708A

SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

FROM: TLMA – Transportation Department

SUBMITTAL DATE:
April 10, 2014

SUBJECT: Amendment No. 1 to the Engineering and Environmental Services Agreement Between Dokken Engineering and the County of Riverside for the 66th Avenue Railroad Grade Separation Project. District 4/District 4; [$2,002,893]; Local Funds 100%

RECOMMENDED MOTION: That the Board of Supervisors:

1. Ratify the attached Amendment No. 1 to the Engineering and Environmental Services Agreement between the County of Riverside and Dokken Engineering; and

2. Authorize the Chairman of the Board to execute the same.

Patricia Romo
Assistant Director of Transportation

Juan C. Perez
Director of Transportation and Land Management

Departmental Concurrence

FORM APPROVED COUNTY COUNSEL
BY: MARSHA L. VICTOR DATE 5/7/14

FINANCIAL DATA	Current Fiscal Year:	Next Fiscal Year:	Total Cost:	Ongoing Cost:	POLICY/CONSENT (Per Exec. Office)
COST	$ 0	$ $1,502,893	$ 2,002,893	$	Consent ☐ Policy ☑
NET COUNTY COST	$	$	$	$	

SOURCE OF FUNDS: Development Impact Fee (DIF) 58%, CVAG 42%. There are no General Funds used in this Project.

Budget Adjustment: No

For Fiscal Year: 13/14 & 14/15

C.E.O. RECOMMENDATION:

APPROVE
BY: Tina Grande

County Executive Office Signature

MINUTES OF THE BOARD OF SUPERVISORS

☐ Positions Added ☐ Change Order
☐ A-30 ☐ 4/5 Vote

Prev. Agn. Ref.: 3/24/11, Item 3-29; 7/12/11, Item 3-43; 7/12/11, Item 3-5; 3/25/14, Item 3-18

District: 4/4

Agenda Number: 3-63

Impact on Residents and Businesses

The UPRR and State Highway 86 are important North American Free Trade Agreement (NAFTA) freight corridors to and from Mexico. Currently, up to 71 freight trains pass through the County daily on this rail line, with that number projected to increase to approximately 107 by the year 2030. The surrounding community, vehicle traffic, and rail users will benefit from the construction of this project through:

- Improved traffic circulation and reduced delays by providing uninterrupted and efficient access for agricultural trucks, motorists, residents, businesses, pedestrians, and emergency vehicles
- Increased public safety by providing a separation for vehicles, bicycles, and pedestrians from train traffic
- Reduced particulate matter and greenhouse gasses from idling cars and trucks

SUPPLEMENTAL:
Additional Fiscal Information

This Amendment to the agreement between the County of Riverside and Dokken Engineering will increase the scope of work to include final design and construction support services.

Original Agreement	Preliminary Engineering/Environmental Clearance	$ 676,507
Amendment 1	Final Design/Construction Support	$2,002,893
Total		$2,679,400

Final design work is expected to commence in July 2014 with annual consultant expenditures estimated as follows:

FY 14/15	$1,502,893
FY 15/16	$ 500,000

The total budget for consultant and county staff time for the environmental and design phase of the project is:

CVAG	$1,350,000
DIF	$1,439,250
Gas Tax	$ 500,000
Total	$3,289,250

Contract History and Price Reasonableness

The proposed fee is reasonable and consistent with the fee's paid for similar projects as shown below:

Project	Consultant	Fee	
Airport Drive Grade Separation	Parsons	$2,114,518	
Clay Street Grade Separation	URS	$2,540,349	
66th Avenue Grade Separation	**Dokken Engineering**	**$2,679,400**	←
Sunset Avenue Grade Separation	KHA	$2,908,881	
Magnolia Avenue Grade Separation	AECOM	$3,575,001	

Note: Fees shown above include design, environmental, bid support, and construction support.

