184.38**
Estimated Cost	**$ 1,665,264.41**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 7

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,665,264

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$166,600

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$373,600

Cost Estimate Total	**$2,038,864**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 7

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

	Y
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%	2.00

$2,038,864	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$2,100,030**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$369,605**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$89,000**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$2,100,030	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$252,004**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$2,100,030
Construction Engineering (CE)	$369,605
Construction Change Order Contingencies	$89,000
Utilities Relocation Cost	$252,004
Total Construction Cost	**$2,810,639**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: C. Marra Date: 6/21/2011
Checked By: Date:
Scale: Project No.: 2009658.06
Alternative No. 8

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	147	CY	$ 50.02	$ 7,352.94
202021P	REMOVAL OF PAVEMENT	364	SY	$ 8.11	$ 2,952.04
302042P	DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK	550	SY	$ 50.02	$ 27,511.00
401009P	HMA MILLING, 3" OR LESS	990	SY	$ 100.37	$ 99,366.30
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	121	T	$ 70.87	$ 8,575.27
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	103	T	$ 1.22	$ 125.66
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	240	T	$ 6.60	$ 1,584.00
606012P	CONCRETE SIDEWALK, 4" THICK	146	SY	$ 68.61	$ 10,017.06
606039P	HOT MIX ASPHALT DRIVEWAY, 6" THICK	136	SY	$ 57.80	$ 7,860.80
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	852	LF	$ 29.74	$ 25,338.48
608003P	NONVEGETATIVE SURFACE, HOT MIX ASPHALT	2989	SY	$ 25.55	$ 76,368.95
609003M	BEAM GUIDE RAIL	720	LF	$ 15.34	$ 11,044.80
609021M	RUB RAIL	720	LF	$ 6.80	$ 4,896.00
609024M	FLARED GUIDE RAIL TERMINAL	1	U	$ 2,349.55	$ 2,349.55
609039M	BEAM GUIDE RAIL ANCHORAGE	1	U	$ 741.67	$ 741.67
609075M	REMOVAL OF BEAM GUIDE RAIL	720	LF	$ 1.94	$ 1,396.80
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	6220	LF	$ 1.22	$ 7,588.40
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	900	SF	$ 5.56	$ 5,004.00
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
804006P	TOPSOILING, 4" THICK	565	SY	$ 4.48	$ 2,531.20
806006P	FERTILIZING AND SEEDING, TYPE A-3	565	SY	$ 0.86	$ 485.90
809003M	STRAW MULCHING	565	SY	$ 0.71	$ 401.15
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16

Subtotal from Trns-port	**$ 382,888.20**

Additional Items:

Voided Slab Structure	$ 1,080,996.88
Traffic Signal System	$ 250,000.00

Sub-Total of Add'l Items	**$ 1,330,996.88**
Estimated Cost	**$ 1,713,885.08**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 8

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,713,885

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

Choice	Amount
Class 1 North	$10,000

153003P **PROGRESS SCHEDULE**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

Choice	Amount
Class 1 North	$10,000

154003P **MOBILIZATION (Percent)**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

Choice	Amount
Class 1 North	$171,400

201003P **CLEARING SITE**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Choice	Amount
Class 1 North	$40,000

Lump Sum Item Total	$378,400

Cost Estimate Total	**$2,092,285**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 8

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$2,092,285	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$2,155,054**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$379,289**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$91,200**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$2,155,054	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$258,606**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$2,155,054
Construction Engineering (CE)	$379,289
Construction Change Order Contingencies	$91,200
Utilities Relocation Cost	$258,606
Total Construction Cost	**$2,884,150**
Right of Way Cost	Not Included

GREENMAN-PEDERSEN, INC.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Job: Route 31, Bridge over Furnace Brook
Sheet No.: 1 of 1
Calculated By: C. Marra Date: 6/21/2011
Checked By: Date:
Scale: Project No.: 2009658.06
Alternative No. 9

Item No.	Description	Quantity	Unit	Price	Amount
202009P	EXCAVATION, UNCLASSIFIED	147	CY	$ 50.02	$ 7,352.94
202021P	REMOVAL OF PAVEMENT	364	SY	$ 8.11	$ 2,952.04
302042P	DENSE-GRADED AGGREGATE BASE COURSE, 8" THICK	550	SY	$ 50.02	$ 27,511.00
401009P	HMA MILLING, 3" OR LESS	990	SY	$ 100.37	$ 99,366.30
401057M	HOT MIX ASPHALT 12.5 H 64 SURFACE COURSE	121	T	$ 70.87	$ 8,575.27
401087M	HOT MIX ASPHALT 19 H 64 INTERMEDIATE COURSE	103	T	$ 1.22	$ 125.66
401099M	HOT MIX ASPHALT 25 M 64 BASE COURSE	240	T	$ 6.60	$ 1,584.00
606012P	CONCRETE SIDEWALK, 4" THICK	146	SY	$ 68.61	$ 10,017.06
606039P	HOT MIX ASPHALT DRIVEWAY, 6" THICK	136	SY	$ 57.80	$ 7,860.80
606075P	CONCRETE ISLAND, 4" THICK	49	SY	$ 70.87	$ 3,472.63
607018P	9" X 16" CONCRETE VERTICAL CURB	852	LF	$ 29.74	$ 25,338.48
608003P	NONVEGETATIVE SURFACE, HOT MIX ASPHALT	2989	SY	$ 25.55	$ 76,368.95
609003M	BEAM GUIDE RAIL	720	LF	$ 15.34	$ 11,044.80
609021M	RUB RAIL	720	LF	$ 6.80	$ 4,896.00
609024M	FLARED GUIDE RAIL TERMINAL	1	U	$ 2,349.55	$ 2,349.55
609039M	BEAM GUIDE RAIL ANCHORAGE	1	U	$ 741.67	$ 741.67
609075M	REMOVAL OF BEAM GUIDE RAIL	720	LF	$ 1.94	$ 1,396.80
610003M	TRAFFIC STRIPES, LONG LIFE, EPOXY RESIN 4"	6220	LF	$ 1.22	$ 7,588.40
610009M	TRAFFIC MARKINGS, THERMOPLASTIC	900	SF	$ 5.56	$ 5,004.00
611069M	CRASH CUSHION, QUADGUARD, 4 BAYS, 24" WIDE	1	U	$ 15,000.00	$ 15,000.00
804006P	TOPSOILING, 4" THICK	565	SY	$ 4.48	$ 2,531.20
806006P	FERTILIZING AND SEEDING, TYPE A-3	565	SY	$ 0.86	$ 485.90
809003M	STRAW MULCHING	565	SY	$ 0.71	$ 401.15
159003M	BREAKAWAY BARRICADE	19	U	$ 23.85	$ 453.15
159006M	DRUM	31	U	$ 5.73	$ 177.63
159009M	TRAFFIC CONE	36	U	$ 3.19	$ 114.84
159012M	CONSTRUCTION SIGNS	353	SF	$ 10.87	$ 3,837.11
159015M	CONSTRUCTION IDENTIFICATION SIGN, 4' X 8'	2	U	$ 1,051.23	$ 2,102.46
159030M	PORTABLE VARIABLE MESSAGE SIGN	2	U	$ 5,033.33	$ 10,066.66
159108M	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION	3	U	$ 11,148.37	$ 33,445.11
159126M	TEMPORARY TRAFFIC STRIPES, 4"	7450	LF	$ 0.44	$ 3,278.00
610024M	REMOVAL OF RPM	59	U	$ 10.72	$ 632.48
610036M	REMOVAL OF TRAFFIC STRIPES	11752	LF	$ 0.58	$ 6,816.16

Subtotal from Trns-port	**$ 382,888.20**

Additional Items:

Precast Rigid Frame Structure	$ 987,787.50
Traffic Signal System	$ 250,000.00
Sub-Total of Add'l Items	**$ 1,237,787.50**
Estimated Cost	**$ 1,620,675.70**

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 9

LUMP SUM ITEMS

Cost Estimate Subtotal (from Trns-port)	$1,620,676

151003M **PERFORMANCE BOND AND PAYMENT BOND**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	7,500	6,500	9,000	8,000	5,000	5,500
1.0 to 5.0	27,000	24,500	25,000	20,000	15,000	15,000
5.0 to 10.0	50,000	48,000	42,500	35,000	20,000	25,000
10.0 to 20.0	105,000	75,000	70,000	65,000	40,000	35,000
20.0 to 30.0	152,000	120,000	200,000			
30.0 to 40.0	200,000	175,000	255,000			
40.0+	500,000	350,000	265,000			

Choice	Amount
Class 1 North	$27,000

161003P **FINAL CLEANUP**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	4,000	4,000	5,000	5,000
1.0 to 5.0	75,000	75,000	5,000	5,000	7,500	7,500
5.0 to 10.0	15,000	15,000	10,000	10,000	8,000	8,000
10.0 to 20.0	17,500	17,500	12,500	12,500	10,000	10,000
20.0 to 30.0	20,000	20,000	15,000	15,000		
30.0 to 40.0	22,000	22,000	20,000	20,000		
40.0+	35,000	35,000	25,000	25,000		

Choice	Amount
Class 1 North	$75,000

157003M **CONSTRUCTION LAYOUT**

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	17,500	27,500	25,000	25,000	20,000	15,000
1.0 to 5.0	45,000	50,000	40,000	35,000	25,000	20,000
5.0 to 10.0	165,000	155,000	50,000	40,000	30,000	25,000
10.0 to 20.0	3,000	250,000	100,000	50,000	35,000	30,000
20.0 to 30.0	450,000	425,000	550,000			
30.0 to 40.0	500,000	450,000	650,000			
40.0+	750,000	750,000	750,000			

Choice	Amount
Class 1 North	$45,000

152003P **OWNER'S & CONTRACTORS PROTECTIVE LIABILITY INSURANCE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	3,500	5,000	5,000
1.0 to 5.0	10,000	9,000	6,000	6,000	10,000	10,000
5.0 to 10.0	17,500	13,500	10,000	10,000	12,500	12,500
10.0 to 20.0	30,000	20,000	15,000	20,000	15,000	15,000
20.0 to 30.0	50,000	30,000	40,000			
30.0 to 40.0	55,000	35,000	50,000			
40.0+	100,000	70,000	60,000			

153003P **PROGRESS SCHEDULE**

Choice	Amount
Class 1 North	$10,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	5,000	5,000	5,000	5,000	5,000	5,000
1.0 to 5.0	10,000	10,000	75,000	75,000	6,000	6,000
5.0 to 10.0	2,000	2,000	10,000	10,000	75,000	75,000
10.0 to 20.0	30,000	30,000	15,000	15,000		
20.0 to 30.0	50,000	50,000	20,000	20,000		
30.0 to 40.0	55,000	55,000	30,000	30,000		
40.0+	60,000	60,000	35,000	35,000		

154003P **MOBILIZATION (Percent)**

Choice	Amount
Class 1 North	$162,100

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	10%	10%	10%	10%	10%	10%
1.0 to 5.0	10%	10%	10%	10%	10%	10%
5.0 to 10.0	12%	12%	12%	12%	12%	12%
10.0 to 20.0	12%	12%	12%	12%		
20.0 to 30.0	14%	14%	14%	14%		
30.0 to 40.0	14%	14%	14%	14%		
40.0+	15%	15%	15%	15%		

201003P **CLEARING SITE**

Choice	Amount
Class 1 North	$40,000

Project Cost (Mil.)	Class 1, 2, 6 North	Class 1, 2, 6 South	Class 3, 4, 7 North	Class 3, 4, 7 South	Class 5 North	Class 5 South
Less than 1.0	20,000	20,000	25,000	25,000	10,000	10,000
1.0 to 5.0	40,000	40,000	30,000	30,000	15,000	15,000
5.0 to 10.0	110,000	110,000	50,000	75,000	20,000	20,000
10.0 to 20.0	275,000	275,000	60,000	80,000		
20.0 to 30.0	300,000	300,000	200,000	200,000		
30.0 to 40.0	325,000	325,000	300,000	300,000		
40.0+	500,000	500,000	500,000	500,000		

Lump Sum Item Total	$369,100

Cost Estimate Total	**$1,989,776**

Cost Estimate Summary

Route 31, Bridge over Furnace Brook
Township of Oxford, Warren County
Alternative No. 9

CLASSIFICATION NO. 1- NEW CONSTRUCTION

CONTINGENCIES & ESCALATION

		Y	
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%		2.00	
$1,989,776	1.030	1.00	
Project Total (Trns-port)	Contingencies (1 + C)	1 + [0.01 (Y+1) (Y-2)]	
Construction Cost Estimate		=	**$2,049,469**

Project Cost (Mil.)	Contingencies (C)	Average Construction Duration in Years
0-10	3.0%	1
10-20	2.5%	2
20-50	2.0%	3
Over 50	1.5%	4

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	Percent of Construction Cost
Less than 1.0	28.40%
1.0 to 5.0	17.60%
5.0 to 10.0	12.20%
10.0 & above	9.50%

CONSTRUCTION ENGINEERING AMOUNT	=	**$360,707**

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount
$0 to 0.1	$6,000
0.1 to 0.5	$25,000
0.5 to 5.0	$25,000 + 4% of amount in excess of $500,000
5.0 to 10.0	$205,000 + 3% of amount in excess of $5,000,000
10.0 to 15.0	$355,000 + 2% of amount in excess of $10,000,000
15.0 and above	$500,000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT	=	**$87,000**

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$2,049,469	0.12
Construction Cost for Initial Estimate	Use percent or utilities detailed estimate (for Urban use 0.12, Rural 0.055 or + Estimate)

UTILITIES RELOCATION COST	=	**$245,936**

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST	=	**Not Included**

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Cost Estimate	$2,049,469
Construction Engineering (CE)	$360,707
Construction Change Order Contingencies	$87,000
Utilities Relocation Cost	$245,936
Total Construction Cost	**$2,743,112**
Right of Way Cost	Not Included

GPI
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Project:	NJ Route 31 over Furnace Brook		
Sheet No:		of	
Created by:	RJA	Date:	2/26/2012
Checked By:	LL	Date:	2/28/2012

CONCEPT DEVELOPMENT - COST ESTIMATE

STRUCTURE NO. 2111-154 - VOIDED SLAB

ITEM NO.	UNIT CODE	ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST
-	-	DEMOLITION	LS	1	$ 200,000.00	$ 200,000.00
-	-	REINFORCEMENT STEEL	POUND	37,100	$ 2.00	$ 74,200.00
-	-	REINFORCEMENT STEEL, EPOXY COATED	POUND	18,650	$ 2.15	$ 40,097.50
-	-	CONCRETE IN FOOTINGS	CY	260	$ 400.00	$ 104,000.00
-	-	CONCRETE IN ABUTMENT	CY	190	$ 600.00	$ 114,000.00
-	-	BEARINGS	EACH	48	$ 800.00	$ 38,400.00
-	-	CONCRETE IN WINGWALLS	CY	30	$ 600.00	$ 18,000.00
-	-	VOIDED SLAB (4' SECTIONS)	LF	765	$ 250.00	$ 191,250.00
-	-	CONCRETE IN DECK, HPC	CY	72	$ 800.00	$ 57,600.00
-	-	CONCRETE IN PARAPET, HPC	LF	101	$ 250.00	$ 25,250.00
-	-	CONCRETE IN SIDEWALK, HPC	CY	5	$ 400.00	$ 2,000.00

Total Cost =	$864,797.50
+ 25% Contingency:	$216,199.38
Total Cost =	**$1,080,996.88**

GPI
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Project:	NJ Route 31 over Furnace Brook		
Sheet No:		of	
Created by:	RJA	Date:	2/26/2012
Checked By:	LL	Date:	2/29/2012

CONCEPT DEVELOPMENT - COST ESTIMATE

STRUCTURE NO. 2111-154 - SLAB ON STEEL GIRDER

ITEM NO.	UNIT CODE	ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST
-	-	DEMOLITION	LS	1	$ 200,000.00	$ 200,000.00
-	-	REINFORCEMENT STEEL	POUND	37,100	$ 2.00	$ 74,200.00
-	-	REINFORCEMENT STEEL, EPOXY COATED	POUND	18,650	$ 2.15	$ 40,097.50
-	-	CONCRETE IN FOOTINGS	CY	350	$ 400.00	$ 140,000.00
-	-	CONCRETE IN ABUTMENTS	CY	250	$ 600.00	$ 150,000.00
-	-	STRUCTURAL STEEL	POUND	38,500	$ 2.00	$ 77,000.00
-	-	BEARINGS	EACH	26	$ 2,400.00	$ 62,400.00
-	-	CONCRETE IN WINGWALLS	CY	30	$ 600.00	$ 18,000.00
-	-	CONCRETE IN DECK, HPC	CY	80	$ 800.00	$ 64,000.00
-	-	CONCRETE IN PARAPET, HPC	LF	101	$ 250.00	$ 25,250.00
-	-	CONCRETE IN SIDEWALK, HPC	CY	5	$ 400.00	$ 2,000.00

Total Cost =	$852,947.50
+ 25% Contingency:	$213,236.88
Total Cost =	**$1,066,184.38**

GPI
100 Corporate Drive, Suite 301
Lebanon, NJ 08833
(908) 236-9001

Project:	NJ Route 31 over Furnace Brook		
Sheet No:		of	
Created by:	RJA	Date:	2/26/2012
Checked By:	LL	Date:	2/28/2012

CONCEPT DEVELOPMENT - COST ESTIMATE

STRUCTURE NO. 2111-154 - PRECAST RIGID FRAME

ITEM NO.	UNIT CODE	ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST
-	-	DEMOLITION	LS	1	$ 200,000.00	$ 200,000.00
-	-	REINFORCEMENT STEEL	POUND	5,910	$ 2.00	$ 11,820.00
-	-	REINFORCEMENT STEEL, EPOXY COATED	POUND	18,400	$ 2.15	$ 39,560.00
-	-	CONCRETE IN FOOTINGS	CY	50	$ 400.00	$ 20,000.00
-	-	CONCRETE IN WINGWALLS	CY	30	$ 600.00	$ 18,000.00
-	-	PRECAST CONCRETE CULVERT (RIGID FRAME)	LF	105	$ 4,000.00	$ 420,000.00
-	-	CONCRETE IN DECK, HPC	CY	67	$ 800.00	$ 53,600.00
-	-	CONCRETE IN PARAPET, HPC	LF	101	$ 250.00	$ 25,250.00
-	-	CONCRETE IN SIDEWALK, HPC	CY	5	$ 400.00	$ 2,000.00

Total Cost =	$790,230.00
+ 25% Contingency:	$197,557.50
Total Cost =	**$987,787.50**

Appendix O

Alternatives Matrix

ALT.	ALTERNATIVE DESCRIPTION[1]	MEETS PURPOSE AND NEED	RIGHT OF WAY IMPACTS				ACCESS IMPACTS		ENVIRONMENTAL IMPACTS	STORMWATER MANAGEMENT	UTILITY IMPACTS	ESTIMATED CONSTRUCTION COST[2] AND DURATION[3]	ADVANTAGES	DISADVANTAGES
			No. Parcels	Block	Lot	Taking Area ± F - Full (SF) P - Partial (SF)	No. DRWY	Alteration Type						
1	Multi-Girder Steel Beam superstructure composite; reinforced concrete deck slab; work limited to structure only.	Yes	6	Temporary construction and permanent utility easements			0	--	Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	2 TS poles 4 poles	$2,109,000 15 months	• Allow for flexibility to accommodate bridge footprint	• High future maintenance costs • Reduced hydraulic performance compared to other alternatives • Does not address conditions at the intersection or lack of aux. lane
2	Voided Slab superstructure; reinforced concrete wearing surface; work limited to structure only.	Yes	6	Temporary construction and permanent utility easements			0	--	Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	2 TS poles 4 poles	$2,132,000 15 months	• Satisfies hydraulic opening and structure depth requirements • Can be jointless due to short span length	• Due to footprint, several units would be spread apart at one end with reinforced concrete deck spanning opening • Does not address conditions at the intersection or lack of aux. lane
3	Precast Concrete Rigid Frame structure; conc. wearing surface; work limited to structure only.	Yes	6	Temporary construction and permanent utility easements			0	--	Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	2 TS poles 4 poles	$1,991,000 10 months	• Constructed in controlled environment, improving quality and longevity • Lower initial and future maintenance costs • Shorter construction duration • Greater flexibility to accommodate bridge footprint	• Does not address conditions at the intersection or lack of aux. lane
4	Multi-Girder Steel Beam superstructure composite; reinforced concrete deck slab; structure & bike/ped accommodations at signal.	Yes	7	Temporary construction and permanent utility easements			2	Adj.	Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	5 poles	$2,536,000 16 months	• Allow for flexibility to accommodate bridge footprint • Address conditions at the intersection	• High future maintenance costs • Reduced hydraulic performance compared to other alternatives • Does not address lack of aux. lane
5	Voided Slab superstructure; reinforced concrete wearing surface; structure & bike/ped accommodations at signal.	Yes	7	Temporary construction and permanent utility easements			2	Adj.	Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance	5 poles	$2,559,000 16 months	• Satisfies hydraulic opening and structure depth requirements • Can be jointless due to short span length • Address conditions at the intersection	• Due to footprint, several units would be spread apart at one end with reinforced concrete deck spanning opening • Does not ddress lack of aux. lane
6	Precast Concrete Rigid Frame structure; conc. wearing surface; structure & bike/ped accommodations at signal.	Yes	7	Temporary construction and permanent utility easements			2	Adj.	Minimal impacts due to grading	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	5 poles	$2,418,000 11 months	• Constructed in controlled environment, improving quality and longevity • Lower initial and future maintenance costs • Shorter construction duration • Greater flexibility to accommodate bridge footprint	• Does not ddress lack of aux. lane
7	Multi-Girder Steel Beam superstructure composite; reinforced concrete deck slab; structure, bike/ped accommodations at signal & std. aux. lane along Rt 31 NB.	Yes	10	Temporary construction and permanent utility / slope easements			4	Adj. (2)	Minimal impacts due to grading; potential Section 4(f) involvement	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	6 poles	$2,811,000 17 months	• Allow for flexibility to accommodate bridge footprint	• High future maintenance costs • Reduced hydraulic performance compared to other alternatives
8	Voided Slab superstructure; reinforced concrete wearing surface; structure, bike/ped accommodations at signal & std. aux. lane along Rt 31 NB.	Yes	10	Temporary construction and permanent utility / slope easements			4	Adj. (2)	Minimal impacts due to grading; potential Section 4(f) involvement	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	6 poles	$2,885,000 17 months	• Satisfies hydraulic opening and structure depth requirements • Can be jointless due to short span length	• Due to footprint, several units would be spread apart at one end with reinforced concrete deck spanning opening
9	Precast Concrete Rigid Frame structure; conc. wearing surface; Structure, bike/ped accommodations at signal & std. aux. lane along Rt 31 NB.	Yes	10	Temporary construction and permanent utility / slope easements			4	Adj. (2)	Minimal impacts due to grading; potential Section 4(f) involvement	Net increase impervious < ¼ ac.; Disturbance < 1 ac.	6 poles	$2,744,000 12 months	• Constructed in controlled environment, improving quality and longevity • Lower initial and future maintenance costs • Shorter construction duration • Greater flexibility to accommodate bridge footprint	• Does not address all CSDE; will require Design Exception
	No-Build	No	None				None		None	None	None	$0	No proposed improvements are implemented within the project limits. It is intended that this alternative serve as a reference for comparison to each of the other proposed alternatives. This alternative does not address the project need.	

[1] See *Project Fact Sheet* or *Concept Development Report* for more information.
[2] Construction cost estimate does not include ROW or utility relocation costs.
[3] Construction duration is for actual bridge and roadway construction and does not include pre-stage or utility work.

Appendix P

Preliminary Preferred Alternative (PPA)

TOWNSHIP OF OXFORD

COUNTY OF WARREN

40′ 20′ 0 40′ 80′

535′ GUIDE RAIL

ROUTE 31

300′ TAPER

SLOPE EASEMENT
4,383 SF, 0.101 AC.

