TECHNICAL PROPOSAL REPORT

Agreement: E02260 **Project Specific** **Active**

Name: PA26/36 Culvert Replcmnts

Selection Process: Modified

Initiating Org: Engineering District 9-0

Part 1 - Prelim Engineering, PA 26/PA 36 Culvert Replcmnts.

Description

Preliminary Engineering for the replacement of existing cast-in-place (CIP) slab structures on S.R. 0026, Section 13B, in Hopewell Township, Bedford County, spanning Tributaries of Yellow Creek.

Task 1 - Project Management/Administration

Objective:

2.1.1 - Project Management/Administration
This task consists of the administrative effort required by principals, project manager, and involved personnel to complete the project on time and within budget, and to provide a quality product.

2.1.1.1 - Meetings
This task includes meeting preparation, attendance and documentation in the form of minutes. This includes Project Status, Design Review and Special Purpose Meetings.

2.1.1.3 - Quality Control/Quality Assurance
This task consists of the effort to administer the QC/QA policies and procedures.

2.1.1.4 - Preliminary Cost Estimates/PMC Approvals
This task involves the preparation of preliminary cost estimates for the project and all steps necessary to obtain PMC approval.

2.1.1.5 - Project Schedule Development and Maintenance
The purpose of this task is to prepare and maintain a design schedule that ranges from Scoping Field View to Contract Award.

2.1.1.7 - Project Reporting
This task consists of periodically reporting project schedule and budget progress.

2.1.1.10 - Consultations
This task involves the consultation with various in-house departments or personnel.

2.1.1.12 - Inter/Intra Agency Coordination

This task includes the coordination of project activities with all of the regulatory/resource agencies.

Scope:

2.1.1 - Project Management/Administration
Project Management involves the planning, scheduling, organizing and controlling of resources to achieve specific objectives within established schedule, budget and quality standards. The Project Manager is responsible for the tasks outlined in the Department Detail.

2.1.1.1 - Meetings
Attend all project meetings as necessary, including meeting preparation and minutes. Meetings will include but will not be limited to:

Project Status Meetings
Design Review Meetings
Special Purpose Meetings (e.g., Kick-off Meeting, Design Field View, etc.)
Public Meetings

Preparation for the meetings will include an agenda and any visuals necessary to conduct the meeting.

Meeting minutes will be prepared in a timely and accurate manner.

2.1.1.3 - Quality Control/Quality Assurance
Quality Control and Quality Assurance practices and procedures need to be incorporated and administered.

PennDOT has implemented procedures to place additional responsibilities on consultants for quality of work. The consultants will be required to submit a corporate quality plan and submit job specific Quality Development plans for PennDOT approval. As part of quality reviews, process reviews, and IAPs, these plans and the consultants conformance to them will be monitored, evaluated and documented.

Design Manual Part 1A can be used as a source of information to develop QC/QA policies and procedures.

2.1.1.4 - Preliminary Cost Estimates/PMC Approvals
Develop a preliminary cost estimate based on the best available information. The cost estimate should include all anticipated costs including design, right-of-way acquisition, utilities, construction, etc.

2.1.1.5 - Project Schedule Development and Maintenance
Guidance:
- Publication 615, Scheduling Manual
- All applicable strike-off-letters
- ECMS (Project Management Homepage)

Scope:
1. Develop a design schedule utilizing Deltek's Open Plan software. The design schedule will be developed in accordance with Publication 615 using the Department's PDSPRJ and PDSMASTER templates.

2. Maintain the design schedule utilizing Deltek's WelcomHome software.

3. Document all schedule issues to ensure that the project is let on time.

Scope Subtasks:
1. Coordinate the schedule development with the entire project team. The project team includes but is not limited to the District Portfolio Manager, the District Project Manager, various District functional units, the Bureau of Design, the Federal Highways Administration and various environmental agencies. Development of the schedule will consist of reviewing the schedule to ensure it contains the appropriate activities. There may be the need to add or delete activities to make the schedule specific to a given project. The review and modification of durations or relationships should also be performed to ensure that the schedule is setup to meet the desired completion date.

2. Prepare a draft of the design schedule that will be reviewed by the project team either in conjunction with a project status meeting or offline depending on the frequency of these meetings. The draft will, if approved, become the initial project schedule and be maintained through the remainder of the project.

3. Monthly progress of the design schedule activities will be input into Deltek's WelcomHome software. The schedule update day of the month will be specified by the District Project Manager to ensure that they have appropriate time to review proposed schedule changes prior to acceptance.

4. In the event that a major change in schedule occurs the Department will provide an Open Plan backup file (bk3) so that revisions can be made and resubmitted to the Department. Re-submittal shall follow the same process as the initial schedule development.

Scope Deliverables:
1. Provide the project team a draft design schedule in portable document format (PDF) and/or hard copy. The draft will contain relationships and durations so that they can be reviewed along with the activities that are included in the schedule. Schedules provided in portable document format (PDF) shall be submitted either by email or CD-ROM.

2. Upon acceptance of the schedule by the project team an Open Plan backup file (bk3) shall be provided to the District Project Manager either by email or CD-ROM.

3. Resubmit major revisions to the design schedule, as an Open Plan backup file (bk3), to the District Project Manager either by email or CD-ROM.

4. All schedule documentation shall be provided in MS Word compatible format to the District Project Manager either by email or CD-ROM.

2.1.1.7 - Project Reporting
On a regular basis (i.e., monthly or as necessary) prepare a project status report of which should address the current status of the project schedule and budget. Note any areas of concern such as delays in the project schedule or potential cost overruns.

2.1.1.10 - Consultations
Meetings with in-house departments or personnel should be conducted on a regular basis or as needed. Document all meetings in the form of meeting minutes for the project file.

2.1.1.12 - Inter/Intra Agency Coordination
1. Invite all regulatory/resource agencies to scoping field view meetings in accordance with Publication 10/10A, Design Manual Part 1/1A.

2. Discuss methodologies for identifying and analyzing environmental impacts with the regulatory/resource agencies and ask for their input.

3. Request regulatory/resource agencies attendance at any project meetings/hearings.

Detail Task 1 - Project Management/Administration

Department Details:

The consultant will prepare and distribute to appropriate parties the minutes of all meetings and telephone conversations where directions or decisions are made. The minutes are to be distributed within 10 calendar days following the meeting or telephone conversation.

The consultant shall provide construction cost updates on a monthly basis or as required by the Department.

The consultant will thoroughly check all design submissions before submitting them to the Department for review. The Department reviews will be cursory in nature and the consultant will be responsible for design and plan accuracy. All computation sheets shall bear the initials of both the individual who prepared the calculations and the individual who checked the calculations. The Department reviews will be cursory in nature and the consultant will be responsible for design and plan accuracy. The consultant will have a goal of two submissions per report to receive District approval. The consultant will be liable for design and plan errors in accordance with 67 PA Code, Chapter 455, Consultant Highway Design Errors.

The prime consultant will be responsible for subconsultants and DBE progress. All submissions prepared by subconsultants will be submitted through the prime consultant's office. The prime consultant will be responsible for the accuracy and quality of work prepared by subconsultants.

The consultant shall prepare the project design schedule using an Open Plan template to be provided by the Department. The consultant shall submit a baseline schedule to the Department for approval within three weeks following issuance of Notice-To-Proceed. Following approval of the baseline schedule, the schedule should be progressed and submitted to the Department on a monthly basis. The monthly updates in WELCOM HOME will be completed by the 25th of each month.

For archiving into the ECMS Project Development Checklist, the following reports (once approved in writing by the District or the appropriate permitting agency) will be provided by the consultant to the District in electronic, PDF format:

- Line, Grade, and Typical Section Submission
- Final TS&L Report, including RSGER
- Final Joint Permit Application (including H&H Report)
- E&S Report/NPDES Permit Submission
- Design Field View Submission

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

This phase will include project coordination effort between LR Kimball and it’s sub consultants.

As defined in the Department Details for Part 1 Task 22, a public meeting will not be required and is therefore will not be provided for in this scope

of work.

Adam D. Claar, PE will be the Project Manager and single point of contact between the design team and the Department.

Task 2 - Hazardous and Residual Wastes

Objective:

2.2.12 - Hazardous and Residual Wastes
This task consists of applying the waste site evaluation procedures to a transportation improvement project. Reference Publication 281.

2.2.12.1 - Phase I Environmental Site Assessment (ESA)
This task includes performing an Phase I ESA. This work includes the necessary field/office studies and coordination and laboratory testing of materials, if necessary. Reference Publication 281.

Scope:

2.2.12 - Hazardous and Residual Wastes
Needs completed.

2.2.12.1 - Phase I Environmental Site Assessment (ESA)
Conduct the following tasks to determine the presence of environmental property concerns:

1. Perform a paper study of records that are relevant to the project study area for indications of hazardous and environmentally sensitive waste(s), practice(s), or material(s).

2. Obtain Intent to Enter letters from the District prior to site reconnaissance.

3. Conduct a detailed, noninvasive visual inspection of entire site and adjacent properties for indications of hazardous wastes or environmentally sensitive contaminants. This individual should be OSHA certified. The use of photographs or videotape to document the existing conditions and findings at the site is at the discretion of the investigator.

4. Interview persons whom are thought to have knowledge of releases at or from sites in and around the project area. Maintain written records of all interviews.

5. Develop a site sketch.

6. Gather and organize all information from the investigation.

7. Study the compiled data and evaluate the impact of the known environmental conditions.

8. Develop recommendations for further action at sites where environmental conditions of concern were noted.

9. Describe in a complete, concise, manner all evidence gathered in relation to the recognized environmental conditions within the overall scope of the project.

10. Provide to the District, in either written or oral form, a draft report. Revise as necessary.

11. Present final report to the District.

Detail Task 1 - Hazardous and Residual Wastes

Department Details:

Utilize standard Scope of Work for Section 2.2.12.1 Phase I Environmental Site Assessment (ESA).

Approach:

This task will be conducted in accordance with PennDOT Publication 281 Waste Site Evaluation Procedures Handbook, dated April 2010. A total of four Phase I ESAs will be conducted for each of the four culvert replacements since they are individual structures and are separated from each other. An additional Phase I ESA will also be conducted for intersection improvements at the intersection of SR 26 and SR 36. Specific attention will be paid to the proposed 150 foot left turning lane at the intersection of SR 26 and SR 36, which is in the area of the gas station at that location.

The results of each Phase I ESA will be submitted in a report that will include a brief summary of the findings as they relate to the potential for environmental liability at the subject property. The report will include figures showing the location of the subject property and adjacent land, and additional maps collected from various agencies. Appendices will be provided that contain such materials as the photographs from the site inspection, copies of pertinent information, and potential environmental concerns associated with various site features or conditions.

L.R. Kimball will deliver one electronic copy of the each draft Phase I ESA Report for review and comment. Revisions to each Draft Phase I ESA Report will be made as necessary to satisfy PENNDOT comments and requirements. Two hard copies and an electronic copy of each Final Phase I ESA Report will then be provided.

Task 3 - Wetland Studies

Objective:

2.2.1 - Wetland Studies
Title 25, Chapter 105.17 of the Pennsylvania Code will be used to identify wetlands and determine the impact of the proposed alternatives.

2.2.1.1 - Identification/Delineation
This task consists of the delineation of wetland resources, wetland functional assessment, the preparation of wetland resource reports, mapping wetland resources and obtaining jurisdictional determinations within a project. Publication 325 applies to this task.

2.2.1.2 - Impact Assessment
This task includes the quantification of wetland impacts by project alternative.

Scope:

2.2.1 - Wetland Studies
Preliminary assessment (field view) to determine presence/absence of resources will be conducted in accordance with Publication 325, Wetland Resources Handbook.

2.2.1.1 - Identification/Delineation
Conduct field views and site walkovers to identify the presence or absence of jurisdictional wetlands within the study area. Secondary sources normally used to characterize the areas include the County Soil Survey Reports (Soil Conservation Service) to identify known hydric soils, National Wetland Inventory Maps (US Fish and Wildlife Service) to locate anticipated wetland areas and USGS 71/2 min. Quadrangle Sheets (U.S. Geological Survey) to define the drainage and topography of the site. These sources provide the background information and a starting point for in-field investigations.

Delineate the wetlands within the study area utilizing the methodology presented in the U.S. Army Corps of Engineers (ACOE) Wetland Delineation Manual (1987). The wetland boundaries will be marked with surveyors flagging.

The functions and values for each wetland will be assessed using either the Corps Descriptive Method (CDM) or the WET 2.1 Analysis. This information will be compiled for inclusion into the Wetland Identification and Delineation Report. Determine if the wetlands within the study area meet the criteria of exceptional value.

A jurisdictional determination field view to verify wetland delineations will be conducted with appropriate review agencies including the ACOE and the Pennsylvania Department of Environmental Protection (PADEP).

A Wetland Identification and Delineation Report will be prepared to document the investigation including: methodology, findings, agency coordination activities and the photographs and data forms.

2.2.1.2 - Impact Assessment
Prepare an Alternatives Analysis to meet Section 404(b)(1) requirements of the Clean Water Act. Seek concurrence in accordance with appropriate module of Publication 325, Wetland Resources Handbook.

Detail Task 1 - Wetland Studies

Department Details:

An evaluation and analysis of area wetlands and potential impact and mitigation will be conducted in compliance with the Executive Order 11990, Protection of Wetlands; D.O.T. Order 5660.1A, Preservation of National Wetlands; 23c CRF Part 777, Mitigation of Environmental Impacts to Privately Owned Wetlands; Strike-Off Letter 4399007, Wetlands Finding Procedures; DER Chapter 105 Regulations as amended, Section 404 of Federal Clean water Act; EPA 404(b)(1) guidelines and the EPA/COE Memorandum of Agreement dated February 6, 1990.Project area wetlands will be preliminarily identified by consulting U.S. Fish and Wildlife Service NWI maps, U.S. Geological Survey topographic sheets and appropriate County Soil Survey. A field investigation will then be undertaken to verify the preliminary identified wetland areas and to identify any additional wetlands areas that may exist. Detailed identification and delineation of project area wetlands will be done in accordance with the US Army Corps of engineers Wetland Delineation Manual (1987) and the results presented in a wetland Identification and Delineation Report. All identified project area wetland will be classified and mapped in accordance with the FWS Classification of Wetlands and Deepwater Habitats (Cowardin, et. al.). Assume that the Jurisdictional Determination field view will be scheduled in conjunction with the 105 Pre Application Meeting.

Approach:

The wetland/surface water identification and delineation task will include an on-site field investigation and documentation of field findings. All areas within the right of way and easements will be investigated. The purpose of the wetland and surface water investigation is to determine presence/absence, extent, general quality, and special protection status of palustrine wetlands and surface water resources within the project study area. Wetland and surface water resource information will be utilized to develop prudent and reasonable site layout alternatives that avoid and / or minimize wetland and surface water impacts to the best possible extent.

Field Investigation
The palustrine wetland and Waters of the United States field investigation will be conducted within the project area. If wetland systems extend outside of these areas or off of the property limits, they will be denoted as open-ended and will not be delineated beyond these extents. Wetland boundaries will be delineated in accordance with the USACOE Wetland Delineation Manual (1987), Routine On-Site Determination Methodology and the USACOE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Wetland systems will be classified in accordance with the US Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). Wetland data sheets and representative wetland photographs will be collected. Upland data sheets will also be completed to identify the wetland / upland boundary.

Wetland boundaries will be visually delineated in the field with surveyors flagging. Hand drawn wetland location and shape data along with individual flag numbers and location will be provided to project surveyors for conventional survey.

Perennial and intermittent streams found during the course of the wetland investigation will be classified through visual observations of physical habitat characteristics and aquatic life forms as defined by the Pennsylvania Department of Environmental Protection (PADEP) Chapter 87 Surface Mining of Coal guidelines. The ordinary high water mark of intermittent and perennial streams will be identified in accordance with the US Army Corps of Engineers Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification (2005). The presence of ephemeral streams will also be identified utilizing this guidance. Information regarding the stream management classifications and critical usage according to PA Code Title 25, Chapter 93 Water Quality Standards and Pennsylvania Fish and Boat Commission listed wild and trout stocked stream limits will be provided. Results of the investigation will be presented within the Wetland Delineation and Waters of the United States Findings Report.

Wetland and Waters of the United States Findings Report
The Wetland Delineation and Waters of the United States Report will include a project description, individual wetland and surface water descriptions, wetland and upland data forms, photographs, mapping depicting “Jurisdictional and Non-jurisdictional Waters of the United States”, and the additional information required to request a jurisdictional determination. Secondary resource mapping will include a United States Geologic Survey Map, United States Fish and Wildlife Service National Wetland Inventory Map and United States Department of Agriculture Natural Resource Conservation Service Soil Survey map depicting the project study area. L.R. Kimball will prepare and submit one copy of the draft report to the District. Upon approval from the District, L.R. Kimball will submit one copy of the report to the U.S. Army Corps of Engineers (USACOE) requesting a Jurisdictional Determination field meeting.

Jurisdictional Wetland Boundary Determination
Following the completion of the Wetland Delineation and Waters of the United States Report, L.R. Kimball will conduct a Jurisdictional Wetland Determination (JD) Field View with regulatory specialists from the USACOE in order to secure agency concurrence on delineated wetland boundaries and extents of Waters of the United States. It is assumed that the JD meeting will be conducted in one day. The scheduling of a JD is contingent upon the availability of regulatory personnel and local weather conditions.

Meeting minutes will be prepared and disseminated to the District and the meeting attendees. L.R. Kimball will request that the USACOE submit a

Jurisdictional Boundary Determination letter to the District.

The following tasks are not included in this scope:
• Wetland functions and values assessment
• Detailed stream assessments (macroinvertebrate survey, chemical analysis, habitat assessment)
• Wetland mitigation sighting, design, construction and monitoring
• Stream mitigation sighting, design, construction and monitoring
• Wetland / Stream Restoration Plans
The wetland/surface water identification and delineation task will include an on-site field investigation and documentation of field findings. All areas within the right of way and easements will be investigated. The purpose of the wetland and surface water investigation is to determine presence/absence, extent, general quality, and special protection status of palustrine wetlands and surface water resources within the project study area. Wetland and surface water resource information will be utilized to develop prudent and reasonable site layout alternatives that avoid and / or minimize wetland and surface water impacts to the best possible extent.

Field Investigation
The palustrine wetland and Waters of the United States field investigation will be conducted within the project area. If wetland systems extend outside of these areas or off of the property limits, they will be denoted as open-ended and will not be delineated beyond these extents. Wetland boundaries will be delineated in accordance with the USACOE Wetland Delineation Manual (1987), Routine On-Site Determination Methodology and the USACOE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Wetland systems will be classified in accordance with the US Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). Wetland data sheets and representative wetland photographs will be collected. Upland data sheets will also be completed to identify the wetland / upland boundary.

Wetland boundaries will be visually delineated in the field with surveyors flagging. Hand drawn wetland location and shape data along with individual flag numbers and location will be provided to project surveyors for conventional survey.

Perennial and intermittent streams found during the course of the wetland investigation will be classified through visual observations of physical habitat characteristics and aquatic life forms as defined by the Pennsylvania Department of Environmental Protection (PADEP) Chapter 87 Surface Mining of Coal guidelines. The ordinary high water mark of intermittent and perennial streams will be identified in accordance with the US Army Corps of Engineers Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification (2005). The presence of ephemeral streams will also be identified utilizing this guidance. Information regarding the stream management classifications and critical usage according to PA Code Title 25, Chapter 93 Water Quality Standards and Pennsylvania Fish and Boat Commission listed wild and trout stocked stream limits will be provided. Results of the investigation will be presented within the Wetland Delineation and Waters of the United States Findings Report.