BACKGROUND:
Summary
66th Avenue is the primary access to the community of Mecca from State Route 86. However, 66th Avenue currently does not cross the Union Pacific Railroad (UPRR) tracks, creating a gap that requires through traffic to use a circuitous route north onto Highway 111, crossing the railroad tracks at-grade on 4th Street, and then south on Hammond to 66th Avenue. A substantial number of agricultural freight trucks use this crossing on a regular basis and can cause backups at the railroad tracks at the 4th Street at-grade crossing.

The proposed 66th Avenue Railroad Grade Separation Project would complete the connection of 66th Avenue across the UPRR tracks by building a bridge over the railroad for 66th Avenue traffic and provide a direct east-west connection of 66th Avenue. The 4th Street crossing will remain open to local traffic and access to Highway 111. The proposed 66th Avenue grade separation will provide a more direct route for agricultural trucks, emergency vehicles and through traffic, and avoid conflicts and delays with the railroad train traffic.

On March 24, 2011 (Item 3-29), the Board of Supervisors approved a funding agreement between the Coachella Valley Association of Governments (CVAG) and the County of Riverside (County) to provide $500,000 in funding for preliminary engineering and environmental services for the 66th Avenue Railroad Grade Separation Project.

On July 12, 2011 (Item 3-43), the Board also approved an Engineering and Environmental Services Agreement between Dokken Engineering and the County for the 66th Avenue Railroad Grade Separation Project. The services to be performed by Dokken Engineering under the terms of this agreement are now substantially complete, and the project is in the final stages of obtaining environmental clearance. The County is now prepared to proceed with the preparation of Plans, Specifications, and Estimates (PS&E) that are needed in order to construct the proposed improvements.

On February 24, 2014, the CVAG Executive Committee authorized Amendment Number One to the original funding agreement between CVAG and the County to provide an additional $850,000 in funding for final design and construction support services. This Amendment Number One to increase the original CVAG funding of $500,000 to $1,350,000 is a companion Agenda Item for the increased funding.

On March 25, 2014 (Item 3-18), the Board authorized the use of up to $1,285,987 in Development Impact Fee (DIF) funding from the Coachella-Eastern Area Plan (AP18) – Roads, Bridges, and Major Improvement Fund No. 30524, as well as $153,263 from the Regional Transportation Match set-aside from AP18, as previously approved by the Board of Supervisors on July 12, 2011 (Item 3-5), for the final design phase of this project.

The 66th Avenue Railroad Grade Separation Project is a viable candidate eligible for State Trade Corridor Improvement funds. To be eligible, the project must be ready to go to construction in 2016. Dokken is uniquely qualified to complete the work within the mandated timeframe because of the extensive work and satisfactory performance to date.

Project No. B8-0664

AMENDMENT 1

Amendment to Agreement Between

The County of Riverside and Dokken Engineering

THIS AMENDMENT (hereinafter the "Amendment 1") to an agreement is made and entered into as of this _____ day of _____, 2014, by and between the County of Riverside, a political subdivision of the State of California (hereinafter the "COUNTY"), and Dokken Engineering (hereinafter "ENGINEER").

RECITALS

A. COUNTY and ENGINEER have entered in an agreement entitled "Engineering Services Agreement for 66th Avenue Grade Separation Project at UPRR between County of Riverside • Transportation Department and Dokken Engineering that is dated July 12, 2011 (hereinafter the "Agreement"). The Agreement provides the terms and conditions, scope of work, schedule and budget for the performance of professional and technical services related to preliminary engineering and environmental technical studies necessary to complete an environmental document and obtain environmental clearance.

B. The above noted services are significantly complete and the project is in the final stages of obtaining environmental clearance. The COUNTY is now prepared to proceed with the preparation of Plans, Specifications and Estimates (PS&E) that are needed in order to construct the proposed improvements.

C. The preliminary engineering and environmental services have been funded in part with $500,000 in Coachella Valley Association of Governments (CVAG) contributed funds. On February 24, 2014, the CVAG Executive Committee authorized an additional $850,000 in project funding to be used for final design services.