760′ AUXILIARY LANE

WASHINGTON AVENUE

BLOCK 42
LOT 13

BLOCK 42
LOT 14

BLOCK 42
LOT 14.01

BLOCK 45
LOT 1

BLOCK 44
LOT 1

WALL STREET

Furnace Brook

15′ SEWER EASEMENT

BLOCK 42
LOT 5

BLOCK 42
LOT 2

BLOCK 42
LOT 1

WALL STREET

BLOCK 41
LOT 5

BLOCK 41
LOT 4

ROUTE 31

R=11′

R=80′

BLOCK 6
LOT 7

BLOCK 6
LOT 6

15′ SEWER

Furnace Brook

BLOCK 6
LOT 8

BLOCK 6
LOT 16

KENT STREET

PROPOSED FINAL CONDITIONS

LEGEND

- EXISTING FEATURES
- FURNACE BROOK
- PROPOSED FEATURES
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- LIMIT OF GRADING
- PROPOSED HANDICAP RAMPS
- PROPOSED TOPSOIL & SEED
- PROPOSED PAVEMENT
- PROPOSED DRIVEWAYS
- PROPOSED GUIDE RAIL/ IMPACT ATTENUATOR
- EXISTING GUIDE RAIL REMOVAL

DEPARTMENT OF TRANSPORTATION
THE STATE OF NEW JERSEY

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

ROUTE 31, BRIDGE OVER FURNACE BROOK

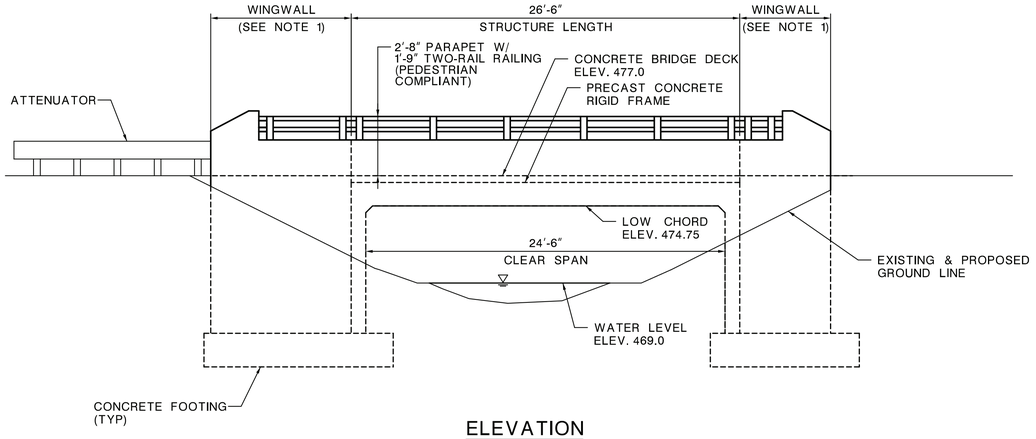
CONCEPT DEVELOPMENT

Township of Oxford, Warren County

PRELIMINARY PREFERRED ALTERNATIVE

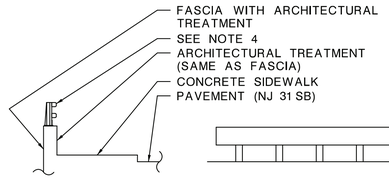
NJDOT Division of Project Management

Scale: 1" = 40′ Date: July 2013



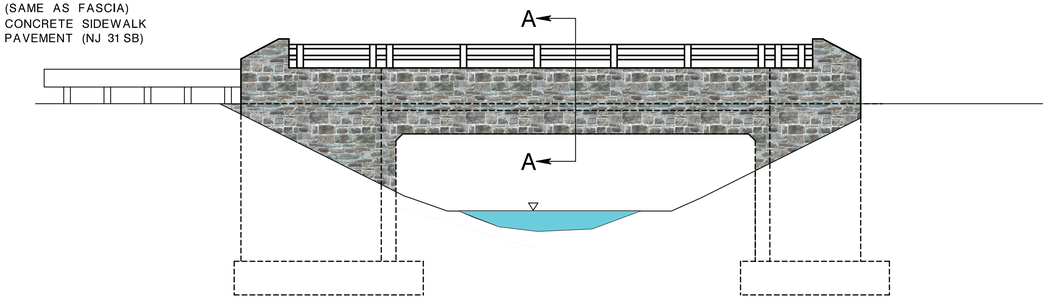
ELEVATION

(UPSTREAM ELEVATION)
3/16"=1'-0"



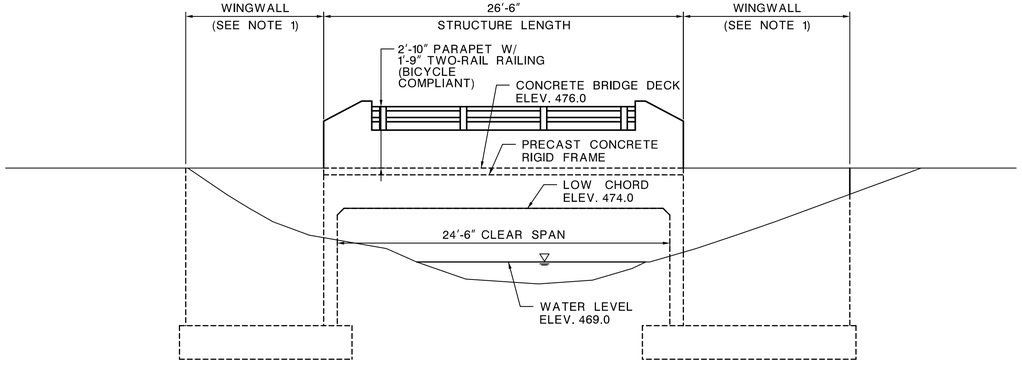
SECTION A-A

(UPSTREAM PARAPET)
3/16"=1'-0"



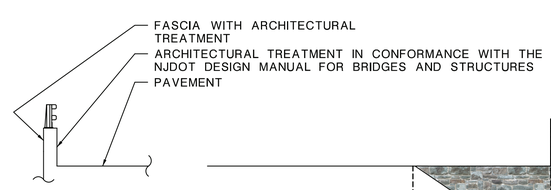
ELEVATION

(UPSTREAM ELEVATION)
3/16"=1'-0"



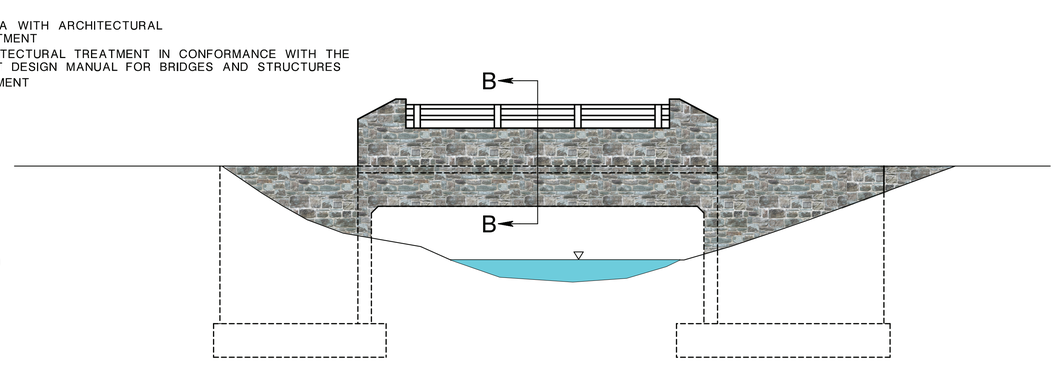
ELEVATION

(DOWNSTREAM ELEVATION)
3/16"=1'-0"



SECTION B-B

(DOWNSTREAM PARAPET)
3/16"=1'-0"



ELEVATION

(DOWNSTREAM ELEVATION)
3/16"=1'-0"

NOTES:

1. WINGWALLS SHOWN ARE CAST-IN-PLACE CONCRETE. HOWEVER, STEEL SHEET PILING OR OTHER ALTERNATIVES MAY ALSO BE SPECIFIED.
2. DIMENSIONS ARE MEASURED PERPENDICULAR TO STRUCTURE AND NOT ALONG THE BASELINE.
3. ALL ELEVATIONS ARE APPROXIMATE.
4. TWO RAILS PROVIDED AS REQUESTED BY SHPO. ONLY ONE RAIL REQUIRED FOR PEDESTRIAN COMPLIANCE AS PER NJDOT STANDARD DETAILS.

20' 0 20' 40'

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

ROUTE 31 OVER FURNACE BROOK
CONCEPT DEVELOPMENT

OXFORD TOWNSHIP, WARREN COUNTY

PRECAST CONCRETE RIGID FRAME
GENERAL PLAN, ELEVATION, AND SECTION

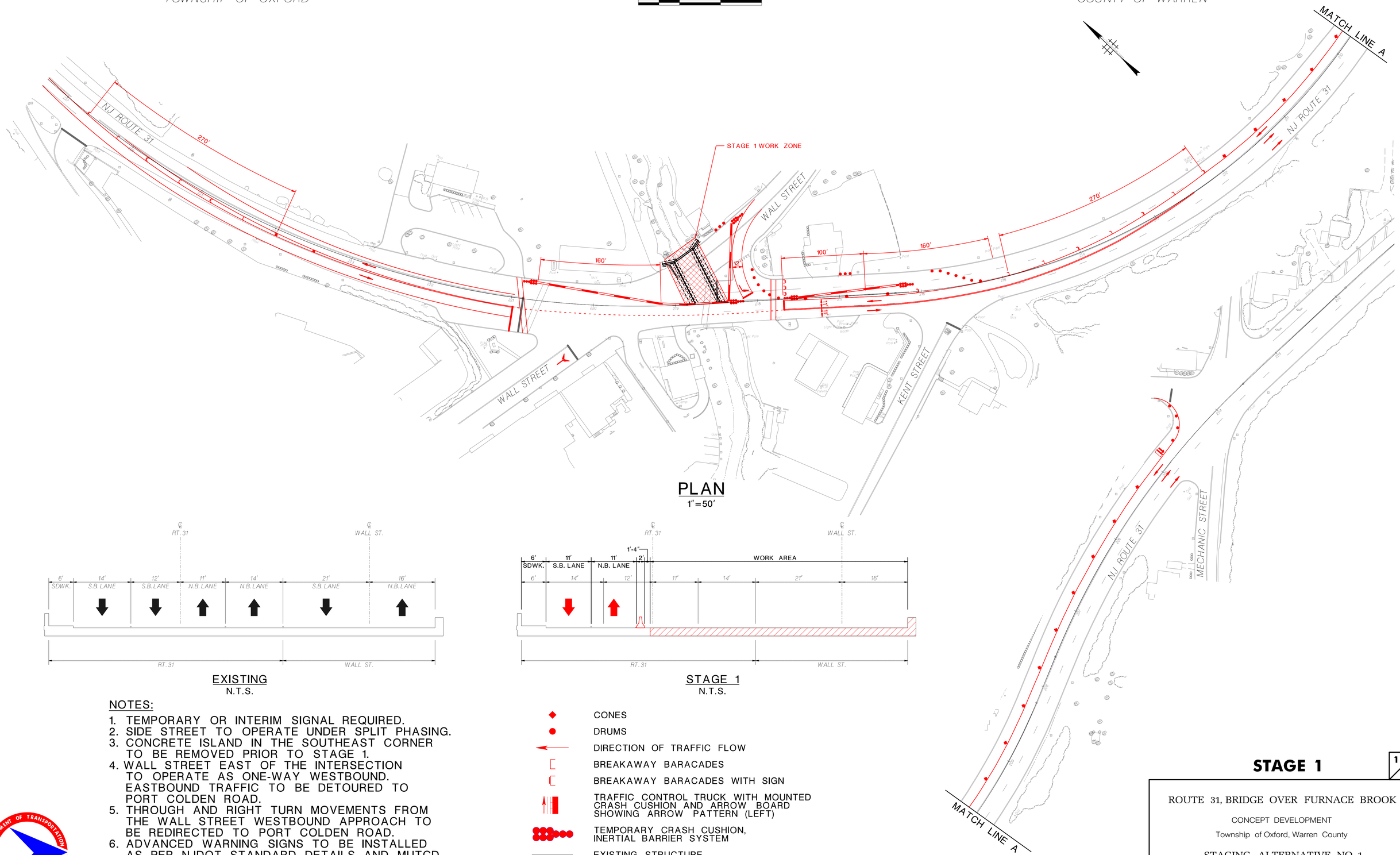
Division of Project Development

Scale: AS NOTED Date: March 2012

TOWNSHIP OF OXFORD

50′ 0 50′ 100′

COUNTY OF WARREN



PLAN
1″=50′

EXISTING
N.T.S.

STAGE 1
N.T.S.

NOTES:

1. TEMPORARY OR INTERIM SIGNAL REQUIRED.
2. SIDE STREET TO OPERATE UNDER SPLIT PHASING.
3. CONCRETE ISLAND IN THE SOUTHEAST CORNER TO BE REMOVED PRIOR TO STAGE 1.
4. WALL STREET EAST OF THE INTERSECTION TO OPERATE AS ONE-WAY WESTBOUND. EASTBOUND TRAFFIC TO BE DETOURED TO PORT COLDEN ROAD.
5. THROUGH AND RIGHT TURN MOVEMENTS FROM THE WALL STREET WESTBOUND APPROACH TO BE REDIRECTED TO PORT COLDEN ROAD.
6. ADVANCED WARNING SIGNS TO BE INSTALLED AS PER NJDOT STANDARD DETAILS AND MUTCD.

- CONES
- DRUMS
- DIRECTION OF TRAFFIC FLOW
- BREAKAWAY BARACADES
- BREAKAWAY BARACADES WITH SIGN
- TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING ARROW PATTERN (LEFT)
- TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- TO BE REMOVED UNDER STAGE SHOWN

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

STAGE 1

1/1

ROUTE 31, BRIDGE OVER FURNACE BROOK

CONCEPT DEVELOPMENT

Township of Oxford, Warren County

STAGING ALTERNATIVE NO. 1

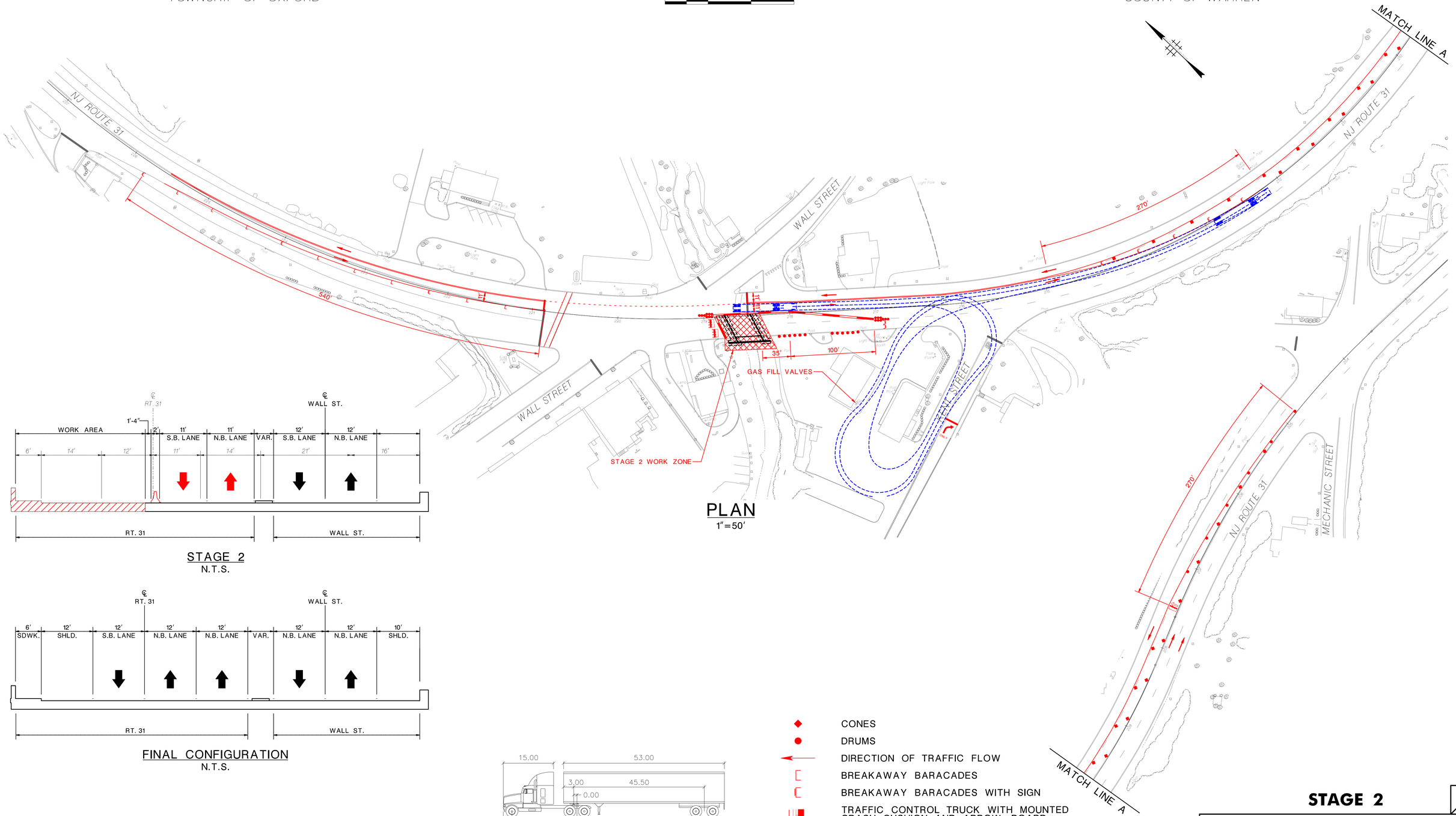
NJDOT Division of Project Management

Scale: 1″=50′ Date: July 2013

TOWNSHIP OF OXFORD

50′ 0 50′ 100′

COUNTY OF WARREN



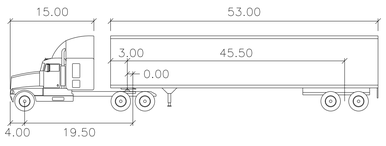
PLAN
1″=50′

STAGE 2
N.T.S.

FINAL CONFIGURATION
N.T.S.

NOTES:

1. TEMPORARY OR INTERIM SIGNAL REQUIRED.
2. ADVANCED WARNING SIGNS TO BE INSTALLED AS PER NJDOT STANDARD DETAILS AND MUTCD.



WB–67 feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

DESIGN VEHICLE DIMENSIONS
N.T.S.

- CONES
- DRUMS
- DIRECTION OF TRAFFIC FLOW
- BREAKAWAY BARACADES
- BREAKAWAY BARACADES WITH SIGN
- TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING ARROW PATTERN (RIGHT)
- TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- TO BE REMOVED UNDER STAGE SHOWN
- TRUCK TURNING PATH

DEPARTMENT OF TRANSPORTATION THE STATE OF NEW JERSEY

GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

STAGE 2

1/1

ROUTE 31, BRIDGE OVER FURNACE BROOK

CONCEPT DEVELOPMENT

Township of Oxford, Warren County

STAGING ALTERNATIVE NO. 1

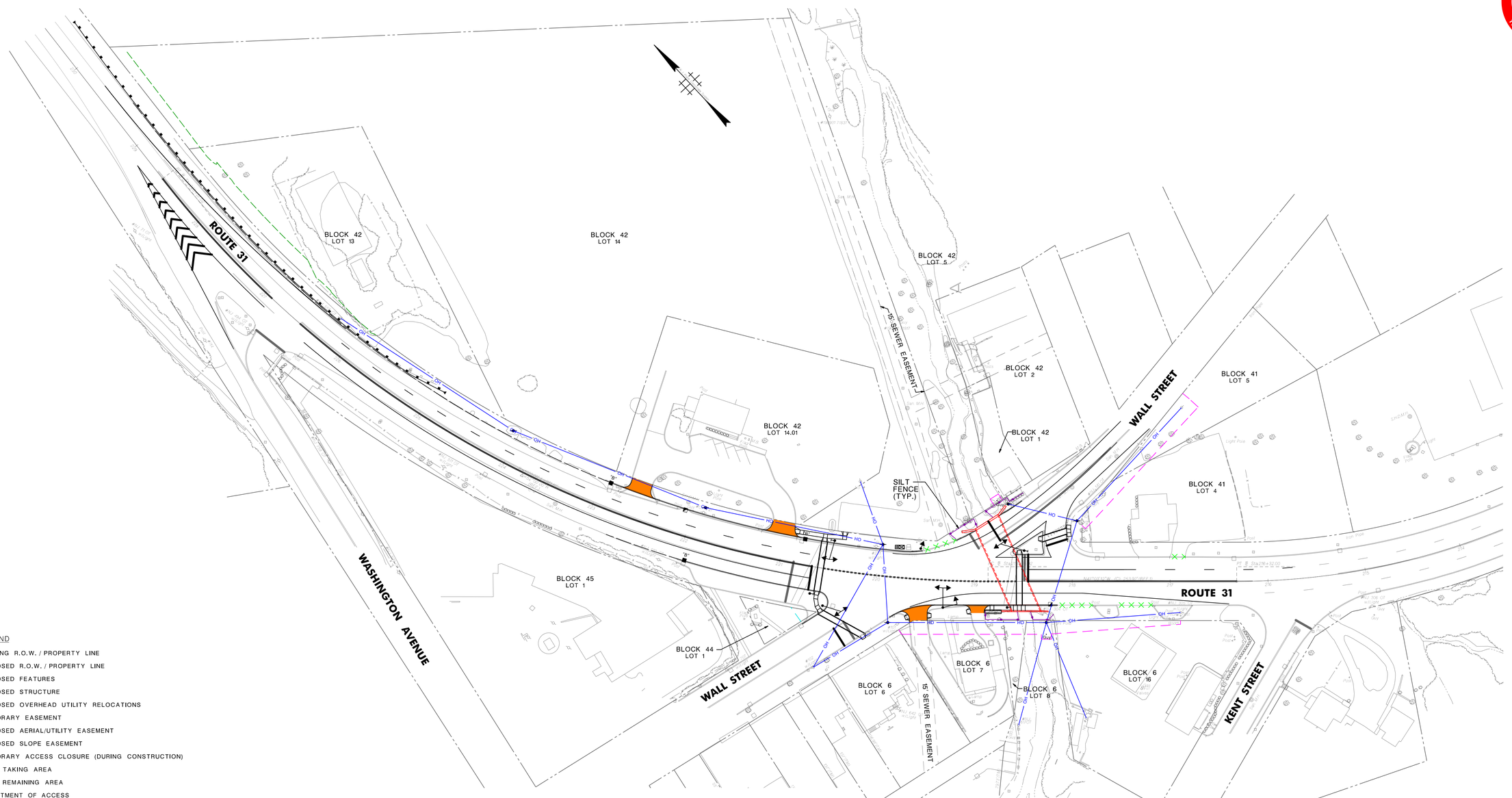
NJDOT Division of Project Management

Scale: 1″=50′ Date: July 2013

TOWNSHIP OF OXFORD

50′ 0 50′ 100′

COUNTY OF WARREN



LEGEND

- EXISTING R.O.W. / PROPERTY LINE
- PROPOSED R.O.W. / PROPERTY LINE
- PROPOSED FEATURES
- PROPOSED STRUCTURE
- OH — PROPOSED OVERHEAD UTILITY RELOCATIONS
- TEMPORARY EASEMENT
- PROPOSED AERIAL/UTILITY EASEMENT
- PROPOSED SLOPE EASEMENT
- TEMPORARY ACCESS CLOSURE (DURING CONSTRUCTION)
- R.O.W. TAKING AREA
- R.O.W. REMAINING AREA
- ADJUSTMENT OF ACCESS

BLOCK	LOT	TOTAL AREA Acres	R.O.W. TAKING Acres	REMAINING AREA Acres	TEMPORARY EASEMENT SF (Acres)	AERIAL/UTILITY EASEMENT SF (Acres)	SLOPE EASEMENT SF (Acres)	MUNICIPAL LOCATION	ACCESS ACTION ANTICIPATED	REMARKS	PROPERTY OWNER/ LOCATION
6	7	0.210	-	0.210	-	1,434 (0.033)	-	Oxford Twp.	Adjustment	4A-Commercial	Skyland Community Bank c/o Fulton NJ/ 157 Route 31, Oxford, NJ
6	8	0.030	-	0.030	-	469(0.011)	-	Oxford Twp.	None	1-Vacant	Skyland Community Bank c/o Fulton NJ/ 157 Route 31, Oxford, NJ
6	15	0.880	-	0.880	-	417 (0.009)	-	Oxford Twp.	None	15F-Unk/Vacant	Oxford Township/ 22 Kent Road, Oxford, NJ
6	16	0.580	-	0.580	-	1,106 (0.025)	-	Oxford Twp.	None	4A-Commercial	Oostdyk, Ray M./ 149 Route 31, Oxford, NJ
41	4	0.790	-	0.790	-	1,013 (0.023)	-	Oxford Twp.	None	4A-Commercial	Davemart LLC, Glen Gardner, NJ/ 150 Route 31, Oxford, NJ
41	5	0.410	-	0.410	-	1,767 (0.041)	-	Oxford Twp.	None	2-Residential	Dalrymple, Daniel C./ 21 Wall Street, Oxford, NJ
42	5	3.360	-	3.360	-	68 (0.002)	-	Oxford Twp.	None	1-Vacant	MNV Holdings, Inc. / 20 Wall Street, Oxford, NJ
42	13	0.720	-	0.720	-	-	2,498 (0.057)	Oxford Twp.	None	1-Vacant	Oxtech Ind., Inc. (TSC 94) TTL, Port Murray, NJ/ 186 Route 31, Oxford, NJ
42	14	4.200	-	4.200	-	-	1,374 (0.032)	Oxford Twp.	None	15F-Unk/Ball Field	Oxford Township/ 374 Route 31, Oxford, NJ
44	1	0.040	-	0.040	165 (0.004)	-	-	Oxford Twp.	None	15F-Unk/Vacant	Oxford Township/ 4 Wall Street, Oxford, NJ

ROUTE 31, BRIDGE OVER FURNACE BROOK

CONCEPT DEVELOPMENT

Township of Oxford, Warren County

RIGHT OF WAY & ACCESS IMPACT PLAN

NJDOT Division of Project Management

Scale: 1" = 50′ Date: November 2013

Appendix Q

Hydrology & Hydraulics Analysis

PRELIMINARY HYDROLOGY & HYDRAULIC REPORT

FOR

THE STRUCTURE REPLACEMENT OF

Route 31 Bridge over Furnace Brook

Township of Oxford, Warren County, NJ

Prepared for:
New Jersey Department of Transportation
1035 Parkway Avenue
Trenton, New Jersey, 08625

Prepared by:

Greenman-Pedersen, Inc.
100 Corporate Drive, Suite 301
Lebanon, NJ 08833

_____

Valerie A. Hrabal, P.E., P.P.
New Jersey Professional Engineer
License No. GE29615
Certificate of Authorization 24GA27959500

May 15, 2013

NOTE: TOPOGRAPHIC MAPS ARE IN DATUM 1988 NAVD. ADD 0.70 FEET TO CONVERT FROM DATUM 1988 NAVD TO DATUM NGVD 1929.