Wetland and Waters of the United States Findings Report
The Wetland Delineation and Waters of the United States Report will include a project description, individual wetland and surface water descriptions, wetland and upland data forms, photographs, mapping depicting “Jurisdictional and Non-jurisdictional Waters of the United States”, and the additional information required to request a jurisdictional determination. Secondary resource mapping will include a United States Geologic Survey Map, United States Fish and Wildlife Service National Wetland Inventory Map and United States Department of Agriculture Natural Resource Conservation Service Soil Survey map depicting the project study area. L.R. Kimball will prepare and submit one copy of the draft report to the District. Upon approval from the District, L.R. Kimball will submit one copy of the report to the U.S. Army Corps of Engineers (USACOE) requesting a Jurisdictional Determination field meeting.

Jurisdictional Wetland Boundary Determination
Following the completion of the Wetland Delineation and Waters of the United States Report, L.R. Kimball will conduct a Jurisdictional Wetland Determination (JD) Field View with regulatory specialists from the USACOE in order to secure agency concurrence on delineated wetland boundaries and extents of Waters of the United States. It is assumed that the JD meeting will be conducted in one day. The scheduling of a JD is contingent upon the availability of regulatory personnel and local weather conditions.

Meeting minutes will be prepared and disseminated to the District and the meeting attendees. L.R. Kimball will request that the USACOE submit a Jurisdictional Boundary Determination letter to the District.

The following tasks are not included in this scope:
• Wetland functions and values assessment
• Detailed stream assessments (macroinvertebrate survey, chemical analysis, habitat assessment)
• Wetland mitigation sighting, design, construction and monitoring
• Stream mitigation sighting, design, construction and monitoring
• Wetland / Stream Restoration Plans
The wetland/surface water identification and delineation task will include an on-site field investigation and documentation of field findings. All areas within the right of way and easements will be investigated. The purpose of the wetland and surface water investigation is to determine presence/absence, extent, general quality, and special protection status of palustrine wetlands and surface water resources within the project study area. Wetland and surface water resource information will be utilized to develop prudent and reasonable site layout alternatives that avoid and / or minimize wetland and surface water impacts to the best possible extent.

Field Investigation
The palustrine wetland and Waters of the United States field investigation will be conducted within the project area. If wetland systems extend outside of these areas or off of the property limits, they will be denoted as open-ended and will not be delineated beyond these extents. Wetland boundaries will be delineated in accordance with the USACOE Wetland Delineation Manual (1987), Routine On-Site Determination Methodology and the USACOE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region. Wetland systems will be classified in accordance with the US Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). Wetland data sheets and representative wetland photographs will be collected. Upland data sheets will also be completed to identify the wetland / upland boundary.

Wetland boundaries will be visually delineated in the field with surveyors flagging. Hand drawn wetland location and shape data along with individual flag numbers and location will be provided to project surveyors for conventional survey.

Perennial and intermittent streams found during the course of the wetland investigation will be classified through visual observations of physical habitat characteristics and aquatic life forms as defined by the Pennsylvania Department of Environmental Protection (PADEP) Chapter 87 Surface Mining of Coal guidelines. The ordinary high water mark of intermittent and perennial streams will be identified in accordance with the US Army Corps of Engineers Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification (2005). The presence of ephemeral streams will also be identified utilizing this guidance. Information regarding the stream management classifications and critical usage according to PA Code Title 25, Chapter 93 Water Quality Standards and Pennsylvania Fish and Boat Commission listed wild and trout stocked stream limits will be provided. Results of the investigation will be presented within the Wetland Delineation and Waters of the United States Findings Report.

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The Wetland Delineation and Waters of the United States Report will include a project description, individual wetland and surface water descriptions, wetland and upland data forms, photographs, mapping depicting “Jurisdictional and Non-jurisdictional Waters of the United States”, and the additional information required to request a jurisdictional determination. Secondary resource mapping will include a United States Geologic Survey Map, United States Fish and Wildlife Service National Wetland Inventory Map and United States Department of Agriculture Natural Resource Conservation Service Soil Survey map depicting the project study area. L.R. Kimball will prepare and submit one copy of the draft report to the District. Upon approval from the District, L.R. Kimball will submit one copy of the report to the U.S. Army Corps of Engineers (USACOE) requesting a Jurisdictional Determination field meeting.

Jurisdictional Wetland Boundary Determination
Following the completion of the Wetland Delineation and Waters of the United States Report, L.R. Kimball will conduct a Jurisdictional Wetland Determination (JD) Field View with regulatory specialists from the USACOE in order to secure agency concurrence on delineated wetland boundaries and extents of Waters of the United States. It is assumed that the JD meeting will be conducted in one day. The scheduling of a JD is contingent upon the availability of regulatory personnel and local weather conditions.

Meeting minutes will be prepared and disseminated to the District and the meeting attendees. L.R. Kimball will request that the USACOE submit a Jurisdictional Boundary Determination letter to the District.

The following tasks are not included in this scope:
• Wetland functions and values assessment
• Detailed stream assessments (macroinvertebrate survey, chemical analysis, habitat assessment)
• Wetland mitigation sighting, design, construction and monitoring
• Stream mitigation sighting, design, construction and monitoring
• Wetland / Stream Restoration Plans

Task 4 - Level 1B CE

Objective:

2.3.2 - Level 1B CE
This task consists of the assembly and approval of the Level 1B Categorical Exclusion

Scope:

2.3.2 - Level 1B CE
Complete Part A and B, of the Categorical Exclusion Evaluation (CEE) form (Publication 294), that includes a Project Description and, may also include a location map(s) and/or illustrations.

Sheet C-2 will also require completion.

Submit the completed CEE form and pertinent supporting documents for review, concurrence, and approval to the District Office. If necessary, revise the CEE form and or supporting documentation as directed.

Detail Task 1 - Level 1B CE

Department Details:

Use CEE Expert System. The District will set up the project on the CEE Expert System and the Consultant will complete. The Consultant will complete the reports and the District will attach the reports in the Expert System. This task includes all necessary work to obtain environmental clearance for the project.

Approach:

A Level 1B Categorical Exclusion Evaluation (CEE) will be prepared to satisfy National Environmental Policy Act (NEPA) requirements. The CEE will be prepared in accordance with PennDOT's Design Manual Part 1B Publication 10B Post-TIP NEPA Procedures. Parts A, B and Sheet C-2 of the CEE form will be prepared and submitted using the CE/EA Expert System.
L.R. Kimball will complete the District generated evaluation form for all four culverts.
Parts A and B of the CE form will address the following issues:
• General project identification, description and engineering information including but not limited to project purpose and need, design criteria, structures data, and traffic control measures.
• Natural Resources including but not limited to wetlands, floodplains, coastal zones, natural and wild areas, streams, threatened and endangered species, and vegetation.
• Farmlands
• Cultural Resources
• Hazardous Waste
• Section 4(f) Resources
• Air Quality and Noise
• Socioeconomic issues including but not limited to displacements, community cohesion, environmental justice, and aesthetics.
• Public and Agency Involvement
• Mitigation
• Permits
• Consistency with established management plans

L.R. Kimball will evaluate potential impacts for all identified resources. We will initially determine the presence of the resources using available secondary source information and a site walk over, and then determine whether or not impacts to the resource would occur. Mitigation measures will be included as necessary.

This scope of work does not include the following studies/services:
• Mitigation Plans
• Detailed Air Quality Studies
• Detailed Noise Studies
• Species Specific Surveys
• Biological Assessments for Threatened and Endangered Species
• Individual Section 4(f) Evaluation

Task 5 - Archaeology

Objective:

2.2.29 - Archaeology

To determine the potential for prehistoric and historic archaeological resources (geomorphology, predictive model) within the area of potential effect (APE), determine the presence or absence of prehistoric and historic archaeological resources within the APE (Phase I), assess the significance of identified resources for eligibility to the National Register of Historic Places (Phase II), determine project effects on eligible resources, and develop appropriate mitigation strategies, such as data recovery (Phase III), as warranted.

2.2.29.4 - Geomorphology
Geomorphological investigations should be conducted in alluvial or colluvial settings within the area of potential effect and may be used to document degree of disturbance, assess the potential for deeply buried cultural resources which are apt to be adversely affected by construction activities, record archaeological site stratigraphy, and document depositional processes. Initial geomorphological investigations should be done prior to Phase I archaeological testing and should be used to develop the archaeological deep testing strategy.

2.2.29.5 - Archaeological Identification and Evaluation (Phase I & II) – Recommendations of Eligibility
Identification surveys and evaluation of archaeological sites combined into a single field effort with the goal being the recommendation of eligibility of archaeological properties within the project's area of potential effect (APE).

Scope:

2.2.29 - Archaeology
Archaeology covers those steps in Section 106 consultation involving the identification and evaluation of significant archaeological sites, the project’s effects on significant archaeological sites, and appropriate public and consulting party involvement.

2.2.29.4 - Geomorphology
Guidance:
- "Guidelines for Archaeological Investigations in Pennsylvania", November 2008, Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission

Scope:
At the direction of the PennDOT District Cultural Resource Professional(s), conduct a geomorphological investigation of alluvial and colluvial settings within the vertical and horizontal APE.

The scope of work will include some or all of the following activities:
1. Using auger borings, trenches, or other means to examine soil profiles, determine the landform(s) on which the project is located, determine the soil type(s), stratigraphy, and age of the depositional events and soils.

2. Determine the potential for intact archaeological deposits.

3. When the geomorphological investigation concludes that there is no potential for deeply buried archaeological sites within the vertical and horizontal APE, prepare a report that includes:
a. a map showing the location(s) of the borings or trenches
b. soil profiles that represent the range of variability within the vertical and horizontal APE
c. a description of the landform(s) and soils within the vertical and horizontal APE
d. soil formation processes
e. a discussion on the age of the soils.
f. conclusions and recommendations

4. When the geomorphological investigation determines that there is a potential for deeply buried archaeological sites, or when geomorphology studies are conducted as part of an archaeological site excavation, prepare a geomorphology report that includes:
a. a map showing the location(s) of the borings or trenches
b. soil profiles that represent the range of variability within the APE
c. a description of the landform(s) and soils within the APE
d. soil formation processes
e. a discussion on the age of the soils
f. conclusions and recommendations
g. Incorporate the investigations into the archaeology report (see 2.2.29.5).

5. Submit the document(s) to the PennDOT Project Manager for review by the PennDOT District Cultural Resource Professional(s).

6. Upon review and approval by the PennDOT District Cultural Resource Professional(s), submit the requested number of final reports to the Department.

7. At the request of the PennDOT District Cultural Resource Professional(s), provide electronic copies of the documentation.

Scope Deliverables:
1. Draft Geomorphological Report, either as a document by itself, or as an appendix in a Phase I archaeological identification report.

2. Final Geomorphological Report, either as a document by itself, or as an appendix in a Phase I archaeological identification report.

3. Electronic copies of the documentation, as requested.

2.2.29.5 - Archaeological Identification and Evaluation (Phase I & II) – Recommendations of Eligibility
Guidance:
- National Register Bulletin Guidelines for Evaluating and Registering Archeological Properties (2000)
- Advisory Council's Handbook on the Treatment of Archaeological Properties (1980)
- Secretary of the Interior's Standards for Archaeology and Historic Preservation (36 CFR 61.3 (b) and Chapter 6, Section C.1.a)
- Guidelines for Archaeological Investigations in Pennsylvania, November 2008, Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission

Scope:
At the direction of the Project Manager (PM) and in coordination with the PennDOT District Cultural Resource Professional(s), determine the presence or absence of archaeological resources within the APE (Phase I archaeological identification survey) and/or evaluate identified archaeological resources for eligibility in the National Register of Historic Places (Phase II archaeological evaluation investigations).

The scope of work will include some or all of the following activities:
1. Perform Archaeological Identification Survey (Phase I)
a. Confer with the PennDOT District Cultural Resource Professional(s) to determine the archaeological APE for the project and the level of testing needed to identify archaeological resources located within the APE. If an archaeological predictive model has been developed for the project under

Section 2.2.29.3, use the model to guide the testing of the APE.
b. Review Pennsylvania Archaeological Site Survey (PASS) files maintained at the State Historic Preservation Office (SHPO), Harrisburg, Pennsylvania, and historic structure forms, National Register of Historic Places historic structures files, and area cultural resource management reports maintained at the BHP in Harrisburg, Pennsylvania, to identify recorded archaeological sites and inventoried historic structures in or adjacent to the project area, and to assess the level of cultural resources work previously done in the general area.
c. Review relevant primary and secondary source material including archival collections, historic maps, atlases, and local histories. Consult with regional and local historical societies, and conduct informant interviews with property owners and other informants, as appropriate.
d. Review relevant geology; physiography; hydrology; pedology; climate; flora and fauna; current land use; results of geomorphological testing and similar environmental data.
e. Develop prehistoric and historic period context statements. Phase I context statements will provide
project area-specific background data and clarify research expectations. Prioritize survey areas into probability zones for the location and/or preservation of cultural materials.
f. Conduct a pedestrian reconnaissance of the project area to confirm the presence and condition of resources identified during the background research, assess current land use, and delineate areas suitable for sub-surface testing.
g. Based upon the results of the pedestrian reconnaissance, background research, geomorphological assessment, as appropriate, or predictive model, hand-excavate shovel test pits (STPs) or 1 meter2 units at intervals appropriate to the project area prioritization (i.e., high, moderate, or low probability), and with reference to the SHPO guidelines. When cultivated fields are located within the APE and there is good surface visibility, conduct close-interval walkover and controlled surface collection according to the SHPO guidelines. In fluvial or colluvial settings where potential exists for the preservation of deeply-buried cultural materials in stratified contexts, conduct manual or mechanically-assisted deep testing.
h. Document land use and previous disturbance. Record soil profiles and map and photograph identified cultural features (e.g., wells, privies, refuse pits, architectural remains, prehistoric features, etc.) in situ.
i. Process, label, and inventory recovered artifacts according to the Curation Guidelines of the Section of Archaeology, The State Museum of Pennsylvania, Pennsylvania Historical and Museum Commission (PHMC). Conduct Phase I-level analysis (i.e., cultural/temporal affiliation, artifact type, material, and function).
j. When archaeological sites are identified within the APE, prepare and submit PASS form(s) to the SHPO in order to secure Smithsonian Trinomial site number from the SHPO.
k. When no archaeological sites are identified in the APE prepare the PHMC's "Negative Survey" form. When the APE is found to be entirely disturbed, prepare the PHMC's "Record of Disturbance" form. Submit the "Negative Survey Form" or "Record of Disturbance Form" to the project manager for review by the District Archaeologist. Upon review and approval by the District Archaeologist, submit the requested number of copies of the forms to the project manager. The requested number will be a minimum of four (4) and a maximum of 20.
l. If archaeological sites are identified but will be avoided by project activities, prepare a complete report on the results of the Phase I identification efforts. The report should include the results of the background research; field methodology employed, and field results. The report is to be suitably illustrated with photographs, soil profiles, and maps to support the results of the Phase I findings. Include the BHP report summary form. Submit the report to the project manager for review by the District Archaeologist. Upon review and approval by the District Archaeologist, submit the requested number of copies of thereport to the project manager. The requested number will be a minimum of four (4) and a maximum of20.
m. When archaeological sites are identified in the APE, request that the property owner sign a PHMC gift agreement donating the artifacts to the State Museum. If the property owner does not wish to sign the gift agreement, the artifacts must be returned to the owner. When artifacts will not be permanently curated, conduct the additional analyses and documentation per the PHMC Curation Guidelines.
n. Upon acceptance of the archaeology report by the BHP/SHPO, pack and deliver artifacts, signed gift agreements and all project records to the State Museum of Pennsylvania or other approved repository for permanent curation. Provide documentation of receipt by the State Museum to the District Archaeologist.
o. When archaeological sites are identified during the Identification (Phase I) survey that require additional investigation, confer with the Project

Manager or District Cultural Resource Professional. The Cultural Resource Professional may request a short synopsis(letter-type report) of the Phase I field investigations and results to include:
1. a map of the locations tested
2. a listing/catalog of recovered artifacts
3. stratigraphic interpretation
4. potential for eligibility to the National Register of Historic Places
5. recommendations for additional testing.
At the request of the District Archaeologist, attend a meeting or field view to discuss the scope of work for site evaluation (Phase II).
p. At the request of the District Cultural Resource Professional, provide electronic copy of the documentation.

2. Perform Archaeological Evaluation Investigations (Phase II)
a. Conduct background research at a level sufficient to place the resource within its geographic and historic context.
b. Conduct testing in accordance with the plan agreed to by the District Cultural Resource Professional Archaeologist, and in consultation with the SHPO, as appropriate, and considering the PHMC's 's guidelines for Phase II excavations. Testing must be sufficient to determine:
1. the horizontal and vertical boundaries of the site within the APE including the identification of stratified deposits
2. artifact distributions
3. presence or likelihood for features
4. whether the site meets the criteria for eligibility to the National Register
5. (if so) what important specific research questions the information from the site may help to answer
c. Conduct analyses to include but not be limited to the following:
1. assess prehistoric lithic artifacts for cultural/temporal affiliation, artifact type, raw material, presumed function, and modification or usewear
2. classify Native American ceramics by cultural affinity, type/ware and temper categorize historic artifacts by material type, function, and diagnostic attributes
3. process feature soils by flotation to recover botanical and faunal remains
4. classify botanical and faunal specimens by major taxon and structural form
5. obtain radiocarbon dates on charcoal recovered from features, as appropriate
d. Prepare a draft report on the results of the identification survey (Phase I) and site(s) evaluation (Phase II). The report must include:
1. the results of the background research including a prehistoric and historic context.
2. a discussion of the field methodology.
3.testing results and recommendations.
4. An assessment of the reliability of the model and recommendations for modification to the model when a predictive model was developed according to Section 1.3.1.
5. A delineation of the horizontal and vertical boundaries of the site within the vertical and horizontal APE for each archaeological site evaluated.
6. An illustration and description of any identified features and artifact distribution maps.
7. Appropriate graphs and tables to present artifact tabulations and results of analyses.
8. A suitable number of photographs, stratigraphic profiles, and maps to support the results of the Phase II evaluation.
9. A recommendation of each site's eligibility to the National Register of Historic Places, following the guidance provided in the National Register Bulletin Guidelines for Evaluating and Registering Archeological Properties (2000).
10. For archaeological sites recommended as eligible for the National Register, a justification for the recommendation based on the important specific research questions the information from the site may help to answer.
11. Make recommendations for the potential effects from project implementation.
i.If the project can be redesigned to avoid effects to the site(s) a finding of No Historic Properties Affected should be recommended.

ii.If the site(s) would be affected but can be protected during construction through erection of protective fencing or by other means, then a finding of No Adverse Effect should be recommended. If the site(s) cannot be avoided through design modification or otherwise protected during construction, a finding of Adverse Effect should be recommended.
iii.Make recommendations for minimizing or mitigating the adverse effect. Mitigation measures may include a research design and excavation plan for a data recovery (Phase III), or a proposal for alternative/creative mitigation. Submit the report to the project manager for review by the District Archaeologist. Upon review and approval by District Archaeologist, submit the requested number of copies of the report to the Department. The requested number will be a minimum of four (4) and a maximum of 20.
iv.Review of project's coordination and consultation efforts
e. Contact the property owner and request that the property owner sign a PHMC Accession and Gift Agreement Form donating the artifacts to the State Museum. If the property owner does not wish to sign the gift agreement, the artifacts must be retuned to the owner. When artifacts will not be permanently curated, conduct the additional analyses and documentation per the PHMC Curation Guidelines.
f. Process, label, and inventory recovered artifacts according to the most current PennDOT-approved Curation Guidelines of the Section of Archaeology, The State Museum of Pennsylvania, Pennsylvania Historical and Museum Commission. Upon acceptance of the report by the BHP/SHPO, pack and deliver artifacts, signed gift agreements and all project records to the State Museum of Pennsylvania or other approved repository for permanent curation.
g. Provide documentation of receipt by the State Museum to the District Archaeologist.