D. On March 25, 2014, the Riverside County Board of Supervisors directed the Executive Office to reimburse up to $1,439,250 as needed, pursuant to contracts and billings, including County staff support costs from the Coachella-Eastern Area Plan (AP18) Development Impact Fee's and Regional Transportation Match.

E. The California Transportation Commission is considering an update to the Trade Corridors Improvement Fund (TCIF) Program savings policy to extend the savings utilization deadline by two years. The extended deadline would allow for the allocation of funding up to the end of June 2016. County staff has been able to determine that the 66th Avenue Grade Separation Project is a viable candidate to receive funding from this program should the extension be approved. Allocation of the funds will require obtaining

environmental clearance, completion of plans, specifications and estimates as well as acquisition of any necessary property.

F. Completing the allocation requirements within the proposed mandated deadline will require expediting the design services. Dokken is competent to do the final design and as a result their work on the preliminary engineering and environmental services they are uniquely qualified to complete the work within the mandated timeline.

G. The parties desire to amend the Agreement to include the scope of work, schedule and budget needed to perform the final design and construction support services for the project.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual covenants hereinafter contained, the parties agree as follows, effective November 7, 2013:

1. Appendix A is amended to include the additional services as described in the attached Scope of Services entitled "AMENDMENT 1 • APPENDIX A1 • PS&E AND CONSTRUCTION SUPPORT SCOPE OF SERVICES."
2. Appendix B, Article B1 is amended to extend the Schedule of Services to June 30, 2020, as shown in the attached Schedule of Services entitled "AMENDMENT 1 • APPENDIX B1 • SCHEDULE OF SERVICES."
3. Article VI (Compensation) and Appendix C • Article CV are amended by increasing the contract budget by $2,002,893.33 for a total revised budget of $2,679,400.39, as provided below and in accordance with the attached Fee Proposal entitled "AMENDMENT 1 • APPENDIX C1 • PS&E AND CONSTRUCTION SUPPORT FEE PROPOSAL WORKSHEETS."

	PHASE I Alternatives	PHASE II PA/ED	PHASE III PS&E	PHASE IV Bid Support	PHASE V Con Support	PHASE ALL Contingency*	TOTAL
ORIGINAL BUDGET	168,240.11	446,767.22				61,500.00	**676,507.33**
PRIOR ADMINISTRATIVE MODIFICATIONS	33,490.00	4,363.00				(37,853.00)	
1 Additional Coordination, Public Meeting, Concept Drawings and Biological Report	23,769.00	4,363.00				(28,132.00)	
2 Traffic Operations Analysis	9,721.00					(9,721.00)	
CURRENT BUDGET	201,730.11	451,130.22				23,647.00	**676,507.33**
AMENDMENT (NO. 1)			1,629,814.32	36,022.35	137,056.39	200,000.00	**2,002,893.06**
Dokken Engineering (Prime)			1,378,723.16	36,022.35	137,056.39	200,000.00	1,751,801.90
Earth Mechanics Inc. (Geotech)			172,946.01				172,946.01
MSA Consulting, Inc. (Survey)			78,145.15				78,145.15
PROPOSED AMENDED BUDGET	201,730.11	451,130.22	1,629,814.32	36,022.35	137,056.39	223,647.00	**2,679,400.39**

* Contingency funds are subject to the contract requirements as defined in Article VI • Compensation.

4. Except to the extent specifically modified or amended hereunder, all of the terms, covenants and conditions of the Agreement shall remain in full force and effect between the parties hereto.

IN WITNESS HEREOF, the parties hereto have caused this Amendment 1 to the Agreement to be duly executed this day and year first written above.