TABLE OF CONTENTS

1 - INTRODUCTION....1
2 - PROJECT DESCRIPTION....2
3 - EXISTING STUDIES....2
4 - STREAM HYDROLOGY....5
5 - FLOOD HAZARD AREA AND HYDRAULICS....5
6 – EXISTING CONDITIONS ANALYSIS....6
7 – PROPOSED AND COMPARATIVE ANALYSIS....8
6 – NJDEP LAND USE REGULATION AND PERMITS....9

TABLES

TABLE 1 - Hydrology to Route 31
TABLE 2 - Summary of Design Flood Discharges (NRCS TR-55)
TABLE 3 - Summary of Design Flood Discharges (USGS StreamStats)
TABLE 4 - Summary of Water Surface Elevations (NRCS TR-55)

APPENDICES

APPENDIX A – Information
APPENDIX B – USGS StreamStats Data
APPENDIX C – NRCS TR-55 Hydrology
APPENDIX D – HEC-RAS – Existing Conditions (TR-55 flows)
APPENDIX E – HEC-RAS – Existing Conditions (Rating flows)
APPENDIX F – HEC-RAS – Proposed Conditions (Rating flows)
APPENDIX G – HEC-RAS – Summary Table (Rating flows)

1 - INTRODUCTION

NJDOT is seeking to replace the Route 31 Bridge over the Furnace Brook. This report has been prepared to provide the pertinent engineering data for the purpose of assessing the existing hydraulic capacity of NJDOT **STRUCTURE NO. 2111-154,** the Route 31 bridge over Furnace Brook, and for use in analyzing alternative bridge rehabilitation/replacement geometry to achieve compliance with the NJDOT design standards and the NJDEP Flood Hazard Area Control Act. The work summarized in this report, includes the following:

1. Establish peak discharges.
2. Create and calibrate a Hydraulic model for the existing stream.
3. Determine adequacy of the existing Route 31 Bridge to pass the recommended NJDOT design storms.
4. Evaluate the potential for negative impacts on the surrounding areas if the Route 31 Bridge is replaced.
5. Identification of NJDEP Flood Hazard Area Jurisdiction.
6. Document how the project would be regulated under the Act.

The proposed activities will need to comply with the conditions of a Flood Hazard Area Individual Permit for:

- Reconstruction of a roadway and bridge crossing a river

Questions regarding this report should be directed to Valerie Hrabal, PE, Greenman-Pedersen, Inc. 100 Corporate Drive, Suite 301, Lebanon, NJ 08833. Phone #908-236-9001 Ext. 5030.

2 - PROJECT DESCRIPTION

The project consists of the replacement of Route 31 Bridge (Structure No. 2111-154) over the Furnace Brook in Oxford Township, Warren County, New Jersey. The structure is located 11,100 feet upstream of the confluence of Furnace Brook with the Pequest River. The nearest downstream structure is a bridge at Lower Denmark Road (an old railroad arch) which is located 900 feet downstream from Route 31. The nearest upstream structure is the recently replaced Washington Avenue bridge which is located 820 feet upstream of Route 31. The Flood Plain/Flood Hazard area downstream of the bridge is generally grassed park lands which were created by placing fill in the wooded, formerly wetlands, floodplain. Downstream of Lower Denmark Road is undeveloped, wooded, swamp/wetlands. The Elevation Datum herein is 1988 NAVD.

Route 31 in the vicinity of Furnace Brook is an undivided four-lane urban principal arterial running south to north. Furnace Brook crosses Route 31 immediately south of the signalized intersection of Route 31 and Wall Street/James Burn Drive. Route 31 south of the structure consists of two 12-foot wide travel lanes along each direction with no shoulders. Route 31 north of the structure consists of a single travel lane of carrying width along each direction and a 13-foot shoulder along the southbound direction. Vertical Concrete curb is present along both directions of Route 31 within the project limits. Sidewalk is present in the southeast and southwest quadrants of the Route 31 and Wall Street/James Burn Drive intersection.

Structure No. 2111-154, which carries Route 31 over Furnace Brook, consists of two sections. On the downstream side (under the NB lanes) is the original small, single span, stone masonry arch bridge. At the upstream side (SB lanes), the stream crossing has been widened to the west with a reinforced concrete slab section and concrete encased steel stringer section built in 1926 and is 94 feet wide curb to curb and 30 feet long.

Furnace Brook is designated as a Freshwater Trout Protected Category One waterway (FW2-TP, C1) by the currently adopted NJDEP Surface Water Quality Standards, dated January 2010. A portion of the watershed lies within the Highlands Planning Area and a portion lies in the Highlands Preservation Area.

3 - EXISTING STUDIES

Furnace Brook has not been studied in detail by either NJDEP or FEMA; however a FEMA Zone A flood hazard area has been established by the approximate methods as shown on the September 2011 FEMA Flood maps. As depicted on this map (Panel 236), the FEMA flood hazard area does not overtop Route 31 at this location. (See APPENDIX A). FEMA has not developed peak discharges for this watercourse in the 2011 FIS report.

There are no existing hydrologic/hydraulic studies or delineations performed by NJDEP or FEMA for this location; however, in January 1999, a study was undertaken by Cherry, Weber & Associates (CW) for NJDOT in support of an application for an NJDEP Freshwater Wetlands GP#10 & #11 and a Stream Encroachment Permit to replace the Washington Avenue Bridge which is located approximately 820 feet upstream from Route 31. The study model included the Route 31 crossing and used the TR-55 tabular method and HEC-2

hydraulics. This bridge has since been replaced by NJDOT based on the CW analyses and NJDEP Land Use permits.

4 - STREAM HYDROLOGY

The hydrology study area consists of Furnace Brook for a distance of 1,500 feet upstream from the existing structure. The watershed area to Route 31 is approximately 4.28 square miles (2,739 acres) of which the uppermost 2.87 square miles is controlled by the dam at Oxford Lake. Based on analyses for NJDEP Dam Safety as performed by CW, as well as aerial imagery, the dam appears to be an NRCS type dam which provides significant flood attenuation. GPI has considered both USGS gauge flow analysis and NRCS TR-55 methodology to evaluate the stream hydrology.

Oxford Lake Dam

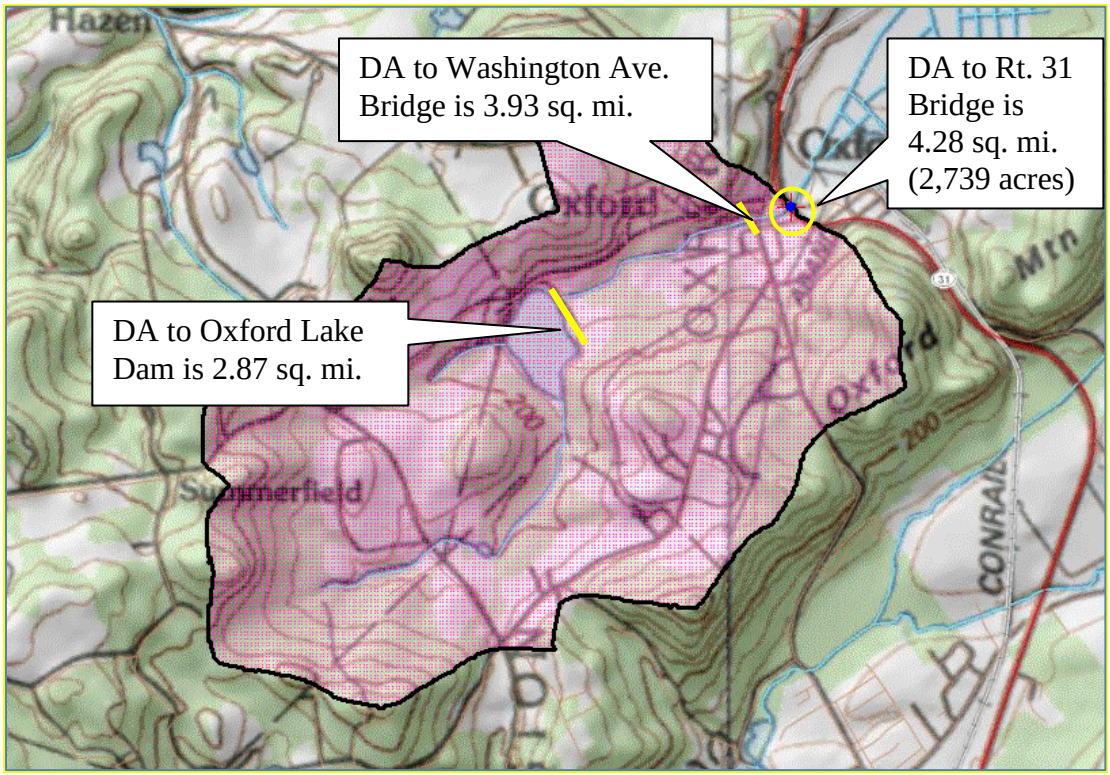


Figure 1 – Drainage Area Delineation

USGS Peak Flow Analysis – USGS maintained an active streamflow gauge #01445490 just 530 feet downstream of Route 31 for many years. This gauge was fully functional between 1966 and 1978 but has only been subject to field measurements between through 2001. The peak flow estimates, based on the gage data, takes into account flood attenuation by Oxford Lake. USGS has developed and has implemented new regression equations through the interactive **USGS "StreamStats"** website. As per the NJDEP Draft Flood Hazard Area Technical Manual (2008) page 2.20, the use of the NJDEP funded website is acceptable, particularly if there is an on-stream gauge at the site location. The drainage area to Route 31 is 4.28 square miles. The USGS computed peak flows at Route 31 are contained in **Table 3**.

NRCS TR-55 Methodology - Based on the aforementioned previous study by CW, the watershed of Furnace Brook at the Washington Avenue Bridge contains approximately 2,517 acres (3.93 square miles), of which approximately 1,837 acres (2.87 square miles) are controlled by Oxford Lake. The 100-year frequency design discharge from Oxford Lake is 135 cubic feet per second (cfs) (See **Note 1** below). The contributing flow downstream of the dam was then calculated for the remaining 680 acres.

GPI used the drainage areas and time of concentrations depicted in the CW report. Flows were then calculated for the areas contributing runoff downstream from Oxford Lake. The 100-year frequency design storm flow was computed for the remaining portion of Furnace Brook upstream from the Washington Avenue Bridge. Hydrology was developed for the pertinent 25-year and 100-year storms. The analysis was performed using the NRCS TR-55 methodology, AMC-II curve numbers, and the new Warren County 2008 NRCS-NJ TR-20 rainfall distributions. The "Standard" (484) unit hydrograph was applied in accordance with current NRCS-NJ and NJDA Soil Conservation Committee directives. This portion of the watershed contains approximately 680 acres and was divided into five (5) sub-watersheds. A weighted runoff coefficient (CN) was calculated based on the soils and ground cover in the watershed. A peak runoff rate was determined by adding the hydrographs of each sub-watershed and the design discharge from Oxford Lake together. A design flow of 1,143 cfs was obtained for the 100-year frequency storm at the Washington Avenue Bridge.

An additional 233 acres drain to the Furnace Brook at Structure No. 2111-154. Runoff for this area was calculated as noted above and added to the calculated discharge. A design flow of 1,477 cfs was obtained for the 100-year frequency storm. The total drainage contributing flow to Structure No. 2111-154 includes 2,517 acres; minus 1,837 acres which are controlled by Oxford Lake; plus 233 acres of additional drainage area contributing to the Route 31 crossing, which totals 913 acres calculated as follows:

- 2,517 ac. (total area to the Washington Avenue Bridge) – 1,837 ac. (controlled by Oxford Lake) = 680 ac. (area to the Washington Avenue Bridge)
- 680 ac. (area to the Washington Avenue Bridge) + 233 ac. (additional area to Route 31/Structure No. 2111-154) = 913 ac. (total contributing area to Route 31/Structure No. 2111-154)

The weighed CN of 64 was applied to all subareas. TR-55 computations follow in **Appendix C.**

NOTE 1 *– Oxford Lake 100 year discharge obtained from "ENGINEER'S REPORT STREAM ENCROACHMENT PERMIT APPLICATION RECONSTRUCTION OF WASHINGTON AVENUE BRIDGE COUNTY ROUTE 631 OVER FURNACE BROOK, OXFORD TOWNSHIP, WARREN COUNTY, NJ; FEDERAL PROJECT NO. BRZ-2117(103)" prepared by Cherry Weber & Associates, P.C. dated January 29, 1999; page 85.*

Table 1 – Hydrology to Route 31

Area Description	To Washington Avenue	Additional to Route 31	Total
Total Drainage Area (ac.)	680	233	913
Average CN	64	64	64
Time of Concentration - Tc (hr)	1.30	1.12	1.30

Table 2 – Summary of Design Flood Discharges (NRCS TR-55)

Storm Event	2-year	10-year	25-year	50-year	100-year	Flood Hazard 100-yr x 1.25
Design Flood Q at Washington Ave. (cfs)	278	545	749	934	1143	1429
Design Flood Q at Route 31 (cfs)	325	679	952	1198	1477	1846

Table 3 – Summary of Design Flood Discharges (USGS StreamStats)

Storm Event	2-year	10-year	25-year	50-year	100-year	Flood Hazard 100 yr x 1.25
USGS StreamStats (4.28 sm)	226	498	672	811	968	1210

The NRCS TR-55 100 year flood discharge has been used to assess compliance with NJDOT criteria; however, these higher Q's have a tendency to mask adverse impacts for the smaller more frequent storms (2, 5, 10, 25, and 50). A more appropriate way to assess impacts is to compare the existing and proposed discharge rating curves for the crossing. The existing vs. proposed conditions will therefore be evaluated for NJDEP compliance using a range of discharges, rather than the frequency-based TR-55 discharges.

5 - FLOOD HAZARD AREA AND HYDRAULICS

GPI has constructed a new hydraulics model for this project. The flood hazard area regulatory storm for the bridge is the 100 year+25% storm flood and the flood hazard regulatory elevation for the roadway is 1 foot above the 100 year+25% elevation.

The U.S. Army Corps of Engineers HEC-RAS computer program was used to model Furnace Brook within the study area. The existing condition and alternative structures were evaluated using NJDEP ***"Method 6 - Flood Hazard and Floodway determined by calculation"*** and the new HEC-RAS model. For the purpose of this study we obtained new topographic mapping and field surveyed cross sections to establish the existing hydraulic geometry of the bridge opening. We then generated a HEC-RAS model based on our new topographic mapping and added the previous HEC-2 study prepared by CW. The topographic mapping was prepared by Robinson Aerial for NJDOT under a separate on-call contract. The datum used is NAVD 1988.

Due to the existing elevations of the approach roadways, and the presence of existing buildings, elevating of the roadway to meet the NJDEP criteria for roadway elevation is not feasible. The existing buildings, which obstruct flow in the vicinity of the bridge, have been

modeled using "obstruction" and "ineffective flow" cards; however, the cross section printouts still graphically depict the water surfaces encroaching into these blocked areas and overtopping the roadway.

The existing Structure No. 2111-154 consists of a small hydraulic opening arch bridge at the downstream end of the crossing and a larger hydraulic opening rectangular bridge at the upstream end of the stream crossing. The smaller bridge segment limits the capacity of the entire structure. The deck profile and south approach roadway slopes slightly downward to the north. The low point (for overtopping of the road) elevation of 472.34 is located off the bridge deck, approximately 335 feet to the north of the north abutment on Route 31. At the downstream and upstream ends of the bridge, the maximum clear vertical openings are approximately 4.9 feet and 5.1 feet, respectively. The hydraulic opening of the smaller bridge is approximately 58 square feet.

Manning's "n" values were assigned based upon field observation and engineering judgment. The Manning's 'n' for the main channel was set at 0.035 which is consistent with the channel's characteristics being described as clean and straight, no rifts or deep pools with weeds and stones. The Manning's 'n' for the overbank (floodplain) was determined to be 0.06 to be consistent with its observed land cover of light brush and trees. The overbank Manning's 'n' varies as the stream enters Oxford.

Through trial runs it was determined that the governing flow regime is Subcritical Flow. The downstream boundary condition for each profile was assumed at normal depth with a downstream reach energy grade line slope of 0.6% as calculated from survey elevations.

6 – EXISTING CONDITIONS ANALYSIS

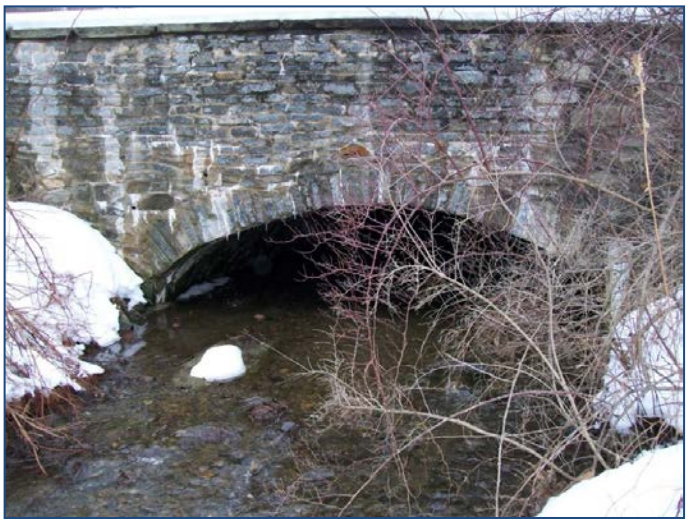
The results of the existing conditions analysis indicate that the resulting water surface elevation for the **NRCS TR-55** discharges are as follows:

Table 4 – Summary of Water Surface Elevations (NRCS TR-55)

Storm Event	2-year	10-year	25-year	50-year	100-year	Flood Hazard 100-yr x 1.25
Upstream	471.13	473.46	475.43	476.34	476.15	476.21
Downstream	470.43	470.90	471.65	472.25	471.80	473.67

The upstream low chord elevation of the bridge (472.6) and the low point of the highway (elevation 472.34 approximately 335 feet north of the north abutment) are both exceeded by the 10 year storm. The highway may also be theoretically overtopped by 3.81 feet for the 100-year storm; however, the bridge itself does not overtop for the 100 year event. The existing bridge therefore meets the **NJDOT Roadway Design Manual** Chapter 10.2.4, Table 10-2. The bridge is not listed in the NJDOT Drainage Management Unit's DMS Ranking list (as of May 2013) and NJDOT has no flooding records at this stream crossing even though 2 floods of record have occurred within the region within the past 2 years (2011 and 2012). One observed flooding incident was documented at MP 46.56 (Academy Street/CR625) on October 30, 2012 (Hurricane Sandy); however, this flooding site is located significantly to the south of the subject bridge which is located at MP 46.83.

HEC-RAS output for the existing conditions run using the TR55 discharges is located in **APPENDIX D**. HEC-RAS output for the existing conditions run using the range of rating discharges in **APPENDIX E**.



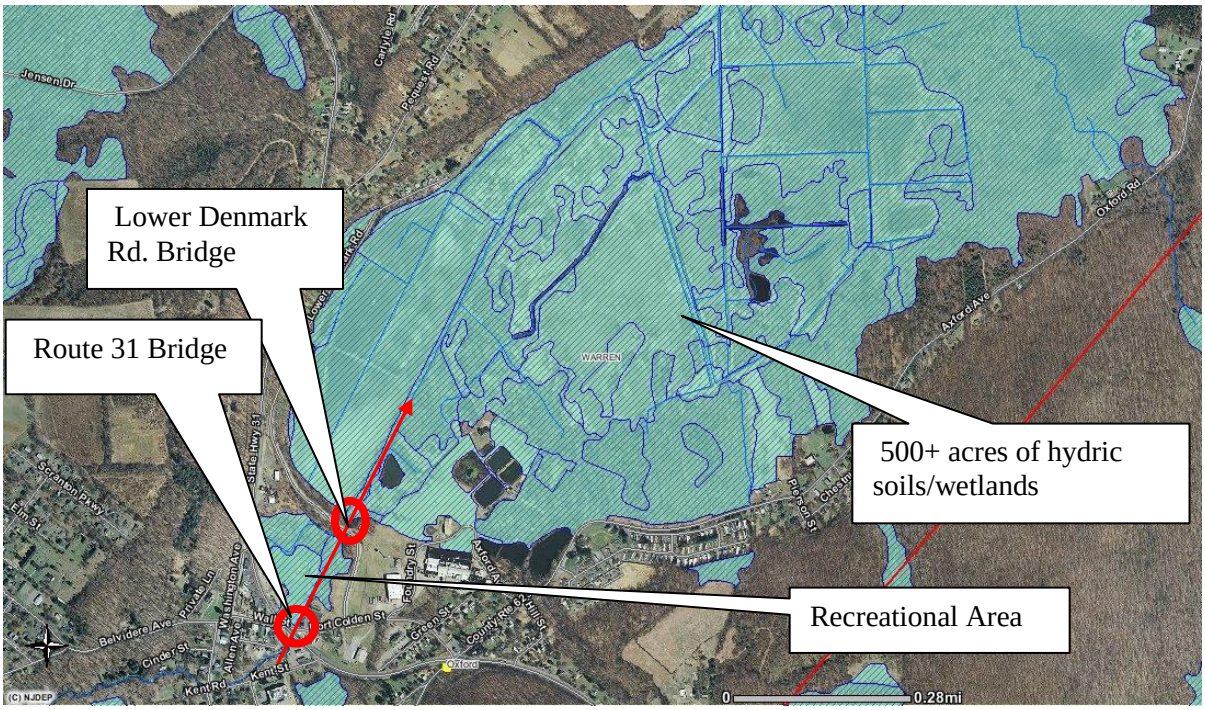
Route 31, Structure No. 2111-154, Downstream Elevation

Route 31, Structure No. 2111-154, Upstream Elevation

Lower Denmark Road Crossing (clear vertical opening > 10 feet), Upstream Elevation

7 – PROPOSED AND COMPARATIVE ANALYSIS

The land use immediately downstream of the structure is open space/recreational land. The culvert under Lower Denmark Road (a former railroad embankment) has a significantly larger hydraulic opening than Structure No. 2111-154. Since highway overtopping first occurs at the low point in the north approach roadway along Route 31 (335 feet north of the north bridge abutment), and since raising that low point cannot be accommodated (to eliminate theoretical overtopping of the north approach roadway) without causing adverse impacts on adjacent properties, we recommend that any full or partial replacement of the bridge be done such that the existing upstream hydraulic opening characteristics are replicated at both the upstream and downstream ends of the bridge. This can be accomplished by either a 100% replacement of the bridge or a replacement of just the replacement of the downstream arch section of the bridge. Any "*loss of storage*" will likely be minimal and readily accommodated in the recreational area and in more than five hundred acres of hydric soils/wetlands located downstream of the Lower Denmark Road bridge.



Supplemental "loss of storage" computations may be needed at a later date to support an application to NJDEP for an FHAIP in the next phase of the project.

Increasing the hydraulic opening width, within the constraints of the existing channel banks, would have a negligible change on the roadway overtopping depths. The 10 year and higher frequency design storms will continue (theoretically) to overtop the north approach roadway. Increasing the profile elevation and widening the hydraulic opening to accommodate the 100 year storm event will require significant property acquisition due to the close proximity to the road and the structure and may not result in any improvement to the overtopping of the north approach roadway. The existing and the proposed structures do not overtop for the 100 year design storm. Based on our correspondence with the NJDOT Drainage Unit, there is no flooding record for the project location and it is not in the Drainage Management Unit's DMS Ranking List. Since the project does not have a history flooding and adverse impacts would result from raising the roadway elevation, we recommend that any proposed structure

be hydraulically equivalent to the existing structure and the existing roadway profile be maintained.

The proposed structure replacement will therefore maintain the hydraulic opening of the existing upstream opening. The proposed low chord of the superstructure will be set at the same elevation as the existing upstream low chord and the low chord will be level across the 4 corners of the bridge.

When the rating runs are compared, the resultant water surfaces are essentially unchanged (+/- 0.03 ft or fps) between stations 6600-7400 and between stations 7722-9000. The only measurable changes occur in the 2 cross sections immediately upstream of the bridge at 7500 and 7600.

See HEC-RAS output for the proposed conditions run using rating discharges in **APPENDIX F**. See HEC-RAS summary output for the existing vs. proposed runs using the rating discharges in **APPENDIX G**.