3. Submit the document(s) to the PennDOT Project Manager for review by the PennDOT District Cultural Resource Professional(s).

4. Upon review and approval by the PennDOT District Cultural Resource Professional(s), submit the requested number of final reports to the Department. The requested number will be a minimum of four (4) and a maximum of 20.

5. At the request of the PennDOT District Cultural Resource Professional(s), provide electronic copies of the documentation.

Scope Deliverables:
1. Draft Phase I Archaeological Identification and/or Phase II Archaeological Evaluation report.

2. Final copies of Phase I Archaeological Identification and/or Phase II Archaeological Evaluation report.

3. Electronic copies of the documentation, if requested.

Detail Task 1 - Archaeology

Department Details:

Once the project footprint has been established, Phase I Archaeology testing may be necessary to determine the presence or absence of archaeological resources for the 2 culverts that are expected to be slightly offline. For the two culverts which will be replaced online, it is anticipated that minimal to no new right-of-way will be acquired and all TCE's are expected to be within 12 ft of existing right-of-way so there will not be a need for archaeology. Based on the results of any Phase I testing, Phase II/III Studies/ Reports may be required. If Phase II/III Studies/ Reports are determined to be required, they will be added to the agreement with a supplement. Geomorphology will not be required.

Approach:

These studies will be completed in compliance with the statutes and regulations that govern impacts to historic and archaeological resources by projects funded and/or permitted by state and federal governments. These legislative acts include: the National Environmental Policy Act of 1966, as amended; Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800; the revised Advisory Council on Historic Preservation (ACHP) regulations (36 CFR 800), effective June 17, 1999; the Archaeological and Historic Preservation Act of 1974; Commonwealth of Pennsylvania State Act Nos. 1970-120 and 1978-273; the Pennsylvania History Code (H.B. 1713); and the Pennsylvania Historical and Museum Commission (PHMC) Guidelines for Archaeological Investigations. The study will also adhere to the policy and guidelines of the Bureau for Historic Preservation of the PHMC. Resources considered eligible for the National Register of Historic Places (NRHP) will be evaluated under the criteria as defined in the Department of the Interior Regulations 36 CFR 60. All studies will conform to the standards established by the PHMC (revised July 1991), and PENNDOT SOL 430-92-29.

The APE for a proposed undertaking is defined in 36 CFR 800.16(d) as "
the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." The area within which the project may cause alterations in the use of historic properties is limited to the immediate project area adjacent to the project. The area within which the project may cause alterations in the character of historic properties extends beyond the immediate project area because of extended sight lines to nearby historic properties. The APE for archaeological resources is limited to the area of ground disturbance. Once established, the APE for the current project will be investigated for the presence of subsurface cultural deposits in areas of undisturbed soil.

ASC will review existing cultural resource data maintained in the PASS files, historic structures survey files, National Register files, GIS database, existing reports, and contexts on file at the Bureau for Historic Preservation in Harrisburg. Environmental data which may affect archaeological resources, including geomorphology, soils, and information regarding any prior disturbance, will be researched.

The two culverts that will be surveyed are BMS 05-0026-0660-0000 and BMS 05-0026-0660-0257. Shovel test pits (STPs), 57 centimeters (22 inches) in diameter and 15-meter (50-foot) intervals might be adequate. The soil from each STP will be screened through 0.25-inch hardware cloth and any recovered artifacts will be bagged separately by location. Field notes will be recorded for all STPs and photographs will be taken when appropriate. It is anticipated that ten (10) STPs will be dug per culvert, for a total of 20 STPs dug for the project.

Prior to the start of fieldwork, written Intent to Enter letters will be obtained from all property owners by PennDOT and provided to ASC. ASC will attempt to acquire a Deed of Gift from private property owners for all artifacts recovered during archaeological investigations. Recovered artifacts will be processed at ASC's laboratory, inventoried and analyzed to address study goals and objectives, and prepared for curation at the Pennsylvania State Museum or other officially approved repository. Curation Guidelines of the Section of Archaeology, The State Museum of Pennsylvania, Pennsylvania Historical and Museum commission (revised 1999) will be followed. Each archaeological resource identified will be documented on a Pennsylvania Archaeological Site Survey (PASS) Form.

A detailed report documenting the goals and objectives, background, methods, results, conclusions, and recommendations of the survey will be prepared in accordance with state and federal guidelines. Background and field data will be organized and reviewed to address the presence or absence of potentially significant archaeological resources and recommendations for the further Phase II evaluation of potentially significant resources will be prepared if appropriate. The report will be appropriately illustrated. It will be prepared in draft and final versions and the appropriate number of copies will be submitted to PennDOT.

If no archaeological sites are found within the project APE, PennDOT will be notified and after submission of a final report documenting the

absence of sites, the archaeological fieldwork will be complete.

Deliverables will include two (2) copies of the draft Phase I report and eight (8) copies of the final Phase I report. Any necessary archaeological work beyond a Phase I report would require a supplemental agreement.

In accordance with 36 CFR 800, federal regulations implementing the National Historic Preservation Act of 1966, as amended in 1992 and in accordance with interim guidance issued by FHWA and PennDOT, letters of project notification will be sent to all federally recognized Native American tribes with previous local affiliations. In the event that prehistoric archaeological sites are discovered, consultation with the tribes will be ongoing.

Task 6 - Surveys

Objective:

2.4.1 - Surveys
This task consists of providing the survey requirements associated with specific PennDOT projects designated for studies, reports, design and construction.

Scope:

2.4.1 - Surveys
Guidance:
- Publication 122M, Surveying and Mapping Manual
- Strike Off Letter 430-99-20, QA/QC Control checklist for Right-of-Way and Construction Plans
- Publication 213, Work Zone Traffic Control Manual
- Form D-428, Field Book
- Design Manual 3, Plans Presentation
- Referencing alignments should be in agreement with Pub 122M, Ch. 3.1 and DM3 Figure 3.214

Scope:
Surveys may consist of either conventional data collection, Three-Dimensional data collection, or a combination, as directed by the District. Obtain published horizontal and vertical control data for project use.

The Quality Assurance/Quality Control Checklist will be completed and discussed with the District Chief of Survey for all preliminary design survey work.

Prior to initiating surveys, develop a Traffic Control Plan in accordance with Publication 213 for implementation during surveys within existing transportation facilities.

Detail Task 1 - Surveys

Department Details:

All surveys shall be completed in accordance with current Design Manuals, Publication 122, and all applicable Strike-Off letters. Consultant will be

responsible for checking and plotting all survey data.

The Consultant will perform the following tasks:

- Horizontal Control will be based on State Plane Coordinate System (PA south Zone).

- Vertical Control will be based on NAVD 88.

- Reestablish and reference the existing right-of-way baseline. All surveys will be tied to this baseline.

- Check and plot all survey data.

- Any surveys necessary to support the H & H Studies.

- Send Letters of Intent to Enter to all involved parties prior to the start of field surveys. Additional Intent to Enter Letters will be issued every 12 months.

- Collect Survey using English units of measure.

- Any surveys necessary at intersections where temporary signals or intersection improvements are proposed along the detour route, if applicable.

- Field locate all utilities including on-lot sanitary sewer systems and private wells.

The Consultant will edit mapping topography, including the type, size, location, and elevation of existing storm drain and utility facilities; and evident property corners.

The Consultant will establish existing stream baseline and obtain stream profile and cross sections.

The Consultant will stakeout the Core Boring Hole locations.

The Consultant will set monumentation points on the Legal Right-of-Way lines.

The Consultant will locate Wetland Flags.

The Consultant will perform investigations of County Tax Records to obtain names and addresses of involved property owners. Letters of Intent to Enter shall be sent to all involved parties prior by certified mail at the start of field surveys and updated every six months.

Approach:

N&W concurs and will comply with the Department's Scope of Work for this task. The following discussion is provided to amend, amplify and/or quantify the Department's scope.

Topography will be drafted to incorporate the entire area as described with CADD software and a DTM surface will be created. A DTM surface of the creek within the described stream corridor will be incorporated with the DTM surface of the road corridor. An existing conditions survey will be

provided in MicroStation format. The DTM surface will also be provided in MicroStation InRoads format. N&W will utilize LIDAR data to provide and to extend topography to elevations that exceed one foot above the FEMA mapped 100-year flood elevation. N&W will coordinate with Kimball to survey wetland areas and/or archaeological points or features. Kimball will provide N&W with sketches of the wetland delineation points prior to scheduling the field locations of them. It is assumed that there will be no more than one hundred (100) wetland points to be located. N&W will also stake out proposed borings for the project and locate the existing surface elevation at each proposed boring location. It is assumed that there are no more than sixteen (16) borings for this project.

It is understood that some survey tasks may require an adjustment to the length of time to complete the work depending upon site conditions. These may include, but not be limited to, excessive distance to achieve tie-ins to establish vertical and horizontal control points, an extensive amount of wetland or archaeological features to locate, unusual traffic control requirements, hostile denial of entry by property owner(s), special survey equipment needed, sight line clearing of dense vegetation, and traverse line establishment for inaccessible area surveys. If an adjustment to the length of time is deemed necessary, then N&W will notify Kimball immediately and discuss if an amendment to the scope of work is necessary.

Kimball will perform the initial courthouse research and will compile the Notice of Intent to Enter letters (NOITEs) as per the most recent District 9-0 format. N&W will submit a PA One Call web ticket prior to commencement of field surveys.

Kimball will reissue NOITE's every 12 months.

N&W will establish horizontal and vertical controls for the project in accordance with Pub. 122M (Department Survey Manual). All control GPS work and closed conventional traversing will be noted, explained, and sketched in the field book. OPUS point reports will be attached. Control points (GPS and/or traverse) will be referenced with swing ties. Final project coordinates for the control points will be listed in the field book.

N&W will provide topographical surveys within the project limits. Topographical surveys will be performed in accordance to Pub. 122M (Department Survey Manual). It is assumed that there are four (4) culvert structures to be replaced for this project. N&W assumes that the structures for this project have the following BMS #s: 05 0026 660 0826, 05 0036 0010 1195, 05 0026 0660 0000, and 05 0026 0660 0257.

The project limits are assumed to commence on S.R. 0026, 500 feet south of BMS #05 0026 0660 0000 and continue along S.R. 0026 north and east to terminate 500 feet east of BMS #05 0026 0660 0826. Also included in the project limits are surveys from the intersection of S.R. 0026 and S.R. 0036 north along S.R. 0036 to terminate 500 feet north of the BMS #05 0036 0010 1195. Topography will be surveyed 75 feet to either side of the centerline of the roads along the corridors described. The project limits will also include stream surveys. Streams will be surveyed 500 upstream and 500 feet downstream from each culvert. The stream survey corridor between BMS #s 05 0026 0660 0257 and 05 0036 0010 1195 will be tied together. Topography will be surveyed along the streams up to 100 feet beyond the top of bank of the streams.

Task 7 - Preliminary Drainage Design

Objective:

2.4.3 - Preliminary Drainage Design
This task includes all elements to develop preliminary drainage design with associated hydraulic computations

Scope:

2.4.3 - Preliminary Drainage Design
1. Develop a storm sewer drainage system layout for the selected alignment using very preliminary calculations and engineering judgement.

2. Size major culvert cross pipes by determining approximate drainage area.
3. Determine the need for top of slope and toe of slope ditches.
4. Identify existing drainage restrictions and coordinate with stormwater management strategy.
5. Identify drainage structures which will require agency permitting.

Include the following on the Design Field View Plans:

* Minor drainage features (inlets and pipes)
* Major drainage structures
* Drainage ditches

Detail Task 1 - Preliminary Drainage Design

Department Details:

Prepare and submit a preliminary drainage design report to the Department for review. Include all hydrologic and hydraulic computations (excluding those to be included as part of the Hydrologic and Hydraulic Report). Include plans showing drainage areas, flows, swale/pipe sizes, inlet data, and invert elevations. All Department comments will be incorporated into the final drainage design submission.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One field view is anticipated for this task. The design team will utilize Hydraflow Storm Sewer software to design closed storm sewer systems. The rational method will be used to determine design runoff. USGS quadrangle maps will be used to supplement topographic survey when drainage areas extend beyond the project mapping limits.

Task 8 - Line and Grade

Objective:

2.4.6 - Line and Grade
This task consists of the development of the horizontal and vertical geometry. Publication 13M, Design Manual Part 2 applies to this task

Scope:

2.4.6 - Line and Grade
Prior to developing the vertical and horizontal geometry, all environmental and property constraints will be identified. The engineer will have a comprehensive understanding of all of the constraints and will discuss these with the District prior to finalizing the geometry.

Secure sufficient field survey information to develop the final geometry. Develop all control points for the vertical and horizontal geometry. The engineer will analyze the compatibility and acceptability of the horizontal and vertical geometry.

The following work elements are required for the successful completion of this task:
1. Finalize horizontal and vertical geometry and submit plans in accordance with Publication 10A, Design Manual Part 1A.
2. Review for compliance with design criteria and environmental constraints.

3. Tabulate project control point coordinates (POT, PC, PT, and PI) for all roadways and channel relocations.
4. Apply the project traffic data to the design criteria to determine lane requirements, turning movements, and weaving movements.
5. Check final structure depths and adjust vertical alignment as necessary. If alternative structures are being utilized, use the worst case scenario.
6. Tabulate pavement grades and superelevation for development of cross sections.

Detail Task 1 - Line and Grade

Department Details:

The consultant will submit a design criteria report identifying the proposed roadway typology per SOL 432-08-12.

The Consultant will anticipate the structure will be replaced at the existing location using approximately the existing line with adjusted grade as required to meet any H&H and preliminary TS&L requirements. The Consultant will provide a cost estimate with the Line & Grade submittal.

The submission will address possible methods of maintaining traffic by using half width and detour alternatives.

The plans will also include anticipated required ROW lines, cut/fill lines, and approximate causeway location (if applicable).

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

The existing horizontal alignments will be utilized. No alternative horizontal alignments will be evaluated. Vertical grades will be developed as necessary to satisfy required hydraulic openings.

One field view is anticipated for this task.

The design team will submit a Design Criteria Report for approval prior to the Line and Grade submission. Typical Sections will be included with the Line and Grade Submission. Typical Sections depicting Traffic Control Methods will be included in the Line and Grade plans.

A separate Traffic Control Plan will not be included as part of the Line and Grade Submission.

Task 9 - Typical Sections

Objective:

2.4.7 - Typical Sections
This task consists of the development of typical sections. Publication 10A, Design Manual Part 1A and Publication 13M, Design Manual Part 2 apply to this task.

Scope:

2.4.7 - Typical Sections
The following items should be included on each typical section:

- Pavement width and cross slope (clarify lane widths to two decimal places to match existing pavement width)

- Pavement depths
- Shoulder type, width, depth and cross slope
- Median type, width and cross slope
- Embankment and cut slopes
- Swales and contiguous gutters as applicable
- Subbase drainage treatment
- Rate of superelevation
- Unusual design conditions (i.e., special treatment of subgrade, subbase or under-drain)
- Median barrier and guide rail
- Point of profile grade
- Centerline or baseline
- Limits of variable widths
- Base course and subbase widths and depths (and slopes if not parallel with pavement)
- Seeding treatment
- Station Control

The following work elements are required for the successful completion of this task:
1. Develop superelevation rates and place on the related typical section.
2. Develop pavement design and list on each typical section.
3. Label all items in accordance with the item description on the summary of quantities sheet.
4. Submit typical sections for review and approval by the Department.

Detail Task 1 - Typical Sections

Department Details:

The consultant will submit a design criteria report identifying the proposed roadway typology per SOL 432-08-12.The consultant will include typical sections depicting the construction phasing with this submission.

Utilize the Standard Scope for this task.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

The typical sections will be included with the Line and Grade submission.

Task 10 - Preliminary Pavement Design

Objective:

2.4.9 - Preliminary Pavement Design

This task consists of assembling design data and determining preliminary pavement and subbase types.

Scope:

2.4.9 - Preliminary Pavement Design
Because the pavement design analysis is typically not completed until after the Design Field View Submission, approximate pavement and shoulder depths are shown on the typical sections in Preliminary Design.

Approximate depths are based on traffic volumes and the functional classification of the roadway.

Detail Task 1 - Preliminary Pavement Design

Department Details:

Utilize Standard Scope of Work for this task. This task will include the preparation of a formal pavement design for review and approval.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

A Darwin pavement design (full depth) replacement will be provided for the SR 26, inclusive of the limits of the three structures, utilizing a CBR value provided by our sub-consultant, A.G.E.S. A minimal pavement structure will be provided for the SR 36 structure based on minimum depths provided in Publication 242 corresponding to the classification of roadway. A 2" mill and overlay will be provided on SR 36 from the intersection of SR 26 to the limit of work on the SR 36 structure.

Task 11 - Design Field View

Objective:

2.4.10 - Design Field View
This task consists of the development, submission and approval of the Design Field View submission.

2.4.10.1 - Submission Development
This task consists of the assembly of the Design Field View submission. Reference Publication 10/10A, Design Manual Part 1/1A.

2.4.10.2 - Design Field View Approval
This task is the preparation of the design field view submission based on the selected alignments, attendance at the design field view, preparing meeting minutes and responding to District's comments.

2.4.10.4 - Design Exceptions
This task consists of preparing a draft design exception report in accordance with Strike-off-Letter 430-93-40 and Publication 10A, Design Manual Part 1A.

2.4.10.5 - Preliminary Erosion and Sedimentation Pollution Control Plan/NPDES Permit
This task is the preparation of preliminary erosion and sedimentation control plans and application for all NPDES permits (Chapter 102, Earth Disturbance Permits).

Scope:

2.4.10 - Design Field View
1. Conduct design field view at the end of the preliminary engineering and within several weeks of the Design Field View Submission.
2. Evaluate the proposed alternatives under field conditions.
3. Solicit comments from review agencies for further project development.
4. Determine the preferred alternative if applicable.

2.4.10.1 - Submission Development
Upon receipt of NEPA Clearance/Design Approval, the drawings will be further refined and developed to prepare a submission for the Design Field View.

The submission will include the following:
1. Line and Grade
2. Alternate Interchange Schematics
3. Rough preliminary signing layout including the type of sign supports, paint markings, and other traffic control devices to determine if the project is operational and can be signed.
4. Typical sections
5. Structure locations
6. Approximate pavement depth
7. Mass diagrams of grading quantities
8. Draft of Soils and Geological Engineering Report and Profile.
9. Traffic Control Plan
10. Drainage and Preliminary Hydraulic studies
11. Service road justification
12. Utilities
13. Preliminary traffic signals plan
14. Comments from the District Safety Review Committee
15. Agreements with Cities and other Political Subdivisions

2.4.10.2 - Design Field View Approval
1. Secure design field view approval for the preferred alternative developed during preliminary engineering.
2. Obtain written approval from the agency of authority to advance to final design.