ARTICLE VIII • APPROVALS

COUNTY Approvals

RECOMMENDED FOR APPROVAL:

Patricia Romo Dated: 4-18-14

JUAN C. PEREZ

Director of Transportation and Land Management

Patricia Romo
Assistant Director of Transportation

APPROVED AS TO FORM:

PAMELA J. WALLS, COUNTY COUNSEL

Yesenia K Nieto Dated: 5/7/14

By Deputy

APPROVAL BY THE BOARD OF SUPERVISORS

_____ Dated: _____

PRINTED NAME

Chairman, Riverside County Board of Supervisors

ATTEST:

_____ Dated: _____

KECIA HARPER-IHEM

Clerk of the Board (SEAL)

ENGINEER Approvals

ENGINEER:

_____ Dated: _____

PRINTED NAME

TITLE

ENGINEER:

_____ Dated: _____

PRINTED NAME

TITLE

AMENDMENT 1 • APPENDIX A1 • PS&E AND CONSTRUCTION SUPPORT SCOPE OF SERVICES

TABLE OF CONTENTS

ARTICLE AI • INTRODUCTION 1

A. DESCRIPTION 1
B. LOCATION 1
C. COORDINATION 1
D. PHASES 1
E. STANDARDS 2
F. KEY PERSONNEL 2
G. COUNTY RESPONSIBILITIES 3

ARTICLE AII • PROJECT ADMINISTRATION (PHASES III, IV & V) 3

A. PROJECT MANAGEMENT 3
B. COST ACCOUNTING/PROGRESS REPORTS 4
C. SCHEDULING 4

ARTICLE AIII • PLANS, SPECIFICATIONS AND ESTIMATES TASK LIST (PHASE III) 4

T1 PROJECT MANAGEMENT 4
1.1 PROJECT COORDINATION AND PROJECT TEAM MEETINGS 4
1.2 QUALITY ASSURANCE / QUALITY CONTROL (QA/QC) 5
1.3 PERMITS 5

T2 UPRR & PUC APPLICATION AND AGREEMENT COORDINATION & LIAISON SERVICES 6
2.1 UPRR COORDINATION AND RIGHT OF ENTRY (BORINGS & SURVEYS) 6
2.2 UPRR CONCURRENCE LETTER 7
2.3 PUC APPLICATION FOR NEW CROSSING 7
2.4 UPRR AGREEMENTS 7

T3 SURVEYING/RIGHT OF WAY ENGINEERING 7
3.1 COORDINATION WITH COUNTY/CALTRANS/UPRR RAILWAY 7
3.2 SUPPLEMENTAL FIELD SURVEY 8
3.3 PROPERTY OWNER EXHIBITS 8
3.4 PLATS AND LEGAL EXHIBITS 8
3.5 RFA DOCUMENTATION AND APPROVALS 8

T4 UTILITY COORDINATION 9
4.1 UTILITY BASE MAP 9
4.2 UTILITY POTHOLING 10
4.3 UTILITY SUBMITTALS 10

T5 GEOTECHNICAL DESIGN REPORT 11
5.1 GEOTECHNICAL FIELD INVESTIGATIONS 11
5.2 LABORATORY TESTING 12
5.3 GEOTECHNICAL ENGINEERING ANALYSIS 12
5.4 GEOTECHNICAL REPORTS 13

T6 HYDRAULICS 14
6.1 STORM WATER DATA REPORT (SWDR) 14
6.2 DRAINAGE REPORT 15
6.3 HYDRAULIC DESIGN REPORT 16
6.4 NPDES GENERAL CONSTRUCTION PERMIT 17

T7 65% SUBMITTAL 18
7.1 65% ROADWAY PLANS 18
7.2 65% STRUCTURE PLANS 19
7.3 65% QUANTITIES AND ESTIMATE 21

T8 ENVIRONMENTAL PERMITTING 21
8.1 SECTION 1602 STREAMBED ALTERATION 21
8.2 SECTION 404 CLEAN WATER ACT 21
8.3 SECTION 401 CLEAN WATER ACT 22
8.4 ENVIRONMENTAL MITIGATION 22

T9 95% SUBMITTAL 22
9.1 95% ROADWAY PLANS 22
9.2 95% STRUCTURE PLANS 23
9.3 95% QUANTITIES AND ESTIMATE 23
9.4 95% DRAFT SPECIAL PROVISIONS 23

