



TECHNICAL PROPOSAL REPORT

Agreement: E01760	Project Specific	Idle
Name: SR 4009-A10 Babcock Blvd. Bridge Replacement over Girty's Run		Selection Process: Modified Initiating Org: Engineering District 11-0
Supplement: 2	Normal	Executed
Description: provide for the Final Design of the SR 4009-A10 Babcock Blvd. Bridge Replacement over Girty's Run		

Part 3 - Final Design for SR 4009-A10 Babcock Blvd. Br Repl

Description

Final Design Services for SR 4009-A10 Babcock Blvd. Bridge Replacement over Girty's Run

Task 2 - 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.

2.1.1.5 - 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.

2.1.1.13 - Consultant Coordination

This task includes all coordination efforts with all consultants.

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.

2.1.1.5 - 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 PDSRJR 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.

2.1.1.13 - Consultant Coordination

Coordination with the appropriate Consultant representative(s) will be required throughout the entire design phase of the project. This will include project correspondence, attendance at meetings, review of invoice and formal submissions, etc.

Detail Task 1 - Project Management/Administration**Department Details:**

Provide all submissions in electronic format and as many paper copies as directed by the Project Manager.

The Consultant will be expected to continuously provide activity progress to the Project Manager and assist in keeping WELCOM schedule current.

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

GAI will manage and administer invoicing, contracts, insurance, transmittals, project documentation and closeout and other matters related to usual project management.

GAI will provide monthly status reports including task progress, action items, an updated Welcom schedule, and identification of critical items impacting scope, schedule, or cost. These reports will be submitted near the end of each month with sufficient lead time, as defined by the District's PM, to support the District PM's preparation for internal progress meetings.

This work also includes preparation of project specific Quality Control / Quality Assurance work plan for Final Design. The plan will identify GAI's approach to meet project requirements within the constraints of accepted professional practices, current design criteria and standards, PennDOT's input, and funding limitations.

GAI will attend Monthly Progress Status Meetings with the District to facilitate communication and address project issues related to the successful

completion of Design Activities identified in the Scope of Work. It is anticipated that GAI's Project Manager, Raymond A. Hartle, P.E. will attend monthly project status meetings to discuss project budget, progress, and resolve design issues as they may develop. GAI's PM will also meet with public and local officials as directed by the Department and special interim meetings to discuss urgent task related issues as they may arise. GAI will prepare meeting minutes for Monthly Progress Status Meetings, Field Views, and other management meetings, and submit to all attendees for review and comment. Consistent with one construction season, nine (9) Monthly Progress Status Meetings are anticipated, plus an estimated six (6) other project related meetings.

Task 3 - 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 performed 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:

Revise 2.1.2 as follows:

Objective:

This task is the performance and coordination of the constructability review throughout design development.

Scope:

Your constructability review team will be established at the beginning of the project. Provide personnel with construction experience, knowledge, and background in the various disciplines required regarding the plans and special provisions. Personnel involved in the Constructability Reviews should have at least 5 years of hands on construction experience involving heavy and highway projects.

Perform constructability reviews at 60% design complete and 90% design complete. These reviews will be performed to identify potential construction problem areas, possible cost savings, means to expedite construction, and alternate methodologies. Incorporate recommendations

and resolutions as appropriate. These reviews will focus on the following issues:

- * Evaluate MPT phasing/intended traffic control vs. Construction Sequence
- * Set mandatory sequence logic where necessary
- * Detect potential problem areas including potential utility conflicts
- * 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
- * Review the Construction Schedule and logic, and prepare a report listing comments resulting from the review. Also list how the comments were addressed
- * Provide personnel with construction experience/background in the various disciplines described in the plans and special provisions (i.e. roadway, bridge, traffic, electrical, etc.). Personnel are to have a minimum of 5 years experience in their respective discipline.
- * When existing steel structures are to be painted provide the following coatings related information:
 - Design plan review
 - Coating assessment
 - Development of conceptual containment system
 - Preparation of engineering cost estimates
 - Constructability review report preparations
 - Special provisions preparation

Document the review comments/recommendations from each review and forward a copy to the District Project Manager and Constructability Review Manager. Provide follow-up documentation as to the resolution of the review comments/recommendations from each review.