2.4.10.4 - Design Exceptions
Prepare the Design Exception Submission after the approval of the proposed design exception(s) by the District Safety Review Committee. Include this report in the Design Field View Submission. Address the following items as applicable:

* Provide project identification information
* Describe proposed work, design criteria, include typical sections
* Provide traffic information

* Identify substandard design elements
* Provide cost information with and without design exception
* Provide justification for retention of the design exception
* Evaluate accident history
* Describe remediation
* Provide collision diagrams and/or accident cluster diagrams
* Compare accident rates to statewide averages
* Describe mitigation measures
* Describe date and type of future upgrades
* Describe advantages and disadvantages of meeting full criteria

Complete the "Design Exception Data Checklist" Design Manual 1A. Include the following in the submission:

* Project location map
* Scoping field view minutes
* Accident analysis with collision diagrams
* Letter of recommendation from Safety Review Committee
* Plan, profiles, cross sections, typical sections if not previously included in the Design Field View Submission
* Bridge sufficiency rating and letter from District Bridge Engineer (if applicable)
* Ramp design sheet (Publication 13M, Design Manual Part 2), if applicable
* Photographs of existing conditions, if applicable

~~2.4.10.5 - Preliminary Erosion and Sedimentation Pollution Control Plan/NPDES Permit~~
~~Preliminary Erosion and Sedimentation Control Plan includes the preliminary sizing and placement of major sediment control facilities (e.g. sediment basins). This effort must correspond with the stormwater management design to use the stormwater basins for erosion and sediment control during construction. Right-of-way requirements must be considered for sediment traps, collection ditches and drainage easements.~~

~~This task also includes the coordination with the County Conservation Districts and/or PADEP to review the conceptual approach to the erosion and sediment control design and permitting.~~

Detail Task 1 - Design Field View

Department Details:

The plans, profiles, and cross sections submitted as part of the Design Field View Submission shall be in the following scales:
Plans: 1"=25'
Profiles: 1" =25' Horizontal, 1"=5' Vertical.
Cross Sections: 1"=5' Horizontal, 1"=5' Vertical.
Cross Sections should meet the requirements set forth in DM-1A, Chapter 6, Section 4.N.10. Cross Sections should be presented at 25 foot intervals and at enough critical points to figure out approximate right-of-way limits and earthwork quantities.

A Design Field View Report is required as part of the Design Field View Submission to include but not be limited to the following:

- Location Map
- Project Description
- Design Criteria
- Traffic Information
- General Evaluation of accident history
- Scoping Field View Minutes
- Letter of recommendation from the District Safety Review Committee

If design exceptions are required, the Design Field View Report and the Design Exception Request can be combined as one report and submitted as the Design Field View Submission. Requirements for the design exception requires are included in the standard scope. Do not include collision diagrams and/or accident cluster diagrams in the Design Exception Request or Design Field View Submission. A general evaluation of the accident history will be sufficient.

Additional plans, reports, details, and other deliverables not listed in this task shall be included in the Design Field View Submission as necessary to support the proposed design.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

A cost estimate will be provided and included as part of the Design Field View Report.

One Design Field View Plan will be developed for the project, encompassing the limits of work for all four structures.

A separate Signing and Pavement Marking Plan will be provided as part of the Design Field View Submission.

A Mass Haul Diagram will not be provided as part of the Design Field View Submission. It is anticipated that the majority of earthwork will be borrow excavation.

Alternate Interchange Schematics will not be provided as part of the Design Field View Submission.

It is assumed that 1 Design Exception will be required.

Attendence at the Design Field View Meeting is not required.

Task 12 - Preliminary Geotechnical Engineering Report

Objective:

2.5.2 - Preliminary Geotechnical Engineering Report
This task is the preparation of a Geotechnical Engineering Report for Pre-Final Design in accordance with Publication 10A, Design Manual Part 1A and Publication 293.

2.5.2.1 - Reconnaissance Soils and Geological Engineering Report

This task is the preparation of a Reconnaissance Soils and Geological Engineering Report in accordance with Publication 15M, Design Manual Part 4.

Scope:

~~2.5.2 - Preliminary Geotechnical Engineering Report~~
~~The following work elements are required for the successful completion of this task:~~

~~1. Coordinate the effort with the District Geotechnical Engineer (DGE) and the other engineering disciplines involved. Perform QA/QC on work processes and products.~~

~~2. Perform analysis and design associated with embankment and cut slope construction, stormwater management facilities, drainage conduits, pavements, unsuitable materials, special geotechnical treatments, benching and transition zones, and geotechnical instrumentation for construction control.~~

~~3. Develop recommendations for use by the design team, and draft special provisions and details for construction.~~

~~4. Identify the anticipated scope of geotechnical investigations required during Final Design.~~

~~5. Prepare the GER for Pre-Final Design, presenting the recommendations and providing supporting documentation. Follow the outline in Publication 293, including a summary of the structure-related geotechnical investigations and reports for the project. Submit both a draft (95%) and a final (100%) version of the GER to the DGE.~~

~~6. Gather the information and materials necessary to assemble a preliminary soil profile plan. Obtain plan and profile sheets for the alignment from the design team. Obtain approval of the proposed graphics layout, scales and symbology.~~

~~7. Prepare the preliminary soil profile cover sheet and index sheet. Develop graphic logs of the borings. Prepare the profile sheets, showing the graphic boring logs and test results. Assemble the cover, index and profile sheets and submit a half-size copy as an appendix to the GER.~~

2.5.2.1 - Reconnaissance Soils and Geological Engineering Report
The following work elements are required for completion of this task:

1. Coordinate the effort with the District Geotechnical Engineer (DGE), District Bridge Engineer, BOD Bridge Quality Assurance Division (BQAD), and the other engineering disciplines involved. Perform QA/QC on work processes and products.

2. Perform an office investigation. Review background geological information and maps, boring logs, project files and reports, environmental documents, and right-of-way plans to describe the soil/rock/hydrologic setting. Contact Federal and State agencies with access to soils and geologic data. Review previous geotechnical work performed in the vicinity of the structure.

3. Visit the site, interviewing local residents and engineers. Perform a detailed field reconnaissance and refine the soil/rock/hydrologic setting description.

4. Determine the important site characteristics and evaluate their impact on the proposed construction.

5. Develop a plan for core boring and testing, based on the requirements of Design Manual Part 4. Prepare a tabular summary of the proposed drilling following the format of Publication 222M.

6. Prepare the RSGER, presenting the information required in Design Manual Part 4, with the boring and testing plan as an appendix. Submit the report for approval.

Detail Task 1 - Preliminary Geotechnical Engineering Report

Department Details:

In order to fully evaluate the feasibility of each structure alternate, a soils and geological reconnaissance survey will be undertaken in accordance with Design Manual Part 4, Volume 1, Part A, Chapter 6, Section 6.2. The roadway soils investigation, report, and recommendation will be completed by the consultant. No borings will be required under this task.

Approach:

The objective of this task is to prepare the Reconnaissance Soils and Geologic Engineering Report (RSGER) in support of the preliminary TS&L submission by Kimball. The RSGER will include both the bridge and associated roadway geotechnical considerations, and will include a recommended boring layout. The RSGER will be prepared in general accordance with the standard WBS scope for item 2.5.2.1. It is anticipated that all of the bridges will be replaced at their existing locations by pre-cast box culverts. The boxes will either have pre-cast end sections or cast-in-place wingwalls.

Specific work elements to be completed by A.G.E.S., Inc. under this task are as follows:

• Complete a literature search of readily available published soils and geologic information including water well records.

• Review the available plans and inspection reports for the existing structures provided by the Department. Contact the District to obtain subsurface information for other bridges in the area.

• Complete a detailed site reconnaissance to observe the condition of the existing bridges with respect to the proposed construction. We anticipate that the site reconnaissance will be completed concurrently for the four structures.

• Note restrictions on potential boring locations including utilities, traffic control requirements, and boring access.

• Prepare a single RSGER addressing all four (4) culverts including a proposed boring location plan and schedule of borings for each. The RSGER will be submitted in pdf format to the District for review and comment. No paper copies will be submitted.

• Respond to any review comments and submit revised RSGER. A pdf copy of the final approved RSGER will be provided to the District.

Task 13 - Structure Boring

Objective:

2.5.4 - Structure Boring
This task is the performance of core borings for structures by an approved test boring contractor in accordance with Publication 15M, Design Manual Part 4, Publication 293 and Publication 222M.

Scope:

2.5.4 - Structure Boring
The following work elements are required for completion of this task:

1. Coordinate the effort with the District Geotechnical Engineer (DGE), District Bridge Engineer, BOD Bridge Quality Assurance Division (BQAD), and the other engineering disciplines involved. Perform QA/QC on work processes and products. Verify that roadway alignment and structure TS&L have not changed since approval of the Reconnaissance Soils and Geological Engineering Report (RSGER).

2. Advertise and receive bids on a contract for performance of the test borings in accordance with Publication 222M, based on the boring program in the approved TS&L for the structure.

3. Submit a summary of the bids to the District for approval to award the contract and proceed with the work.

4. Upon notice to proceed, notify the affected public, and award and administer the test boring contract in accordance with Publication 222M.

5. Provide PennDOT-certified inspectors to oversee the field operations and to prepare the field logs of the borings as they are drilled.

6. Prepare water testing required to allow analysis of foiundation conditions. Tabulate the results of the testing

7. Upon completion of the field work, verify contract terms have been met, close out the subcontract, and prepare and submit the subcontractor evaluation form.

8. Prepare a record copy of the engineer's logs for the borings for submission with the Foundation Report for the structure.

Detail Task 1 - Structure Boring

Department Details:

Upon receiving boring layout approval, the consultant will obtain 2 core borings (one on each side of the structure) for the structure foundation and 1 roadway boring for the turn lane and complete the following: Complete contract documents for soliciting bids in accordance with Design Manual 1, Chapter 5, Section 9, Design Manual Part 4, Volume 1, Part A, Chapter 6.3 and Publication No. 222. Submit the bid documents to the Department for review and approval prior to advertising for bids. Consultant will provide core boring contractors with the Department's pre-labeled envelope for the purpose of returning bids to the District Executive. The consultant will attend the bid opening and tabulate the bids. Consultant will award contract to successful bidder and administer contract. Consultant will stake out core borings in field with consultant forces, will provide core boring inspection (inspector to be listed in Pub 222), and prepare core boring drawings. Included will be testing to determine foundation design parameters, based on the reconnaissance report for depths and locations of tests. Proposed tests should include rock strengths (unconfined compression) and soil parameters (gradation, density, direct shear, consolidation, etc.) as may be required for the foundation report. Obtain department approval of the proposed testing prior to submitting rock & soil samples for samples for testing.

In conjunction with this task, obtain a bag sample from a boring on one side of the structure to perform CBR testing for the pavement design.

For all developed property (residential, commercial, and agricultural fields) the Consultant will be responsible for ensuring that affected property owners are contacted, by phone or in person, prior to advertising the drilling contract. The person initiating the contact will be prepared to discuss the approximate location of the borings, the purpose of the borings, and a rough timeframe when the drilling will occur. Documentation of this exchange will be prepared and submitted to the Department. A decision regarding the need to contact the owner of non-developed areas (non-agricultural fields, wooded areas, etc.) will be discussed with the Project Manager. Documentation Procedures: The Consultant is responsible to ensure that photos are taken prior to drilling operations as well as providing verification that the property has been adequately restored. In most cases, but not all, the baseline photos can be obtained when the designers are field viewing the project (they need not be taken immediately before the boring operation). It is however recommended that if a meeting with the property owner is warranted, that additional photos be taken at that time.

As a safeguard, the Consultant will ensure that the following “MODIFICATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS FOR SUBSURFACE BORING, SAMPLING AND TESTING” are included in all drilling contracts:

SECTION 103.11 – WORK ON PUBLIC AND PRIVATE PROPERTY – Add the following paragraph to subsection (b) – Arrangements for Access:

Notify property owners in person or by phone at least 2 days but not more than 2 weeks prior to entering their property. Prepare and provide the Department with written documentation of this contact including time, date, parcel identification, person making contact, property owner spoken to, and specific items/concerns discussed. Do not drill, construct an access route, or stage on any property where personal contact has not been made until given permission in writing from the Department. The Contractor will be provided copies of the Notice of Intent to Enter letters.

SECTION 103.14 – INJURY TO PERSONS AND DAMAGE TO PROPERTY – Add the following paragraph:

During drilling operations, the Contractor must not only promptly repair any damage that may occur to property resulting from his operations, but make every effort to prevent damage from occurring in the first place, e.g., laying sheets of plywood down prior to transporting equipment over any lawn area or soft pasture area; going around fences or structures rather than through them; minimizing the cutting of vegetation, particularly in lawn areas; etc.

SECTION 104.09 – RESTORATION OF DISTURBED AREAS – Add the following paragraph:
The contractor will document site conditions both before entering any property and after restoration is complete with digital photographs of areas impacted by the access route, as well as the drilling operations. This documentation will be sent to the Engineer for review prior to issuing the final payment to the Contractor.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

A.G.E.S., Inc. will prepare the boring contract for review, approval, and signature by LR Kimball. The boring contracts will between the driller and LR Kimball. A.G.E.S., Inc. will review the boring contractor’s invoices and make recommendation for payment to Kimball. Kimball will make the payments. The contracts will between the driller and LR Kimball.

Following approval of the RSGER we will prepare the boring contract documents. There will be two (2) borings at each structure, plus one (1) roadway boring to obtain bag samples for CBR testing. As directed by the District, we are to assume a total drilling footage of 220 feet for the four (4) structures. All four structures will be drilled under the same contract with the drilling completed back to back.

Specific work elements to be completed by A.G.E.S., Inc. under this task are as follows:

• A.G.E.S., Inc. will prepare the boring contract documents in accordance with Pub 222 and solicit interest from all the PennDOT approved drilling contractors. The draft boring contract documents will be submitted to the District for review.
• A pre-bid meeting with drilling contractors will not be required.

• Conduct the bid opening at our office, and make recommendations as to contract award. Kimball will execute the contract with the driller, and make payment to the drilling contractor. A.G.E.S., Inc. will be responsible for administration of the drilling contract on behalf of Kimball, and for review of the driller's invoices.

• Inspect the 220 lineal feet of borings using a PennDOT approved boring inspector (inspector to be listed in Publication 222). Resumes of our proposed inspection personnel will be submitted to the DGE for review and approval.

• The boring inspector will maintain hand-drawn field subsurface cross sections and profiles as drilling proceeds.

• All boring logs and descriptions will meet the requirements of Publication 222 and BC-795, "Standard General Notes and Legend for Soil/Rock Description".

• Prepare typed boring logs and a driller evaluation form.

• Based on the subsurface conditions encountered, develop a recommended laboratory testing plan for District approval. At a minimum the testing will include classification corrosion, proctor and CBR testing. Soils testing will be completed at A.G.E.S., Inc.'s in-house AMRL approved laboratory, and will only be performed upon approval by the District.

Task 14 - Preliminary ROW Activities

Objective:

2.6.1 - Preliminary ROW Activities
This task includes the requirements as stipulated under Publication 14M, Design Manual Part 3.

2.6.1.1 - Right-of-Way and Deed Research
This task involves the determination of legal right-of-way widths in accordance with the Publication 14M, Design Manual Part 3, and research of property owner records in County Deed Recorder's office.

2.6.1.2 - Property Plats
This task is the preparation of individual property plats in accordance with Publication 14M, Design Manual Part 3.

Scope:

2.6.1 - Preliminary ROW Activities

A preliminary right-of-way plan will be prepared for all Department projects where the construction activities require property acquisition beyond the footprint of existing Department of transportation property. The right-of-way plan shall be prepared in accordance with the requirements and contents as stipulated in Design Manual Part 3.

The right-of-way plan(s) is(are) subject to a plan check review by the District Right-of Way Unit, Chief of Surveys and the Central Office Bureau of Design, Field Liaison Engineer, Highway Quality Control Division. The plan and all supporting data shall be submitted to the District in advance of the scheduled plan check review meeting. The person(s) responsible for the plan preparation will attend the review meeting. Departments and comments stemming from the plan review shall be addressed and incorporated in the subsequent right-of-way plan submission.

The right-of-way plan will be prepared on mylar with appropriate Pennsylvania professional engineer and surveyor seals affixed.

Until NEPA clearance has been obtained, the Department may not perform final negotiations and acquisitions of property.

A right-of-way certificate is issued when the Department has adequately acquired right-of-way to allow project construction.

2.6.1.1 - Right-of-Way and Deed Research
All public legal right-of-way and private right-of-way within the project area shall be determined from plans and documents recorded in the County Courthouse, or on file in the offices of: PennDOT District, Municipality and involved agency. Copies of all right-of-way record data will be obtained, where available, and included with the R/W plan submission to the District.

The existing public and private right-of-way corridors shall be delineated and labeled on the highway plans. A description of, and the establishment record data for right-of-way, shall be included in the project General Notes for all involved public highways. When recorded subdivision plans exhibit public right-of-way corridors, determinations must include whether the local municipality has, or has not, adopted them.

Property owner research is generally initiated by reviewing the tax maps and records at the County Tax Assessors' Office. Once the highway project location is identified on the tax map(s), the anticipated property involvement's can be listed by tax map and parcel numbers. With this information, the tax assessment files can be researched to provide: Owners name and address, Deed Book and Page Number, parcel area, list of property improvements, and the assessed value of the property. Copies of the tax maps and assessment records may be purchased for subsequent use by the designer, and inclusion as backup data to the R/W plan submissions.

Based on the obtained tax record information, the records in the Recorder of Deeds office shall be researched to verify, or update, the involved property(s) ownership, deed book and page number. Upon verification of property ownership, property investigation shall continue to ascertain if any exceptions, adverse conveyances, easement rights, sale agreements, or subdivision plans associated with property are recorded. When the property research reaches a point that exhibits the best available records available, copies of the involved deeds will be purchased from the Recorder of Deeds for plotting and project property matrix map compilation.

When metes and bounds descriptions of the deed are vague, or lacking information, prior chain of title deed descriptions shall be reviewed and copied when their descriptions provided better clarification for boundary plotting purposes. If overlaps, or gaps, result on the property matrix map due to deed metes and bounds descriptions plots, the District Right-of-Way Administrator should be notified of these conditions, and to solicit his/her direction in resolving these issues.

2.6.1.2 - Property Plats
Individual property plats will be prepared for all parcels with takes on highway projects, unless otherwise directed by the District.

The property plat shall contain all information necessary to provide a clear understanding, by all parties, of the existing conditions and the highway's taking requirements for the parcel, in accordance with Design Manual Part 3, Guidelines and Stipulations.

The proposed highway affects on the individual property plat must be consistent with those shown on the highway right-of-way plan sheet, however, the showing of details and labels beyond the boundary lines of parcel shall be avoided when practical.

Detail Task 1 - Preliminary ROW Activities

Department Details:

The preliminary right of way involvement will include research and investigation of property involvement in enough detail to establish an estimate of total and partial takes for the alignment studied, contacting affected property owners for their input as to existing iron pins, corners, septic tanks, septic fields, and/or wells, listing correct adverses from parent deeds, and attempting to eliminate unknown property owners. Letters of Intent to Enter shall be sent to all involved parties prior to the start of field surveys. All Right-of Way activities shall be completed in accordance with Design Manual 1 and all plan preparation will be in accordance with Design Manual 3.

This plan will include plat sheets with no more than two (2) plats per sheet and undergo a preliminary plan check. All parcels must include the tax map number.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

The Preliminary Right-of-Way plan will not be plotted on mylar.

One Right-of-Way Plan will be developed for the project.

Three trips to the Bedford County Courthouse are provided for as part of this task.