6 – NJDEP Land Use Regulation and Permits

Since the crossing has a contributory watershed in excess of 50 acres, the project is regulated under the Flood Hazard Area Control Act (FHACA) for both Flood Hazard Area and for Riparian Zones. As described above, *"Method 6 - Flood Hazard and Floodway determined by calculation"* has been used to establish regulatory flood limits.

The Flood Hazard Area elevations and channel velocities will not significantly change from existing. Therefore there will be no adverse impacts or substantive loss of flood storage upstream or increase in scour due to changes in flow velocities downstream of the project. The project is therefore in compliance with the provisions of Section 7:13-11.6 of the Flood Hazard Area Control Act.

According to the NJDEP Surface Water Quality Standards the stream is designated as FW2-TP, C1 and as such will be subject to a 300 foot Riparian Zone and a 150 foot wetlands transition area. In addition, if the project triggers the Stormwater Management Rule, the stream will also be subject to a 300 foot Special Water Resources Protection Area (SWRPA). *The project should avoid unnecessary full depth pavement removal and/or the addition of new impervious surfaces that would trigger the Stormwater Rules*.

It is anticipated that the project will require a Flood Hazard Area Individual Permit and one or more Freshwater Wetland General Permits. A General Permit (GP) #10 (for road crossings) can be utilized for the project to disturb wetlands, transition areas, and State open waters. This permit is subject to a ¼ acre disturbance limitation. GPs are also available for underground utility lines (GP #2), above ground utility lines (GP #21), and stormwater outfalls (GP #11), should these be required.

Design of the new bridge must minimize the impacts on each of these environmentally sensitive areas. The project also lies within the Highlands Planning Area; however, approval from NJDEP for the Highlands is not anticipated to be required since the project proposes no new through lanes.

APPENDICES
Provided in electronic form on CD

APPENDIX A – Information
APPENDIX B – USGS StreamStats Data
APPENDIX C – NRCS TR-55 Hydrology
APPENDIX D – HEC-RAS – Existing Conditions (TR-55 flows)
APPENDIX E – HEC-RAS – Existing Conditions (Rating flows)
APPENDIX F – HEC-RAS – Proposed Conditions (Rating flows)
APPENDIX G – HEC-RAS – Summary Table (Rating flows)

Appendix R

Complete Streets Checklist

NJDOT Complete Streets Checklist

Background

The New Jersey Department of Transportation's Complete Streets Policy promotes a "comprehensive, integrated, connected multi-modal network by providing connections to bicycling and walking trip generators such as employment, education, residential, recreational and public facilities, as well as retail and transit centers." The policy calls for the establishment of a checklist to address pedestrian, bicyclist and transit accommodations "with the presumption that they shall be included in each project unless supporting documentation against inclusion is provided and found to be justifiable."

Complete Streets Checklist

The following checklist is an accompaniment to NJDOT's Complete Streets Policy and has been developed to assist Project Managers and designers develop proposed alternatives in adherence to the policy. Being in compliance with the policy means that Project Managers and designers plan for, design, and construct all transportation projects to provide appropriate accommodation for bicyclists, pedestrians, and transit users on New Jersey's roadways, in addition to those provided for motorists. It includes people of all ages and abilities. The checklist applies to all NJDOT projects that undergo the Capital Project Delivery (CPD) Process and is intended for use on projects during the earliest stages of the Concept Development or Preliminary Engineering Phase so that any pedestrian or bicycle considerations are included in the project budget. The Project Manager is responsible for completing the checklist and must work with the Designer to ensure that the checklist has been completed prior to advancement of a project to Final Design.

Using the Complete Streets Checklist

The Complete Streets Checklist is a tool to be used by Project Managers and designers throughout Concept Development and Preliminary Engineering to ensure that all developed alternatives reflect compliance with the Policy. When completing the checklist, a brief description is required for each **"Item to be Addressed"** as a means to document that the item has been considered and can include supporting documentation.

CONCEPT DEVELOPMENT CHECKLIST

Instructions:
For each box checked, please provide a brief description for how the item is addressed, not addressed or not applicable and include documentation to support your answer.

Item to be Addressed	Checklist Consideration	YES	NO	N/A	Required Description
Existing Bicycle, Pedestrian and Transit Accommodations	Are there accommodations for bicyclists, pedestrians (including ADA compliance) and transit users included on or crossing the current facility? **Examples include (but are not limited to):** Sidewalks, public seating, bike racks, and transit shelters	☒	☐	☐	Sidewalk is present in the southeast and southwest quadrants of the intersection and on the west side of the structure.
Existing Bicycle and Pedestrian Operations	Has the existing bicycle and pedestrian suitability or level of service on the current transportation facility been identified?	☐	☒	☐	LOS not determined for bike/ped
	Have the bicycle and pedestrian conditions within the study area, including pedestrian and/or bicyclist treatments, volumes, important connections and lighting been identified?	☒	☐	☐	Volume is low, but some children walk to school. Accommodations not provided continuously through the intersection
	Do bicyclists/pedestrians regularly use the transportation facility for commuting or recreation?	☒	☐	☐	Children walk to school. Crossing guard provided at intersection.
	Are there physical or perceived impediments to bicyclist or pedestrian use of the transportation facility?	☒	☐	☐	Ramps are not ADA compliant.
	Is there a higher than normal incidence of bicyclist/pedestrian crashes within the study area?	☐	☒	☐	No bike/ped crashes reported.
	Have the existing volumes of pedestrian and/or bicyclist crossing activity at intersections including midblock and nighttime crossing been collected/provided?	☐	☒	☐	No midblock or nighttime activity identified.

NJDOT Complete Streets Checklist

Item to be Addressed	Checklist Consideration	YES	NO	N/A	Required Description
Existing Transit Operations	Are there existing transit facilities within the study area, including bus and train stops/stations?	☐	☒	☐	No existing transit facilities
	Is the transportation facility on a transit route?	☐	☒	☐	No transit routes in project limits
	Is the transportation facility within two miles of "park and ride" or "kiss and go" lots?	☐	☒	☐	No nearby facilities
	Are there existing or proposed bicycle racks, shelters, or parking available at these lots or transit stations? Are there bike racks on buses that travel along the facility?	☐	☐	☒	No existing transit facilities
Existing Motor Vehicle Operations	Are there existing concerns within the study area, regarding motor vehicle safety, traffic volumes/congestion or access?	☐	☒	☐	Volumes and crash rates are low.
Existing Truck/Freight Operations	Are there existing concerns within the study area, regarding truck/freight safety, volumes, or access?	☐	☒	☐	Volumes and crash rates are low.
Existing Access and Mobility	Are there any existing access or mobility considerations, including ADA compliance?	☐	☒	☐	Existing facilities are not ADA compliant.
	Are there any schools, hospitals, senior care facilities, educational buildings, community centers, residences or businesses of persons with disabilities within or proximate to the study area?	☒	☐	☐	Oxford Central Elementary School located on Kent Street (Pre-K to 8th grade).
Land Usage	Have you identified the predominant land uses and densities within the study area, including any historic districts or special zoning districts?	☒	☐	☐	Project is in low density, rural area and within the Oxford Industrial Historic District.
	Is the transportation facility in a high-density land use area that has pedestrian/bicycle/motor vehicle and transit traffic?	☐	☒	☐	Not in a high-density area

NJDOT Complete Streets Checklist

Item to be Addressed	Checklist Consideration	YES	NO	N/A	Required Description
Major Sites	Have you identified the major sites, destinations, and trip generators within or proximate to the study area, including prominent landmarks, employment centers, recreation, commercial, cultural and civic institutions, and public spaces?	☒	☐	☐	Wilkinson ball fields, post office, fire station, commercial properties
Existing Streetscape	Are there existing street trees, planters, buffer strips, or other environmental enhancements such as drainage swales within the study area?	☒	☐	☐	Street trees and pavers present along south side of Wall Street west of Route 31.
Existing Plans	Are there any comprehensive planning documents that address bicyclist, pedestrian or transit user conditions within or proximate to the study area? **Examples include (but are not limited to):** • SRTS Travel Plans • Municipal or County Master or Redevelopment Plan • Local, County and Statewide Bicycle and Pedestrian Plans • Sidewalk Inventories • MPO Transportation Plan • NJDOT Designated Transit Village	☐	☒	☐	No planning documents identified within the study area.

PROJECT MANAGER SIGN-OFF

Statement of Compliance	YES	NO	If NO, Please Describe Why (refer to Exemptions Clause)
The Preliminary Preferred Alternative (PPA) accommodates bicyclists and pedestrians as set forth in the New Jersey Department of Transportation's Complete Streets Policy.	☒	☐	

Appendix S

CD Scope Statement

Route 31, Bridge over Furnace Brook

Purpose: The Concept Development Scope Statement lists the proposed project's deliverables and the activities required to create those deliverables. The scope statement also provides a common understanding of the proposed project's scope to stakeholders, subject matter experts, and the designer and lists the proposed project's major objectives. It enables the Project Manager to perform more detailed planning, it helps guide the design team's work during execution, and provides the baseline for evaluating whether change requests or additional work are contained within or outside the proposed project's boundaries.

Notes: The Concept Development (CD) Scope Statement identifies the key elements of CD that are necessary to advance the proposed project to the Preliminary Engineering (PE) Phase. The CD Scope Statement is developed by the Division of Project Management (DPM) Project Manager prior to requesting the services of a consultant to perform the work.

Section 1 of the document focuses on Proposed Project Identification Information including the location, description, requirements, parameters, milestones, and recommendation/approval.

Section 2 of the document specifies the requirements for CD and is completed by the Project Manager with input (as needed) from the appropriate Subject Matter Experts (SME).

Section 1
PROPOSED PROJECT IDENTIFICATION INFORMATION

PROPOSED PROJECT SPECIFICS

Proposed Project Name	Limits
Route 31, Bridge over Furnace Brook	46.78-47.02
NJDOT Project Manager	**NJDOT Program Manager**
Robert Lee	Robert Lee (acting)
Designer	
Greenman-Pedersen Inc.	
Counties	**Municipalities**
Warren Select County 2 Select County 3	Oxford Twp

ADDITIONAL INFORMATION

UPC Number	093250
DB Number	09325
Legislative District(s)	24
Congressional District (s)	5

Route	NJ 31
Start Milepost	46.78
End Milepost	47.02
Alternate Route	_____
Alternate Start Milepost	_____
Alternate End Milepost	_____
STIP Information	PE: FY 2014, $0.3M; FD: FY 2016, $0.4M; ROW: FY 2017, $0.2M; CON: FY 2019, $3.1M
Structure Numbers	2111-154
Project Classification:	1 - Construction
MPO	NJTPA

PROPOSED PROJECT DESCRIPTION & REQUIREMENTS

Problem Statement

Was a formal Problem Statement submitted? ☐ Yes ☒ No

Date of Problem Statement:

Attached ☐ Yes ☐ No ☐ Not Available.

Tier 2 Screening

Was a Tier 2 Screening performed? ☐ Yes ☒ No

Date of Completion:

Attached ☐ Yes ☐ No ☐ Not Available.

Charter Summary

Was a Charter developed? ☐ Yes ☒ No

Date of Completion:

Attached ☐ Yes ☐ No ☐ Not Available.

SCHEDULE MILESTONES

Instructions: The proposed project sponsor, customer, or other stakeholders often dictate key events or major milestones affecting the completion of certain deliverables by a specified date. List key milestones and if known, associated dates that are required for the proposed project. This would include launching the proposed project by a specific date. Milestones are used in the schedule model.

Traditional Concept Development Milestones:

- Data Collection Complete
- Purpose and Need Statement
- Complete Alternatives Analysis
- Select Preliminary Preferred Alternative
- Draft Concept Development Report
- Concept Development Completed

Milestones for this Proposed Project (only if different):

-

APPROVAL

Name	Title	Date Approved	Comments
	_____ Project Manager, Division of Project Management	mm/dd/yy	
	_____ Program Manager, Division of Project Management	mm/dd/yy	
	_____ Director, Division of Project Management	mm/dd/yy	

Section 2
CONCEPT DEVELOPMENT SCOPE OF WORK

The intent of this scope of work is to solicit a designer man-hour estimate, cost proposal and project schedule for Concept Development for this proposed project. This document will provide the starting point for discussions with the designer. The designer will perform the tasks associated with Concept Development as so marked, in preparation for Preliminary Engineering. The Project Manager of the Division of Project Management will review the proposal and lead the negotiations of the scope, budget and schedule. The Project Manager will execute a Task Order and instruct the designer to begin work. The Division of Project Management will direct the proposed project. The Project Manager shall amend the "Responsible Unit" section if necessary, and will describe the breakdown of the work effort in the "Comments" section if more than one responsible unit is identified for a single activity.

Concept Development

Initiate Concept Development

Activity No.	Activity Name	Execute	Responsible Unit	Comments
2005	Review Problem Statement Package	☒ Yes ☐ No	☒ DPM ☒ Designer	
2010	Review Tier 2 Screening Report	☐ Yes ☒ No	☐ DPM ☐ Designer	
2015	Obtain Management Systems Input	☒ Yes ☐ No	☒ DPM ☒ SMEs	
2020	Determine Mapping Level and Resources Required	☒ Yes ☐ No	☒ DPM ☒ SME	
2025	Obtain Stakeholder Input	☒ Yes ☐ No	☒ DPM ☐ Designer ☐ SME	
2030	Develop Community Profile	☒ Yes ☐ No	☒ DPM ☐ Designer	
2035	Prepare CD Public Involvement Action Plan	☒ Yes ☐ No	☒ DPM ☒ Designer ☐ CCR	
2040	Develop CD Scope Statement	☒ Yes ☐ No	☒ DPM	

2045	Create CD Schedule	☒ Yes ☐ No	☒ DPM ☐ OSBM	
2050	Develop CD Fee Proposal	☒ Yes ☐ No	☒ Designer	
2055	Update PRS	☒ Yes ☐ No	☒ DPM	
2060	Execute CD Task Order	☒ Yes ☐ No	☒ DPM	
2065	Start Design Communications Report	☒ Yes ☐ No	☒ DPM ☒ Designer	

Perform Data Collection

Activity No.	Activity Name	Execute	Responsible Unit	Comments
2100	Conduct Traffic Counts	☒ Yes ☐ No	☐ DPM ☐ Designer ☐ TSSE ☐ Data Development	
2105	Perform Supplemental Data Collection	☒ Yes ☐ No	☐ DPM ☐ Designer	
2110	Forecast Travel Projections	☒ Yes ☐ No	☐ DPM ☐ Designer	
2115	Prepare CD Mapping	☒ Yes ☐ No	☐ DPM ☐ Designer	
2120	Conduct Field Inventory of Physical Conditions	☒ Yes ☐ No	☐ DPM ☐ Designer	
2125	Identify Substandard Design Elements	☒ Yes ☐ No	☐ DPM ☐ Designer	
2130	Coordinate with Local Officials	☒ Yes ☐ No	☐ DPM ☐ Designer ☐ CCR	
2135	Perform Environmental Screening	☒ Yes ☐ No	☐ DPM ☐ Designer ☒ BLAES	
2140	Review Environmental Screening	☐ Yes ☒ No	☐ BLAES	
2145	Obtain Maps for SWM Rules Compliance	☐ Yes ☒ No	☐ DPM ☐ Designer	

2150	Prepare Drainage Area Maps	☐ Yes ☒ No	☐ DPM ☐ Designer	
2155	Send Letter No. 1 to Obtain Utility Co. Contact and PE Estimate	☒ Yes ☐ No	☐ DPM ☒ Designer	
2160	Validate and Compare with Regional Model	☒ Yes ☐ No	☐ DPM ☒ Designer	
2170	Obtain Crash Records	☒ Yes ☐ No	☐ DPM ☒ BSP	
2175	Prepare Utility Risk Assessment Plan	☐ Yes ☒ No	☐ DPM ☐ Designer	

Perform Data Analysis

Activity No.	Activity Name	Execute	Responsible Unit	Comments
2200	Prepare Crash Analysis and Crash Diagram	☒ Yes ☐ No	☐ DPM ☒ Designer	
2205	Conduct Existing Traffic Analysis	☒ Yes ☐ No	☐ DPM ☒ Designer	
2210	Conduct Scour and Seismic Retrofit Analysis	☐ Yes ☒ No	☐ Structural Design ☐ Designer	
2230	Conduct Hydrologic and Hydraulic Analysis	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ BLAES	
2235	Conduct ITS Needs Assessment	☒ Yes ☐ No	☐ DPM ☒ Designer	
2240	Prepare Project Fact Sheet	☒ Yes ☐ No	☒ DPM ☒ Designer	
2250	Prepare Draft Purpose and Need Statement	☒ Yes ☐ No	☒ DPM ☒ Designer ☐ BLAES	
2260	Hold Scope Team Meeting	☒ Yes ☐ No	☒ DPM ☒ Designer	
2270	Hold Initial Local Officials Briefing	☒ Yes ☐ No	☒ DPM ☒ Designer ☒ CCR	
2280	Complete Purpose and Need Statement	☒ Yes ☐ No	☐ DPM ☒ Designer	

Perform Alternatives Analysis

Activity No.	Activity Name	Execute	Responsible Unit	Comments
2300	Develop Alternatives	☒ Yes ☐ No	☐ DPM ☒ Designer	
2310	Obtain Stakeholder Input on Developed Alternatives	☒ Yes ☐ No	☒ DPM ☐ Designer ☒ CCR	
2315	Prepare Railroad Agreement	☐ Yes ☒ No	☐ DPM ☐ Designer	
2320	Develop Preliminary Detour and Construction Staging Plans	☒ Yes ☐ No	☐ DPM ☒ Designer	
2330	Perform Impact Assessment	☒ Yes ☐ No	☐ DPM ☒ Designer	
2340	Develop Preliminary Construction Cost Estimates	☒ Yes ☐ No	☐ DPM ☒ Designer	
2350	Conduct Proposed Traffic Analysis	☒ Yes ☐ No	☐ DPM ☒ Designer	
2360	Obtain Reasonable Assurance of Design Exception Approval	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ QMS ☒ BSP	
2365	Perform SWM Analysis	☐ Yes ☒ No	☐ DPM ☐ Designer ☐ Geotechnical Unit ☐ BLAES	
2370	Prepare Alternatives Matrix	☒ Yes ☐ No	☐ DPM ☒ Designer	

Select Preliminary Preferred Alternative

Activity No.	Activity Name	Execute	Responsible Unit	Comments
2400	Coordinate with Permitting Agencies	☒ Yes ☐ No	☒ DPM ☐ Designer ☒ BLAES	SHPO
2410	Obtain SME Input	☒ Yes ☐ No	☒ DPM ☐ Designer	
2425	Perform Quantitative Risk Analysis	☐ Yes ☒ No	☐ DPM ☐ Designer	
2420	Revise Alternatives Matrix	☒ Yes ☐ No	☐ DPM ☐ Designer	
2430	Hold Core Group Meeting	☒ Yes ☐ No	☒ DPM ☒ Designer	
2435	Conduct Value Engineering Review	☐ Yes ☒ No	☐ VE Unit	
2440	Hold Local Officials Briefing	☒ Yes ☐ No	☒ DPM ☒ CCR ☒ Designer	
2445	Prepare Value Engineering Technical Report	☐ Yes ☒ No	☐ VE Unit	
2450	Hold Town Council Presentation	☐ Yes ☒ No	☐ DPM ☐ CCR ☐ Designer	
2460	Hold Public Information Center	☒ Yes ☐ No	☒ DPM ☒ CCR ☒ Designer	
2470	Finalize Preliminary Preferred Alternative (PPA)	☒ Yes ☐ No	☒ DPM ☒ Designer	

Prepare Concept Development Report

Activity No.	Activity Name	Execute	Responsible Unit	Comments
2500	Perform PPA Constructability Review	☒ Yes ☐ No	☐ DPM ☒ Construction Mgmt. ☒ Designer	
2510	Confirm Environmental Document	☒ Yes ☐ No	☐ DPM ☒ BLAES	
2515	Prepare PE Public Involvement Action Plan	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ CCR	
2520	Prepare PE Scope Statement	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ SMEs	
2530	Develop Project Management Plan	☐ Yes ☒ No	☐ DPM ☐ Designer	
2535	Prepare Systems Engineering Review Form (SERF)	☐ Yes ☒ No	☐ DPM ☐ Designer ☐ Traffic Operations	
2540	Prepare CD ROW and Access Impact Plan & Matrix	☒ Yes ☐ No	☐ DPM ☒ Designer	
2550	Prepare CD ROW and Access Cost Estimate	☒ Yes ☐ No	☒ ROW ☐ DPM ☐ Designer	
2560	Complete CD Quality Certification	☒ Yes ☐ No	☒ Designer	
2570	Prepare Draft CD Report	☒ Yes ☐ No	☐ DPM ☒ Designer	
2580	Review Draft CD Report & Address Comments	☒ Yes ☐ No	☒ DPM ☒ Designer	

Obtain Concept Development Approvals/Select Preliminary Engineering Designer

Activity No.	Activity Name	Execute	Responsible Unit	Comments
2600	FHWA Reviews and Approves CD Report	☒ Yes ☐ No	☒ FHWA	
2610	Present to CPSC	☒ Yes ☐ No	☒ DPM	
2620	CPC Approves Advancement	☒ Yes ☐ No	☒ CPC	
2630	Finalize CD Report	☒ Yes ☐ No	☒ DPM ☒ Designer	
2640	Complete CD Closeout	☒ Yes ☐ No	☒ DPM	
2700	Prepare Solicitation Package	☒ Yes ☐ No	☒ DPM	
2710	Form Technical Evaluation Committee	☒ Yes ☐ No	☒ DPM	
2720	Receive Technical Proposals	☒ Yes ☐ No	☒ Procurement ☐ DPM	
2730	Score Proposals	☒ Yes ☐ No	☒ Tech. Committee	
2740	Hold Oral Presentations (2-Step)	☐ Yes ☒ No	☐ Procurement ☐ Tech. Committee ☐ Prospective Designers	
2750	Select Designer	☒ Yes ☐ No	☒ CSC ☐ DPM	
2800	Develop PE Independent Cost Estimate	☒ Yes ☐ No	☒ DPM ☐ OSBM	
2810	Develop Designer Fee Proposal	☒ Yes ☐ No	☒ Designer	
2820	Negotiate Contract	☒ Yes ☐ No	☒ DPM ☒ Designer	
2830	Finalize Proposal	☒ Yes ☐ No	☒ Designer	
2840	Prepare Draft Agreement	☒ Yes ☐ No	☒ DPM	

2850	Create PE Schedule	☒ Yes ☐ No	☒ DPM ☐ OSBM	
2855	Approve PE Schedule	☒ Yes ☐ No	☒ DPM	
2860	Develop PE Budget	☒ Yes ☐ No	☒ DPM ☐ OSBM	
2865	Finalize PE Budget	☒ Yes ☐ No	☐ DPM ☒ OSBM	
2870	Approve PE Budget	☒ Yes ☐ No	☒ DPM	
2880	Authorize PE	☒ Yes ☐ No	☒ OSBM ☐ FHWA	
2890	Execute Designer Agreement	☒ Yes ☐ No	☒ DPM ☐ Designer	

Major Concept Development Deliverables
• Project Purpose and Need Statement
• Preliminary Preferred Alternative (PPA)
• Anticipated Environmental Document
• Reasonable Assurance for the Proposed Design Exceptions (if any)
• Construction Cost Estimate
• Resolution of Support from the Community
• Concept Development Report

Appendix T

CD Public Involvement Action Plan (PIAP)

NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development

PURPOSE:

Project History: The NJDOT initiated Concept Development (CD) to focus on rehabilitation or replacement of Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83) in the Township of Oxford, Warren County. The project is based on the *Structure No. 2111-154 Route NJ 31 over Furnace Brook / 14th Cycle / Bridge Re-evaluation Report* dated October 13, 2006. According to the *14th Cycle* report, Structure No. 2111-154 is structurally deficient due to the poor condition of the superstructure and it is recommended to replace of the superstructure to address the poor condition. The purpose of this project is to develop and evaluate various alternatives and to ultimately select a Preliminary Preferred Alternative (PPA) to advance to Preliminary Engineering (PE).