T10 100% SUBMITTAL 24
10.1 100% ROADWAY PLANS (INCLUDING CROSS SECTIONS) 24
10.2 100% STRUCTURE PLANS 24
10.3 100% QUANTITIES AND ESTIMATE 24
10.4 100% SPECIAL PROVISIONS 25

T11 FINAL APPROVED SUBMITTAL 25
11.1 100% SUBMITTAL 25

ARTICLE AIV • CONSTRUCTION BID SUPPORT (PHASE IV) 26

ARTICLE AV • CONSTRUCTION SUPPORT (PHASE V) 26

A. CONSTRUCTION SUPPORT AND AS-BUILT PLANS 26
B. ENVIRONMENTAL MITIGATION MONITORING 26
C. BIOLOGICAL CONSTRUCTION MITIGATION MEASURES. 27

AMENDMENT 1 • APPENDIX A1 • PS&E AND CONSTRUCTION SUPPORT SCOPE OF SERVICES

ARTICLE AI • INTRODUCTION

A. DESCRIPTION

The County of Riverside proposes a grade separation of Avenue 66 over the Union Pacific Railroad (UPRR) near the community of Mecca. On July 12, 2011 the County of Riverside Transportation Department (COUNTY) entered into an Engineering and Environmental Services Agreement with Dokken Engineering (ENGINEER) to provide Final Alignment Studies and to prepare Project Approval/Environmental Documents for the proposed grade separation. ENGINEER is substantially complete with the Final Alignment Studies and is expected to complete the Project Approval/Environmental Documents within the next 3 to 4 months. COUNTY now desires to amendment the existing agreement to include additional scope and budget to allow ENGINEER to prepare Plan, Specification and Estimate documents required to bid a construction contract for the desired improvements.

B. LOCATION

The location of the proposed improvements is generally consistent with the location as described in the original agreement. The specific location is expected be dependent on the selected alternative derived for the Final Alignment Studies.

C. COORDINATION

ENGINEER shall coordinate continue to coordinate with other agencies as per the terms of the original agreement.

D. PHASES

The original agreement identifies the services that constitute the first two phases as shown below:

- Phase I – Final Alignment Studies
- Phase II – Project Approval/Environmental Document

Services performed by ENGINEER under this Amendment 1 shall be accomplished in the following phases:

- Phase III – Plans, Specifications & Estimates for the proposed project alternative
- Phase IV – Construction Bid Support
- Phase V – Construction Support

Phase III shall proceed upon written notice to proceed by COUNTY. The subsequent phases shall not proceed until authorized in writing by COUNTY.

E. STANDARDS

The Plans, Specifications and Estimates shall be prepared in accordance with current CALTRANS regulations, policies, procedures, manuals and standards including compliance with Federal Highway Administration (FHWA) requirements and/or COUNTY Road Standards as appropriate. Improvements of local roads may be prepared in accordance with COUNTY standards in lieu of CALTRANS standards as directed by the COUNTY PROJECT MANAGER. ENGINEER will prepare fact sheets for COUNTY approval, documenting the exceptions to mandatory and advisory design standards. All documents shall be prepared using English Standard Units and dimensions.

1. Environmental

The standards for environmental activities are not changed and remain per the terms of the original agreement.

2. Survey

Supplemental surveys shall be performed by the ENGINEER in accordance with the current Department of Transportation (Caltrans) "Survey Manual" and its revisions. Work not covered by the manual shall be performed in accordance with accepted professional surveying standards as approved by Caltrans.

3. Design

Roadway design shall be in accordance with the current CALTRANS Highway Design Manual and its revisions and/or COUNTY Road Standards as appropriate. Traffic design shall be in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) and the California Supplement. Basic design shall be in accordance with the approved Technical Report and final Environmental Document including any supplements and/or updates. Microstation (compatible with current Caltrans version) software will be used as the design software.

4. Project Files

Project files shall be indexed in accordance with CALTRANS Project Development Uniform File System.