Kimball will perform tax mapping and deed research as a part of this task. Kimball will provide research information to N&W. N&W will incorporate information received from Kimball and the existing legal ROW data received to create a property mosaic within the project limits. Deeds will be plotted based on deed descriptions. Parcel boundaries for the deeds will be placed into the mosaic based on deed descriptions, available mapping and field survey data. No boundary surveys will be performed as a part of this task. The property mosaic will be based purely on the information stated previously. Some additional deed research may be necessary to trace deed descriptions back to a more accurate depiction of the parcel boundaries. If additional research is needed to trace any record data for ambiguities or a more accurate depiction of the parcel boundaries, N&W will perform additional research to obtain those records to try to resolve any gaps overlaps or ambiguities. If N&W cannot resolve the issues through courthouse research, they will inform the District Right-of-Way Administrator to solicit his/her direction in resolving any issues.

Task 15 - Hydrologic and Hydraulic Report

Objective:

2.7.1 - Hydrologic and Hydraulic Report
This task consists of the preparation of Hydrologic and Hydraulic reports for all bridges, culverts and longitudinal encroachments to size waterway openings properly and to satisfy permitting requirements. Publication 13M, Design Manual Part 2, Publication 15M, Design Manual Part 4; and PADEP Chapter 105 apply to this task.

Scope:

2.7.1 - Hydrologic and Hydraulic Report
A separate Hydrologic and Hydraulic Report is required for each hydraulic structure. However, dual structures or structures located within the same hydraulic system should be combined into one report.

The following work elements are required for the successful completion of this task:

1. Gather existing information to be used in the development of the hydrologic and hydraulic analyses and in the preparation of the H&H Report.

2. Perform a hydrologic analysis of the watershed at each proposed crossing using one or more of the Department approved methodologies. The use of a particular model shall be justified as valid for the situation in which it is being used. All assumptions and/or limitations of each model shall be clearly identified and referenced. Multiple hydrologic models are recommended to assist in validating the selected approach. An analysis of the flood history according to the guidelines contained in Design Manual Part 2 should also be considered.

3. Perform a hydraulic analysis for each proposed crossing including alternatives, if necessary, using one or more of the Department approved hydraulic models. The use of a particular model shall be justified as valid for the situation in which it is being used. All assumptions and/or limitations of each model shall be clearly identified and referenced. Where a Flood Insurance Study has been established by FEMA, the hydraulic data included in the study should be utilized to the maximum extent deemed appropriate. Each proposed alternative shall be modeled to assist in the justification for the selected alternative. The hydraulic model shall extend a sufficient distance upstream and downstream to adequately evaluate the potential impacts due to the proposed construction. The hydraulic model should be used to compare existing and proposed conditions with respect to water surface elevations and channel velocities for the design discharge rate(s), including the 500-year event for the scour evaluation and the "overtopping event" for the risk assessment.

4. Evaluate the scour potential at bridge abutments and piers in accordance with Design Manual Part 4. Evaluate the erosion potential at culvert outlets in accordance with HEC-14.

5. Evaluate the channel stability and design countermeasures, if needed.

6. Perform a risk assessment or analysis for each applicable waterway structure or encroachment alternative.

7. Evaluate the hydraulic impacts as a result of temporary encroachments and/or permanent bank protection, if applicable.

8. Prepare the Hydrologic and Hydraulic Report following the general outline described in Design Manual Part 2.

9. If applicable, prepare a Conditional Letter of Map Revision (CLOMR) in accordance with FEMA regulations. The scope of work for the preparation of the CLOMR is not included herein and should be developed prior to initiating the work.

Detail Task 1 - Hydrologic and Hydraulic Report

Department Details:

The consultant is responsible for attending a Pre-H&H meeting with District Bridge Unit personnel prior to beginning the Hydrologic and Hydraulic Study. The hydraulic design of the bridge shall be in accordance with Design Manual 2, Chapter 10. The consultant will prepare all approval requests, permit requests and any other applications as stated in Chapter 10. Consultant will determine if a FEMA Flood Study is available for this project site and obtain data accordingly. The consultant will develop a detailed narrative report using pre-existing hydraulic study information and all data generated during the hydrologic and hydraulic design analysis will be developed into maps, profiles, and tables related to the replacement of the existing structure. The construction phasing will be hydraulically analyzed to produce the least adverse impacts. A formal report presenting the details of the analysis will be prepared. Each H & H report will include all necessary data for a temporary bridge and/or roadway if feasible and approved by the Department. In addition, the need for a contractor's causeway will be evaluated at this time and documented in writing that it has been considered, is not necessary or if necessary, then it is to be included in the H & H Report. Perform scour analysis and riprap design (use FHWA method). A one hundred year "Risk Assessment" should be on a separate page and broken into two parts. The first part should discuss the proposed structure and the second part should discuss any temporary roadway, causeways, etc. which are needed to construct the bridge.

The consultant will provide two (2) draft copies of the H&H Report. Upon approval, one final .pdf file will be submitted to the District along with a separate computer diskette of the HEC 2 or HEC-RAS data used to prepare the report.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

The Kimball team will perform the H&H using WMS software with HEC-RAS. It is not anticipated that Existing FEMA study information will need to be obtained or incorporated into the HEC-RAS model (See FIRM Panel 421339 0005 B). No increase to the 100 year WSEL will be permitted. A pre-application meeting will be scheduled with DEP and Bedford County Conservation District. Meeting minutes will be prepared and distributed to all attendees. Effort for preparation of a CLOMR has not been included in this proposal. Effort for preparation of waterway permits is included in the waterway permit task and is not included here.

The Kimball team will build one hydraulic model to account for the 05 0026 0660 0000 and 05 0026 0660 0257 culverts, a second hydraulic model to account for the 05 0026 0660 culverts, and a third model for the 0826 05 0036 0010 1195 culvert. The models will account for hydraulic changes throughout the various phases of construction. The SR 26 culvert results will be combined into a single H&H report for submission with the JPA. The SR 36 culvert will be a separate report for submission with the GP-11 for that structure.

Task 16 - Final Type, Size & Location (TS&L) Report

Objective:

2.7.3 - Final Type, Size & Location (TS&L) Report
This task consists of the assembly of Type, Size and Location studies and development of recommendations for proposed structures within the project. Publication 15M, Design Manual Part 4 apply to this task.

Scope:

2.7.3 - Final Type, Size & Location (TS&L) Report
Review any previous studies or preliminary designs with respect to the selection of structure type, span arrangements, horizontal and vertical clearances, design controls and typical section. Coordinate with the District on the logical selection of span arrangements, types of piers, and structure types suitable at each location.

The preliminary structure designs will be performed at a stage when the highway alignment and profile are well defined. Review structure requirements with the District prior to Design Field View (Line and Grade) submission and approval.

The following work elements are required for the successful completion of this task:
1. Develop a location plan showing the feature to be crossed or retained, design controls and regulated areas
2. Identify possible pier and abutment locations
3. Evaluate geotechnical conditions to identify potential foundation types
4. Recommend locations for structure foundation borings
5. Evaluate constructibility, vertical and horizontal clearances and site constraint issues in determining the most suitable structure design for the particular location
6. Prepare cost estimates for alternative structure designs
7. Prepare justification for recommended alternative
8. Prepare transmittal letter, plans and report for TS&L Submission

Detail Task 1 - Final Type, Size & Location (TS&L) Report

Department Details:

This task will include both the Preliminary T.S.& L. and the final T.S.& L.

Preliminary TS&L:
The Consultant will prepare preliminary T.S. & L. submissions for the selected alignment in accordance with Design Manual Part 4. Volume 1, Part A, Section 1.9.3. The preliminary T.S. & L. plans for the recommended structure shall show the plan and the elevation of the structure, the proposed type and size of structure, a section through the approach pavement and shoulders, and the controlling horizontal and vertical clearances. A detailed cost estimate including quantities and unit costs will be included. The Consultant will provide back-up data showing source of information for only one alternative, a Pre-cast Box Culvert.

Final TS&L:
Following Design Field approval, the Consultant will submit formal TS&L with (BRADD, if applicable) plan sheets and other applicable Design Manual 4 information for each of the structures. Report is to be in accordance with Design Manual Part 4, Volume 1, Part A, Chapter 1.9.3. The Consultant will provide a current construction cost estimate, with back up to lump sum items, with the final TS&L submission.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

The following TS&L option will be investigated for each of the four culverts as applicable per the culvert openings established in the H&H analysis and the structure width needed:

a) Pre-cast Concrete box culvert with pre-cast concrete end section

No other structure type will be investigated.

Effort for 2 Kimball staff to attend a single meeting for all four structures will be included under this task. Meeting minutes will be generated for the meeting.

The effort for this task will include submission of the preliminary TS&L report, and response to comments to be incorporated in a final TS&L report.

Task 17 - Waterway Permits

Objective:

2.7.4 - Waterway Permits
This task is the coordination with the appropriate environmental agencies and the preparation of permit applications.

2.7.4.1 - 105 Permit Application/401 Water Quality Certification (WQC)
This task includes the preparation of the Chapter 105 Permit application package.

2.7.4.2 - 105 Permit Approval
This task includes the coordination with the PADEP to obtain approval of the permit.

2.7.4.3 - 404 Permit Application
This is submitted as the 105 permit in PA

2.7.4.4 - 404 Permit Approval
This task includes the coordination with the U.S. Army Corps of Engineers (ACOE) to obtain approval of the Section 404 permit.

Scope:

2.7.4 - Waterway Permits
Needs completed.

2.7.4.1 - 105 Permit Application/401 Water Quality Certification (WQC)
1. Coordinate with the PADEP to present the water obstructions and encroachments associated with the project. Determine any specific information requirements that will be needed for the Chapter 105 permit review.

2. Prepare a summary of the information requirements needed for the permit review.

3. Prepare the Chapter 105 Permit Application package using the PENNDOT JPA Expert System. This will include, but not limited to: the General Information Form, Chapter 105 Application (signed and notarized), location map, Act 14 Notification Letters with return receipts, floodplain and stormwater management consistency letters, Environmental Assessment Form, H&H reports, E&S approval letter, etc.

4. Provide written responses to any PADEP comments received on the permit package.

2.7.4.2 - 105 Permit Approval
Coordinate any additional information requirements with the PADEP and PennDOT. The 401 WQC will be issued by the PADEP with the Chapter 105 Permit.

2.7.4.3 - 404 Permit Application
Coordinate the information requirements with the USACE and PADEP for the Section 404 Permit during NEPA/404 Projects. Non-NEPA projects do not require a separate Section 404 Permit, as the PADEP Chapter 105 Joint Permit includes a simultaneous submission for the Section 404 Permit. For the NEPA/404 project, prepare a written request for the 401 WQC. The project EIS or EA will be the supporting document for this request.

Complete the Environmental Assessment Form contained in the PADEP Chapter 105 Application in order to obtain the 401 WQC. The Section 404 Permit is not valid until the 401 WQC is granted.

2.7.4.4 - 404 Permit Approval
Coordinate with the USACE to obtain the Section 404 Permit. Provide any additional information requirements needed for review by the USACE

Detail Task 1 - Waterway Permits

Department Details:

A Pennsylvania DEP Chapter 105/U.S. Corps of Engineers Joint Permit will be prepared in accordance with current DEP Chapter 105 Regulations.

Consultant will attend a pre-application meeting at the project site with District personnel prior to submitting the Joint Permit application. The Consultant will prepare a Field Checklist for Preliminary Design Permit Coordination at least four (4) weeks prior to the pre-application meeting. The Department will provide a copy of the blank checklist to the Consultant for preparation.

The permit application will be created and submitted using PennDOT's JPA2 Expert System. No hard copies of the permit application will be submitted to the Department. The consultant will provide an e-mail notification to the Department's Project Manager when the permit application is ready for review in the JPA2 Expert System. The waterway permitting for SR 0036 Structure could be covered under a GP11, but a JPA is expected for the SR 0026 structures due to floodplain impacts. So, all structrues will be covered under the JPA.

Approach:

As discussed in the scope clarification meeting held on July 19, 2011, L.R. Kimball will prepare a GP-11 for the culvert on S.R. 0036 (BMS # 05-0036-0010-1195) and a Joint Permit Application for the three culverts on S.R. 0026 (BMS # 05-0026-0660-0000, BMS # 05-0026-0660-0257, and BMS # 05-0026-0660-0826).

L.R. Kimball will coordinate with PennDOT and the Southcentral Regional Office of PA Department of Environmental Protection (PA DEP) to determine the permitting needs of the project. One pre-application field view meeting will be conducted in conjunction with the Jurisdictional Determination with the PA DEP and U.S. Army Corps of Engineers. The PA Fish and Boat Commission and U.S. Fish and Wildlife Service will also be invited as a part of the pre-application meeting. L.R. Kimball will prepare the Field Checklist for Preliminary Design Permit Coordination (as provided by the District) prior to the pre-application meeting. L.R. Kimball will also provide electronic meeting minutes from the pre-application meeting.

BDWM-GP-11 Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments (GP-11) for BMS # 05-0036-0010-1195

The special conditions for use, identified within the General Permit, must be met for the permit to be valid. If the conditions cannot be met, the project would be permitted under a Joint Permit Application (JPA) for a Pennsylvania Water Obstruction and Encroachment Permit and U.S. Army Corps of Engineers Section 404 Permit. An adjustment of scope and cost would be required to complete the additional items required for a JPA (i.e. cultural resource notification, complete EA form, alternatives analysis, stormwater management and floodplain consistency, and possible mitigation plan).

As indicated in the special conditions, the GP would NOT apply to the following circumstances:

-Historic, cultural or archaeological sites listed on or eligible for the National Register of Historic Places are identified.

-Work in stocked trout streams from March 1 through June 15; wild trout streams from October 1 through December 31 or Lake Erie tributaries from September 1 through December 1.

-Sites identified as supporting threatened and endangered species.

-Sites identified in the latest published version of the National Registry of Natural Landmarks.

The following circumstances would exempt use specifically of the GP-11:

-Construction of a new stream relocation, stream enclosure or stream channel.

-Permanent impacts to wetlands totaling greater than 0.05 acres.

-Stream realignments.

-Increase to water surface elevations for the 100-year flood.

-Significant reduction in existing waterway opening.

Additional criteria and restrictions are located with the permit application package.

The level of permit required for this project must be verified by the PADEP and PennDOT.

The following components of the GP-11 (utilizing the JPA2 Expert System) will be completed:

1. Set up of permit through the Application Interview
2. General Information Form
3. Joint Permit Application (JPA) Form (as now identified for GP-11 under JPA2)

4. Project Screening Form
5. PNDI Search
6. Plans (site plan, elevation, cross section, typical section)
7. Engineers Seal
8. Location Map
9. GP-11 Checklist
10. Project Description with GP-11 notifications attached
11. Photographs with map
12. EA to include field notes on wetlands and stream
13. E&S Control Plan
14. H&H Report
15. H&H Input/Output files
16. DEP Facilities information utilizing Green Port

The following discussion will provide further clarification of work required to meet the above permit components and provide a complete registration form.

The GIF, JPA and Project Screening Forms will be completed as specified by permit instructions.

County and municipal notification will be achieved by sending each a copy of the GIF Form, project description and location map via certified mail.

The site plan will include: wetland boundaries, stream limits, flow direction, limits of earth disturbance, stream name, Chapter 93 stream designation, property lines, existing and proposed utilities, other waters, existing and proposed buildings and roadways, north arrow, and photo locations.

The PNDI search information will be completed and attached to the permit.

Wetland data forms will be completed and attached to the EA section.

A completed H&H Analysis (including the input and output files) will be submitted with this permit.

A completed Erosion and Sediment Control Plan will be submitted with this permit.

Resource impacts, as well as, existing and proposed structure information will be input into DEP's Green Port system through the link on JPA2 Expert System.

Written notification to the PA Fish and Boat Commission must be made by the client/permit owner no later than 10 days prior to construction.

Permit Preparation
L.R. Kimball will utilize the PennDOT ECMS JPA-2 Expert System to prepare the permit application, eliminating the production of paper copies. An e-mail will be provided to the District Project Manager indicating the draft permit is ready for District review.

PADEP Review Comments
For purposes of this scope, L.R. Kimball assumes the project will required one set of responses to PADEP review comments. Anything beyond this will be considered out of scope.

Exclusions
-Preparation of studies beyond initial PNDI search for endangered species
-Complete Alternatives Analysis
-Floodplain Analysis
-Stormwater Analysis
-Risk Assessment
-Mitigation Plans

Joint Permit Application for Pennsylvania Water Obstruction and Encroachment Permit Application and a U.S. Army Corps of Engineers Section 404 Permit Application for BMS # 05-0026-0660-0000, BMS # 05-0026-0660-0257, and BMS # 05-0026-0660-0826

This task will require the compilation and assimilation of all relevant information for the completion and submittal of a Standard PADEP/USACOE Water Obstruction and Encroachment Joint Permit Application. L.R. Kimball will complete all sections of the General Information Form, Joint Permit Application Form, PASPGP-4 Cumulative Impact Project Screening Form, and the Environmental Assessment Form. Required supporting documentation to be completed and incorporated into the Joint Permit Application include: Act 14 and Act's 67 and 68 notification letters; project description narrative and cultural resource notice; threatened and endangered species coordination letters; 8.5"x11" site plans; project area photographs; list of adjoining property owners; project descriptive narrative; a completed Erosion and Sedimentation Pollution Control Plan (with approval letter from Bedford County Conservation District); NPDES Permit; hydrologic and hydraulic analysis; stormwater management analysis (with consistency letter from municipality); risk assessment analysis; floodplain management analysis (with consistency letter from municipality); and alternatives analysis. The alternatives analysis should provide an assessment of all proposed alternatives including the rationale for selection of the preferred site/alternative.

General Information Form

Preliminary design and project information from project team members will be incorporated into the General Information Form. Information provided in the form will include, but is not limited to, project information, land use information, applicant information, site information, and permit coordination information.

Joint Permit Application Form

Information presented within this form will include, but is not limited to, applicant type and identifier, project location data, ACOE District, project status, and previous approvals.

Act 14 and Act's 67, 68, and 127

As required under the PADEP Chapter 105 Dam Safety and Waterway Management Regulations, Act 14 and 67 / 68 / 127 notification letters will be sent to both the Township Supervisors and County Commissioners Office notifying them of the proposed activity, that a Joint Permit Application will be submitted and solicit comments regarding comprehensive plans and zoning ordinances.

Cultural Resource Notice

L.R. Kimball will utilize the information identified in the studies required for Task 5 of this scope of work for Archaeology and PennDOT coordination with PHMC.

PASPGP-4 Cumulative Impact Project Screening Form

This form will be completed to determine the appropriate PASPGP-4 review procedure. It will include project impacts, other Chapter 105/Section 404 authorizations, and information on residential, commercial and institutional developments. The project applicant will be required to sign this form. One hard copy of the form will be submitted to the District for signature, then scanned and attached to the permit in the JPA2 Expert System.

Completed and Approved Supplement No. 1 PNDI Search Form

The presence/absence of state and/or federal threatened and endangered species or critical habitats will be conducted through review of the Pennsylvania Natural Heritage Program via submission of a Pennsylvania Natural Diversity Index (PNDI) search request. The completed PNDI Search Form and corresponding results will be included under this attachment. Additional coordination with the resource agencies is not included within this scope of work.

Site Plans (8 ½ x 11") – Including Cross Sections and Profiles

8 ½" x 11" site plans at a scale of 1"=200' depicting existing natural features as well as existing and proposed structures, property lines, cross sectional drawings, and profiles will be included under this attachment.

Location Map

An 8 ½" x 11" USGS Quadrangle project location map depicting project limits will be included under this attachment.