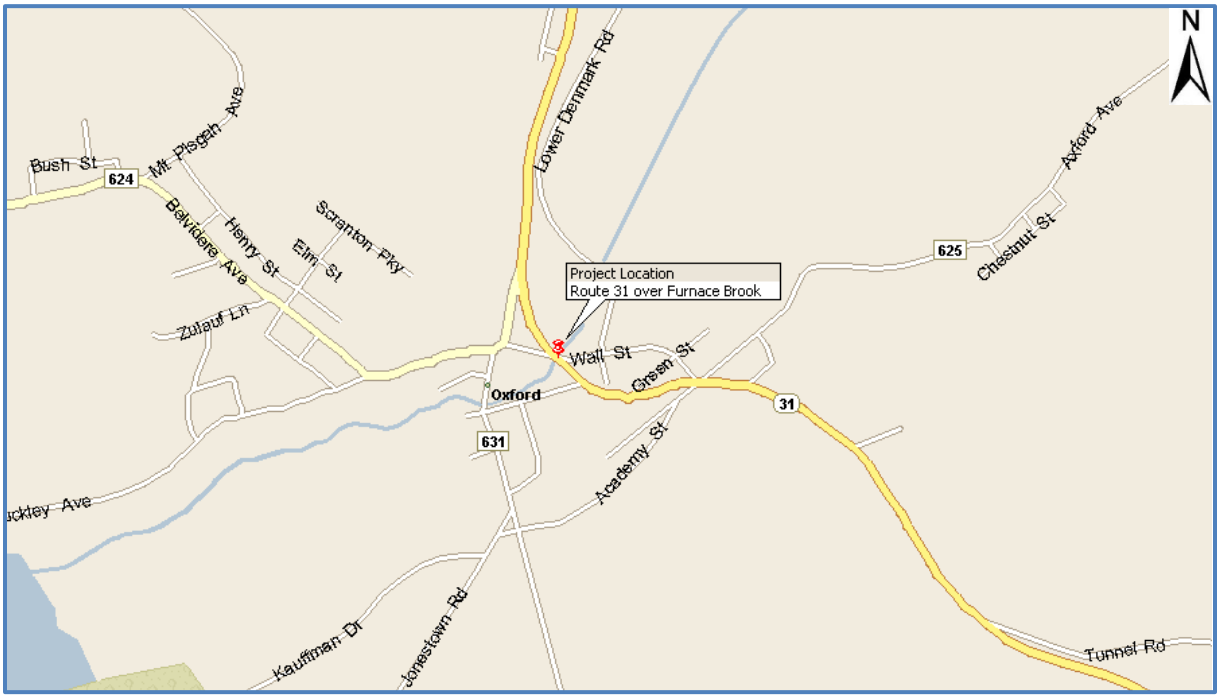


Figure 1 – Project Location Map

PIAP Goals: Public participation is required to achieve community "ownership" in the proposed project and therefore it is a critical element in the successful implementation of the NJDOT transportation program. The PIAP goals consist of the following:

- Promote an on-going public partnership to ensure that the transportation benefits are considered within the context of the communities directly impacted by the project.
- Ensure early, frequent and continuous consultation with the public by committing to public notification of the affected parties, citizen input in the identification of the solutions and dedication to make the public's input meaningful.

- Assist in building public support for both agreement on the problem definition and the identification of possible solutions along with the selection of the PPA.
- Identify early in the process any potential "fatal flaws" that would prevent the advancement of the project or its ability to adequately address the identified problem(s).

The PIAP document is intended to establish a public involvement process that is dynamic in nature so that it can evolve with the progress of the project, from Concept Development through to, and including Construction.

COMMUNITY PROFILE / ENVIRONMENTAL JUSTICE:

DPD has performed a Community Impact Assessment (CIA) field investigation and prepared a Community Profile and Environmental Justice Screening. The intent of the Screening was to determine the potential for Environmental Justice issues. The term 'Environmental Justice' implies the full and fair participation by all potentially affected communities in the transportation decision-making process and aims to prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

This evaluation determined that the majority of the population within the project limits identified themselves as White, as noted in Table 1. Pockets of Hispanic/Latino, African American and Asian populations also exist within the project limits. In addition, populations of elderly individuals (8.5%) and those below the poverty line (4.0%) were also discovered within the study area. Every effort will be made to avoid adverse and or disproportionate impacts to these groups. Similarly every effort will be made to inform and include these groups in the planning process. Information will be posted in languages that reflect the demographic composition of the project area, when appropriate. Consideration will be given to translating documents and providing interpreters.

Table 1 – Community Profile, Race & Ethnicity

Race/Ethnicity Census Tract 316.02	Population (Oxford Twp.)	Percent (Oxford Twp.)
Total Population	**2,307**	**100.0%**
White	2,228	96.6%
Black or African American	28	1.2%
Hispanic/Latino(of any race)	80	3.5%
Asian	12	0.5%
American Indian or Alaska Native	5	0.2%
Pacific Islander	0	0 %
Two or More Races	18	0.8%
Some Other Race	15	0.7 %

Demographic data obtained from U.S. Census 2000. See Community Profile on file with DPD for more information.

The Community Profile and Environmental Justice Screening does not make any conclusions about the Environmental Justice issues, rather it serves to alert the project team of the presence of protected populations within the project area. Depending on the alternatives, a

more detailed impact analysis will be conducted to evaluate potential Environmental Justice issues.

PIAP IMPLEMENTATION:

The Route 31 over Furnace Brook project is currently in Concept Development. Although the PIAP is organized by the project phase, it will be implemented in such a manner that the public views the project as one seamless process. The PIAP is organized by project phase to allow for its integration with the engineering effort to facilitate the schedule of contingent activities. The project phases are as follows:

Concept Development
Preliminary Engineering
Final Design
Construction

Concept Development: Concept Development for this project includes the collection, review and analysis of background data and existing physical features; the development of alternatives; and the selection of the PPA.

The proposed public involvement process during Concept Development is outlined as follows:

Stakeholders and Communication Methods

1. Develop and maintain a contact/mailing list of key project stakeholders, including, but not limited to, County and Township officials, property owners, businesses, neighborhood associations, civic and cultural groups, environmental organizations, associations of low income, minority, elderly, and disabled constituents, etc. An initial stakeholders list can be found on page 7 of this document. Stakeholders may be added throughout the project process as pertinent individuals/groups become evident.

2. Investigate the need for a Community Advisory Committee and/or a Business Advisory Committee to allow for efficient coordination between the community and its businesses with the NJDOT.

3. Develop visualization techniques, such as display boards, site photographs and traffic simulations prior to meetings to be utilized, where appropriate, to illustrate various concepts. Prepare handouts/fact sheets for distribution for each meeting summarizing the project status, various alternatives and eventually the PPA.

4. Identify and develop communication methods based on the results of the Environmental Justice Screening and input from OCR that may include, where appropriate, handouts/fact sheets in foreign languages, notices in foreign language newspapers, availability of interpreters, etc.

Meetings and Alternatives Development

5. Hold a Kick-Off Meeting to introduce the project and request concerns/comments, requirements/guidelines, potential problems and/or additional issues from identified local stakeholders and interest groups. Minutes of the meeting will be prepared and distributed to the attendees for comment.

6. As part of the development of alternatives determine if any of the alternatives will have a disproportionately high or adverse effect on low income and/or minority communities and businesses adjacent to the project limits that may be impacted by each alternative and/or during construction. The possibility of adverse effects to low income and/or minority communities will be considered in the selection of the PPA.

7. If deemed necessary, hold smaller key stakeholder meetings with property owners, businesses, neighborhood associations, civic and cultural groups, environmental organizations, associations of low income, minority, elderly, and disabled constituents, etc., who might be impacted by the project. Minutes of each meeting will be prepared and distributed for comment.

8. Coordinate efforts with outside agencies if a detour plan is proposed for any legitimate alternatives. These outside agencies will include local and county officials and engineers. Documentation of support from the local and county officials for a specific detour route will be obtained and placed on file and in the Concept Development Report.

9. Upon selection of a PPA, hold a Local Officials Briefing – Governing Body to present the PPA to Oxford Township and Warren County for their acceptance and to request a Resolution of Support from each entity for the respective PPA. Failure to obtain a Resolution of Support from one or all of the local governing bodies does not necessarily preclude the advancement of the project if significant safety issues have been identified during the scoping process. Minutes of the meeting will be prepared and distributed to the attendees for comment.

10. Schedule a Public Information Center (PIC), if deemed necessary through coordination with the local governing bodies. Prepare the mailing list, PIC handout and presentation material as a means of distributing information to concerned citizens or groups. The mailing list will be comprised of the aforementioned key project stakeholders, those listed on page 7 and residents within a prescribed distance to the project limits.

11. Hold the PIC to solicit public input and comments with regard to the project need and conceptual solutions. Minutes of the meeting will be prepared and distributed for comment.

12. Reassess the PIAP to ensure that the identified strategies still adequately address the public involvement effort given current project circumstances.

Concept Development Meeting Schedule:

Activity	Target Audience	Objective	Tentative Date
Kick-Off Meeting	County and Municipal officials	Introduce project; Solicit comments/concerns from officials	May 2010
Local Officials Briefing – Governing Body	County and Municipal officials	Present the PPA to officials for their acceptance; Request a Resolution of Support	February 2011
Public Information Center (PIC)	General public, impacted and interested parties, key stakeholders, etc.	Present PPA and solicit comments	March 2011
Key Stakeholder Meetings	Businesses, residents, etc. who might be directly impacted by the project	Inform them of potential impacts; Solicit comments/concerns	TBD

Preliminary Engineering and Final Design: Once the project is transferred, the Project Manager will review and revise the PIAP, as necessary. The PPA will be furthered developed and the contract documents necessary to obtain the required environmental document and permits; and to bid the project for construction will be completed during these phases.

Public involvement activities that may be undertaken during Preliminary and Final Design are as follows:

1. Hold a PIC to allow the public to view the PPA in its current status.

2. Develop a project website or post on an agency(s) website to facilitate the dissemination of project information. Continually update the information posted on the website(s).

3. Reassess the PIAP to ensure the identified strategies still adequately address the public involvement effort for this project.

Construction: The Project Manager will review and revise the PIAP, as necessary. It is important to work closely with local officials and the business community during construction to ensure the least impact on traffic and business caused by construction.

The following steps in the PIAP will be important during Construction of the project:

1. Conduct pre-construction conferences and/or information centers to ensure maximum support for the construction schedule and minimal disruption to the community.

2. Utilize various agencies' websites to provide relevant information such as contact information, construction schedule, expected delays/lane closures, construction progress and to solicit feedback. Notifying the public about traffic patterns and potential delays will

be important during construction to facilitate the formation of positive public perception towards both the project and the NJDOT.

3. Review feedback provided by the public to determine if improvements can be instituted to construction activities.

PIAP DELIVERABLES:

Meeting Minutes: Minutes will be prepared of all public involvement meetings. The minutes will be comprehensive and include an action item list. The minutes will be completed within five (5) business days of the meeting and distributed to all of the attendees.

Project Fact Sheet: A Project Fact Sheet will be prepared and distributed at all meetings with local officials. The Project Fact Sheet will include a brief project history, project issues, project location map, and proposed alternatives. The Project Fact Sheet will be updated as the project progresses to reflect the most up-to-date project information available.

Traffic Simulations: Traffic simulations will be prepared and displayed at all appropriate public involvement meetings to convey existing and proposed traffic operations.

Display Boards: Display boards will be utilized to illustrate existing conditions and the proposed improvements to the local officials and the public. Project display boards may include project aerials, a project process display, project deficiency display, alternatives displays and a PPA display. The display boards will also be converted to .pdf files where possible so that they may be displayed via a projector when necessary.

KEY PROJECT STAKEHOLDERS:

The following is a list of the key stakeholders identified to date for this project:

Warren County

Warren County Board of Chosen Freeholders

- Freeholder Director Richard D. Gardner
- Freeholder Deputy Director Everette A. Chamberlain
- Freeholder Angelo Accetturo

Warren County Planning Department

- Planning Director, David K. Dech

Warren County Engineer's Office

- County Engineer David B. Hicks, P.E.
- Assistant County Engineer James A. Bernaski, P.E.

Oxford Township

Municipal Building
11 Green Street
Oxford, NJ 07863

- Mayor Don Niece
- Deputy Mayor Bonnie Riley
- Committeeman William Bray
- Township Engineer Michael Finelli
- Police Chief James McDonald (Washington Township)
- Fire Chief Rick Calabrese
- First Aid Captain Peggy Hissim

Stakeholders may be added throughout the project process as pertinent individuals/groups become evident.

Appendix U

PE Scope Statement

NJDOT Scope Statement

Preliminary Engineering

Route 31, Bridge over Furnace Brook

Purpose: The Preliminary Engineering Scope Statement lists the proposed project's deliverables and the activities required to create those deliverables. The scope statement also provides a common understanding of the proposed project's scope to stakeholders, subject matter experts, and the designer and lists the proposed project's major objectives. It enables the Project Manager to perform more detailed planning, it helps guide the design team's work during execution, and provides the baseline for evaluating whether change requests or additional work are contained within or outside the proposed project's boundaries.

Notes: The intent of the Preliminary Engineering (PE) Scope Statement is to provide useful project information to designers who are interested in becoming the designer of record for PE and possibly Final Design and Construction for this project. In addition, it will be used to solicit a man-hour estimate and cost proposal. The PE Scope Statement identifies the key elements of PE that are necessary to advance the proposed project to the Final Design (FD) Phase.

The PE Scope Statement is developed by the Division of Project Management (DPM) Project Manager and the Concept Development (CD) Designer near the conclusion of CD, prior to requesting the services of a designer to perform PE. The Scope of Work section is approved by the appropriate Subject Matter Experts (SME).

Section 1 of the document focuses on Proposed Project Identification Information and CD data including the location and description. Section 2 of the document specifies the Scope of Work for PE.

PROPOSED PROJECT IDENTIFICATION INFORMATION

PROPOSED PROJECT SPECIFICS

Proposed Project Name	Limits
Route 31, Bridge over Furnace Brook	MP 46.83
NJDOT Project Manager	**NJDOT Program Manager**
Robert Lee	Robert Lee (acting)
Counties	**Municipalities**
Warren Select County 2 Select County 3	Oxford Township ____ ____
UPC Number	093250
DB Number	09325
Legislative District(s)	24 ____ ____
Congressional District (s)	5 ____ ____
Route	NJ 31
Start Milepost	46.78
End Milepost	47.02
Alternate Route	____
Alternate Start Milepost	____
Alternate End Milepost	____
STIP Information	PE: FY 2014 ($0.3M), FD: FY 2016 ($0.4M), ROW: FY 2017 ($0.2M), CON: FY 2019 ($3.1M)
Structure Numbers	2111-154
Project Classification:	1 - Construction
MPO	NJTPA

NJDOT Scope Statement

Preliminary Engineering

Proposed Project Estimate

List the Proposed Project estimates for each category from Concept Development.

Project Item:	CD Phase Estimated Amount
ROW	$ 246,000
Utility Relocation	$ 245,900
Construction	$2,049,500
Construction Engineering	$ 360,700
Contingencies	$ 87,000
Total	$2,989,100

Concept Development Information

Date of Concept Development Report:	Mar. 2014 (anticipated)	**Date of Federal Approval of CD Report:**	____
Date of CPC decision to advance project to PE:	____		
CD Designer:	Greenman-Pedersen, Inc.		
PE to be Completed by (check one):	☐ In-House ☒ Consultant		

Purpose and Need: The overall purpose of this project is to replace Structure No. 2111-154, which carries NJ Route 31 over Furnace Brook (MP 46.83), to address its existing deficiencies. According to the 16th Cycle Report, the structure is structurally deficient due to the poor condition (advanced section loss to primary structural elements) of the superstructure with a sufficiency rating of 48.2. The 16th Cycle Report did not identify the bridge as scour critical based on the Bridge Scour Evaluation Program.

Description of Preliminary Preferred Alternative: The PPA consists of replacing the existing bridge with a precast concrete rigid frame single-span structure using two-stage construction while maintaining one lane in each direction along Route 31 and limited access along Wall Street during Stage 1. The PPA also includes replacing the existing traffic signal, adding ADA curb ramps, replacing guide rail, providing a standard width shoulder along Route 31 southbound, extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street to bring it into conformance with the NJDOT-RDM.

Project Goals and Objectives: It is the intent of this project to fulfill the purpose and address the needs while minimizing environmental, quality of life, access, right of way and utility impacts. Any proposed improvements will consider impacts to emergency services, school bus routes and road user costs.

Preliminary Engineering Information (to be filled in upon selection of a designer)

PE Designer:	TBD		
FMIS Contract ID Number (e.g., 89 00766):	____	**Funding Source:** ____	
Agreement Number (e.g., 2001PM03):	____		

NJDOT Scope Statement

Preliminary Engineering

Preliminary Engineering Deliverables

3.1 Preliminary Engineering Initiation	☒ Utility Agreement	☐ Environmental Assessment
☒ Kickoff Meeting Minutes	☒ Subsurface Utility Engineering Test Pit Report	☐ Finding of No Significant Impact (FONSI)
3.2 Roadway Engineering	☒ Updated Base Plans (With Identified Conflicts)	☒ Environmental Commitments/Plan Sheets
☒ Control Survey Report	☐ Railroad Diagnostic Team Meeting Memo of Record	☐ Historic Sites Council Concurrence
☒ Topographic Survey	**3.6 Quality Management**	**3.9 Preliminary Engineering Report**
☒ Base Maps	☒ PE Quality Management Certification	☒ Approved Project Plan
☒ Preliminary Drainage Design Report	**3.7 Communications**	☒ Construction Cost Estimate
☒ Traffic Engineering Facility Location	☒ Design Communications Report	☒ Design Exception Report
☒ Constructability and Maintenance Review Comments	**3.8 Environmental Documents**	☒ Final Design Scope Statement
☐ Preliminary ITS Facility Design Plans	*Technical Environmental Studies*	☒ Updated Project Management Plan
☒ Updated Preliminary Detour and Construction Staging Plans	☐ Air Study	☐ Project Management Plan (Major Projects
☒ Preliminary Roadway Plans	☐ Noise Study	☒ Alternatives Analysis Report
☒ Pavement Design Data	☐ Ecology Study	☒ Core Group Meeting Minutes
☒ Pavement Recommendation	☐ Hazardous Waste Study	☒ Final Design Public Involvement Action Plan
☒ Lighting Warrant Analysis Report	☐ Socio-Economic Study	☒ Complete Streets Checklist
☐ Initial Deforestation/ Reforestation Plan	☐ Cultural Resources Study	**3.10 Contracts**
☒ Preliminary Construction Schedule	*Section 4(f)*	*Final Design Addendum*
3.3 Structural Engineering	☐ Individual Section 4(f) Evaluation	☒ Final Design Designer Fee Proposal
☒ Structural Design Recommendation Summary	☐ Programmatic Section 4(f) Evaluation	
☒ Preliminary Geotechnical Engineering Report	☒ De Minimis Section 4(f) Evaluation	☒ Final Invoice
3.4 Right of Way and Access	☐ Net Benefit Section 4(f) Evaluation	*Final Design Independent Cost Estimate*
☒ Project Access Plan		☒ Summary Independent Cost Estimate Report
☒ Access Impact Summary	☐ Executive Order 215 (E.O. 215) Document	
☒ Right of Way Report		☒ Final Design Schedule
☒ Right of Way Impact Plan	☐ Environmental Impact Statement	☒ Final Design Budget
☒ Initial Right of Way Estimate	☐ Record of Decision (ROD)	☒ Notice of Authorization
3.5 Utility Engineering		**3.11 Preliminary Engineering Approvals**
☒ Utility Base Plans	☒ Categorical Exclusion Document	☒ Capital Program Screening Committee Recommendation
☒ Utility Letter No. 2	☐ Certified Categorical Exclusion Document	☒ Capital Program Committee Approval
☒ Utility Engineering Funding Authorization		☒ FHWA Approval

Summary of Commitments

List any commitments made to the public, local officials or other government agencies:

Project Commitment	Unit Requesting the Commitment	Unit Fulfilling Commitment	Special Needs
Architectural treatment for proposed structure to mimic existing stone fascia (i.e. form liner, veneer, etc.)	SHPO	NJDOT	
Two-rail parapet on both sides	SHPO	NJDOT	

List any anticipated commitments that may be made:

NJDOT Scope Statement

Preliminary Engineering

APPROVAL

Name	Title	Date Approved
Robert Lee	Project Manager Division of Project Management	7/24/14
Robert Lee (acting)	Program Manager (ACTING) Division of Project Management	7/24/14
Eli D. Lambert, III P.E.	Director Division of Project Management	8/4/14
Joseph Sweger	Manager Bureau of Landscape Architecture and Environmental Solutions	11 Aug 2014

PRELIMINARY ENGINEERING SCOPE OF WORK

Table of Contents

Page

Right of Way 7
Access 9
Drainage Management, Regional Maintenance, Hydrology and Hydraulics 10
Landscape 11
Environmental 13
Quality Management Services 22
Utilities 23
Jurisdiction 25
Geometrics & Roadway 26
Pavement 30
Structures 31
Geotechnical 35
Survey 36
Railroads 38
Construction 39
Traffic Signal and Safety Engineering 40
Electrical 42
Traffic Operations and Intelligent Transportation System (ITS) Engineering 43
Commuter Mobility 44
Technical and Administrative Activities 46
Summary of Approvals 49

NOTE: The PE Designer will perform the tasks associated with PE as so marked, in preparation for Final Design. The Project Manager will review and negotiate the proposal, execute the Agreement and instruct the designer to begin work. The Project Manager will direct the proposed project through PE.

Right of Way

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3110	Prepare ROW Report	☒ Yes ☐ No	☒ Designer	
3115	Initiate ROW Impact Plan	☒ Yes ☐ No	☒ Designer	
3120	Hold ROW Kickoff Meeting	☒ Yes ☐ No	☒ ROW ☒ DPM ☒ Designer	
3125	Prepare Initial ROW Estimate	☒ Yes ☐ No	☒ ROW ☐ DPM	

Total Number of Parcels: 10

1. Fee Parcel /Easements

Number of fee parcels (partial):	0	**Number of fee parcels (entire):**	0	**Number of residential relocations:**	0
Number of permanent easements (E parcels):	9	**Number of temporary easements:**	1	**Number of commercial relocations:**	0

2. List any known or potential environmental problems or issues that may impact Right of Way processes or decisions (cross reference with the Environmental section of the Scope Statement document: _____

3. List any environmentally sensitive parcels (ESPs), underground storage tanks, freshwater wetlands: _____

4. Identify Riparian Parcels (currently flowed), Easements and/or Green Acres Diversions by contacting NJDEP for any Right of Way to be acquired: _____

5. Identify parcels that can be eliminated by design change modifications and attempts to mitigate damages suffered by the remaining properties. _____

6. Decision to expand parcel for further use or contingency. _____

7. List the number of Non Real Estate Engineering (NRE) parcels. _____

8. List any commitments and conditions made to the public or to private property owners that may impact Right of Way processes or decisions: _____

9. Green Acres mitigation method: ☒ **Dollar Reimbursement** ☐ **Property Replacement**

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include number and type of parcels, known environmental problems, riparian parcels, public commitments, etc.

Block	Lot	Location	Total Area	Temporary Easement	Slope Easement	Utility Easement
6	7	157 Route 31	0.210 ac.	-	-	0.033 ac.
6	8	157 Route 31	0.030 ac.	-	-	0.011 ac.
6	15	22 Kent Road	0.880 ac.	-	-	0.009 ac.
6	16	149 Route 31	0.580 ac.	-	-	0.025 ac.
41	4	150 Route 31	0.790 ac.	-	-	0.023 ac.
41	5	21 Wall Street	0.410 ac.	-	-	0.041 ac.
42	5	20 Wall Street	3.360 ac.	-	-	0.002 ac.
42	13	186 Route 31	0.720 ac.	-	0.057 ac.	-
42	14	170 Route 31	4.200 ac.	-	0.032 ac.	-
44	1	4 Wall Street	0.040 ac.	0.004 ac.	-	-

NJDOT Scope Statement

Preliminary Engineering

Access

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3105	Prepare Project Access Plan and Access Impact Summary	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ OAD	

Number of Adjustments:	2	Number of Modifications:	2	Number of Revocations:	0

1. Note any pending agreements or access applications within the proposed project limits: Block 41, Lot 4
2. Are proposed left turn lanes in compliance with the Access Level? ☒ Yes ☐ No
3. Is the proposed Typical Section of the roadway in compliance with the Highway Access Code? ☒ Yes ☐ No
4. Total No. of Driveways impacted: 4
5. Any commercial properties with access modifications and/or Revocations that have potential impacts to site parking slots, circulations and operation of business? ☐ Yes ☒ No
   If yes, provide details of impact with Block and Lot Nos. _____
6. Any commercial properties that will require necessary assistance in the establishment of the alternative access (as per NJAC 16:47-4.33)? ☐ Yes ☒ No
   If yes, provide details of assistance with Block and Lot Nos. _____
7. Any commercial properties that will require the preparation of an Access Impact Assistance (AIA) report? ☐ Yes ☒ No
   If yes, provide Block and Lot Nos. _____

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include number of driveways impacted, pending agreements or major access permit applications, driveway modifications causing circulation issues, alternative access issues, Access Impact Assistance issues, etc.

Several driveways within the project limits do not comply with the Access Code, but were not identified as significant crash generators. Skylands Bank (Block 6, Lot 7) and the U.S. Post Office (Block 42, Lot 14.01) require reconstruction of existing driveways within State ROW due to proposed improvements. It is anticipated that waivers will be obtained for any driveways that do not meet the Access Code. OAD does not have record of access changes for Block 41, Lot 4.