Attend constructability review meetings as required by the District Project Manager.

The District may engage an independent entity to perform two (2) constructability reviews in the final design phase, one (1) at 60% design complete and one (1) at 90% design complete. If an independent entity is engaged under this task in the final design phase provide the following deliverables at the 60 % design completion and 90% design completion of the Final Design phase:

- * Provide 3 (three) sets of drawings and special provisions.
- * Meet with reviewer to describe and explain the project.
- * Respond to questions as needed.
- * Address formal comments from reviewer due to their review
 - a. Provide written responses to the reviewers comments.
 - b. Incorporate reviewer comments into the plans as appropriate

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

As per Department direction accompanying preliminary TS&L approval, GAI will evaluate the use of galvanized superstructure steel and provide the Department a recommendation regarding its use.

GAI will identify a Constructibility Review Team with the required qualifications for Department review and approval.

Task 4 - 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:

Finalize the Preliminary TS&L for Babcock Bridge

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

Based on the Part 1 Conceptual Study and Part 2 Preliminary Design, GAI will advance the Final TS&L Report using a new single span steel rolled multi-beam superstructure and rehabilitated existing abutments. Design to accommodate half-width construction will be applied and will include the use of a temporary support girder and modifications to the existing abutments as needed to assure adequate support.

GAI will also re-evaluate the safety feature application at the near left (northwest) corner of the structure to verify that the proposed impact attenuator installation is currently approved and available at the anticipated date of construction. GAI will also re-evaluate the safety feature application at the far right (southeast) corner of the structure to limit new construction to the existing PennDOT Right-of-Way thereby eliminating proposed property takes.

GAI will prepare the design specifications and service load requirements of the proposed temporary bridge installation at the former Dravo Street Extension bridge location. Requirements for a pedestrian access route on the bridge and for spread footing support pads will be prepared and presented for review and approval.

Based on additional field information acquired after Preliminary TS&L approval, GAI will revise the drawings to address the restoration of a deteriorated head wall condition and deficient roadway shoulder condition present at the exit of the cross flow drainage pipe that runs under Babcock Blvd at the intersection with Greenhill Road, just east of Dravo Street Extension.

As the proposed bridge structure work has been approved in Part 2 Preliminary Design, all of the Department's Objective, Scope, and Department Details that refer to alternative designs will not be performed.

Task 6 - 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:

No additional department details

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

GAI does not anticipate pressure flow conditions for drainage appurtenances designed for this project; therefore, GAI will not include energy grade line and hydraulic grade line calculations described in work element 2. under Department Scope item 2.10.2.1.

The Department is not bound by local municipal storm water management requirements within its R/W; therefore GAI will complete the drainage design in accordance with design publications only – work element 4. under Department Scope item 2.10.2.1 is not applicable.

GAI does not anticipate that 1. Interchange Design, 2. Intersection Design, 3. Airport Clearances, 8. Contour, Grading, and Drainage Plans, or 9. Landscaping Plans will be required for this project; therefore, GAI will not complete or prepare these work elements under Department Scope item 2.10.2.3

Roadway Plans:

GAI will prepare the final roadway plans in accordance with Publication 14M, Design Manual Part 3. GAI will refine the vertical and horizontal alignment geometrics from the design field view submission as necessary. The plan view will be developed at a scale of 1" = 25'. The profile for project roadway will be developed at a horizontal scale of 1" = 25' and vertical scale of 1" = 5'.

Typical Sections:

Typical sections for SR 4009 will be refined and updated to include the approved pavement structure. The Department will provide the final pavement design to GAI.