Project Description Narrative

The Project Description Narrative will provide a detailed description of the proposed project activities including the purpose, structure type(s), and amounts of excavation/fill.

Color Photographs

Recent color photographs representative of the entire site along with a photo-location map will be included under this attachment.

Environmental Assessment Form (EA)

The EA form will be prepared to present the findings and conclusions documented within the Wetland Identification and Delineation Report previously prepared for this project and other field investigations conducted for this project. It will also include the resource impact table, Enclosure A, B, C, and D. Enclosure A will contain the Wetland Findings Report. Enclosure B will contain a location map. Enclosure C - Resource

Identification will contain detailed narratives pertaining to known resources (i.e.: wetlands, surface waters, vegetation and wildlife, farmlands, threatened and endangered species, historic and/or archaeological sites, state game lands and state or National forests, parks or recreational facilities) within the project area. Enclosure D - Project Description will address potential direct and indirect impacts (both temporary and permanent) that the proposed action may have on these resources.

Erosion and Sedimentation Pollution Control Plan (with approval letter from Bedford County Conservation District)

L.R. Kimball will prepare and submit an Erosion and Sedimentation Pollution Control Plan (E&S) to the Bedford County Conservation District for review and concurrence as indicated in Task 21 of this scope of work. The E&S Plan will address sedimentation control measures implemented and maintained during construction for the entire site, including those associated with placement of wetland fill and proposed stream enclosure activities. The report, plan and approval letter will be included under this attachment.

Hydraulic and Hydrologic Analysis

L.R. Kimball will prepare a Hydraulic & Hydrologic Analysis for this project as indicated in Task 15 of this scope of work. The report and supporting calculations will be included under this attachment.

Alternatives Analysis

All practicable alternatives to the proposed activity and efforts to avoid and/or minimize environmental impacts will be documented in detail within this section.

Stormwater Management Analysis

Information resulting from Task 7 Preliminary Drainage Design will be supplied to the municipality for review. The municipal consistency letter will be included under this attachment.

Floodplain Management Analysis

Information resulting from Task 15 H&H will be supplied to the municipality for review. The municipal consistency letter will be included under this attachment.

Risk Assessment

A risk assessment will be conducted as part of the H&H analysis. The corresponding information will be included under this attachment.

Mitigation Plans

L.R. Kimball will make every effort to keep wetland impacts under the De Minimus (< 0.05 ac.) threshold through avoidance and minimization measures. As such, wetland mitigation is not included with this scope of work.

Stream mitigation is also not included with this scope of work.

If either type of mitigation is required a separate scope of work and cost can be submitted.

Permit Preparation
L.R. Kimball will utilize the PennDOT ECMS JPA-2 Expert System to prepare the permit application, eliminating the production of paper copies. An e-mail will be provided to the District Project Manager indicating the draft permit is ready for District review.

PADEP Review Comments
For purposes of this scope, L.R. Kimball assumes the project will required two separate sets of responses to PADEP review comments. Anything beyond this will be considered out of scope.

The following assumptions have been used for the development of this scope of work.
• Wetland impacts above De Minimus will not occur and wetland mitigation plans will not be required.
• Stream mitigation plans will not be required.
• Threatened and Endangered Species coordination beyond the initial PNDI will not be required.

Task 18 - Preliminary Maintenance and Protection of Traffic

Objective:

2.8.2 - Preliminary Maintenance and Protection of Traffic
This task consists of developing preliminary maintenance and protection of traffic plans in accordance with Publication 14M, Design Manual Part 3, the Manual on Uniform Traffic Control Devices and Publication 213, Work Zone Traffic Control to maintain safe and efficient traffic operations through the construction work zone.

Scope:

2.8.2 - Preliminary Maintenance and Protection of Traffic
Prepare a preliminary Maintenance and Protection of Traffic plan for anticipated work areas involving existing roads. The plans will include a conceptual sequence of operations and identify the type of traffic control needed for each roadway impacted by the anticipated work zones.

Plans will be developed at an appropriate scale.

Drawings will show the work areas and note the traffic control requirements for each area.

A conceptual sequence of operations will be developed identifying the anticipated phases and stages of work necessary to control traffic during hours of construction and at all other times during construction. Illustration of traffic control signs and devices, temporary pavement markings, temporary roads, detours, and other necessary details will not be developed.

The plans will include a title sheet with index map and general notes, and a listing of anticipated traffic control devices without quantities. The plan will also include the sequence of operations and plans sheets depicting the work areas.

Detail Task 1 - Preliminary Maintenance and Protection of Traffic

Department Details:

This task consists of developing preliminary maintenance and protection of traffic plans in accordance with Publication 14M, Design Manual Part 3, Publication 212 (Official Traffic Control Devices), and Publication 213 (Work Zone Traffic Control) to maintain safe and efficient traffic operations through the construction work zone.

This activity will include a separate plan and written narrative. All signs will be drawn (symbols will not be accepted) and the distance between signs will be shown on a 1"=25' minimum scale plan.

The District has reviewed all traffic control options for this site and determined that traffic should be maintained through the project during construction. Coordinate with the Line and Grade submission and provide half width construction.

The consultant will design all required temporary traffic signals as part of the Traffic Control Plan task included in Part 2 of this agreement

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One Traffic Control Plan will be developed for the project. This plan will be included as part of the Design Field View submission.

Half width construction will be utilized in the development of the Traffic Control Plan.

Temporary Signal design is not included as part of this task.

Task 19 - Safety Review/Audit

Objective:

2.8.7 - Safety Review/Audit
This task consists of the time required for the Safety Review Committee to review the preliminary plans and the Project Design Criteria Report.

2.8.7.1 - Safety Review Letter
This task consists of the time required for the Safety Review Committee to prepare the safety review committee recommendations.

Scope:

2.8.7 - Safety Review/Audit
1. Conduct the safety review/audit as early in the design process as possible.
2. Identify all applicable items on the Safety Review Checklist (see Publication 10A, Design Manual Part 1A). Add any additional items based on engineering judgement and experience.
3. Detect safety deficiencies in the design.
4. Recommend safety enhancements.
5. Prepare the Safety Review Submission (two copies) at least two weeks before the design field view (if applicable). Include the following:
* Color coded plans
* Profiles
* Typical sections
* Project Design Criteria Report (see Design Manual 1A for details)

2.8.7.1 - Safety Review Letter
Prepare a memo concerning the following:

1. Approval/disapproval of safety features
2. Safety recommendations
3. Approval/rejection of Design Exceptions

Detail Task 1 - Safety Review/Audit

Department Details:

The Consultant will prepare a submission for the District Office Safety Review per Appendix E of DM 1A. This submission will include all pertinent data necessary to adequately access or evaluate the safety features. This submission will include one pdf file containing the entire Safety Review Plans set and 1 full and 9 half size copies of color coded plans, profiles, typical sections, and project design criteria reports. The Consultant will attend the Safety Review Meeting and the District ADA committee meeting. The Consultant will record and distribute meeting minutes and incorporate any changes that may result from the review into the Design Field View submission. The Consultant will present design exceptions (if necessary).

The following are also required as part of the Safety Review submission: The guiderail length of need, point of need and type of end treatment labeled for each guiderail run and the required and proposed sight distances labeled for each intersection and driveway. If the proposed sight distance does not meet the required sight distance, list the existing sight distance also. These items should be submitted as extra sheets so the plan view is not cluttered.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One Safety Review Meeting is assumed for this task.

Task 20 - Utilities

Objective:

2.9.1 - Utilities
This task involves project specific work requirements for utility relocation engineering activities.

2.9.1.1 - Utility Location Verification
This task is the verification of existing aerial and underground utility locations.

2.9.1.2 - One Call
This task is the compliance with the PA One-Call System design call requirements.

2.9.1.3 - Existing Utility Location Plan

This task is the compilation of the existing utility location plan for design/coordination purposes.

2.9.1.4 - Preliminary Utility Impact Assessment
This task is the assessments of potential conflicts by the project designs with existing utilities, and preliminary determination for utility relocations requirements.

Scope:

2.9.1 - Utilities
Guidance:
- Publication 16M, Design Manual Part 5, Utility Relocation

PennDOT projects which involve public utilities must include all necessary provisions for the safety and protection of both existing and any required relocation of utilities.

Coordination efforts will be maintained with the utility throughout the project design process to allow amicable solutions for known and potential utility/highway project conflicts.

2.9.1.1 - Utility Location Verification
The scope of work will include the following activities:

1. Invite District Utility Unit representatives to the project Design Field View meeting.

2. Initiate contact with all utilities in the vicinity of project by project notification letter.

3. Formally solicit copies of existing facility location records for underground installations from the utility company.

4. Subsequent to plotting the existing utility locations on the Department's right-of-way plan, submit plan copies to each company and request their verification, or revision, of the type, size, and location of their facilities.

Scope Deliverables:

1. It is the responsibility of the designer to prepare project base mapping showing all existing utility facilities.
a. Aerial and surface utility data will be obtained by conventional survey.
b. Underground utility data may be obtained from utility owner as-built plans and maps and/or test pits or non-destructive probe methods.

2. The existing utility location plan compilation will include the appropriate label and number, as applicable, for each facility.
- For all existing underground utility installations, the locations will be supplemented with profiles and/or cross sections.

3. Once the utility location plan is compiled, the designer will submit copies of the plan to each utility owner on the project with a formal request for their verification of the facilities data depicted.
- The designer will incorporate all revisions, additions, or deletions resulting from the verification comments received from the owners.

2.9.1.2 - One Call
Guidance:
- PA Act 287 of 1974, as amended (73 P.S. § 176, et seq.)

The scope of work will include the following activities:

1. The project designer, and/or survey party chief shall contact the PA One-Call System for the design call not less than 10 working days and no more than 90 working days prior to the final P.S. & E. submission to the District.

2. The project designer, and/or survey party chief must request underground utility line delineations by the utility owner prior to making field survey acquisitions of utility locations.

Scope Deliverable:
The design firm will add the one call serial numbers and the 1-800-242-1776 number to the plan prior to forwarding the plan to facility owners.

2.9.1.3 - Existing Utility Location Plan
Scope:

Preparation of this plan is based on project mapping including field data and the verified facility location as received from the utility companies.

The scope of work will include the following activity:

After a response from the facility owner, the designer will add their existing facility information to the drawing prior to the final P.S. & E. submission to the District.

Scope Deliverables:

The design engineer will prepare a master Existing Utility Location Plan using as a base the construction plan sheets.

2.9.1.4 - Preliminary Utility Impact Assessment
Scope:

When the existing utility location plan has been developed and verified, the proposed project preliminary designs will be investigated for utility impact potentials.

Scope Deliverables:

Conduct a preliminary impact assessment study and provide a report listing known and potential utility conflicts.
a. The project designer will complete a preliminary impact assessment study and report with coordination efforts from the utility owner. This information shall be presented in text and to clearly indicate the location and nature of the conflicts along with the preliminary cost comparisons and conclusions and recommendations for the relocation of the utility facility versus possible project design modifications that would allow the facility to remain at its existing location.
Where utility conflicts are discovered, or other utility problems are anticipated on the project, a preliminary impact assessment study and report will be completed by the project designer, with coordination efforts from the utility owner.

b. The preliminary utility impact assessment report will be submitted to the Department for review, approval and/or conflict resolution decision.

Detail Task 1 - Utilities

Department Details:

Utility investigations and verification of all utilities within the project area shall be completed in accordance with Act 38 and Design Manual 1, Chapter 4, Section 2.

Provide the PA One Call Report to the District in PDF format prior to the initiation of the field survey.

Preliminary plans (Verification Plan) showing all utility locations shall be provided to the District in PDF format. Provide hard copies of the Verification Plan to all involved utilities so that conflicts which influence line and grade can be determined. These utility location plans shall show utilities in color in accordance with the APWA Temporary Marking Standard, except that alternate colors shall be used in lieu of lighter colors (i.e. yellow) which do not reproduce well.

Do not use aerial photography for utility data, utilize conventional surveys.

Once existing utility facilities have been established on the base plan and the Line, Grade, and Typical Section submission is approved, the consultant will aid the Department in determining if Subsurface Utility Engineering is required and the appropriate level. For proposal purposes, assume designation of utilities to a Quality Level C. Meet with utility companies on site during the Quality Level C investigation.

Provide a preliminary utility impact plan and matrix including a description/tabulation of apparent utility impacts with station, offset, and nature of impact (i.e. widening, cut, fill, drainage, etc.). There utility impact plans shall show utilities in color in accordance with the APWA Temporary Marking Standard, except that alternate colors shall be used in lieu of lighter colors (i.e. yellow) which do not reproduce well.

Upon Design Field View approval, provide a single PDF file to the District containing the preliminary utility impact plan (showing preliminary required and temporary right-of-way impacts, temporary shoring and stream access), preliminary cross sections, and the preliminary utility impact matrix. Provide hard copies of these items to all involved utilities.

Once existing utility facilities have been established on the base plan and the Line and Grade and Typical Section submission is approved the consultant will aid the Department in determining if Subsurface Utility Engineering is required and the appropriate level. For proposal purposes,

assume designation of utilities to a Quality Level C. Meet with utility companies on site during the Quality Level C investigation.

This task will include 1 utility coordination meeting.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

Prior to commencement of the field survey activities a PA One Call Design Ticket will be placed and field marking of subsurface utilities will be requested. The Design Team will perform SUE Quality Level C to locate visible facilities and will survey all marked utilities established from the PA One Call.

SUE Quality Level B and A are not included as part of this phase.

This task includes attendance at utility coordination meetings, either on site, at the utilities office or other location as needed.

Task 21 - Erosion and Sedimentation Control Plan / NPDES Permit

Objective:

2.10.25 - Erosion and Sedimentation Control Plan / NPDES Permit
This task is the development of the Erosion & Sedimentation Control Plan and submission of the NPDES Permit Application.

Scope:

2.10.25 - Erosion and Sedimentation Control Plan / NPDES Permit
The Erosion and Sediment Pollution Control Plans and supporting documentation shall be submitted to the applicable Engineering District for review and approval. Upon acceptance of the plans by the District, the submission will be forwarded to the County Conservation District for review and approval.

The following work elements are required for the successful completion of this task:

1. Develop Erosion and Sedimentation Control Plans to include:
- cover sheet
- location map
- topography of the area including watershed areas and watercourses receiving runoff from the project
- proposed alterations to the area
- limits of the project
- the location of all temporary and permanent erosion and sediment pollution control measures and facilities
- all pertinent erosion control and construction details

2. Develop a narrative report describing the project and indicating the purpose, the engineering assumptions, the specifications, and the calculations for erosion control measures and facilities. The narrative shall include a schedule of installation and removal of temporary and permanent erosion control measures and facilities as they relate to the various earthmoving operations and a maintenance program for each type of temporary and permanent erosion control measure and facility.

3. Provide detailed instructions relating to the sequence of construction on the plan and in the narrative. Include staging, sequencing and scheduling of earthmoving activities and installation and removal of erosion and sediment pollution control measures and facilities as required.

4. Provide a detailed description in the narrative report of all soil types located within the project limits including each soil type, depth, slope and resistance to erosion. The soil boundaries and a summary table of the soil types and limitations should also be included on the plans.

5. Provide all applicable construction schedules, maintenance programs (including the removal and disposal of accumulated soil materials).

6. Prepare transmittal letter, plans and narrative report for submission to the County Conservation District. If necessary, on large projects meet with the County Conservation District prior to submission to discuss submission requirements and review conceptual plan.

7. For projects exceeding 5 acres of earth disturbance or impacting High Quality/Exceptional Value (HQ/EV) waterways, prepare a Notice of Intent (NOI) Application for an NPDES Storm Water Permit and a Preparedness, Prevention and Contingency (PPC) Plan (see below). The PPC plan should also be incorporated into the narrative report and the plans.

8. Address all applicable comments from the County Conservation District and/or PADEP and re-submit the revised package for approval.

The following tasks are required for the preparation of the NPDES permit application:

1. Develop an NPDES boundary map that includes the following information: limits of disturbance, highway alignment, cut & fill limits, ROW lines, contours, stations, location identifiers and, the permit boundary.

2. Complete the NPDES Permit Application. The application package will consist of the following items: Act 14 Notification, PNDI Form, location map, NPDES Application Form, Cultural Resources Notice (if involves a Special Protection Watershed), General Information Form (if project involves a Special Protection Watershed or an Individual NPDES Application), and the Erosion and Sediment Pollution Control Plan.

3. Submit NPDES Permit Application package to PennDOT for review. Revise as necessary. Obtain PennDOT's notarized signature on the application and make the designated amount of copies to submit to the County Conservation District and, if applicable, the PADEP.

4. Schedule review meetings with the agencies prior to submitting the NPDES permit package to expedite the permitting process.

5. Submit permit package to the Conservation District/PADEP.

Detail Task 1 - Erosion and Sedimentation Control Plan / NPDES Permit

Department Details:

This task includes a separate erosion and sedimentation control plan showing control measures required and a narrative report to accompany the plans. The measures will be in accordance with the most recent Department and DEP criteria. The submission is to meet NPDES requirements and is to show contours, soil types, drainage areas, and flows.

The plan and narrative will be submitted to the Department for review. Once accepted by the Department, the consultant will then forward a copy to the County Conservation District Office for their review and approval.

Assume an NPDES permit will be required.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One ESPC Plan / NPDES permit will be developed for the project.

This task includes attendance at coordination meetings with DEP and or the Bedford County Conservation District.

The Design Team will develop the ESPC / NPDES submission in accordance with the forthcoming revision to PADEP's Erosion and Sediment Control BMP manual. It is assumed that an NPDES permit will be required, which will necessitate the development of a separate Post Construction Stormwater Management Plan and report.

Since the tributaries to Yellow Creek are HQ-CWF, the requirements for Riparian Buffers in Section 102.14 of Title 25 PA Code Chapter 102 must be met. Part (d) of Section 102.14 does provide for Exceptions to this requirement. Specifically in (d)(2)(ii); "Linear projects which may include pipelines, public roadways, rail lines or utility lines." For the purposes of this proposal, the Design Team is assuming the Department will pursue an exception. The development of riparian forest buffer plans is not included as part of this task.

Infiltration testing, in support of the PCSM / NPDES is not included as part of this task, nor is it included in subsequent parts of this agreement. Should infiltration testing become necessary to gain permit approval, a supplemental agreement will be required.

Task 22 - Public Involvement

Objective:

2.1.3 - Public Involvement
This task includes the attendance and preparation of informational materials to be viewed and/or distributed to the general public at public meetings. This task may also include the preparation of newsletters, public announcements and all other aspects of public involvement as outlined in Publication 295.

Scope:

2.1.3 - Public Involvement
1. Obtain approval from PMC to proceed with public involvement activities.

2. Prepare announcement for public meeting.

3. Prepare visual materials and/or flyers for general public meetings.

4. Attend all public meetings and address comments made at the meeting.

5. Prepare minutes to the meeting and submit to the Project Manager for review. Revise if necessary.

Detail Task 1 - Public Involvement

Department Details:

The Consultant will coordinate with adjacent businesses. Assume two meetings. A public meeting is not required with this task.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

Attendance and/or participation in a public meeting is not included as part of this task.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
CDI-Infrastructure, LLC d/b/a L. R. Kimball	No	
American Geotechnical & Environmental Services, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball
ASC Group, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball
Navarro & Wright Consulting Engineers, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball

Attachments

No records found.

Part 2 - Final Design, PA 26/PA 36 Culvert Replacements

Description

Final Design for the replacement of existing cast-in-place (CIP) slab structures on S.R. 0026, Section 13B, in Hopewell Township, Bedford County, spanning Tributaries of Yellow Creek.