Drainage Management
Regional Maintenance
Hydrology and Hydraulics

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3085	Prepare Preliminary Drainage Design	☒ Yes ☐ No	☐ DPM ☒ Designer	

Drainage Management

1. Identify all existing drainage deficiencies as per the Drainage Management System: No DMS ranking

Regional Maintenance

2. Identify all existing drainage deficiencies (undersized system, excessive spread into travel lanes, insufficient inlets, flooding at low points, etc.): None

Hydrology and Hydraulics

3. List proposed improvements including outfalls (especially tidal): Improvements limited to relocation/resetting of existing inlets.
4. Is compliance with Stormwater Management rules triggered (> 1/4 acre new impervious surface, or 1 acre disturbance)? ☐ Yes ☒ No
5. Identify all NJDEP permits required: 3 - Freshwater Wetlands, Flood Hazard Area, Water Quality Certificate
6. List proposed structural Best Management Practices (BMP) (e.g., Bioretention System, Constructed Wetlands, extended detention basins, infiltration system, wet ponds, porous pavement): Structural BMP not anticipated
7. List proposed nonstructural BMP (e.g., Vegetation and Landscaping, Minimize Site Disturbance, Impervious Area Management, and Time of Concentration Modifications): None
8. Identify drainage outflow owner: _____ Will property rights need to be acquired? ☐ Yes ☒ No

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include drainage deficiencies, new/improved outfalls, storm water management rules, permits, Best Management Practices (structural and non-structural), easements/right-of-way, etc.

Based on the potential for negative impacts upstream and downstream of the bridge, it is recommended that the hydraulics of the bridge opening (span and low chords) remain unchanged and be replaced in-kind with minimal modifications (if any) to the road profile.

Landscape

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3010	Determine and Calculate Deforested Areas	☐ Yes ☒ No	☐ BLAES ☐ Designer	

1. List any landscape architecture related commitments such as:

a. Wetland or Riparian Mitigation Planting:	
b. Historic Site commitments	
c. Vegetative Screens or Buffers	
d. Noise Barrier Aesthetics:	
e. Architectural Treatments on Bridge Retaining Walls:	
f. Tree Removal Mitigation:	
g. Urban Design Work (paving, streetscapes, etc.):	
h. Aesthetic plantings:	
i. Existing tree preservation and protection:	
j. Reforestation Application:	

2. Anticipated visualization work for in-house and public information meetings:

a. Rendered Plans:	
b. 2D computer generated before & after photographs:	
c. 3D computer generated mode:	

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include screens or buffers, aesthetic plantings, mitigation plantings, reforestation, etc.

It is anticipated that less than ½ acre of forested land will be impacted at each project location, therefore replanting as per the No Net Loss Reforestation Act is not required.

Environmental

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3300	Initiate Cultural Resources (Section 106) Process	☒ Yes ☐ No	☒ BLAES ☐ Designer	Concurrence in CD; Coord. may be required in PE.
3305	Conduct CR Survey	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3310	Prepare CR Survey Report	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3315	Review CR Survey Report	☐ Yes ☒ No	☐ BLAES	
3320	Address Comments on CR Survey Report	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3325	Approve CR Survey Report	☐ Yes ☒ No	☐ BLAES	
3330	Obtain SHPO Concurrence (No Resources, No Effect, No Adverse Effect)	☐ Yes ☒ No	☐ BLAES ☐ SHPO	
3335	Prepare Draft MOA (Adverse Effect Only)	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3340	Obtain SHPO Concurrence (No Adverse Effect with Conditions or Adverse Effect)	☐ Yes ☒ No	☐ BLAES ☐ SHPO	Obtained in CD
3345	Obtain FHWA Approval of CR Survey Report	☐ Yes ☒ No	☐ FHWA ☐ BLAES	
3350	Prepare Adverse Effect Documentation & Submit to FHWA (Adverse Effect Only)	☐ Yes ☒ No	☐ BLAES	
3355	FHWA Sends Adverse Effect Documentation to ACHP	☐ Yes ☒ No	☐ FHWA	
3360	ACHP Reviews and Accepts or Declines Participation	☐ Yes ☒ No	☐ ACHP	
3365	Resolve Adverse Effects	☐ Yes ☒ No	☐ BLAES ☐ FHWA	
3370	Circulate MOA for Comment	☐ Yes ☒ No	☐ BLAES	

3375	Prepare Final MOA	☐ Yes ☒ No	☐ BLAES	
3380	Execute the MOA	☐ Yes ☒ No	☐ BLAES ☐ DPM ☐ FHWA ☐ ACHP ☐ SHPO	
3390	Submit Historic Sites Council Application	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ SHPO	
3395	Present to Historic Sites Council	☐ Yes ☒ No	☐ BLAES ☐ Historic Sites Council	
3400	Inform Jurisdictional Agency Regarding Programmatic Section 4(f) Impacts	☐ Yes ☒ No	☐ BLAES	Wilkinson Field, Kent Rd
3405	Receive Concurrence Regarding Programmatic Section 4(f) Impacts	☐ Yes ☒ No	☐ Jurisdictional Agencies	
3410	Prepare Programmatic Section 4(f) Evaluation	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3420	Prepare De Minimis Section 4(f) Evaluation	☒ Yes ☐ No	☒ BLAES ☐ Designer	
3425	Prepare Programmatic Net Benefit Section 4(f) Evaluation	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3430	NJDOT Reviews Programmatic Section 4(f) Evaluation	☐ Yes ☒ No	☐ BLAES	
3435	Revise Programmatic Section 4(f) Evaluation (NJDOT Comments)	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3440	FHWA Reviews Programmatic Section 4(f) Evaluation	☐ Yes ☒ No	☐ FHWA	
3445	Revise Programmatic Section 4(f) Evaluation (FHWA Comments)	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ FHWA	
3450	FHWA Approves Programmatic Section 4(f) Evaluation	☐ Yes ☒ No	☐ FHWA	
3460	Inform Jurisdictional Agency Regarding Draft Individual Section 4(f) Impacts	☐ Yes ☒ No	☐ BLAES	
3465	Receive Concurrence Regarding Draft Individual Section 4(f) Impacts	☐ Yes ☒ No	☐ Jurisdictional Agencies	

3470	Prepare Draft Individual Section 4(f) Evaluation	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3475	NJDOT Reviews Draft Individual Section 4(f) Evaluation	☐ Yes ☒ No	☐ BLAES	
3480	Revise Draft Individual Section 4(f) Evaluation (NJDOT Comments)	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3485	FHWA Reviews and Comments on Draft Individual Section 4(f) Evaluation	☐ Yes ☒ No	☐ FHWA	
3490	Revise Draft Individual Section 4(f) Evaluation (FHWA Comments)	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ FHWA	
3495	Conduct Draft Individual Section 4(f) Legal Sufficiency Review	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ FHWA	
3500	Circulate Draft Individual Section 4(f) Evaluation	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3505	Prepare Final Individual Section 4(f) Evaluation	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3510	FHWA Approves Final Individual Section 4(f) Evaluation	☐ Yes ☒ No	☐ FHWA	
3520	Inform Green Acres Program and Local Officials	☒ Yes ☐ No	☒ BLAES	Wilkinson Field, Kent Rd
3525	Receive Concurrence on Green Acres Impacts	☒ Yes ☐ No	☒ Green Acres Prog. ☒ Local Officials	
3530	Hold Green Acres Pre-Application Meeting	☒ Yes ☐ No	☒ BLAES ☒ Designer	
3535	Negotiate Green Acres Compensation	☒ Yes ☐ No	☒ BLAES ☒ Designer ☒ Green Acres Prog. ☒ Local Officials ☒ ROW Tech. Support	
3540	Identify Alternatives (EA Only)	☐ Yes ☒ No	☐ BLAES ☐ DPM ☐ Designer	
3545	Prepare EA or EA/4(f)	☐ Yes ☒ No	☐ Designer	
3550	NJDOT Reviews EA	☐ Yes ☒ No	☐ BLAES	

3555	Revise EA (NJDOT Comments)	☐ Yes ☒ No	☐ Designer	
3560	FHWA Reviews EA	☐ Yes ☒ No	☐ FHWA	
3565	Revise EA (FHWA Comments)	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3570	FHWA Approves EA	☐ Yes ☒ No	☐ FHWA	
3575	Conduct Draft Individual Section 4(f) Legal Sufficiency Review (EA)	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ FHWA	
3580	Circulate EA	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3585	Hold EA Public Hearing and Comment Period	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ CCR	
3590	Address EA Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ FHWA	
3595	Submit FONSI Request Package	☐ Yes ☒ No	☐ BLAES	
3600	FHWA Approves Final Individual Section 4(f) (EA)	☐ Yes ☒ No	☐ FHWA	
3605	FHWA Reviews and Issues FONSI	☐ Yes ☒ No	☐ FHWA	
3610	Publish Notice of FONSI Availability	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ CCR	
3620	Publish Notice of Intent in Federal Register (EIS Only)	☐ Yes ☒ No	☐ BLAES ☐ FHWA	
3625	Invite Cooperating Agencies (EIS Only)	☐ Yes ☒ No	☐ FHWA	
3630	Hold NEPA Scope Meeting (EIS Only)	☐ Yes ☒ No	☐ BLAES ☐ DPM ☐ Designer ☐ FHWA	
3635	Prepare Alternatives Analysis Report	☐ Yes ☒ No	☐ BLAES ☐ DPM ☐ Designer	
3640	Prepare DEIS or DEIS/4(f)	☐ Yes ☒ No	☐ Designer	

3645	NJDOT Reviews DEIS	☐ Yes ☒ No	☐ BLAES	
3650	Revise DEIS (NJDOT Comments)	☐ Yes ☒ No	☐ Designer	
3655	FHWA Reviews DEIS	☐ Yes ☒ No	☐ FHWA	
3660	Revise DEIS (FHWA Comments)	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3665	FHWA Approves DEIS to Circulate	☐ Yes ☒ No	☐ FHWA	
3670	Publish Notice of Availability in Federal Register (DEIS)	☐ Yes ☒ No	☐ BLAES ☐ EPA	
3675	Circulate DEIS	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3680	Hold EIS Public Hearing and Comment Period	☐ Yes ☒ No	☐ BLAES ☐ CCR ☐ Designer	
3685	Address Public and Agency Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3690	Select Final Alternative	☐ Yes ☒ No	☐ DPM ☐ FHWA ☐ SME's	
3215	Present to Capital Program Screening Committee	☐ Yes ☒ No	☐ DPM	
3220	Capital Program Committee Approves Final Alternative	☐ Yes ☒ No	☐ DPM ☐ CPC	
3700	Prepare and Submit FEIS	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3705	FHWA Reviews and Comments on FEIS	☐ Yes ☒ No	☐ FHWA	
3710	Address FEIS Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3715	FHWA Reviews FEIS for Legal Sufficiency and Approval	☐ Yes ☒ No	☐ BLAES ☐ Designer ☐ FHWA	
3720	Publish EIS Notice of Availability in Newspaper	☐ Yes ☒ No	☐ BLAES ☐ CCR	
3725	Publish FEIS Notice in Federal Register	☐ Yes ☒ No	☐ BLAES ☐ EPA	

3730	FHWA Publishes ROD in Federal Register	☐ Yes ☒ No	☐ FHWA	
3735	Circulate FEIS	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3740	Conduct Air Quality Study	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3745	Prepare Air Quality TES	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3750	NJDOT Reviews Air Quality TES	☐ Yes ☒ No	☐ BLAES	
3755	Address Air Quality TES Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3760	Approve Air Quality TES	☐ Yes ☒ No	☐ FHWA ☐ BLAES	
3765	Conduct Ecology Study	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3770	Prepare Ecology TES	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3775	NJDOT Reviews Ecology TES	☐ Yes ☒ No	☐ BLAES	
3780	Address Ecology TES Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3785	Approve Ecology TES	☐ Yes ☒ No	☐ BLAES	
3790	Conduct Socio-Economic Study	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3795	Prepare Socio-Economic TES	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3800	NJDOT Reviews Socio-Economic TES	☐ Yes ☒ No	☐ BLAES	
3805	Address Socio-Economic TES Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3810	Approve Socio-Economic TES	☐ Yes ☒ No	☐ BLAES	
3815	Conduct Noise Study	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3820	Prepare Noise TES	☐ Yes ☒ No	☐ BLAES ☐ Designer	

3825	NJDOT Reviews Noise TES	☐ Yes ☒ No	☐ BLAES	
3830	Address Noise TES Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3835	Approve Noise TES	☐ Yes ☒ No	☐ BLAES ☐ FHWA	
3840	Conduct Hazardous Waste Study	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3845	Prepare Hazardous Waste TES	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3850	NJDOT Reviews Hazardous Waste TES	☐ Yes ☒ No	☐ BLAES	
3855	Address Hazardous Waste TES Comments	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3860	Approve Hazardous Waste TES	☐ Yes ☒ No	☐ BLAES	
3865	Hold Public Information Center	☒ Yes ☐ No	☒ BLAES ☒ CCR ☒ Designer ☒ DPM	
3870	Prepare CED	☒ Yes ☐ No	☒ BLAES ☐ Designer	
3875	NJDOT Reviews and Approves CED	☒ Yes ☐ No	☒ BLAES	
3880	Initiate Environmental Technical Studies	☒ Yes ☐ No	☒ BLAES	
3890	Prepare Certified Categorical Exclusion (CCED) Document	☐ Yes ☒ No	☐ BLAES	
3900	Review and Approve Certified Categorical Exclusion Document (CCED)	☐ Yes ☒ No	☐ BLAES	
3910	Prepare Draft EO 215 Document	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3920	NJDOT Reviews Draft EO 215 Document	☐ Yes ☒ No	☐ BLAES	
3925	Revise Draft EO 215 Document (NJDOT Comments)	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3930	NJDEP Reviews EO 215 Document	☐ Yes ☒ No	☐ NJDEP	

3940	Address NJDEP Comments and Prepare Final EO 215 Document	☐ Yes ☒ No	☐ BLAES ☐ Designer	
3945	NJDEP Approves EO 215 Document	☐ Yes ☒ No	☐ NJDEP	

Anticipated Environmental Document: ☐ CCED ☒ CED ☐ EA ☐ EIS ☐ EO 215

Total Number of Permits: 3

1. List any environmental impacts and/or issues: Slope easement required from Wilkinson Field (Block 42, Lot 14) and utility easement required from Kent Road (Block 6, Lot 15). Both are Green Acres properties. Easements will not impact the use of the properties.
2. List any environmental commitments (made in approved environmental documents, through Memoranda of Agreement with environmental agencies, other commitments made to the public, local officials or other government agencies such as 4f, Section 106 (historic architecture, archaeology), air, noise, hazardous waste and ecology: SHPO: architectural treatment to proposed structure.
3. Check the environmental clearances or permits required on the project:

Federal

☐ U.S. Coast Guard (Bridge)
☐ USACOE Section 404 (Individual/Nationwide) discharge of fill
☐ USACOE Section 10 (Navigable Waters)
☐ USACOE Section 9 (Dam or Dike)
☐ National (or State) Wild & Scenic Rivers
☐ USDOA Forms AS-1006
☐ Section 7 Endangered Species Consultation
☐ NMFS Essential Fish Habitat Study

State

☐ CAFRA
☐ NJDEP Water Lowering
☐ NJDEP Riparian
☐ Hazardous Waste Site Investigation (SI/RI)
☐ HazWaste Remedial Action Work plan
☐ NJDEP Sanitary Facilities
☐ NJDEP Tidal Wetlands
☐ NJDEP Waterfront Development
☒ NJDEP Freshwater Wetlands
☐ NJDEP NJPDES Stormwater Construction GP (RFA)
☐ NJDEP Pollutant Discharge
☒ NJDEP Flood Hazard Area
☒ NJDEP Water Quality Certificate

Other

☐ Delaware River Basin Commission
☐ Delaware & Raritan Canal Commission
☐ Hackensack Meadowlands Commission
☐ Pinelands Commission
☐ Highlands Commission
☐ State Agriculture Development Commission

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include a list of the anticipated NEPA document, type of permits anticipated, anticipated environmental impacts and environmental commitments made in CD if any, etc.

Potential environmental constraints identified within the Screening include freshwater wetlands, rare, threatened and/or endangered species/habitats and Section 4(f) land associated with Wilkinson Field. Furnace Brook is a Freshwater, Trout Production Category 1 waterway (FW2-TPC1). Therefore, riparian buffers along the watercourse are 300 feet. Due to the possible presence of the threatened and/or endangered species, the wetlands may have transition areas of 150 feet. Hazardous waste sites identified within the vicinity of the project include US Gas at the corner of Route 31 and Kent Street and American Mfg. Int., Inc. located along Wall Street. The Screening did not identify any "fatal flaws". Block 6, Lot 15 is a Green Acres property and may be an environmental contraint.

BLAES coordinated with SHPO, as the project lies within the Oxford Industrial Historic District, even though SHPO previously determined that Structure No. 2111-154 is not individually eligible and is not a contributing resource to the District (June 6, 1995). In a letter dated August 27, 2013, SHPO stated the following:

- No additional work to identify archeological resources is required at this time since proposed ground disturbance is within previously disturbed areas.
- The proposed undertaking will have no adverse effect upon the Historic District provided the design is compatible with the historic and architectural character of the District.

While not specifically noted in their letter, SHPO has also requested a stone treatment on the structure to mimic the existing fascia of the stone arch section and two-rail parapet on both sides of the structure.

Based on the project need, environmental considerations and the PPA, this project does not individually or cumulatively have significant environmental impacts. Therefore, the National Environmental Policy Act (NEPA) document classification is anticipated to be a Categorical Exclusion.

Quality Management Services

Activity No.	Activity Name	Execute	Responsible Unit	Comments
		☒ Yes ☐ No		

Quality Management Services Reviewed? ☐ Yes ☒ No

Value Analysis to be Performed? ☐ Yes (if total cost of project >$20 million) ☒ No

Combined Estimated Cost of Construction, ROW, and Utilities: ☐ <$3 million ☒ $3-5 million ☐ $5-$15 million ☐ >$15 million

Lane Occupancy Charges and Road User Costs to be completed? ☒ Yes ☐ No

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include QMS review, lane occupancy charges/road user cost information, etc.

Lane occupancy and road user costs to be calculated in PE.

Utilities

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3035	Prepare Utility Base Plans	☒ Yes ☐ No	☒ Designer	
3040	Establish Utility Engineering Funding	☒ Yes ☐ No	☒ DPM ☐ Designer ☒ Program Coord.	
3045	Send Letter No. 2 and Plans to Utility Company	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ Utility Co.	
3050	Prepare Utility Agreement	☒ Yes ☐ No	☒ DPM ☐ Designer	
3055	Update Base Plans and Identify Conflicts	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ Utility Co.	
3060	Execute Utility Agreement	☒ Yes ☐ No	☒ DPM ☒ Utility Co. ☒ DAG	
3080	Conduct Subsurface Utility Engineering (SUE)	☐ Yes ☒ No	☐ DPM ☐ Designer ☐ SUE Contractor ☐ Utility Co.	
3985	Update Utility Risk Assessment Plan	☐ Yes ☒ No	☐ DPM ☐ Designer	Not a pilot project

Total Number of Utility Companies: 6

Utility Type	Utility Company	Size (Units of Measure)	Location (aerial/underground)
Gas	Elizabethtown Gas	Pipe	underground
Electric	JCP&L	Volts	aerial
Cable	Comcast	Pairs/ Strands	aerial
Telephone	Century Link	Pairs/ Strands	aerial
Water	NJ American Water, Warren County MUA	Pipe	underground
Sewer	Oxford Township DPW	Pipe	underground
Fiber-Optic (non-Department)			
Other:			
Other:			
Other:			
Other:			

1. Identify if the Utility Discover and Verification requires sub-surface utility exploration: Yes
2. Is a SUE (Subsurface Utility Engineering) Consultant required? ☐ Yes ☒ No
3. Identify Potential Conflicts: aerial facilities and poles
4. Identify Temporary Relocations that are needed during construction: _____
5. Number of poles? 7
6. Number of guy wires on existing poles? _____
7. Are there cell towers or substations? No
8. Can utility relocations be avoided or performed in advance of the project? Possibly
9. Can utility design/construction be performed by designer/contractor? Yes
10. Can ROW needed for utilities be identified? Yes

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include location of cell towers, location/presence of fiber optic lines, etc.

Aerial facilities in the vicinity of the structure and signalized intersection of Route 31 and Wall Street will require relocation in the proposed condition (per the NJDOT Utility Accommodation Policy (N.J.A.C. 16-25-5)).

Jurisdiction

Activity No.	Activity Name	Execute	Responsible Unit	Comments
		☐ Yes ☒ No		

Total Number of Maps: _____ Total Number of Agreements: _____

Are there streetscape or esthetic items intended for this project? ☐ Yes ☒ No

If yes, has a resolution of support been acquired for jurisdictional assignment? ☐ Yes ☐ No ☐ NA

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include the anticipated number of maps and agreements, presence of streetscape or aesthetic treatments, local approval of such, etc.

Preparation of jurisdictional maps and agreements to be performed in FD (Activity Nos. 4100 and 4105).

Geometrics & Roadway

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3030	Prepare Horizontal & Vertical Geometry	☒ Yes ☐ No	☐ DPM ☒ Designer	
3070	Prepare Preliminary Roadway Plans	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ SME's	
3135	Prepare Construction Cost Estimate	☒ Yes ☐ No	☐ DPM ☒ Designer	
3150	Prepare Design Exception Report	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ QMS ☐ State Trans. Engr. ☐ FHWA	
3165	Finalize Project Plan	☒ Yes ☐ No	☐ DPM ☒ Designer	

Construction Plans/Estimated Number of Sheets

Roadway and Bridges

1	Key Map	4	Grades	1	Method of Cross Sections
1	Estimate-Distribution of Quantities	4	Traffic Control and Staging Plans	5	Cross Sections
2	Typical Sections	10	Traffic Control Plans	____	Alternate Retaining Wall System
1	Plan Sheet Index	____	ITS Plans	1	Estimate of Quantities – Bridge
4	Construction Plans	5	Electrical Details	1	Earthwork Summary
4	Environmental Plans	3	Traffic Signal Plans	1	Earthwork Chart Sheet
2	Profiles	____	Highway Lighting Plans	5	Non-standard Roadway Construction Details
1	Ties	____	Landscape Plans	10	Non-standard Bridge Construction Details
		4	Traffic Signing and Striping Plans	____	Drainage Plans

Right of Way Documents

____	Entire Tract Map	____	Tabulation Sheets	10	Individual Property Maps (IPM)
1	General Property Parcel Maps	10	Parcel Descriptions	____	Alignment Sheets

Other Documents

1	Jurisdictional Maps	6	Utility Agreements Plans	____	Railroad Crossing Element Plans
1	Project Specific Specifications				

Are there any additional documents? ☒ Yes ☐ No

Please identify any additional documents: Bridge plans (GPE, cross section and profile, staging details, abutments, etc.)

1. Existing Roadway(s):

	Roadway No. 1	Roadway No. 2	Roadway No. 3	Roadway No. 4
Roadway Name:	NJ 31, South of Wall St	NJ 31, North of Wall Street	Wall Street	
Posted Speed(s):	**40 mph**	**45 mph**	**25 mph**	
Highway Classification:	Urban principal arterial	Urban principal arterial	Local road	
Significance (local or regional):	Regional	Regional	Local	
No. of Interchanges:	0	See No. 1	0	
Traffic Volumes:	11,164 (2009)			
Design Speeds:	45 mph	50 mph	30 mph	
Development Class:				
No. of Traffic Signals:	1	See No. 1	1	
No. of Intersections:	3	See No. 1	0	

2. Typical Section(s):

	Typical Section No. 1	Typical Section No. 2	Typical Section No. 3	Typical Section No. 4
Right of Way width:	80'	80'	40-60'	
Number of Lanes:	4	2	2	
Lane width & cross slope:	12'	12'	15-21'	
Shoulder width & cross slope:	No shoulder	10-24'	0'	
Median width:				
Sidewalk/border width:	16'	16'	Varies	
Median description and the overall roadway width:				

3. Intersection/Interchange (describe the existing intersection and/or interchanges including turning and auxiliary lanes.): The signalized intersection of Route 31 and Wall Street is a four-legged intersection controlled by a two-phase signal. The Route 31 northbound approach consists of shared left/through and through/right lanes and two receiving lanes. The Route 31 southbound and Wall Street approaches consist of a shared left/through/right lane and one receiving lane. A Red Signal Ahead sign exists along Route 31 northbound approximately 1,300 feet south of the stop line for the northbound approach.

4. Existing Deficiencies (provide an overview of the existing deficiencies. *Geometric*: Substandard horizontal and vertical sight distance, insufficient sight triangle, substandard vertical clearance, substandard or no shoulders, acceleration/deceleration lanes, etc. *Safety Issues*: check crash data for indicators of specific problems. Substandard/nonexistent guiderail, attenuators, pavement condition, skid resistance, median, etc. Note on substandard guiderail: the project limits should be extended to include upgrading any existing substandard guiderail run that extends beyond the proposed work limits as required by the Design Manual.): Substandard superelevation along Route 31 south of Furnace Brook. Substandard and/or nonexistent shoulders. Substandard auxiliary lane as only one receiving lane exists along Route 31 northbound for the two through approach lanes.

5. Proposed Improvements (provide a brief narrative of the proposed improvements and how they address the identified deficiencies. Note changes to be made to profiles, alignment, guiderail, and typical section): The proposed cross section along Route 31 in the vicinity of the structure will consist of three 12-foot wide travel lanes, a three-foot wide shoulder adjacent to the reconstructed concrete island, a 12-foot wide southbound shoulder and a six-foot wide sidewalk on the west side of the structure. The proposed cross section along Wall Street will consist of two 12-foot wide travel lanes with a 10-foot shoulder. The wide shoulder along Route 31 southbound north of Wall Street will be reduced to a 12-foot wide shoulder, allowing for a consistent shoulder width through the intersection and reduced crossing time for pedestrians. The auxiliary lane would be 15 feet in width and 760 feet in length with a 300-foot taper.