Pavement Design:

The proposed paving will consist of both milling and resurfacing, and full-depth reconstruction. The pavement design will match the existing pavement from the RMS pavement history reports or in accordance with the minimum depths required by Publication 242 Pavement Policy Manual. A formal pavement design is not anticipated under this task however, GAI will prepare a pavement selection submission for District approval.

Cross Sections:

Cross sections will be prepared and refined under Task 8 – Cross Sections.

Special Details:

GAI will develop construction detail designs, as necessary, to explain special items of construction not detailed in the Department's standard drawings.

Special Provisions and Estimates:

This task will involve the preparation of project special provisions, quantity calculations, and preparation of a construction cost estimates at the 75%, 95%, and with the PS&E submission.

The following is a list of anticipated Roadway Plans:

Description/Number of Sheets

Title Sheet/1

Index Sheet/1
Location Map/General Notes/1
Typical Sections/1
Summary of Quantities/2
Tabulation of Quantities/4
Detail Plan/1
Profile Sheet/1
Special Details/2
Estimated Total/14 sheets

Task 7 - 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.

2.10.3.1 - Horizontal Control (Final Design)

This task consists of providing the horizontal control survey data as required for final design.

2.10.3.2 - Vertical Control (Final Design)

This task consists of providing the vertical control survey data as required for final 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.

2.10.3.1 - Horizontal Control (Final Design)

Guidance:

- Publication 122M, Surveying and Mapping Manual
- Strike Off Letter 430-99-20, QA/QC Control Checklist for Right-of-Way and Construction Plans
- Form D-428, Field Book

Scope Deliverables:

1. Recover horizontal control.
2. Stake final alignment.
3. Provide line book in Form D-428.

2.10.3.2 - Vertical Control (Final Design)**Guidance:**

- Publication 122M, Surveying and Mapping Manual
- Strike Off Letter 430-99-20, QA/QC Control Checklist for Right-of-Way and Construction Plans
- Form D-428, Field Book

Scope Deliverables:

1. Recover vertical datum.
2. Establish vertical control network by setting benchmarks within project area by differential leveling.
3. Record level loops in Form D-428 field book.
4. Benchmarks set will be no greater than one half mile apart and will be set on permanent objects not subject to movement.
5. Benchmarks will be set on both sides of proposed structures and/or structures to be replaced.

Detail Task 1 - Supplemental Surveys**Department Details:**

Professional Land Surveyor to be in responsible charge for project and sealing of ROW plan to consult with District Chief of Surveys regarding information in S.O.L. 430-07-13 which replaces S.O.L. 430-99-20, methods employed to insure QA/QC, and types of equipment that will be used on project and safety procedures to be employed. Discuss Traffic control plan as per Publication 213. Discuss e-mails to District Chief of Survey whenever survey field crew to be on project. Part #1

- 1) Verify validity of "Notice of intent to enter letters".
- 2) (2.4.2.1.) Verify alignment that was set as scoped in preliminary design.
- 3) Reference alignment (P.C.'s Limits of Work, and P.T.s) by monumentation. Reference Circles will correspond to Publication 14-M (DM-3) Chapter 2 Pg. 2-46.
- 4) (2.4.1.2.) Vertical Control: Set Permanent type benchmarks out of construction area but within project. Vertical control loop will be by differential leveling (No Trig. Levels) utilizing a Philadelphia type rod or similar. Levels will be recorded in Form D-428 as per publication 122-M. (Electronic files for differential leveling are not acceptable.)

Approach:

This task will be completed by GAI subconsultant Radenbush Engineering Inc. (REI) in accordance with the Department's Objective, Scope, Department Details, and as follows:

GAI will provide a QA/QC review of final Supplemental Surveys deliverables developed by REI prior to submitting to the District.

Task 8 - 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 appropriate 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:

No Additional Department Details

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

The nine (9) full and three (3) half cross sections developed for the Design Field View submission of SR 4009 will be refined in final design.

GAI does not anticipate that work element 3 will be required for this project; therefore, GAI will not prepare this work element under Department Scope item 2.10.4.