F. KEY PERSONNEL

The ENGINEER has represented to the COUNTY that certain key personnel will perform the services and if one or more of such personnel should become unavailable, ENGINEER may substitute other personnel of at least equal competence only after prior written approval by the COUNTY PROJECT MANAGER has been secured. The key personnel for performance of this PROJECT are as identified in the Agreement and is

modified by this Amendment 1 to include the following:

Assignment	Key Personnel
Principal in Charge	Richard Liptak, PE
Project Manager	Juann Ramos, PE
Roadway Engineer	Kris Kofoed, PE
Structures Engineer	Marty Maechler, PE
Senior Environmental Planner	Namat Hosseinion
QA/QC Engineer	Elizabeth Diamond, PE

G. COUNTY RESPONSIBILITIES

The following includes tasks to be completed by the COUNTY:

- Provide all current COUNTY standards, existing plans, and manuals when requested by ENGINEER and available to COUNTY personnel.
- COUNTY will provide Survey and Land Acquisition Services generally as described below:
  - Provide survey controls and coordinate with ENGINEER's surveyor for supplemental surveys.
  - Verify that COUNTY survey control points are still in place and undisturbed.
  - Provide survey records research, including grant deeds and right of way documents in support of Right of Way base mapping prepared by COUNTY surveyor.
  - Prepare existing right of way and parcel mapping.
  - Coordinate Permits for Right of Entry with property owners.
  - Obtain and review Title Reports, identify easements and encumbrances.
  - Prepare appraisals for temporary and permanent right of way and perform appraisal review.
  - Perform right of way negotiations and acquisitions.
  - Certify new acquired right of way.

ARTICLE AII • PROJECT ADMINISTRATION (PHASES III, IV & V)

A. PROJECT MANAGEMENT

This task includes the day-to-day management of the work performed under this Amendment 1 and is a continuation of the management actives performed under the Agreement. PDT meetings with the COUNTY PROJECT MANAGER, the California Department of Transportation staff and other representatives from

affected agencies will continue to be held as appropriate. The design team leaders and/or subconsultants will attend PDT meetings as appropriate. The ENGINEER shall prepare meeting notes for each meeting and have these available for review at least one week prior to each succeeding meeting.

The ENGINEER's Project Management Plan will include a communication plan. The communication plan will consist of a roster of staff involved in the PROJECT and multiple forms of contact for each team member (address, telephone number, e-mail, etc.). The communication plan will also identify lines of communication with levels of responsibility/authority for development of the PROJECT.

B. COST ACCOUNTING/PROGRESS REPORTS

The ENGINEER will prepare budgets for each task and milestone. Such budgets will be entered in to the ENGINEER's Management Information System along with actual costs incurred and used as a basis for cost monitoring and control. ENGINEER will continue to prepare monthly reports of expenditures and progress reports consistent with the terms of the Agreement.

C. SCHEDULING

Within one month from the Notice to Proceed (NTP) of this Amendment 1, the ENGINEER will provide a detailed project schedule, which indicates milestones, major activities and deliverables, to the COUNTY for review and comments. This schedule will reflect assumed review times necessary by all of the agencies involved. Review of the schedule will occur at subsequent trend meetings. Adjustments will be made, if necessary, due to changing circumstances.

ARTICLE AIII • PLANS, SPECIFICATIONS AND ESTIMATES TASK LIST (PHASE III)

ENGINEER shall provide Plans, Specifications and Estimates for the PROJECT. The following task list is consistent with the project schedule.

T1 PROJECT MANAGEMENT

Project Management shall be conducted to ensure a smooth flow of information between Project Development Team (PDT) members. A project schedule shall be developed and periodically updated. A comprehensive Quality Assurance/Quality Control (QA/QC) plan shall be implemented. Monthly PDT Meetings shall be held.