6. Bicycle/Pedestrian Compatible? ☒ Yes ☐ No

If no, please explain: _____

7. Design Exception(s):

a. Is a Design Exception required?	☒ Yes	☐ No
b. List substandard features that are to remain and require Design Exception: Superelevation, shoulder width		
c. Has the Design Exception Crash Analysis been received from the Bureau of Safety Programs?	☒ Yes	☐ No
d. Has the Design Exception Crash Data for each controlling substandard design element been requested from the Bureau of Safety Programs?	☒ Yes	☐ No
e. Has FHWA provided preliminary concurrence on the Design Exceptions decisions (a) and (b) above?	☐ Yes	☒ No
f. Has Quality Management Services provided Reasonable Assurance on the Design Exceptions decisions (a) and (b) above	☒ Yes	☐ No

8. List any commitments made to the public, local officials or other government agencies: _____

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include a discussion of substandard design elements, design exceptions, and perhaps a quick description of the proposed geometry if it is unusual, commitments made to the community, etc.

The PPA consists of replacing the existing bridge with a precast concrete rigid frame structure using two-stage construction while maintaining one lane in each direction along Route 31 and limited access along Wall Street during Stage 1. The PPA also includes replacing the existing traffic signal, reducing the width of the southbound shoulder at the intersection and extending the auxiliary lane along Route 31 northbound through the intersection and north of Wall Street to bring it into conformance with the NJDOT-RDM.

In an email dated November 7, 2013, and in response to a memorandum dated October 2, 2013, Value Solutions provided reasonable assurance of design exception approval for the aforementioned substandard features.

Value Solutions/Design Stadards Unit Comments:
The intersection must be brought up to ADA sdtandards.

Pavement

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3960	Obtain Pavement Design Data	☒ Yes ☐ No	☒ DPM ☐ Designer	
3970	Collect Existing Pavement and Subgrade Soil Information	☒ Yes ☐ No	☐ Pvmt. Design Unit ☒ Designer	
3975	Conduct Pavement Testing Program	☒ Yes ☐ No	☐ Pvmt. Design Unit ☒ Designer	
3980	Prepare Pavement Recommendation	☒ Yes ☐ No	☒ Pvmt. Design Unit ☐ Designer	

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include evidence of subsurface drainage issues, settlement problems, stability problems, etc.

It is anticipated that the NJDOT Pavement Design Unit will provide the required proposed pavement section to DPM.

Structures

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3100	Prepare Structural Design Recommendation Summary	☒ Yes ☐ No	☒ Designer ☒ SME's	

Total Number of New Bridges:	0	**Total Number of New Spans:**	
Total Number of Rehab Bridges:	0	**Total Number of Rehab Spans:**	
Total Number of Replacement Bridges:	1	**Total Number of Replacement Spans:**	

1. Condition of existing bridge(s):

	Bridge No. 1	Bridge No. 2	Bridge No. 3	Bridge No. 4
a. NJDOT Structure Number:	2111-154			
b. Year Built:	1920 (stone arch c. 1875)			
c. Date/type of any major modifications:	1953			
d. Type & material of superstructure:	steel stringer, concrete slab, masonry arch			
e. Type and material of substructure:	gravity abutments, spread footings			
f. Feature that is spanned:	Furnace Brook			
g. Type of roadway it carries:	Urban principal arterial			
h. Vertical Clearance of structure if it spans a roadway or railroad:				
i. Number of Spans:	1			
j. Length of Structure:	26 ft			
k. Width of Structure:	86 ft c-c, 94 ft o-o			
l. Horizontal Clearance of the pier/abutment with respect to the riding lane:				
m. Typical Section (number of lanes, width	(4)-12 ft lanes (Rt 31); 14 ft			

	Bridge No. 1	Bridge No. 2	Bridge No. 3	Bridge No. 4
and cross slope and width of each sidewalk):	NB, 21 ft SB lane (Wall St)			
n. Parapet railing Type:	concrete w/ two-rail metal, stone masonry			
o. Identify the structural deficiencies:				
p. Bridges over waterways (Identify scouring evaluation, bridge opening capacity, and frequency of storm):	Not scour critical			

2. Proposed Bridge(s)/Bridge Improvements:

	Bridge No. 1	Bridge No. 2	Bridge No. 3	Bridge No. 4
a. Number of spans:	1			
b. Identify the type of maintenance of traffic that will be used (staging or detour):	Staging			
c. Identify the changes to the typical section of the existing structure:	Add outside shoulder & sidewalk			
d. Vertical Clearance of structure if it spans a roadway or railroad:				
e. Length of Structure:	26 ft			
f. Width of Structure:	86 ft c-c, 96 ft o-o			
g. Horizontal Clearance of the pier/abutment with respect to the riding lane:				
h. Typical Section (number of lanes, width and cross slope and width of each sidewalk):	(3)-12 ft lanes, 12 ft shdr (Rt 31); (2)-12 ft lanes, 10 ft shdr (Wall St), 6-ft sdwk SB			
i. Parapet railing Type:	two-rail aluminum railing; min height: bicycle 4'-6", pedestrian 3'-6"			
j. Identify the structural deficiencies:	None			
k. Coast Guard Permit Required:	No			

3. Are the minimum vertical clearance requirements over waterways, roadways, railroads met? ☒ Yes ☐ No

a. If no, please explain? _____

4. List other substandard features of proposed bridge: None

5. Other Existing Structure(s):

a. Identify existing minor structures (Noise barriers, Retaining Walls (cast in place or alternate system), Gabions, High Tower Lighting foundations, Pre-cast Culverts, Culvert extensions, Type and number of Overhead Sign Structures): None

b. Specify type and number of each substandard feature: _____

6. Proposed Other Structure(s):

	Structure No. 1	Structure No. 2	Structure No. 3	Structure No. 4
a. Identify changes in the existing minor structure that are being improved:				
b. List substandard features to be included in the design exception:				
c. Length:				
d. Width:				
e. Number of spans/units:				

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include scour, unusual existing or proposed structural elements, clearances, substandard elements, design exceptions, etc.

As per the 16th Cycle Report, the overall condition of the structure is serious due to the condition of the superstructure which exhibits severe rusting and delamination with section loss on the exposed bottom flanges of steel beams. The deck is in fair condition with fine to medium longitudinal cracks and heavy efflorescence. The existing substructure is in fair condition and exhibits a wide diagonal wingwall fracture with 1 inch differential movement, heavy spalling and unsound concrete along the fracture. The abutment breast walls exhibit heavy scaling, heavy efflorescence and map cracking. The existing stone masonry arch exhibits extensive loss of mortar with a 4-foot long by 2-inch wide by 12 to 16-inch deep void/gap between stones at the west end. In addition, safety features (approach guide rail, bridge barrier and bridge railing, etc.) do not meet current NJDOT standards. The bridge has a Sufficiency Rating of 48.2.

The PPA consists of replacing the existing bridge with a precast concrete rigid frame structure. The proposed structure will be a 28-foot long single span structure. It will have an average curb-to-curb width of 86 feet and an average out-to-out width of 96 feet. Standard NJDOT parapets meeting

requirements for a vehicular, pedestrian and bicycle standards will be provided. The proposed structure will carry three 12-foot wide travel lanes, a three-foot wide shoulder adjacent to the reconstructed concrete island, a 12-foot wide southbound shoulder and a six-foot wide sidewalk along Route 31 southbound and two 12-foot wide travel lanes with a 10-foot shoulder along Wall Street. Per SHPO, a stone treatment will be applied to the structure to mimic the existing fascia of the stone arch section and a two-rail parapet will be provided on both sides of the structure.

Geotechnical

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3095	Prepare Preliminary Geotechnical Engineering Report	☒ Yes ☐ No	☒ Geotechnical Engineering Unit ☐ DPM ☒ Designer	

1. **Is there evidence of subsurface drainage problems?** No
2. **Is there evidence of settlement problems?** No
3. **Is there evidence of stability problems?** No
4. **Is there evidence of scour problems?** Localized scour hole identified at/near the southern abutment
5. **Are there existing soil-borings within the project limits?** No
6. **Are there rock slopes/cuts located within the project limits?** No
   a. **Are the rock cuts listed in the Rockfall Hazard Rating System?** _____
   b. **Do catchment areas need to be cleaned or modified?** _____
   c. **Are there apparent safety problems with protruding rock, sight lines, rock-fall and substandard existing mitigation measures?** _____
7. **Alternate site exploration (test pits)?** _____

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include rock slope issues, soil borings, scour, unusual existing or proposed structural elements, clearances, etc.

A ccoring program will be performed to confirm the type and depth of the existing ground near Structure No. 2111-154. The bridge is not identified as being scour critical. Existing bridge is on spread footings. Proposed bridge anticipated to be on spread footings.

Survey

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3015	Prepare Control Survey Report	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ Geodetic Survey	Addendum for supplemental survey
3020	Conduct Topographic Survey	☒ Yes ☐ No	☒ Designer ☐ Geodetic Survey	
3025	Prepare Base Maps	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ Geodetic Survey ☒ CADD Support	Updates for supplemental survey

1. **Identify available mapping information (aerial/conventional methods):** _____
2. **How were the existing and proposed baselines established?** as-built plans
3. **How were the existing and proposed ROW lines established?** tax maps
4. **How was the horizontal and vertical control established; and which existing monumentation was used?** _____
5. **Is project in Tidal area?** ☐ **Yes** ☒ **No**
   If yes, then current mean high water elevation must be established in tidal water areas under Tidelands Bureau jurisdiction. _____
6. **Has NJDOT Regional Survey office been contacted regarding existing Control, and as-built plans within the project?** _____
7. **Compliance with MAP filing law required?** ☐ **Yes** ☐ **No**
8. **Has NJDOT Geodetic Survey been contacted regarding existing control within the project?** ☐ Yes ☐ No
9. **Does Primary Control exist within the project limits or immediately adjacent to the project?** ☐ Yes ☐ No
   If yes, what year was control established in? _____
   If no, will primary control be required? _____
10. **Will plans be developed from aerial photogrammetry or as-built plans and conventional survey?** _____
11. **Geodetic Survey Services will be provided by:** ☐ In-House ☒ Consultant

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include base mapping obtained in CD, tidal issues, compliance with MAP filing laws, geodetic control issues, etc.

Mapping prepared by Robinson Aerial for NJDOT under a separate contract. Survey Control Report not provided during CD.

It is recommended to perform FD Activity No. 4215, Conduct Supplemental Surveys, during PE.

Supplemental survey is required to accurately locate the substructure joints, perform corings, and collect additional topographic data. An addendum will be prepared to the original Control Survey Report and base maps will be updated to reflect the supplemental information. Results will be submitted to the appropriate SME units.

Railroads

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3075	Hold Diagnostic Team Meeting	☐ Yes ☒ No	☐ Railroad Eng. & Safety Unit ☐ DPM ☐ Designer	

Railroads Affected Select RR Line Select RR Line 2 Select RR Line 3 ____ ____ ____

1. **Grade Crossings Affected?** ☐ Yes ☐ No
   a. **How many?** ____
2. **Is there sufficient overhead structure clearance?** ☐ Yes ☐ No
3. **Diagnostic Team Meeting Required:** ☐ Yes ☐ No
4. **Diagnostic Team Meeting Held:** ____ (DATE)

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include presence of at-grade crossings, overhead structure clearances, diagnostic team meetings, etc.

Construction

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3130	Update Preliminary Detour and Construction Staging Plans	☒ Yes ☐ No	☒ Designer ☒ TSSE ☒ SME's	
3145	Conduct Constructability and Maintenance Review	☒ Yes ☐ No	☐ DPM ☐ Designer ☒ Const. Mgmt.	

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include commitments made to local officials or other agencies, staging details, detour discussion, schedule constraints, utility conflicts, etc.

The proposed staging consists of two-stage construction while maintaining one lane of traffic in each direction along Route 31 at all times. Two 11-foot lanes on the west side of the existing structure would be maintained along Route 31 during Stage 1. The Wall Street westbound through and right turn movements and the Wall Street eastbound through movement will be prohibited and detoured to Port Colden Street during this stage. It is anticipated that the proposed auxiliary lane can be constructed during Stage 1. During Stage 2, traffic would be diverted to the newly constructed bridge section and the contractor would replace the remainder of the bridge. Two 11-foot lanes would be maintained along Route 31 during Stage 2. This alternative minimizes the construction duration and cost while providing a safe work area and travel way for workers and road users, respectively. The duration of Stage 1 is estimated to be seven (7) months. The duration of Stage 2 is estimated to be five (5) months.

Access to businesses along Route 31 will be maintained at all times. While one driveway for the gas station will remain open, larger vehicles may need to use Kent Street to access the same. Due to the proximity of Wilkinson field to the construction zone, it is preferred not to schedule Stage 1 of construction during the spring baseball season; however, if necessary, players and attendees could park at the municipal lot and/or practices and games could be scheduled on another field.

Based on field measurements, the joint line between the beam and slab portions of the existing structure is located approximately along the centerline for Route 31 which is also the line between the two proposed construction stages. A supplemental survey would need to be performed in Preliminary Engineering to accurately determine the limits of each section of the existing structure. It would not be a fatal flaw if some of the slab section had to be removed to construct the proposed structure.

Traffic Signal and Safety Engineering

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3090	Determine Traffic Engineering Facility Locations	☒ Yes ☐ No	☒ TSSE ☒ Designer	

Number of New Traffic Signals:	0	**Number of Revised Traffic Signals:**	1
New overhead signs and sign structures	☐ Yes ☒ No	**Revised overhead signs and sign structures**	☐ Yes ☒ No
New Guide Signs	☐ Yes ☒ No	**Revised Guide Signs**	☐ Yes ☒ No
Number of Roundabouts:	0	**Emergency signal pre-emption**	☒ Yes ☐ No
Revised Highway Lighting	☐ Yes ☒ No	**Temporary Lighting "for staging and diversion roadways"**	☐ Yes ☒ No
Raised Pavement Markers	☒ Yes ☐ No		

1. Maintenance of Traffic: (What type of maintenance of traffic will be used during construction, i.e. staging, detour, permanent lane closures, or diversion road): Staged construction, maintaining one lane in each direction along Route 31 during both stages and limited access from Wall Street onto Route 31 during Stage 1.

2. Identify the number and location of temporary traffic signal(s) required during Staging or Detours: None

3. Is there an adequate corner ROW cutout for signal equipment installation? ☐ Yes ☒ No

4. Identify if a new or revised traffic signal agreement is required: Revised

5. Identify overhead utility conflicts for traffic signals to be identified and resolved: Any overhead utility conflicts will be resolved per N.J.A.C. 16-25-5 to provide required clearances.

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include discussion of need for temporary signals, right-of-way constraints (related to traffic signal equipment), utility conflicts, etc.

The existing traffic signal at the intersection of Route 31 and Wall Street will be replaced to meet current standards. RPMs are required regardless of lighting conditions per RDM Section 13.4 where pavement is to be resurfaced/reconstructed.

Electrical

Activity No.	Activity Name	Execute	Responsible Unit	Comments
		☐ Yes ☒ No		

1. **Do any elements of this project scope require additional planned maintenance activities that would necessitate an increase in personnel or equipment resources?** ☐ Yes ☒ No
   If yes, provide details: _____
2. **Do any elements of this project scope include new roadway/electrical appurtenances that would require specialized training, equipment or materials to properly maintain the item (e.g., Vortech drainage chamber, ornamental lighting, and brick pavers)?** ☐ Yes ☒ No
   If yes, provide details: _____
3. **Does this project scope include or overlap sections of roadway that are simultaneously being planned or scheduled for Operations maintenance/construction activities?** ☐ Yes ☒ No
   If yes, provide details: _____
4. **Should consideration be given to canceling or postponing the Operations activity?** ☐ Yes ☒ No
   If yes, provide details: _____

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include elements of the design that will necessitate an increase in maintenance personnel or equipment, conflicting or overlapping projects with Operations, etc.

Traffic Operations and Intelligent Transportation System (ITS) Engineering

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3065	Prepare Preliminary ITS Facility Design	☐ Yes ☒ No	☐ Designer ☐ ITS ☐ Traffic Ops	

1. Project scope complies with the requirements of the latest ITS Investment Strategy and ITS Architecture? ☒ Yes ☐ No

2. Traffic Operations (North/ South) has been consulted for needs and impacts? ☒ Yes ☐ No

Identify needs and impacts. _____

3. Transportation Data Development has been consulted for needs and impacts? ☒ Yes ☐ No

Identify needs and impacts. _____

4. Project limits have been visually inspected for the existing ITS facilities? ☒ Yes ☐ No

5. Check if the project includes the construction or relocation of any of the following Intelligent Transportation System (ITS) facilities:

☐ Controlled Traffic Signal Systems (CTSS)
☐ Weigh-in-Motion (WIM)
☐ Closed Circuit TV Cameras (CCTV)
☐ Traffic Volume Stations
☐ Dynamic Message Signs (DMS)
☐ Roadway Weather Information Systems (RWIS)
☐ Highway Advisory Radio (HAR)
☐ In-Road Sensors
☐ Traffic Detection systems
☐ Fiber Optic Conduit and/or Cable
☐ Bridge Sensors
☐ Electrical or Communication Installations for the above systems
☐ Other ITS Devices: _____

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include compliance with latest ITS Investment Strategy and Architecture, consultation with Traffic Ops during CD, etc.

No existing facilities present and no proposed facilities are anticipated.

Commuter Mobility

Activity No.	Activity Name	Execute	Responsible Unit	Comments
	Complete Streets	☒ Yes ☐ No	OBPP	See comments below

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Examples of information for this section include bicycle and pedestrian compatibility, Complete Streets compliance, presence of bus stops, interruption of pedestrian accommodations during construction, ADA issues, etc.

The PPA proposes a six-foot wide sidewalk on the west side of the structure, replacement of the traffic signal, ADA compliant curb ramps, and connectivity to the various generators in each quadrant of the intersection. The existing school crossing signs will be upgraded to current standards. Complete Streets Checklist completed for CD.

OBPP Comments:
It appears as though there should be sidewalk constructed on the culvert in the NE end and extended along the eastern leg of Wall Street. It looks like the design vehicle occupies the shoulder when turning creating a ped/vehicle conflict on the eastern leg of Wall Street. Traffic volume per the SLD indicates that a road diet may work at this location Was a road diet considered? Also accommodations should be provided for the children that walk to school (per the Complete Streets checklist). See attached recommendations from a previous study completed by the Office of Bicycle and Pedestrian Programs (RBA, 2001).

CD Designer Comments:
There is no suitable location and insufficient room to install a curb ramp near the NE end by the salon. Installing a crosswalk along the eastern leg of Wall Street to the shoulder could be considered, but it would place the proposed stop bar closer to the existing driveway for Block 42, Lot 1, thereby potentially resulting in queues extending beyond the same. Sidewalk on structure along the northeast (Wall Street) side is not proposed for the following reasons. Of note is that sidewalk currently exists along the southern side of Wall Street where the majority of the pedestrian generators are located.
(1) Providing a six-foot minimum sidewalk on structure without further widening the same would result in a substandard shoulder width, which will require a design exception, along the westbound approach of Wall Street.

(2) Widening the structure to provide a six-foot minimum sidewalk along the northeast side would have additional right-of-way impacts and the potential for environmental impacts. It may also place the structure closer to the former hair salon building, which is already in close proximity to the existing bridge.
(3) There are only two businesses on the northern side of Wall Street (excluding Wilkinson Field) that have ample parking and are unlikely to be significant pedestrian generators.
(4) The proposed ten-foot shoulder is adequate to accommodate pedestrians and bicyclists. Conflicts with vehicular traffic would be minimal since the right turn volume along the Wall Street westbound approach are low based on the manual classified turning movement counts collected for this project (0/6/8 vehicles in the AM/MD/PM peak hours, respectively).
(5) The manual turning movement count, which included a pedestrian count, performed at the intersection of Route 31 and Wall Street as part of Concept Development indicated that pedestrians cross Route 31 south of Wall Street and Wall Street west of Route 31.

A road diet was not considered at this location for the following reasons:
(1) The Route 31 southbound land serves as a truck climbing lane due to the existing upgrade away from the intersection.
(2) The Route 31 northbound outside lane was installed to reduce queues at the intersection due to a previous history of same direction rear end crashes.

Conclusion:
At the July 14, 2014 SME meeting, OBPP indicated that upon a field review of the subject intersection, they concur with the pedestrian and bicycle accommodations as proposed in the PPA.

Technical and Administrative Activities

Activity No.	Activity Name	Execute	Responsible Unit	Comments
3005	Initiate Preliminary Engineering	☒ Yes ☐ No	☒ DPM ☐ Designer	
3160	Prepare Draft Preliminary Engineering Report	☒ Yes ☐ No	☐ DPM ☒ Designer	
3170	Prepare Final Design Scope Statement	☒ Yes ☐ No	☒ SME's ☒ DPM ☐ Designer	
3175	Complete Preliminary Engineering Quality Certification	☒ Yes ☐ No	☒ Designer	
3180	Update Project Management Plan	☒ Yes ☐ No	☒ DPM	
3185	Prepare FD Public Involvement Action Plan	☒ Yes ☐ No	☐ DPM ☒ Designer ☒ CCR	
3195	Prepare Project Management Plan (**Major Projects**)	☐ Yes ☒ No	☐ DPM ☐ Designer	
3200	FHWA Approves Draft Project Management Plan (**Major Projects**)	☐ Yes ☒ No	☐ DPM ☐ Designer ☐ FHWA	
3205	NJDOT Reviews Draft Preliminary Engineering Report	☒ Yes ☐ No	☒ DPM ☐ SME's ☐ Designer	
3210	FHWA Reviews and Approves Preliminary Engineering Report	☒ Yes ☐ No	☐ DPM ☐ Designer ☒ FHWA	
3225	Assess Designer	☒ Yes ☐ No	☒ DPM	
3230	Develop FD Designer Fee Proposal	☒ Yes ☐ No	☒ Designer	
3235	Develop FD Independent Cost Estimate	☒ Yes ☐ No	☒ DPM ☒ OSBM	
3240	Create FD Schedule	☒ Yes ☐ No	☒ DPM ☒ OSBM	
3245	Negotiate FD Addendum	☒ Yes ☐ No	☒ DPM ☒ Designer ☒ OSBM	

3250	Approve FD Schedule	☒ Yes ☐ No	☐ DPM ☒ OSBM	
3255	Develop FD Budget	☒ Yes ☐ No	☒ DPM ☐ OSBM	
3260	Finalize FD Budget	☒ Yes ☐ No	☒ DPM	
3265	Approve FD Budget	☒ Yes ☐ No	☐ DPM ☒ OSBM	
3270	Authorize Final Design	☒ Yes ☐ No	☐ DPM ☒ CIPD	
3275	Execute FD Addendum	☒ Yes ☐ No	☒ DPM ☐ Designer	
3285	Complete PE Closeout	☒ Yes ☐ No	☒ DPM	

1. Have the objectives of the Public Involvement Action Plan (PIAP) been satisfied? ☒ Yes ☐ No

2. Number of Local Workshop Meetings conducted in CD: 0

3. Public Information Centers conducted in CD (number of meetings, location & dates): One PIC on October 7, 2013

4. Number of Officials Briefings conducted in Concept Development: 2

5. List Issues, Commitments or Concerns: Access for fire department

6. Is the mailing list up to date? ☐ Yes ☒ No

7. Are the Displays adequate to reuse in PE: ☒ Yes ☐ No

8. Resolution of Support Number: Oxford Township Resolution No. 2013-76

Resolution of Support Date: December 16, 2013

9. Other Coordination:

a. List additional organizations (Historic Society, Chamber of Commerce, Board of Education, Fire Company's etc.) or authorities (NJ Transit, NJ Turnpike, NJ Highway Authority, Port Authority, etc.) that have interest in the project: Local emergency services / fire companies, local school districts, SHPO

b. Proposed Formal Public Involvement Program (estimate number of Official Briefings and Public Info Centers/Meetings/Hearings): 1 briefing, 1 PIC

c. If additional displays are required, provide the specifics (number, scale, special graphics 3D, simulations, models, etc): _____

d. If a mailing list is required, provide the approximate number of property owners: 50

Who is responsible for putting the mailing list together and providing mail labels? ☒ Consultant? ☐ In-house Design ☐ Other (Specify) _____

e. If handouts are required (provide the specifics, number, size, color or black and white, mapping, etc): _____

f. List special needs (i.e. Community Involvement Sub-Consultant, Facility Needs, Interpreter, Website, etc.): _____

g. **Traffic Staging: How many lanes of traffic need to be maintained?** One in each direction

What will be the available working hours? Lane closure schedule not provided

Can the project duration be significantly reduced by reducing the number of stages? No

Can detours be used? Possibly for short term

h. **Schedule - Identify scheduling constraints (environmental, seasonal construction limitations, community).** Spring season baseball (little league) at Wilkinson Field. Timing restriction for general game fishery between March 15 and June 15.