Task 9 - 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:

No Additional Department Details

Approach:

This task will be completed by GAI subconsultant Radenbush Engineering Inc. (REI) in accordance with the Department's Objective, Scope, Department Details, and as follows:

As per Department direction in Part 2 Preliminary Design, Property Plats are not required for the Final Right-of-Way Plans, therefore Department Scope item 2.10.5 Part D. Simplified Right-of-Way Plan, preparations sub-item No. 10 Property Plats, will not be included.

GAI will provide a QA/QC review of the final Right-of-Way Plan developed by REI prior to submitting to the District.

Task 10 - 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 PennDOT's 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:

Revise 6. Above by replacing "schedule and conduct" to "attend"

Revise 7. Above by replacing "schedule and conduct" to "attend"

Approach:

This task will be completed by GAI subconsultant Clough Harbor and Associates (CHA) in accordance with the Department's Objective, Scope, Department Details, and as follows:

No incorporated utility work is anticipated as part of this project.

The District will request and obtain from each utility company within the project area a D4181, D4181UC and a D4181A. Also, the District will prepare the D419 as well as 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 will be provided to GAI by the District for incorporation into the overall project construction schedule.

The District will coordinate with the facility owner to renew the bridge occupancy permit associated with the gas main on the new superstructure.

No Substitute right-of-way is anticipated as part of this project.

Utility relocations will be shown on the construction plans only and will be based on relocation plans obtained and provided by the District.

GAI and CHA will attend two (2) utility meetings scheduled by the District. CHA will provide meeting minutes for each meeting.

GAI will support preparation and inclusion of utility information on final plans, profiles and cross sections in the P.S.&E. package as needed. GAI will provide a QA/QC review of utility items in the P.S.&E. package as developed by CHA prior to submitting to the District.

Task 11 - 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:**

In addition, provide the necessary layout, specifications, and all other necessary requirements to lease a Temporary Pre-Fabricated Highway Bridge for Dravo Street Extension. The Temporary Bridge will provide access across Girty's Run to the residents living on Dravo Street Extension during construction of Babcock Blvd Bridge. The Temporary Bridge will be leased and installed by the contractor for the duration of construction and shall be dismantled and returned to the Leasing company at the completion of the project.

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

GAI will provide design and drafting for preparation of Final Structure Plans for the Department's approved final configuration as determined in the Task 4 Final TS&L Report. The new structure will be a single span steel multi-beam bridge on rehabilitated existing abutments. Raudenbush Engineering, Inc. (REI) will provide the necessary engineering, plan preparation, cost estimates and specifications for the abutment rehabilitation work and also the evaluation, replacement and/or repair of the deteriorated portion of the concrete headwall of the culvert/pipe that carries storm water runoff from Greenhill Road under SR4009 and into Girty's Run, and for the restoration of the damaged shoulder at that location. No structure work is proposed below the top of crown elevation of the culvert/pipe.

The Final Design will accommodate single lane signal controlled traffic movement through the construction zone using half-width phased construction that employs a temporary girder to support half of the existing structure, and temporary shoring/ support of existing approach roadways as needed.

A temporary bridge structure located at Dravo Street Ext. will also be used to provide access to adjacent properties. GAI will design and detail a proposed temporary girder, and collaborate with REI to evaluate the existing abutments for support of the temporary girder. GAI will design abutment retrofit details as needed to assure acceptable levels of support during construction. These details will be provided to REI for inclusion in the plans. GAI will also evaluate the existing bank areas of Girdy's Run at Dravo Street Extension for acceptance of a temporary bridge, and design proposed spread footing foundation supports.

Final design and implementation of all temporary elements used for or during construction are the responsibility of the contractor and subject to final review and approval by the Department's engineer.