1.1 PROJECT COORDINATION AND PROJECT TEAM MEETINGS

Project Development Team

A Project Development Team (PDT), for the Plans, Specifications, and Estimates Phase, including

representatives from the COUNTY, the Community of Mecca, UPRR, Caltrans Local Assistance, and other relevant agencies will be established within fifteen days after Notice to Proceed (NTP). A kick off meeting with the PDT will be held as soon as possible after NTP. PDT meetings with the COUNTY PROJECT MANAGER and other representatives from affected agencies will be held at least once a month. ENGINEER shall prepare minutes for each meeting and distribute the minutes to all attendees and other interested parties.

Kick-off Meeting

This meeting is intended to:

- Clearly defining work tasks to be accomplished.
- Finalizing the project schedule including critical milestones, and deliverables.
- Identifying and discussing existing project constraints and concerns.

1.2 QUALITY ASSURANCE / QUALITY CONTROL (QA/QC)

ENGINEER shall have a quality control plan in effect during the entire course of the project. ENGINEER shall develop a plan establishing a process to ensure design calculations are independently checked. Exhibits and plans shall also be checked, corrected and back-checked for accuracy and completeness. ENGINEER shall review Sub-consultant report submittals to ensure that appropriate background information, study methodology, interpretation of data, format and content are completed in accordance with current standards.

1.3 PERMITS

ENGINEER shall prepare all necessary encroachment permits and rights of entry for other than property owners (i.e. Caltrans, utility companies, UPRR, etc.) needed for Phase III activities, if any. COUNTY will obtain right of entry for affected property owners agreements. Permits needed for other design work will also be obtained by the ENGINEER during the appropriate time, such as utility potholing, geotechnical drilling permits and constructions permits needed for work to be completed during Phase V.

Deliverable: *ENGINEER shall prepare meeting notices, agendas and minutes, schedules, monthly progress reports and invoices, public meeting materials, and maintain project files. ENGINEER shall obtain permits and right-of-entry. Although fees for encroachment permits to access Caltrans or UPRR r/w to obtain information are included, fees for construction permits are not included.*

T2 UPRR & PUC APPLICATION AND AGREEMENT COORDINATION & LIAISON SERVICES

2.1 UPRR COORDINATION AND RIGHT OF ENTRY (BORINGS & SURVEYS)

ENGINEER will coordinate with the UPRR on issues related to the proposed project and impacts to the UPRR property. It is anticipated that the following agreements will be required from the UPRR for the project:

- Easement for the proposed bridge
- Temporary construction licenses for project construction
- Temporary rail crossing agreements for construction access ("Private Crossing Agreements")
- A Construction and Maintenance Agreement (C&M Agreement) for project construction and ongoing bridge maintenance
- Rights of entry for field visits, utility potholing, soil borings, surveying, and other design activities.
- Utilities within the bridge

ENGINEER will develop the necessary exhibits and attachments to obtain approval from the UPRR for all of the above agreements.

Key project submittals to address railroad issues include:

- Proposed bridge type
- Permanent and temporary vertical and horizontal clearances for project improvements above or adjacent to existing UPRR tracks
- Permanent and/or temporary drainage facilities required on UPRR property
- Construction specifications including UPRR specific requirements for insurance/indemnity/ flagging
- The location of any temporary railroad crossings required
- Relocation of utilities

ENGINEER will provide a 65% bridge plans for the proposed alternative including plans and site pictures for UPRR review and feedback. The bridge plans will include the Plan, Elevation and Typical Section of the proposed grade separation with structure clearances to railroad dimensioned, photo log with pictures of the proposed project location and site pictures in all controlling directions including, but not limited to North, East, South and West. The plan view will show a reference location and direction

for each picture.

ENGINEER will prepare exhibits for project meetings and coordination. These exhibits will include roadway striping, drainage concepts, railroad features, utilities, and structure limits. The exhibits are intended to show design information on an easy to read and discuss format for use in meetings.

This task also includes the cost of up to five days of UPRR flagging services to allow survey, geotechnical, and potholing work in the railroad right-of way.