Task 1 - Project Management/Administration

Objective:

2.1.1 - Project Management/Administration
This task consists of the administrative effort required by principals, project manager, and involved personnel to complete the project on time and within budget, and to provide a quality product.

Scope:

2.1.1 - Project Management/Administration
Project Management involves the planning, scheduling, organizing and controlling of resources to achieve specific objectives within established schedule, budget and quality standards. The Project Manager is responsible for the tasks outlined in the Department Detail.

Detail Task 1 - Project Management/Administration

Department Details:

The consultant will prepare and distribute to appropriate parties the minutes of all meetings and telephone conversations where directions or

decisions are made. The minutes are to be distributed within 10 calendar days following the meeting or telephone conversation.

The consultant shall provide construction cost updates on a monthly basis or as required by the Department.

The consultant shall progress the schedule and shall submit the updated Open Plan design schedule to the Department on a monthly basis.

The consultant will thoroughly check all design submissions before submitting them to the Department for review. The Department reviews will be cursory in nature and the consultant will be responsible for design and plan accuracy. All computation sheets shall bear the initials of both the individual who prepared the calculations and the individual who checked the calculations. The Department reviews will be cursory in nature and the consultant will be responsible for design and plan accuracy. The consultant will be liable for design and plan errors in accordance with 67 PA Code, Chapter 455, Consultant Highway Design Errors.

The prime consultant will be responsible for subconsultants and DBE progress. All submissions prepared by subconsultants will be submitted through the prime consultant's office. The prime consultant will be responsible for the accuracy and quality of work prepared by subconsultants.

For archiving into the ECMS Project Development Checklist, the following reports (once approved in writing by the District or the appropriate permitting agency) will be provided by the consultant to the District in electronic, PDF format:

- Final Foundation Report
- Final Drainage Design Report
- Final Pavement Design
- Final Structure Design Computations
- Final Roadway Design Computations
- Final Quantity Computations

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

As defined in the Department Details for Part 1 Task 22, a public meeting will not be required and is therefore will not be provided for in this scope of work.

This phase will include project coordination effort between LR Kimball and it’s sub consultants.

Adam D. Claar, PE will be the Project Manager and single point of contact between the design team and the Department.

Task 2 - Coordinate Constructability Review

Objective:

2.1.2 - Coordinate Constructability Review
This task is the coordination of the constructibility review team throughout design development.

Scope:

2.1.2 - Coordinate Constructability Review

The constructibility review team will be established at the beginning of the project. Constructibility reviews will be conducted periodically throughout the design process. The reviews will be preformed to identify potential construction problem areas, possible cost savings, means to expedite construction, and alternate methodologies. The review will focus on the following issues:

* Evaluate MPT vs. Construction Sequence
* Set mandatory sequence logic where necessary
* Detect potential problem areas
* Avoid ambiguities
* Limit inefficient and impractical design features
* Evaluate coordination between design sections, where applicable
* Avoid omissions and overlaps by reviewing specifications vs. plan and plan vs. plan

Detail Task 1 - Coordinate Constructability Review

Department Details:

Using Welcom Open Plan Software, the consultant will perform construction CPM scheduling to determine a realistic construction schedule for completing the project on time and within budget. The CPM will address the work activities required for all phases of construction. This will include work activities required to construct the roadway and bridge in accordance to the construction sequence required by the Traffic Control Plan and the E&S Plan. Construction phasing will be used to determine intermediate milestones and the construction completion date.

The consultant will present the CPM to PENNDOT's review committee to verify the constructability, time constraints, etc. and resolve any questions and/or scheduling issues that may arise. The presentation will take place at the District Office prior to PS&E. The consultant will make any necessary revisions or adjustments to the schedule resulting from the review meeting and submit the revised CPM (including a flow diagram and calendar) to the Department with the PS&E submission.

Provide a separate CPM for any necessary utility relocation.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One Constructability Review is assumed for the entire project.

The Design Team will provide two attendees at the Constructability Review Meeting.

Task 3 - Final Structure Foundation Report

Objective:

2.5.5 - Final Structure Foundation Report
This task includes all items necessary to prepare the Final Structure Foundation Report in accordance with Publication 15M, Design Manual Part 4.

Scope:

2.5.5 - Final Structure Foundation Report

This task consists of the development of a Final Structure Foundation Report for each structure in the project. The report presents recommendations for design and construction of the structure foundations, and provides geotechnical data in support of the recommendations.

The following work elements are required for completion of this task:

1. Coordinate the effort with the District Geotechnical Engineer (DGE), District Bridge Engineer, BOD Bridge Quality Assurance Division (BQAD), and the other engineering disciplines involved. Perform QA/QC on work processes and products.

2. Perform an office investigation, reviewing available geotechnical reports for the project including the Reconnaissance Soils and Geological Engineering Report (RSGER) for the specific structure. Review the Preliminary Foundation Report. Obtain the record copy of the engineers logs for the borings drilled for the
structure.

3. Perform the soil, rock, and water testing required to allow analysis of foundation conditions. Tabulate the results of the testing.

4. Perform analyses to determine the preferred foundation for the structure, and document the rationale for the preference. Include cost comparisons for foundation alternatives. Prepare a tabular summary of the site conditions and foundation recommendations at each substructure location.

5. Identify and address special site conditions through appropriate design. Develop foundation notes, construction details, and special provisions as warranted.

6. Prepare plotted boring log sheets for the core borings used in foundation analysis and design.

7. Prepare the Final Foundation Report for the structure, presenting the information required in Design Manual Part 4, with the tabular summary of foundation recommendations, foundation notes, construction details, special provisions, and plotted boring log sheets appended. Submit the report, with the other documentation required by Design Manual Part 4, for approval.

8. Prepare quality assurance (QA) form for foundations.

Detail Task 1 - Final Structure Foundation Report

Department Details:

The consultant will prepare a Foundation Recommendation Report in accordance with Design Manual Part 1, Chapter 5, Section 11 and Design Manual Part 4, Volume 1, Part A, Section 1.9.4.

The foundation recommendation will include a determination of the foundation material properties required by the PAPIER (if applicable) and abutment programs and a cost comparison study for alternate foundations. The required testing described in #3 above is inlcuded in Task 13 - Structure Boring in Preliminary Engineering.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

The Kimball team will complete separate foundation reports for each of the four culverts on the project. This task will be completed as per the following division of labor between consultant team members:

DM4 Section 1.9.4.3(a) - Foundation Submission letter - Completed by Kimball
DM4 Section 1.9.4.3(b) -Foundation Plans - Completed by Kimball except
1.9.4.3(b)(3) - Plotted Core boring logs – Completed by AGES
1.9.4.3(b)(11) - Scour calculations and proposed scour countermeasures – Completed as part of H&H report. Included in Foundation Submission.
DM4 Section 1.9.4.3(c) - Geotechnical Report – Completed by AGES except BOXLRFD runs to be completed by Kimball.

BOXLRFD runs for each of the four culverts are anticipated to include:

1 – BOXLRFD run for culvert
2 – BOXLRFD runs for Pre-Cast end sections
Only the recommended foundation type will be analyzed.

A.G.E.S., Inc. will prepare Foundation Recommendations Reports for Final Design in accordance with Design Manual 4 and Publication 293 with separate reports for each of the four structures. This will result in a total of four separate reports. The reports will address the foundation conditions for the proposed replacement culverts and the approach roadways. Any required scour analyses will be performed by Kimball with the results forwarded to A.G.E.S., Inc. for attachment to the Foundation Recommendations Reports.

Specific work elements to be completed by A.G.E.S., Inc. are as follows:

• Correlation and evaluation of the boring and laboratory testing results in order to develop subsurface models in support of the subsequent analyses.

• Factored bearing resistance, sliding resistance and settlement for spread footings bearing on soil or rock in accordance with DM-4 procedures if conventional wings are utilized.

• Bearing resistance, settlement and need for subgrade overexcavation for the box culvert.

• Consideration of foundation type with respect to construction impacts and the need for temporary shoring to accommodate partial width construction.

• Geotechnical input parameters for ABLRFD and BXLRFD programs as needed.

• Prepare separate draft Foundation Recommendations Reports for each of the structures. The foundation reports will be concise and as appropriate will reference items from the RSGER. The draft reports will include the following:

Drafted structure boring logs on mylars in English units and signed by the Engineering Manager.

Generalized subsurface cross-sections at each substructure unit, showing the proposed grades and footings.

Recommended type and depth of foundation support for the replacement structure, and associated geotechnical input parameters for department programs.

Calculations in support of the recommended foundation type.

Geotechnical sections of the QA forms.

Foundation plan based on the approved TS&L drawing provided by Kimball.

Draft geotechnical special provisions and details.

Prepare a draft of the Foundation Submission Letter.

The reports will include supporting analyses and calculations, and a discussion of the various options considered. We are assuming that one draft report will be prepared and submitted electronically to the District. Comments received from the District will be addressed. The final report will also be submitted electronically and a copy will be provided in pdf format on a CD.

The draft Foundation Submission letters will be prepared by A.G.E.S., Inc. and forwarded to Kimball. A Waste Management Plan and Special Provisions related to handling of waste materials are excluded from our scope.

Task 4 - Roadway

Objective:

2.10.2 - Roadway
This task includes survey, roadway, pavement and drainage design, plans, cross sections, soil profile, final design office meeting, draft special provisions and final design field view.

2.10.2.1 - Final Drainage Design
This task includes the design of roadway drainage items. Publication 13M, Design Manual Part 2 applies to this task.

2.10.2.3 - Roadway Plan
This task includes the preparation of the final roadway plans and profiles in accordance with Publication 10A, Design Manual Part 1A.

Scope:

2.10.2 - Roadway
Needs completed.

2.10.2.1 - Final Drainage Design
One copy of the plan depicting the drainage design and the hydraulic design computations for roadway drainage structures shall be submitted to the appropriate District Office for review and comment by the Project Manager or designated drainage engineer. As directed by the District, one additional copy of the drainage submission shall be sent to Central Office, Bureau of Design for quality assurance review.

The following work elements are required for the successful completion of this task:

1. Develop a drainage design that provides the proper capacity, spacing, size and type of drainage facility (existing and proposed) for each drainage area, location, fill height, roadway type and environmental condition including all inlets, pipes, culverts, ditches and base drains.

2. Prepare hydraulic design computations using appropriate methodologies for all roadway drainage structures. Include energy grade line and hydraulic grade line computations for existing and proposed systems.

3. Develop alternate pipe designs as required with corresponding hydraulic computations for each alternate. Provide "For Information Only" quantities for each pipe type and alternate as well as minimum and maximum fill heights as required.

4. Verify that downstream drainage capacity is sufficient for the proposed design. Conform to local municipal storm water requirements, if a local storm water ordinance exists.

5. Show all existing and proposed drainage facilities on construction cross sections and profiles.

6. Prepare transmittal letter to include, plans showing drainage design and hydraulic design computations. Provide PE seal on all plans and computations.

2.10.2.3 - Roadway Plan
The submission will include the completion of the following work items:

1. Interchange Design

2. Intersection Design - Prepare pavement elevation plans to describe the horizontal and vertical geometry that cross sections cannot describe.

3. Airport Clearances - Review Part 77 of the Federal Aviation Regulations and adjust the design accordingly when the project is within 2 (3.2 km) miles of an operating airport. If the project is within 2 (3.2 km) miles of an operating airport, an Airport Clearance Submission to the FAA is required.

Prepare all the following work elements:
(Note: Plans listed below are highway design plans only and do not include also plans.)

1. Title sheet
2. Index/General Note Sheet
3. Typical Section Sheet (Location Map and General Notes)
4. Summary of Quantities Sheets
5. Tabulation of Quantities Sheets
6. Detail Plan Sheets
7. Profile Sheets
8. Contour, Grading, and Drainage Plans

9. Landscaping Plans
10. Cross Sections
11. Special Detail Sheets
12. Required Forms, Special Provisions and Estimates

Detail Task 1 - Roadway

Department Details:

The consultant will perform the following tasks:
- Prepare a set of standard roadway construction plans and final cross sections for the approved line. Plans will be at a scale of 1"=25'.
- Show the limits of excavation for any bridge foundation on the roadway construction plan.
- Show sensitive environmental resources (i.e. wetlands, eligible historic properties, etc.) on the final construction plan.

Prepare and make separate submissions for the following items to be approved prior to finalizing the roadway plans:

a. Pavement Design - Only minimal effort will be required for the pavement design as approval for pavement design will occur during the preliminary design phase. Unforeseen changes would be the only reason any additional effort for pavement design would be necessary.

b. Typical Section Submission - Typical Section approval will occur during the preliminary design phase; any effort necessary for typical sections will be minimal and initiated by some unforeseen change.

c. Intersections - When intersections are involved in project design, procedures stated in Design Manual 1, Chapter 5, Section 14 shall be followed. Design will be in accordance with Design Manual 2 and AASHTO.

d. Signing and Pavement Marking Plan (Separate plan to be included in construction plan).

e. Soil Erosion & Sediment Pollution Control Plan (Separate plan to be included in construction plan).

f. Traffic Control Plan

g. Roadway Drainage Design - Design roadway drainage in accordance with Design Manual 2, Chapter 10 and Stormwater Management Guidelines. Prepare and submit a final drainage design report to the Department. Include all hydrologic and hydraulic computations (excluding those to be included as part of Preliminary Engineering Task 14.0 Hydrologic and Hydraulic Report.) Include plans showing drainage areas, flows, swale/pipe sizes, inlet data, and invert elevations.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One Roadway Plan and Also Plans, except for the structures plans, will be provided.

Interchange design is not applicable.

Designed drainage features (i.e, ditches, pipes and inlets) will be incorporated into the roadway plans, profiles and cross sections. A separate Contour, Grading and Drainage plan is not included as part of this task.

Task 5 - Supplemental Surveys

Objective:

2.10.3 - Supplemental Surveys
This task includes all survey required to supplement the original roadway survey or Photogrammetric mapping performed in Preliminary Design.

Scope:

2.10.3 - Supplemental Surveys
Guidance:
- Publication 122M, Surveying and Mapping Manual
- Strike Off Letter 430-99-20, QA/QC Control Checklist for Right-of-Way and Construction Plans
- Publication 213, Work Zone Traffic Control Manual
- Form D-428, Field Book

Scope:

The Quality Assurance/Quality Control Checklist will be completed and discussed with the District Chief of Survey for all final design survey work.

Prior to initiating surveys, develop a Traffic Control Plan in accordance with Publication 213 for implementation during surveys within existing transportation facilities.

Detail Task 1 - Supplemental Surveys

Department Details:

All conventional roadway surveys will be completed by consultant forces. All surveys shall be in accordance with current Design Manuals and Publication 122. The consultant will resurvey the approved Design Field View alignment as necessary for topography and cross sections. The consultant will be responsible for re-painting and flagging the construction centerline at 50-foot intervals. The consultant will flag and mark all permanent references and flag benchmarks not more than 30 days prior to the beginning of construction. The consultant will be notified by the Department project manager concerning the construction start date. The consultant will provide additional survey required for utility relocations.

The consultant will perform supplemental surveys to aid in utility coordination. The consultant will place survey stakes, as needed, locating legal and required right-of-way and proposed relocated utility pole locations.

The consultant will provide supplementary surveys to establish the existing alignment 30 days after the notice-of-proceed is given to the contractor.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

This task includes coordination with Navarro & Wright and the design team as well as effort required to incorporate supplemental survey information into the project drawings and documents.

Kimball will perform deed research to verify owners and reissue the NOITE letters. N&W will provide additional limited topography as needed to supplement the preliminary survey completed in preliminary engineering. Additional topography will be performed in accordance with Pub. 122M (Department Survey Manual). N&W will also stake out the geometric centerline of the existing roadway within the project limits and establish reference ties to the centerline. Centerline references will be done in accordance with DM3, Fig. 3.2.14, angle and distance method. In addition, N&W will set two bench marks on the site, one at each end of the project. N&W will draft reference ties and provide them to Kimball in MicroStation format. Copies of the digital raw survey data file and original field books will be scanned and placed onto a CD in PDF format. All the survey deliverables that N&W provides to Kimball will also be delivered to the District Survey Unit for archiving and QA review. This CD and the field books will be forwarded to the District's Survey Unit for review and archiving.
N&W concurs and will comply with the Department's Scope of Work for this task. The following discussion is provided to amend, amplify and/or quantify the Department's scope.

Task 6 - Cross Sections

Objective:

2.10.4 - Cross Sections
This task is the preparation of final cross sections in accordance with Publication 10A, Design Manual Part 1A.

Scope:

2.10.4 - Cross Sections
The cross sections will be based on the vertical and horizontal alignments and will be plotted at an approprate vertical and horizontal scale.

Cross section intervals should be taken at a distance that clarifies the existing conditions not to exceed 50 feet. Shorter intervals should be considered for walls and other permanent structures or special conditions. Develop a half - section at each driveway location without prepared profiles.

The following work elements are required for the successful completion of this task:

1. Cross sections at selected intervals.

2. Cross section title sheet providing number of cross section sheets in the package, break-down of each alignment with stations and related sheet numbers.

3. Cross section reference sheet at all interchanges and complex intersections

4. Develop earthwork quantities for each section and place on sheet.

5. Submit cross sections in accordance with Publication 14M, Design Manual Part 3.

Detail Task 1 - Cross Sections

Department Details:

Utilize the Standard Scope for this task and add the following:

Show all underground utilities, utility poles, drainage, guide rail, temporary roadways/widening, and right-of-way lines/easements on cross sections.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

Cross sections will be developed at 25' intervals at a scale of 1" =5' horizontal and vertical as defined in Part 1 Task 11.
Cross sections will not be provided on the section of SR 36 that is subject to milling and overlay only.

Task 7 - Final Right-of-Way Plan

Objective:

2.10.5 - Final Right-of-Way Plan
This task includes all work necessary to prepare the final R/W plan in accordance with Publication 14M, Design Manual Part 3.

Scope:

2.10.5 - Final Right-of-Way Plan
Right-of-Way Plans, when specified in the project scope of work, will be the basis for determining all property damages which are involved in the construction requirements of a highway project. They will also serve as the legal record of the location, the extent, and the character of any acquisition of Right-of-Way, Permanent Easements, and Temporary Easements by the Commonwealth.

The Right of Way Plan presentation format will be as specified in the project scope of work. The Right-of-Way Plan format could be either, or a combination of the following:

A. Standard Right-of-Way Plan - For the authorization of acquisition of both total take and partial take property, for both Free Access and Limited Access highways.

B. Final Plan - Reestablishes and/or authorizes the GAP Plan right-of-way, if necessary, and establishes right-of-way and authorizes acquisition of property requirements that were not included under the GAP Plan.

C. Combination Plan - This plan combines both the Right-of-Way and Construction requirements on the drawings. This plan shall be acceptable only for small Federal Aid and 100% state-financed projects involving few properties with no relocation problems.

D. Simplified Right-of-Way Plan - This plan is a simple one (1) or two (2) sheet Right-of-Way Plan, applicable to small projects, where construction is primarily within existing legal right-of-way where only a few properties are involved and the area of taking is minor.

The following are general tasks and their description for Right-of-Way Plan preparation:
1. Current Property Owner Record Research

2. Deed Plotting
3. Composite Deed Plot Matrix Map
4. Property Owner Name
5. Parcel Numbers
6. Right-of-Way Plan Preparation

The following are the basic requirements comprising Right-of-Way Plan preparations:
1. Title Sheet
2. Index Sheet
3. Location Map, General Notes, Etc., Sheets
4. Typical Sections
5. Summary of Project Coordinates
6. Summary of Required Right-of-Way Line Coordinates
7. Detail Plan Sheets
8. Profile Sheets
9. Property Plats
10. Right-of-Way Plan Revisions

Detail Task 1 - Final Right-of-Way Plan

Department Details:

The consultant will finalize the right of way plan developed in Preliminary Engineering in accordance with all applicable Design Manuals and PA D.O.T. Strike-off Letter 430-98-26. Present no more than two plats per sheet.