The following Final Structure Plan drawings are anticipated:

Description/ No. of Sheets

General Plan and Elevation, General Notes and Index / 2

Structure Quantities / 1

Stake-out Plan / 1

Abutment Plans, Elevations, and Sections / 4 (Provided by REI)

Temporary Bridge Conceptual Plan, Elevation, and Sections / 2

Framing Plan, Girder Elevations, and Steel Details / 4

Temporary Girder Conceptual Details and Construction Phasing / 7

Approach Slab Details / 2

Deck Plans and Sections / 2

Table of Deck Elevations / 1

Reinforcing Bar Schedules / 3

Headwall Repairs / 1 (Provided by REI)

Estimated Total 30 sheets

Task 12 - 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:

This task includes submission of a pre-final plan and final plan. It is assumed that the Traffic Control Plan will consist of 2 sheets. The first sheet will include signature blocks, tabulations, general notes, and any special sign details. The second sheet will be the detour plan.

Consultant will compute amounts for road user liquidated damages to be charged to the contractor for each day the roadway is not open to unrestricted traffic after the specified milestone. Consultant will calculate the road user liquidated damages utilizing available traffic volume data.

Consultant will also mark up (not re-type) the District's latest Section 901 Specification specific to this project.

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

The Traffic Control Plan will be a Supplemental Plan.

GAI will develop the final detour plan based upon the state-road detour approved during Preliminary Engineering: SR 4009 (Babcock Blvd, Evergreen and Peoples Plank Road), I-279, and SR 0028. The detour plan will not include: tapers lengths, barricades, channelizing devices, impact attenuators, temporary pavement markings, temporary roadway locations, temporary highway lighting locations, portable changeable message signs, or arrow boards.

Per District direction, the scope of work for temporary traffic signal plans is under a separate task; although, temporary signal designs will be incorporated into the Traffic Control Plan.

The Traffic Control Plan will also include a detail sheet (third sheet) for construction of a temporary bridge over Girty's Run at Dravo Street Extension. This structure will maintain access to residences adjacent to the work area. GAI will show the location of the temporary bridge, and corresponding vehicular and pedestrian detour signage, on the temporary traffic signal plan sheets.

GAI will compute amounts for road user liquidated damages utilizing the Department's "Life Cycle Cost Analysis Version 2.1" spreadsheet and internet traffic monitoring system (iTMS) data.

The Traffic Control Plan will not include temporary highway lighting or the development of traffic control for boring and drilling work associated with geotechnical studies.

Task 13 - Traffic Signal Timings and Plan

Objective:

2.10.15 - Traffic Signal Timings and Plan

This task is the development of the traffic signal timings and final signal plans.

Scope:

2.10.15 - Traffic Signal Timings and Plan

Prepare a traffic signal construction plan in accordance with Publication 14M, Design Manual Part 3, Publication 148, Traffic Standards (TC-7800), and Publication 149, Traffic Signal Design Handbook. The Traffic Signal Construction Plan shall include a Title Sheet, an Index Sheet, a Summary of Quantities Sheet, a Traffic Signal Plan Sheet, a Tabulation of Quantities Sheet, and Special Provisions.

In event of overhead street name signs, supply type II (sign fabrication) drawings as per Design Manual Part 3.

When the Traffic Signal Construction Plan is included in a Construction Plans Package as a Supplemental Plan, the Title Sheet, the Index Sheet, and the Summary of Quantities Sheet shall be omitted from the plan.

If the traffic signal is a part of a coordinated network, a Network Coordination Chart identifying the coordination scenarios and the signal offsets for each of the individual traffic signals shall be developed and included on the Traffic Signal Plan Sheet.

A Tabulation of Quantities Sheet shall be prepared. Individual tabulation of quantities shall be made for the following items.

- Signs,
 - Traffic Signal Supports,
 - Electrical Distribution (Conduit, Trench, Cable, Junction Boxes, Electrical Service).
 - Detectors.
 - Pavement Markings.
 - Miscellaneous Equipment (Controller Assemblies, Systems and Communications Equipment, Signal Heads).
- A detail sheet showing non-standard items, including, but not limited to, items such as mast arm details with W3-03 flashing lights.