What is the optimum period to start construction? Fall 2019

i. **Is the scope focused on replacement or rehabilitation of road/bridge?** Bridge replacement

Is condition likely to change/deteriorate between scoping and construction? No

ADDITIONAL INPUT

This section has been provided for the CD designer and the functional units to state any assumptions, to clarify and customize standard activities, and to add important information. Please be clear and concise. Provide your unit's contact person and number.

Summary of Approvals

SME Unit	Manager	Approval	SME Involved	Remarks
Right of Way	Feraidoon Kashani		Robert J. McGill	
Access	Richard Dube		Charles Isiadinso/Paul Ignarri	comment, pg 9
Drainage Management	Susan Gresavage		Raj Patel	
Regional Maintenance	Steve Ruskn			
Hydrology and Hydraulics	Joseph Sweger		David Ahdout	
Landscape	Joseph Sweger		Brenda Hammer	
Environmental	Joseph Sweger		Zack Asadpour	
Quality Management Services	Mark Hauske (acting)	RA 6/16/14	Warren Howard & Robert Abitz, Jr.	no comment
Utilities	Paul Schnider		James Lepri	
Jurisdiction				
Geometrics & Roadway	Mark Hauske	RA 6/16/14	Robert Abitz, Jr.	comment, pg 29
Pavement	Susan Gresavage		Robert Blight	no comment
Structures	Al Virgilio		Sam Salim	
Geotechnical	Jayant Dalal			
Survey	Robert Marshall			
Railroads				
Construction	Ronald Maruca		Al Balluch	no comment

Traffic Signal Design	Chris Barretts		Vincent Burns	
Electrical				
Traffic Operations & ITS	Mike Pilsbury		Paul Hartle	
Commuter Mobility	Debbie Kingsland		Joseph Powell	comments, pg 44
Community Relations	Debbie Hirt		Debbie Hirt	no comment

Appendix V

Utility Coordination

Route 31 over Furnace Brook

Tubito, Janie

From: Schroeder, Richard
Sent: Thursday, January 06, 2011 5:31 PM
To: Tubito, Janie
Subject: FW:
Attachments: GPI DPD Form.pdf

Rich Schroeder - GPI

From: Ernest, Gary [mailto:GErnest@ADESTAGROUP.COM]
Sent: Tuesday, May 11, 2010 12:12 PM
To: Schroeder, Richard
Cc: Guarino, James; Hayes, Kevin
Subject:

Good Afternoon Rich,

Please see the attachment DPD forms that were last sent to me on April 30, 2010. We did find one conflict with your proposed project (Midland Ave. Route 80). I would like to set up some type of meeting to discuss the limits of your project.

Please feel free to contact me at any time.

Gary J. Ernest
Construction Superintendent

Adesta, LLC | Where Communications & Security Intersect

910 Oaktree Avenue| South Plainfield, NJ 07080
Ph: (908) 756 1181 (ext. 215) | Fax: (908) 756 1182
Cell: (732) 857 4290

Email: gernest@adestagroup.com | Web: www.adestagroup.com

This message is confidential, is intended only for the named recipient(s) above and may contain information that is protected by law. If you have received this message in error, please notify the sender immediately and then delete the message and any attachments. Thank you.
^&*

(___) We DO HAVE existing facilities within the project limits.

(X) We DO NOT HAVE existing facilities within the project limits.

(___) We HAVE PROPOSED facilities planned within the project limits.

(___) Owner Engineer to be contacted is:

Name Gary J Ernest
Company Adesta LLC
Title Superintendent
Address 910 Oakbrook Road Suite C
South Plainfield, NJ 07080

Tel:
Fax:
Email:

(___) The UTILITY AGREEMENT shall be sent to the following person:

(___) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(___) **The amount of Preliminary Engineering funding needed will be $_____**
(This amount is only an estimate)

(___) **The following companies are tenants on/in our facilities within the project limits:**

GPI

( ) We DO HAVE existing facilities within the project limits.

(X) We DO NOT HAVE existing facilities within the project limits.

( ) We HAVE PROPOSED facilities planned within the project limits.

( ) Owner Engineer to be contacted is:

Name	Louis Marello
Company	AT&T Core
Title	OSP Engineering Supervisor
Address	80 Patricia Drive
	Flanders, New Jersey 07836
	tel: 914-397-3744 cell: 914-671-5330
	fax: 973-584-0017
Tel:	email: lmarello@att.com
Fax:	
Email:	contact: Steve Cumberland 973-584-0017
	email: scumberland@att.com

914-397-3744

973-584-9917 (NOT #1)

(X) The UTILITY AGREEMENT shall be sent to the following person:

(X) Same as above or fill in below:

Name	
Company	
Title	SAME
Address	
Tel:	
Fax:	

( ) The amount of Preliminary Engineering funding needed will be $ N/A
(This amount is only an estimate)

( ) The following companies are tenants on/in our facilities within the project limits:

N/A

( ) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
( ) Design/Engineering
( ) Construction – Some or All? _____
( ) Neither the Company will perform (or arrange to have performed) all needed work.
( ) Not certain at this time.

GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

April 30, 2010

Mr. Carlo Verdi
Outside Plant Manager
Teleport Communications, NY
175 West Main Street
Freehold, New Jersey 07728

No

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Telephone Facilities

Dear Mr. Verdi:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Teleport Communications, NY** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

100 Corporate Drive, Suite 301, Lebanon, New Jersey 08833
Tel: (908) 236-9001 Fax: (908) 236-9669 www.gpinet.com

(____) We DO HAVE existing facilities within the project limits.

(__✓__) We DO NOT HAVE existing facilities within the project limits.

(____) We HAVE PROPOSED facilities planned within the project limits.

(____) Owner Engineer to be contacted is:

Name Tim Fitzpatrick
Company JOHMAX TELECOM
Title PROJECT MANAGER
Address 175 W. MAIN ST
FREEHOLD, N.J.
07728

Tel: 908 670-6925
Fax:
Email: TFitzpatrick@JOHMAXTELECOM.com

(____) The UTILITY AGREEMENT shall be sent to the following person:

(____) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(____) **The amount of Preliminary Engineering funding needed will be $_____**
(This amount is only an estimate)

(____) **The following companies are tenants on/in our facilities within the project limits:**

(____) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (____) Design/Engineering
- (____) Construction – Some or All? _____
- (____) Neither-the Company will perform (or arrange to have performed) all needed work.
- (____) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

RH Schroeder

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

Z.P 07863

April 30, 2010

Mr. Hollis Orderson
Design Supervisor
Cablevision of Monmouth
Engineering Department
40 Pine Street
Tinton Falls, New Jersey 07753

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Cable Facilities

Dear Mr. Orderson:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Cablevision of Monmouth** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

100 Corporate Drive, Suite 301, Lebanon, New Jersey 08833
Tel: (908) 236-9001 Fax: (908) 236-9669 www.gpinet.com

(___) We DO HAVE existing facilities within the project limits.

(X) We DO NOT HAVE existing facilities within the project limits.

(___) We HAVE PROPOSED facilities planned within the project limits.

(___) Owner Engineer to be contacted is:

Name
Company
Title
Address

See COMCAST

Tel:
Fax:
Email:

(___) The UTILITY AGREEMENT shall be sent to the following person:

(___) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(___) **The amount of Preliminary Engineering funding needed will be $ 0**
(This amount is only an estimate)

(___) **The following companies are tenants on/in our facilities within the project limits:**

(____) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (____) Design/Engineering
- (____) Construction – Some or All? _____
- (____) Neither-the Company will perform (or arrange to have performed) all needed work.
- (____) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

RH Schroeder III

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

April 30, 2010

Mr. Robert O'Conner, Jr.
Manager
CenturyLink
256 Paul Street
Belvidere, New Jersey 07823

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Telephone Facilities

Dear Mr. O'Conner:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **CenturyLink** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

100 Corporate Drive, Suite 301, Lebanon, New Jersey 08833
Tel: (908) 236-9001 Fax: (908) 236-9669 www.gpinet.com

(X) We DO HAVE existing facilities within the project limits.

( ) We DO NOT HAVE existing facilities within the project limits.

( ) We HAVE PROPOSED facilities planned within the project limits.

(X) Owner Engineer to be contacted is:

Name Harry Steckel
Company CenturyLink
Title Engineer II
Address 256 Paul Street
Belvidere, N.J. 07823

Tel: 908-453-7305
Fax: 908-453-7307
Email: harry.W.steckel@centurylink.com

(X) The UTILITY AGREEMENT shall be sent to the following person:

( ) Same as above or fill in below:

Name Robt A. O'Connor, Jr.
Company CenturyLink
Title Manager Field Plant Facilities/NJ
Address 256 Paul St.
Belvidere, NJ 07823

Tel: 908-735-3543
Fax : 908-453-7307

(X) **The amount of Preliminary Engineering funding needed will be $** $3500.00
(This amount is only an estimate)

( ) **The following companies are tenants on/in our facilities within the project limits:**

(____) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (____) Design/Engineering
- (____) Construction – Some or All? _____
- (____) Neither-the Company will perform (or arrange to have performed) all needed work.
- (____) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

RH Schroeder III

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

L:\DPPD\2009658.06 - Rt 31 over Furnace Brook\Corr\Utilities\Letter #1\Letter No. 1-CenturyLink-043010.docx

GPI

Page 2
NJ Route 31 over Furnace Brook
Letter No. 1- Elizabethtown Gas

(✓) We DO HAVE existing facilities within the project limits.

(___) We DO NOT HAVE existing facilities within the project limits.

(___) We HAVE PROPOSED facilities planned within the project limits.

(✓) Owner Engineer to be contacted is:

Name GREGORY J. BALINT
* Company ELIZABETHTOWN GAS COMPANY
Title PROJECT ENGINEER
Address ELIZABETHTOWN GAS COMPANY
520 GREEN LANE
UNION, NJ 07083

Tel: (908) 662-8321
Fax: (908) 436-0538
Email: GBALINT@AGLRESOURCES.COM

(✓) The UTILITY AGREEMENT shall be sent to the following person:

(___) Same as above or fill in below:

Name JOHN GRUENLING P.E.
* Company ELIZABETHTOWN GAS COMPANY
Title PROJECT ENGINEER
Address ELIZABETHTOWN GAS COMPANY
520 GREEN LANE
UNION, NJ 07083

Tel: (908) 662-8324
Fax: (908) 436-0538

(✓) **The amount of Preliminary Engineering funding needed will be $** 15,000.00
(This amount is only an estimate)

(___) **The following companies are tenants on/in our facilities within the project limits:**

* FOR AGREEMENT, COMPANY NAME IS:
PIVOTAL UTILITY HOLDINGS, INC. D/B/A
ELIZABETHTOWN GAS COMPANY

GPI

(✓) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.

( ) Design/Engineering
( ) Construction – Some or All? _____
(✓) Neither-the Company will perform (or arrange to have performed) all needed work.
( ) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

L:\DFPD\2009658.06 - Rt 31 over Furnace Brook\Corr\Utilities\Letter 51\Letter No. 1-Elizabethtown Gas-3-(2010.docx

GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

April 30, 2010

Mr. Frank Mercadante
Engineering Supervisor
Jersey Central Power and Lighting
Engineering Department
P.O. Box 1911
300 Madison Avenue
Morristown, New Jersey 07962-1911

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Electric Facilities

Dear Mr. Mercadante:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Jersey Central Power and Lighting** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

GPI

Page 2
NJ Route 31 over Furnace Brook
Letter No. 1- JCP&L

(✓) We DO HAVE existing facilities within the project limits.

(___) We DO NOT HAVE existing facilities within the project limits.

(___) We HAVE PROPOSED facilities planned within the project limits.

(✓) Owner Engineer to be contacted is:

Name FRANK J. MERCADANTE
Company JERSEY CENTRAL POWER & LIGHT
Title REGIONAL ENGINEERING SUPERVISOR
Address 300 MADISON AVE
PO BOX 1911
MORRISTOWN, NJ 07962-1911

Tel: 973-401-8521
Fax: 330-315-9081
Email: fmercadante@firstenergycorp.com

(✓) The UTILITY AGREEMENT shall be sent to the following person:

(✓) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(✓) **The amount of Preliminary Engineering funding needed will be $** 7,500.00
(This amount is only an estimate)

(___) **The following companies are tenants on/in our facilities within the project limits:**

GPI

(✓) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.

( ) Design/Engineering
(✓) Construction – Some or (All?) _____
( ) Neither-the Company will perform (or arrange to have performed) all needed work.
( ) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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NEW JERSEY
AMERICAN WATER

120 Raider Blvd.
Hillsborough, NJ 08844

P 908-431-3225.
F 908-8431-3260

RECEIVED JUN 0 2 2010

May 28, 2010

Greenman - Pedersen, Inc.

100 Corporate Drive, Suite 301
Lebanon, NJ 08833
Attention: Richard Schroeder III

Re: NJDOT Route 31 over Furnace Brook
Oxford

Dear Mr. Schroeder,

Enclosed is the completed Utility Questionnaire form for the project

Please let me know if I can assist you further.

Sincerely yours,

Michael Wolan
Sr. Engineering Project Manager

(Y) We DO HAVE existing facilities within the project limits.

(____) We DO NOT HAVE existing facilities within the project limits.

(____) We HAVE PROPOSED facilities planned within the project limits.

(____) Owner Engineer to be contacted is:

Name MICHAEL WOLAN
Company NJ AMERICAN WATER
Title SR. ENGINEERING PROJECT MANAGER
Address 120 RAIDER BLVD.
HILLSBOROUGH, NJ 08844

Tel: 908-431-3225
Fax: 908-431-3260
Email: MIKE.WOLAN@amwater.com

(Y) The UTILITY AGREEMENT shall be sent to the following person:

(X) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(X) **The amount of Preliminary Engineering funding needed will be $** 8,000.00
(This amount is only an estimate)

(____) **The following companies are tenants on/in our facilities within the project limits:**

(X) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (X) Design/Engineering
- (X) Construction – Some or All? TO BE DETERMINED DURING DESIGN.
- ( ) Neither-the Company will perform (or arrange to have performed) all needed work.
- ( ) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

RH Schroeder III

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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FINELLI CONSULTING ENGINEERS, INC.
205 ROUTE 31 NORTH
WASHINGTON, NJ 07882
PHONE: (908) 835-9500
FAX: (908) 835-9909
EMAIL: FCE@FINELLICON.COM

FAX COVER SHEET

SEND TO (Company Name): Greenman-Pederson, Inc.	FROM: William Gleba, P.E.
ATTENTION: Jenie Tubito	DATE: March 25, 2011
FAX NUMBER: (908) 236-9669	CC: Sheila Oberly, Clerk Lou Accetturo, DPW
RE: New Jersey Route 31 over Furnace Brook	JOB#: OXWM135F1

☐ Urgent ☐ Reply ASAP ☐ Please comment ■ Please review ■ For your information

TOTAL PAGES INCLUDING COVER SHEET: 5

COMMENTS:

Jenie: As we discussed, attached is the completed questionnaire on the above referenced project as requested in the April 30, 2010 Greenman Pederson letter. Please feel free to call with any questions.

GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

April 30, 2010

Mr. Lou Accetturo
Director of Public Works
Township of Oxford
11 Green Street
Oxford, New Jersey 07863

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Sewer Facilities

Dear Mr. Accetturo:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Oxford Township DPW** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

GPI

(✓) We DO HAVE existing facilities within the project limits.

(___) We DO NOT HAVE existing facilities within the project limits.

(___) We HAVE PROPOSED facilities planned within the project limits.

(✓) Owner Engineer to be contacted is:

Name Mr. Lou Accetturo
Company Township of Oxford
Title Director of Public Works
Address 11 Green Street
Oxford, NJ 07863

Tel: 908 453-3303
Fax: 908 453-3144
Email: dpw@oxfordnj.org

(___) The UTILITY AGREEMENT shall be sent to the following person:

(✓) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(___) The amount of Preliminary Engineering funding needed will be $ TBD
(This amount is only an estimate)

(___) The following companies are tenants on/in our facilities within the project limits:

GPI

Page 3
NJ Route 31 over Furnace Brook
Letter No. 1 - Oxford Twp DPW

(✓) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
( ) Design/Engineering
( ) Construction – Some or All? _____
( ) Neither the Company will perform (or arrange to have performed) all needed work.
(✓) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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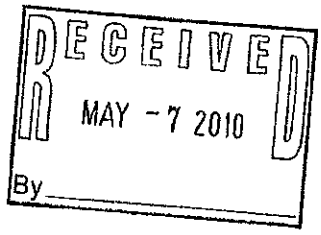
GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

April 30, 2010



Mr. Frank McGlynn
Engineering Coordinator
United Water – New Jersey
60 Devoe Place
Hackensack, New Jersey 07601-6105

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Water Facilities

Dear Mr. McGlynn:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **United Water – New Jersey** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

100 Corporate Drive, Suite 301, Lebanon, New Jersey 08833
Tel: (908) 236-9001 Fax: (908) 236-9669 www.gpinet.com

(____) We DO HAVE existing facilities within the project limits.

(X) We DO NOT HAVE existing facilities within the project limits.

(____) We HAVE PROPOSED facilities planned within the project limits.

(____) Owner Engineer to be contacted is:

Name _____
Company _____
Title _____
Address _____
_____
_____
_____

Tel: _____
Fax: _____
Email: _____

(____) The UTILITY AGREEMENT shall be sent to the following person:

(____) Same as above or fill in below:

Name _____
Company _____
Title _____
Address _____
_____
_____
_____

Tel: _____
Fax : _____

(____) **The amount of Preliminary Engineering funding needed will be $_____**
(This amount is only an estimate)

(____) **The following companies are tenants on/in our facilities within the project limits:**

_____
_____
_____
_____

(____) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (____) Design/Engineering
- (____) Construction – Some or All? _____
- (____) Neither-the Company will perform (or arrange to have performed) all needed work.
- (____) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

April 30, 2010

Mr. Gary Pasqua
Construction Manager
Verizon Business
1 North Broadway
Suite 710
White Plains, New York 10601

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Fiber Optic Facilities

Dear Mr. Pasqua:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Verizon Business** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

100 Corporate Drive, Suite 301, Lebanon, New Jersey 08833
Tel: (908) 236-9001 Fax: (908) 236-9669 www.gpinet.com

(____) We DO HAVE existing facilities within the project limits.

(X) We DO NOT HAVE existing facilities within the project limits.

(____) We HAVE PROPOSED facilities planned within the project limits.

(____) Owner Engineer to be contacted is:

Name Gary Pasqua
Company Verizon Business
Title Construction Manager
Address One N. Broadway
White Plains, NY 10601

Tel:
Fax:
Email:

(____) The UTILITY AGREEMENT shall be sent to the following person:

(____) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(____) **The amount of Preliminary Engineering funding needed will be $_____**
(This amount is only an estimate)

(____) **The following companies are tenants on/in our facilities within the project limits:**

(____) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (____) Design/Engineering
- (____) Construction – Some or All? _____
- (____) Neither-the Company will perform (or arrange to have performed) all needed work.
- (____) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

RH Schroeder

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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Schroeder, Richard

From: Grabowski, Thomas [thomas.j.grabowski@verizon.com]
Sent: Monday, May 10, 2010 11:13 AM
To: Schroeder, Richard
Subject: Route 31 over Oxford Brook
Attachments: Route 31 over Oxford Brook 5-10-2010.PDF

Rich,

Verizon is not the incumbent telephone provider in the area of this project. This area is served by Embarq.

Thanks,

Thomas Grabowski
Verizon Communications - NJ
Centralized Engineering Services
445 Georges Rd., FLR 2
North Brunswick, NJ 08902
732-418-2620
888-474-1085 fax
thomas.j.grabowski@verizon.com

GPI Greenman - Pedersen, Inc.
Engineering and Construction Services

April 30, 2010

Mr. Frank Antisell
Engineering Manager
Verizon – NJ, Inc.
445 Georges Road (1st Floor)
North Brunswick, New Jersey 08902

RE: Division of Project Planning and Development (DPPD)
Region North
NJ Route 31 over Furnace Brook
Oxford Township, Warren County
Concept Development
Task Order No. 6
GPI Project No. 2009658.06
Letter No. 1 – Telephone Facilities

Dear Mr. Antisell:

The New Jersey Department of Transportation (NJDOT) has secured the services of GPI to investigate operational improvements at Structure No. 2111-154, which carries N.J. Route 31 over Furnace Brook in the Township of Oxford, Warren County, NJ. The project limits are expected to extend out from the structure 1,000 feet in each direction along N.J. Route 31 and Wall Street. The location and approximate limits of the project is shown on the enclosed site map.

The project will involve the following replacement or rehabilitation of the existing bridge structure.

In accordance with NJDOT Utility and Railroad Engineering Procedures, our preliminary investigation disclosed that **Verizon – NJ, Inc.** is franchised to operate within the proposed project limits and may have facilities affected by the State's proposed construction.

Should you have existing or proposed facilities within the project limits, it is necessary for us to verify your facilities and enter into an engineering dialog with you.

Please complete the following questionnaire and return it to Greenman Pedersen, Inc. by June 18, 2010. If you prefer to respond by FAX or email, send the questionnaire to 908-236-9669 or rschroeder@gpinet.com.

RECEIVED
MAY 06 2010
By

100 Corporate Drive, Suite 301, Lebanon, New Jersey 08833
Tel: (908) 236-9001 Fax: (908) 236-9669 www.gpinet.com

(____) We DO HAVE existing facilities within the project limits.

(____) We DO NOT HAVE existing facilities within the project limits.

(____) We HAVE PROPOSED facilities planned within the project limits.

(____) Owner Engineer to be contacted is:

Name _____
Company _____
Title _____
Address _____
_____
_____
_____

Tel: _____
Fax: _____
Email: _____

(____) The UTILITY AGREEMENT shall be sent to the following person:

(____) Same as above or fill in below:

Name _____
Company _____
Title _____
Address _____
_____
_____
_____

Tel: _____
Fax : _____

(____) **The amount of Preliminary Engineering funding needed will be $_____**
(This amount is only an estimate)

(____) **The following companies are tenants on/in our facilities within the project limits:**

_____
_____
_____
_____

(___) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (____) Design/Engineering
- (____) Construction – Some or All? _____
- (____) Neither-the Company will perform (or arrange to have performed) all needed work.
- (____) Not certain at this time.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

RH Schroeder III

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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RECEIVED MAY 17 2010

Cerenzio & Panaro, P.C.

CONSULTING ENGINEERS

115 DEMAREST RD., SUITE A • SPARTA, N.J. 07871
(973) 300-9003 fax: (973) 300-4003
info@cpengineers.com
www.cpengineers.com

May 14, 2010

Richard H. Schroeder III, Project Manager
Greenman - Pedersen, Inc.
100 Corporate Drive, Suite 301
Lebanon, N.J. 08833

Proj: 201.040

Re: Warren County (Pequest River) Municipal Utilities Authority
Route 31 - Furnace Brook Bridge Improvements

Dear Mr. Schroeder:

Pursuant to your letter of April 30, 2010, please allow this correspondence to confirm that the Warren County (Pequest River) Municipal Utilities Authority does have existing facilities within the delineated project limits. Enclosed is a completed questionnaire, as requested.

Should you have any questions, or want to discuss the extent of the Authority's facilities, please feel free to contact me.

Sincerely,

CERENZIO & PANARO, P.C.

Stephen E. Donati, P.E.
Senior Associate

Enclosure

cc: Chairman Chamberlain, w/encl.
Patricia Kaspereen, w/encl.
James Bale, w/encl.

P:\wcmua\201.040\Letters\Furnace Brook Bridge Improvements.wpd

GPI

(X) We DO HAVE existing facilities within the project limits.

(____) We DO NOT HAVE existing facilities within the project limits.

(____) We HAVE PROPOSED facilities planned within the project limits.

(X) Owner Engineer to be contacted is:

Name Stephen Donati, P.E.
Company Cerenzio & Panaro, P.C
Title Senior Associate
Address 115 Demarest Road, Suite A
Sparta, N.J. 07871

Tel: 973-300-9003
Fax: 973-300-4003
Email: sdonati@cpengineers.com

(____) The UTILITY AGREEMENT shall be sent to the following person:

(X) Same as above or fill in below:

Name
Company
Title
Address

Tel:
Fax :

(____) **The amount of Preliminary Engineering funding needed will be $** 7,500
(This amount is only an estimate)

(____) **The following companies are tenants on/in our facilities within the project limits:**

N/A

GPI

(____) We would like the NJDOT to arrange for the following work to be done for our facilities should it be necessary for them to be relocated or modified.
- (____) Design/Engineering
- (____) Construction – Some or All? _____
- (____) Neither-the Company will perform (or arrange to have performed) all needed work.
- (X___) Not certain at this time. Need to discuss actual Scope of Work.

Should you have any questions or concerns about this project or our request, please contact me at 908-236-9001 or rschroeder@gpinet.com.

Thank you for your cooperation in this matter.

Sincerely,
GREENMAN-PEDERSEN, INC.

Richard H. Schroeder III
Project Manager

Enclosures: Site Map

cc: File 2009658.06
Ms. Veronica Murphy, NJDOT Project Manager
Bernard J. Boerchers, P.E., P.T.O.E, GPI Project Manager

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