The consultant shall perform deed verification within 30 days of submission of the Final ROW plan submission. This deed verification date shall be placed on the individual property plats. Additional deed verification will need to be performed prior to plan recordation, the timeframe for which will be requested by the District ROW Unit.

The Final ROW Plan Submissions must include:

1. Final ROW Plan – One file containing the entire plan
2. Project Summary Data (one file that includes the following):
a. Project Description
b. Traffic Control (include copy of detour if applicable)
c. Estimation of Construction Duration (using seasons, not specific dates)
d. Summary of Utility Impacts
e. Estimated Costs/Funding
3. Copy of Cross Sections – One file containing all cross sections
4. Copy of Deeds – One file containing all deeds

* All documents referenced above are to be submitted as pdf's.

Any Revised ROW Plan Submissions must include:
1. Revised ROW Plan – one file containing the entire plan
2. Detailed sheet-by-sheet summary of revisions
3. Justification of plan change (request from ROW unit, plan error/omission, design modification, etc.)

* The revised ROW plan is to be submitted as a pdf. Items 2 and 3 can be included in the email transmitting the plan.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One Right-of-Way Plan will be provided for the entire project.

It is assumed that two trips to the Bedford County Courthouse will be required for Deed Verification. Kimball will perform deed research to verify owners and provide any record updates to N&W. N&W will revise the deed mosaic as necessary and provide the revised deed mosaic to Kimball.

It is understood that special requirements beyond this Scope of Work for ROW preparations will not be performed by N&W including, but not limited to, legal ROW record data that is unavailable, unrecorded deeds, sales agreements for properties missed during the research, performing individual property boundary surveys, preparing property plats for Board of Viewer's Actions, preparing property boundary legal descriptions, and certain ROW plan revisions.

It is assumed that the District will have the Final Right-of-Way Plan recorded.

Task 8 - Utility Engineering

Objective:

2.10.8 - Utility Engineering
This task consists of engineering for utility relocation.

2.10.8.1 - Utility Coordination
This task consists of the coordination of all project utility relocation activities.

Scope:

2.10.8 - Utility Engineering
Guidance:
- Publication 16M, Design Manual Part 5, Utility Relocation

Solicit the utilities requirements for the design and construction of the relocations as soon as possible to determine if:
- work will be done by utility staff and forces,
- work will be done by utility consultant and contractor,
- work will be requested to be done by PennDOTs project designer and contractor, or any combinations of the above.

All utility related formal requests for agreements, permits and occupancy applications must be in accordance with the applicable policies and

procedures of Design Manual Part 5.

Authorization to perform preliminary and final utility engineering will be provided in writing by the Department.

2.10.8.1 - Utility Coordination
Guidance:
- Publication 16M, Design Manual Part 5, Utility Relocation
- Form D4181, Utility Relocation Questionnaire and Permit Application
- Form D4181UC, Utility Relocation Clearance Report
- Form D4181A, Utility Relocation Estimates Relocation Plans & Supporting Data
- Cost Sharing Request Information, DM5

The scope of work will include the following activities:

1. Schedule and facilitate an Initial Utility Design Stage meeting to explain the project improvement goals, schedules, and targeted utility clearance dates.

2. Transmit copies of the Department's right-of-way plans, profiles and cross sections along with forms D4181, D4181UC, and D4181A to the utility companies for their relocation engineering design and cost estimates.

3. Delineate the type, size and location utility information verified by the utility company onto the project plans, profiles and cross sections.

4. Upon receipt of utility relocation alignment plans, establish and delineate the substitute right-of-way, or reserved easements, corridor for the utility relocation on the project Right-of-Way Plan.

5. Solicit utility company input relative to project design/utility conflicts, and potential need for substitute right-of-way corridors for utility relocations.

6. Schedule and conduct a utility meeting to review the proposed utility relocations and to resolve any outstanding issues with the individual affected utilities, as needed.

7. Schedule and facilitate the Final Utility Design Stage meeting to discuss and resolve utility/design conflicts and concerns, including substitute right-of-way, when required.

8. Keep utility companies informed of all design changes that could impact existing or planned utility facilities.

9. Ensure the following items are made part of the P.S.&E. package:
a. Utility relocation, abandonment and removal information onto the roadway construction plans, based on plans and information received from the utility company.
b. Incorporated utility work to be performed by the PennDOT contractor, as ALSO Plans, or other approved procedures, into the project construction contract documents.

c. Obtain the restrictive, prior, concurrent, and coordinated calendar work day estimates from the utility companies for work to be performed by their own forces. The utility relocation construction duration time and schedule restrictions must be incorporated into the overall project construction schedule.

10. Invite District Utility Unit representative to attend the Final Design Stage Meeting, pre-bid, pre-construction, and all construction status meetings.

Scope Deliverables:

Document and distribute all meeting minutes, correspondence, memorandums and telephone conversations regarding project related utility issues.

Detail Task 1 - Utility Engineering

Department Details:

This activity will be a continuation of the utility efforts initiated in the Preliminary Design phase.
The consultant will provide a finalized utility impact plan and matrix including a description/tabulation of apparent utility impacts with station, offset, and nature of impact (i.e. - widening, cut, fill, drainage, etc.). These utility impact plans shall be superimposed on the right-of-way plan and show utilities in color in accordance with the APWA Temporary Marking Standard, except that alternate colors shall be used in lieu of lighter colors (i.e. - yellow) which do not reproduce well.

Upon completion of the final right-of-way plan check and preparation of the finalized utility impact plan and matrix, provide a single PDF file to the District containing the following:

- Final Utility Impact Plan (in ROW plan format w/o plats)
- Final Utility Impact Matrix
- Preliminary Structure Plans (w/ excavation limits)
- Preliminary E&S Plans
- Preliminary Signal Plans
- Pre-Final Cross Sections (w/ existing utilities depicted)

Provide hard copies of these items to all involved utilities.

The consultant will work with the affected utilities as the plan develops to ensure that the utility locations shown on the final roadway and bridge plans are totally accurate.

The consultant will coordinate, set up, and attend all required utility meetings. Assume two (2) utility coordination meetings. Provide minutes of utility coordination meetings to the District in hard copy format.

Once the involvement for each utility has been defined for the project, the utility clearance Form D-419 will be prepared by the Department. All requirements of Act 38 will be fulfilled.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

Utility Engineering Design is not included as part of this task. Should the LR Kimball design team be required to provide utility relocation design a supplement agreement will be required.

Task 9 - Final Structure Plans

Objective:

2.10.13 - Final Structure Plans
This task is the development of the final structure plans.

Scope:

2.10.13 - Final Structure Plans
1. Complete final engineering design(s) for structures on the project based upon the approved type, size and location (TS&L) plans and approved foundation recommendations. Prepare design calculations, construction documents and QA/QC forms in accordance with the Department's Design Manuals as amended by current strike-off letters.

2. Provide pay items and special provisions for design alternate bidding.

3. Provide plan details and special provisions as required for support of excavation and for construction phasing.

4. Provide special provisions for items not covered by Department specifications. Obtain current standard special provisions list from District and utilize standard special provisions whenever possible. Write project specific special provisions, if needed.

5. Prepare cost estimate for each structure based upon estimated quantities and historical data for similar structures in the project region. Consider access, phasing, and relative difficulty of construction in establishing unit prices.

6. Make a pre-final submission to the Department of completed plans, special provisions, quantity estimates, cost estimates, QA/QC forms and computations.

7. Revise the previously submitted documents as required to address the Department's comments thereon. Document responses to comments in writing.

8. Submit the final plans, special provisions, quantity estimates, cost estimates, QA/QC forms and computations properly signed and sealed and in the form described in Publication 15M, Design Manual Part 4.

Detail Task 1 - Final Structure Plans

Department Details:

The consultant will design the structure and provide detailed drawings in accordance with Design Manual Part 4 and the following: Final Structure Plans shall include Alternate Structure Special Provisions. Provide an updated cost estimate for the entire project with this submission. Provide

back up for all lump sum items.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

The Kimball team anticipates no more than 10 plan sheets for each of the 4 culverts on the project. This list of sheets contains adequate details to address the culvert replacements as currently anticipated.

The Kimball team will prepare the final plans, calculations, and structure cost estimate as per DM4 section 1.9.6. The Kimball team will adhere to Department standard details and drawings BD-600 and will reference the BC-700 series. Kimball team members are well versed in Department design policies and software. Our design team will keep in close contact with District bridge personnel to keep them informed about any issues that arise. We will include them in the decision-making process on all important design issues.

Task 10 - Traffic Control Plan

Objective:

2.10.14 - Traffic Control Plan
This task is the development of the final traffic control plan. Publication 14M, Design Manual 3; the MUTCD and Publication 213 apply to this task.

Scope:

2.10.14 - Traffic Control Plan
Phasing schemes, sign messages, and approximate locations of signs and traffic control devices should be approved at the Design Field View stage, prior to the development of the final plans.

The Traffic Control Plan will be a stand-alone plan and will include the following:
- Title sheet with general notes, location map, and pay item quantities,
- Tabulation of Traffic Control Devices,
- Typical-sections
- Narrative describing each stage and phase by stating the work to be performed and the traffic control to be implemented
- General plan layout
- Temporary road plan, typical-section and profile (if necessary)
- Temporary signal plan (if necessary)
- Temporary Highway Lighting (if necessary)
- Special Sign Details (if necessary)

The plan will also include, but will not be limited to, sign messages, sign sizes, general sign locations, tapers lengths, barricades, channelizing devices, impact attenuators, temporary pavement markings, temporary roadway locations, temporary highway lighting locations, detours, portable changeable message signs, and arrow boards. Detail of temporary roads cross-section and profile will be included as well as other details as appropriate.

If detours are necessary, the detour route(s) will be identified and driven to determine general safety issues and restrictions. State roads requiring a detour will utilize other State owned roadways. If detour routes formed from State owned roads are found to be unacceptable because of length or other reasons, then agreements between the State and municipalities will need to be developed to utilize local roadways. This scope does not

include support activities needed to develop agreements between the State and municipalities.

In locations where pedestrian movements are prominent, either safe passage or restrictions will be addressed. Scope associated with construction temporary pedestrian structures and signals will be included in either the Amendments to the Standard Scope of Work or the Detailed Project Approach.

Provide temporary highway lighting for limited access crossovers and at locations as directed by the District. Contact the Highway Lighting Unit in Harrisburg for design requirements. Submit the lighting design to the Highway Lighting Unit for approval prior to the release of the Traffic Control Plans to the District for PS&E Development.

This scope of work does not provide for a temporary traffic signal plan. If the implementation of the traffic control plan impacts a signalized intersection such that a temporary signal design is necessitated, the temporary signal plan will be incorporated into the traffic control plan. However, the scope of work for the temporary signal design will be provided in the Detailed Project Approach or in the Amendments to the Standard Scope of Work.

Specifications will include the description of the construction staging and phasing. Special provisions will also be written for traffic control devices outside the scope of the specifications included in the Publication 408M.

If required for boring and drilling work associated with geotechnical studies, the subconsultant will develop traffic control plans. Details of the design for these plans will be provided in the Detailed Project Approach.

Detail Task 1 - Traffic Control Plan

Department Details:

Revise Objective 2.10.14 to read:

This task is the development of the final traffic control plan. Publication 14M (Design Manual 3), Publication 212 (Official Traffic Control Devices), and Publication 213 (Work Zone Traffic Control) apply to this task.

This will be a continuation of work performed during the Preliminary Design phase.

This activity will include a separate plan and written narrative. All signs will be drawn (symbols will not be accepted) and the distance between signs will be shown on a 1"=25' minimum scale plan.

This task will be the final design of the preferred traffic control option determined during Preliminary Engineering Task 18.0, Preliminary Maintenance and Protection of Traffic.

The consultant will design all required temporary traffic signals.

The locations where pedestrian movements are impacted, safe passage, pedestrian detours, and/or restrictions will be addressed.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

One Traffic Control Plan will be provided for the entire project

Due to the implementation of half width construction it is assumed that Temporary Signal Plans will be required. The design of three temporary signal plans, each containing two phases, is provided as part of this task. Additional Temporary Signal plan design would require a supplemental agreement.

Task 11 - Final Plan Checks

Objective:

2.10.28 - Final Plan Checks
This task is the time required to attend/perform all final plan checks.

Scope:

2.10.28 - Final Plan Checks
The Final Plan Check is performed by representatives of: Bureau of Design - Field Liaison Engineer, District Engineer/Administrator, and Consultant.

The Field Liaison Engineer is in charge of the Final Plan Check and prepares a Plan Review Report on any items which are not correct a the time of the Final Plan Check.

The District Engineer/Administrator provides qualified personnel to perform all required design review; prepares Form 407, Form D-444D and a list of Structural Special Provisions, and notifies the Field Liaison Engineer when the plans will be ready for the Final Plan Check.

The Consultant is required to have the plans adequately checked prior to the Final Plan Check, and will have the Project Engineer and adequate design personnel to make any required corrections, present at the Final Plan Check. It is expected that all required corrections will be made by the Consultant prior to leaving the Final Plan Check.

Detail Task 1 - Final Plan Checks

Department Details:

This task is the time required to attend/perform all plan checks. Assume a total of three plan checks (Final Right-of-Way Plan Check, Preliminary Construction Plan Check, and Final Construction Plan Check).

A preliminary construction plan check and a preliminary right-of-way plan check will be held during the early stages of final design and the final construction plan check and final right-of-way plan check will be held prior to the PS&E submission to Central Office. Consultant will make any necessary changes. This activity will be completed in accordance with Design Manual 1, Chapter 5, Section 26. For the final construction plan check and the final right-of-way plan check to be held in the District Office, provide one engineer and one draftsperson for one day for each check.

The last sentence under Scope 2.10.28 is deleted and revised as follows:
It is expected that all required corrections will be made by the consultant within two weeks following the final plan check.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details.

This task includes effort to attend all Final Plan Checks.

Task 12 - Assemble Final Project Documents for Contract Management

Objective:

2.10.29 - Assemble Final Project Documents for Contract Management
This task is the preparation of the PS&E submission to District contract management.

Scope:

2.10.29 - Assemble Final Project Documents for Contract Management
Before any attempt is made to develop and submit a proposal, it is very important to obtain all required documents, contract drawings, design estimates and supporting data. Supporting documents such as environmental clearances and re-evaluations, funding authorizations, PMC approvals, DEP and Corps of Engineer permits, utility and right-of-way clearances, agreements and related administrative requirements must be resolved. Missing supporting documents complicate the PS&E process, and may affect project advancement to letting.

Assemble all available information on the project from the designers, such as plans or sketches, permits, non-standard special provisions, agreements, construction trainee requirements, Utility Form D-419 clearance and right-of-way certification.

Contract proposals should appear as uniform as possible on a State-wide basis to assist prospective bidders as well as Department personnel who use the proposal. All proposals are to be prepared by utilizing the Contract Management System (CMS) automated bid proposal development software, in accordance with the principles in the current "CMS Users Manual."

Assemble project documents in accordance with requirements of Publication 51M, "Contract Proposal Preparation Guide."

Detail Task 1 - Assemble Final Project Documents for Contract Management

Department Details:

This task is the packaging of the contract documents for the project. The work will include finalizing the contract special provisions, engineer's estimate, and construction CPM schedule.

Also included in this package will be:
- Final Construction Plans (including Also Plans)
- Cross Sections
- Quantity Computations

This task also includes the uploading of the contract document material into ECMS in cooperation with the District. The consultant will provide the special provisions electronically in Word format, and the District will upload them into ECMS.

All plan sheets will be provided in pdf file format following SOL 437-06-01.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
CDI-Infrastructure, LLC d/b/a L. R. Kimball	No	
American Geotechnical & Environmental Services, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball
ASC Group, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball
Navarro & Wright Consulting Engineers, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball

Attachments

No records found.

Part 3 - Services During Construction

Description

Construction Consultation Services and Shop Drawing Review for the replacement of existing cast-in-place (CIP) slab structures on S.R. 0026, Section 13B, in Hopewell Township, Bedford County, spanning Tributaries of Yellow Creek.

Task 1 - Shop Drawing Review

Objective:

2.11.2 - Shop Drawing Review
This task involves the coordination, review and approval of shop drawings submitted by the contractor in accordance with Publication 10/10A, Design Manual 1/1A.

Scope:

2.11.2 - Shop Drawing Review
Review and approve shop drawings following the procedures in Design Manual Part 1A.

Detail Task 1 - Shop Drawing Review

Department Details:

Follow Design Manual 4, Part A, Policies and Procedures, Section 1.10.2 and the PennDOT Engineering District 9-0 Bridge Unit's policy title "Bridge Shop Drawing and Working Drawing Preparation and Review Procedures." The policy is available in the attachment section. Also available in the attachment section are the District 9-0 guidelines for preparing Adobe PDF's.

Shop drawings will be sent by the construction contractor directly to the consultant. Provide a maximum ten (10) working day turnaround on shop and working drawings.

Anticipated shop drawing reviews include:
-Precast Box Culvert

Anticipated working drawing reviews include:
-Removal of existing culvert plan
-Culvert erection plan
-Shoring Plan

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

Prior to construction, the Kimball team will review all shop drawings for conformity with the design plans, specifications and PennDOT standard drawings and Form 408. Shop drawings for the structure(s) will be reviewed for general conformance to the design plans, specifications, PennDOT standard drawings and Publication 408. The review will comply with the latest requirements of Publication 10/10A, Design Manual 1/1A, Design Manual Part 4, PP1.10.2, and Design Manual Part 4, Appendix B, Technical Guidelines for Shop drawing review. The review will not include a complete check of all fabrication dimensions and quantities.

Upon final acceptance of the shop drawings, they will be distributed as required by Design Manual Part 4, or otherwise directed by the District.

Effort will be included as directed by the District.

Task 2 - Construction Consultation

Objective:

2.11.3 - Construction Consultation
This task is coordination with the contractor prior to issuance of the notice to proceed.

Scope:

2.11.3 - Construction Consultation
Upon contract execution, issue a Notice-to-Proceed letter and coordinate the scheduling of a pre-construction meeting.

Detail Task 1 - Construction Consultation

Department Details:

The consultant will provide construction consultation for the design portion of the bridge approach roadways, intersections, etc.

The consultant will document all notices from the contractor and PENNDOT concerning design problems. The consultant will provide solutions as necessary and will provide details, plans, quantities, etc. to PENNDOT (2 copies) and contractor (2 copies). Consultant design errors are not

eligible for compensation under this part.

The consultant will review and approve the following contractor submissions during construction: demolition, temporary shoring and box erection plans.

Include two representatives to attend a preliminary construction consultation meeting and three field trips to the construction site. Include one representative to attend final inspection.

The consultant will attend a Design After Action Review at the District office after construction is complete.

Approach:

The Kimball team will complete this task according to the standard scope of work, as modified by the Department Details and as follows:

This task includes attendance at the Pre Construction Meeting.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
CDI-Infrastructure, LLC d/b/a L. R. Kimball	No	
American Geotechnical & Environmental Services, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball
ASC Group, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball
Navarro & Wright Consulting Engineers, Inc.	Yes	CDI-Infrastructure, LLC d/b/a L. R. Kimball

Attachments

No records found.

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