Special Provisions need to be developed when issues pertaining to Items of Work, Materials, Requirements, or Instructions are not contained on the drawings, are not in the specifications, apply only to the project under consideration, and are considered essential to the satisfactory completion of the contract within its intended scope. Special Provisions shall be submitted with the Traffic Signal Plan as a separate entity in themselves.

Submit full size drawings of the Traffic Signal Construction Plan to the District Traffic Engineer with copy to the project manager or directly to the project manager at the completion of the 60% and 90% project completion levels for review and comment. Meet with the District Traffic Engineer or his assigns to discuss the review comments before advancing the design. Submit copies of the Special Provisions at the 90% project completion level.

The Final Traffic Signal Construction Plan shall be originated and stored in a digital format. Digital and printed copies shall be provided to the Districts Project Manager. Final copies of drawings, design calculations, and Special Provisions shall be delivered in the format and quantities specified in the Engineering Agreement.

Prepare a Traffic Signal Permit plan by modifying the Traffic Signal Plan Sheet to reflect the final permitted operation of the traffic signal. Notes specific to the signal construction shall be removed and notes identifying the Permittees responsibilities shall be added. Add a permit issue block to the upper right hand corner of the plan sheet.

Submit the Traffic Signal Permit Plan along with the completed signal permit application and a copy of the municipalitys legally adopted resolution prior to the PS&E submission.

Perform the following for final traffic signal timings:

1. Use the latest version computer software, which is based upon the Federal Highway Administrations 1997 Highway Capacity Manual, to evaluate the traffic capacity of the intersections. Identify an initial optimized timing and phasing operation for each individual intersection.
2. Prepare design calculations for cycle lengths, green splits, actuation timings, pedestrian intervals, change and clearance intervals, cable and conduit sizing, and preemption timings in accordance with Publication 149, Traffic Signal Design Handbook.
3. Compile all traffic analysis and original checked work sheets into a bound document. Submit this document to the District Traffic Engineer at the 90% project completion level. Submit vehicle turning analysis with data.

Detail Task 1 - Traffic Signal Timings and Plan

Department Details:

This task is to include the design and installation of temporary signals needed for Phased construction of Babcock Bridge. Perform all calculations required to check if the adjacent traffic signals on S.R. 4009 need timing adjustment during construction.

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

GAI will prepare Temporary Traffic Signal Plans in accordance with Publication 203, Temporary Traffic Control Guidelines. The temporary signal designs shall maintain access to existing businesses within the proposed work zone. GAI will evaluate the access needs for each phase of construction and determine if turns need to be restricted, driveways temporarily relocated or included as actuated phases of the temporary signal designs. The temporary signal designs shall include both trailer mounted and fixed span options per Publication 213.

GAI anticipates the Temporary Traffic Signal Plans will include six (6) sheets. Four (4) plan sheets will show the phased construction and temporary signals, and will include, but will not be limited to: sign messages, sign sizes, general sign locations, tapers lengths, barricades, channelizing devices, impact attenuators, temporary pavement markings, portable changeable message signs, arrow boards, and temporary bridge location with corresponding vehicular and pedestrian detours. Two (2) additional sheets will include special details and notes pertaining to the construction of the temporary signals.

Temporary Traffic Signal Plans will not include: a Title Sheet, an Index Sheet, a Summary of Quantities Sheet, or a Tabulation of Quantities Sheet; plans will be incorporated into the Traffic Control Plan.

GAI will include a special revision in the Traffic Control Plan addressing the temporary retiming of signals, as required, for the adjacent signals at Peoples Plank Road and Geyer Road. GAI does not anticipate coordinating these signals with the temporary traffic signals, or performing any additional calculations.

GAI anticipates three timings plans: AM peak period, PM peak period, and off peak periods. To determine the timing plans, GAI will request turning movement counts for the SR 4009 (Babcock Boulevard) and Greenhill Road intersection from the Department. Utilizing recent traffic-count information acquired and provided to GAI by the Department, GAI will calculate traffic signal timings with the "Delay Analysis Workbook (DAWB)" prepared by French Engineering, LLC, and the latest approved versions of Synchro and Highway Capacity Software. Timings will not include pedestrian intervals.

The Traffic Control Plan will not include overhead street name signs, or development of a Traffic Signal Permit plan; the Temporary Traffic Signal Plans will be temporary permits.

Task 14 - Pavement Marking Plan

Objective:

2.10.16 - Pavement Marking Plan

This task is the development of the pavement marking plan.

Scope:

2.10.16 - Pavement Marking Plan

The final submission will include:

- General Plans
- Special Details
- Delineator Spacing Tables
- Delineator Mounting Details
- Quantities
- Specifications

For mainline roadway sections where markings and delineators are consistent and repetitive, typical details will be developed to eliminate unnecessary drafting and design sheets. The pavement marking and delineation plan for the interchange areas will detail all gore areas, islands and other special markings. Beginning and ending stations will be shown for longitudinal pavement markings and station locations will be identified for pavement legends.

Depending on the complexity of the project, the details of the plan and the total length of the project, the elements of the pavement marking and delineation plan may be incorporated with the signing plan.

Detail Task 1 - Pavement Marking Plan

Department Details:

Signing and Lighting plan may be incorporated in the Pavement markings plan or Roadway plans.

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

The Pavement Marking Plan will be a Supplemental Plan, and will incorporate the Signing Plan. Sign Lighting Plans are not anticipated. GAI anticipates the Pavement Marking Plan will include two (2) sheets: a title sheet with tabulations, notes, and special details; and a plan sheet.

Task 15 - 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:

If it is determined that the total disturbance for the proposed project will be less than 1.0 acre, only an Erosion and Sedimentation Control Plan will be required for submission to the Allegheny County Conservation District; no NPDES permit application.

The E&S plan is to be uploaded in the JP2 system with the GP-11 permit.

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

Based on analysis of the project site, the total Disturbed Area for the construction of the project is less than 1.0 acre. Therefore, only an Erosion and Sedimentation Control Plan will be required for the GP-11 Permit; no NPDES Permit is anticipated. GAI has submitted the Erosion and Sedimentation Control Plan as part of the GP-11 permit in Part 2 Preliminary Design. For this task, only work element number eight (8) under Department Scope is applicable; therefore, GAI will address all PADEP and/or Allegheny County Conservation District comments, and revise the Plans and Narrative as appropriate. All NPDES tasks listed under Department Scope are not applicable.

Task 16 - 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 at 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:

No Additional Department details

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

GAI will arrange for final plan checks for the Final Right of Way Plan and the Final Roadway and Structure Construction Drawings at the District office.

GAI and REI will attend the Final Right of Way Plan Check.

Using the marked up plans from the Final Right of Way Plan Check, GAI will address all comments, utility information, and make a final cross check of the information presented on the construction plans.

GAI will attend the final plan check for the Final Roadway and Structure Construction Drawings. The plan check will be conducted a minimum of 30 days prior to the final PS&E package submission.

It is understood that any revisions required based on the comments from the Final Plan Checks will be done at GAI or REI's offices and not during the Final Plan Checks. GAI and REI will revise the plans as per the Department's comments and will resubmit for approval. It is assumed that no meeting minutes will be prepared for these meetings. GAI will incorporate all comments into the plans received at the plan check. All red line marked drawings will be returned to the District for final verification.

Task 17 - 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.

2.10.29.2 - Finalize Pre-Bid Construction Schedule/Special Provisions

This task is to prepare the final pre-bid construction schedule/special provisions.

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."

2.10.29.2 - Finalize Pre-Bid Construction Schedule/Special Provisions

Provide provisions, requirements, or directions applying to the project, as set forth in the proposal, that are not contained in Publication 408M or its supplements. Generally, the design engineer will submit draft special provisions to be reviewed, finalized and incorporated into the Bid proposal by Contract Management.

Detail Task 1 - Assemble Final Project Documents for Contract Management

Department Details:

Maintain close coordination with the District in preparing specifications that will allow for optimum clarity, quality, and flexibility in construction. The District Construction Unit, the Contract Management Unit, and the Bureau of Design should be given sufficient time to review and comment on all drawings and specifications. Any proprietary items should be identified early and justified fully so that necessary approvals can be obtained in a timely manner.

This task includes the effort to assist the District in preparation of addendums, answering contractor questions, and justification if needed on the estimate preparation.

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

GAI will assist the District in preparing the final project documents for Contract Management. The required documentation for the PS&E package will be prepared in electronic format for entry into ECMS. GAI will also assist the District in preparation of addendums, answering contractor questions during the project advertisement stage, and justification of the estimate of probable cost.

This task will involve preparation of a CPM construction schedule that contains all phases and operations. The schedule will make reasonable assumptions for work rates and account for material acquisition and delivery. GAI will submit the CPM schedule to the District at least one (1) month prior to the PS&E submission. Upon District review GAI will attend a meeting with the Department and construction personnel to discuss the schedule and revise it as necessary for final submission.

GAI understands that the Department may elect to obtain the services of an independent reviewer to evaluate the constructability of the design and prepare separate CPM schedule for comparison.

GAI will provide all construction milestone dates (i.e. notice to proceed, open to traffic, completion, etc) derived from the CPM schedule to the District for inclusion into the contract bid documents.

Task 18 - 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.

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)

Detail Task 1 - Safety Review/Audit

Department Details:

No Additional Department Details

Approach:

GAI will complete this task in accordance with the Department's Objective, Scope, Department Details, and as follows:

Shortly after Department approval of the Task 4 Final TS&L Report, GAI's Project Manager will coordinate with the Department to schedule the final design phase Safety Review Meeting, and conduct said meeting with the District Safety Review Committee at the District 11-0 Office located at 45 Thoms Run Road, Bridgeville, PA 15017. The intent of the meeting is to review the overall design of the project, verify that any changes indicated at the preliminary Safety Review meeting have been addressed, and identify any potential safety hazards or concerns related to final design so that necessary changes are made prior to the final PS&E submission.

In preparation for the meeting, GAI will prepare six (6) copies of a Safety Review Submission with contents and timing as per the Scope, for review by the District Safety Review Committee. Preliminary design plans will be sufficiently developed to address the items identified in Table E.1 of PennDOT's Design Manual 1A, Publication 10A. GAI's Roadway Design Task Manager will participate in the preparation for and attendance of the Safety Review meeting.

GAI will record, prepare and submit DRAFT meeting minutes for Department approval within five (5) working days of the meeting and FINAL meeting minutes within three (3) days of receipt of Department comments on the DRAFT.

Following approval of the Safety Review meeting minutes, PennDOT's Safety Review Committee is expected to return a recommendation to the District Administrator.

The District's Safety Audit Team will then prepare the Feasibility Safety Audit Report. GAI will address or incorporate the suggestions identified in

the Safety Audit Report as a part of the on-going final design process.

Consultant Hierarchy

Business Partner	DBE Type	Supervising BP
GAI Consultants, Inc.	No	
Clough Harbour & Associates, LLP	No	GAI Consultants, Inc.
Raudenbush Engineering, Inc.	Yes	GAI Consultants, Inc.

Attachments

No records found.

You are currently logged in as **Roland L. Rode**.

Release: 21.0
Session size: 0.1k

[PennDOT](#) | [Home](#) | [Site Map](#) | [Help](#) | [Pennsylvania](#)
Copyright © 2009 Pennsylvania Department of Transportation. All Rights Reserved.
[PennDOT Privacy Policy](#)

Mon Mar 26 15:43:11 EDT 2012
Official ECMS Date/Time