Deliverable: *Proposed Alternative Alignment Exhibits*

2.2 UPRR CONCURRENCE LETTER

ENGINEER will obtain a UPRR concurrence upon selection of the proposed alignment to be the basis for the bridge type selection and 65% design. Once the bridge design advances to the 90% level, a formal concurrence letter to use in the PUC application will be obtained.

Deliverable: *UPRR Concurrence Letter*

2.3 PUC APPLICATION FOR NEW CROSSING

ENGINEER will prepare and process a Grade Separation Permit application from the CPUC. The application will be signed by the COUNTY and must include written concurrence by the UPRR.

Deliverable: *CPUC Grade Separation Permit*

2.4 UPRR AGREEMENTS

ENGINEER will process agreements as required to accomplish construction and the entitlement of the bridge. COUNTY will negotiate with assistance from ENGINEER to acquire permanent entitlement rights (easement and C&M agreements) and construction access rights for the Project (temporary construction license(s), Private Crossing agreements and/or Rights of Entry) from the UPRR Railway. Appraisals that may be required by UPRR for the easement are to be provided by the COUNTY as provided for in Article A-I.G

Deliverable: *Private Crossing Agreement, Construction and Maintenance (C&M) Agreement, Right of Way Agreement/Permits, Temporary Construction Licenses, and Easement Documents.*

T3 SURVEYING/RIGHT OF WAY ENGINEERING

3.1 COORDINATION WITH COUNTY/CALTRANS/UPRR RAILWAY

Prior to field survey work, ENGINEER will verify survey controls and right of way base mapping.

ENGINEER will obtain encroachment permits from Caltrans and UPRR Railway and provide training for survey work within UPRR property.

3.2 SUPPLEMENTAL FIELD SURVEY

ENGINEER will perform field surveys for design and conforms every 50 foot cross sections at the intersections of Avenue 66/Home, Avenue 66/Lincoln Street, and Avenue 66/SR 195. ENGINEER will obtain field shots every 100 feet to 200 feet along the centerline of the project alignment. ENGINEER will perform cross section for Lincoln Channel for new channel crossings. Additional field shots will be obtained along SR 111, UPRR Railway tracks, and Hammond Road including existing features such as culverts, utilities, etc. Field survey work includes traffic control for SR 195, SR 111, Hammond Road, Lincoln Avenue and Avenue 66. Field survey crews will locate potholed utilities by coordinates and elevations that may be in conflict with project features.

Deliverable: *Microstation DGN files of survey points, ASCII file of survey points, and survey field notes with additional point description text.*

3.3 PROPERTY OWNER EXHIBITS

After reconciliation of the right of way base map by County surveyor, ENGINEER will determine permanent right-of-way and temporary construction easement requirements for each parcel. These needs will be depicted on individual parcel exhibits. These exhibits will include an aerial photograph of the parcel, with the County boundary survey information, owner, APN, address, parcel size and take area all shown. The exhibits will be used by ENGINEER and COUNTY staff during the appraisal and acquisition discussions with the property owner. ENGINEER will prepare permanent and temporary right of way base mapping for preparation of plats and legals.

Deliverable: *Property Owner Exhibits & Right of Way Mapping*

3.4 PLATS AND LEGAL EXHIBITS

ENGINEER will prepare ten (10) right of way, ten (10) temporary construction easement, eight (8) slope easement, and one (1) roadway easement over the railroad track plats and legal exhibits.

Deliverable: *Plats and legal exhibits for right of way, temporary construction easements, slope easements, and roadway easement over the railroad tracks.*

3.5 RFA DOCUMENTATION AND APPROVALS

Construction funding for the project may include Federal or State funds that require the completion of a

Request for Authorization (RFA) package to obligate the funds. In the event such funds are obtained, COUNTY will prepare the necessary forms with assistance from ENGINEER and requests to Caltrans Local Assistance.

Deliverable: *RFA Approval Forms*

T4 UTILITY COORDINATION

ENGINEER will extend the utility research conducted during the PA/ED Phase for all utilities within the project limits to identify, locate, and accurately layout the underground improvements. ENGINEER will coordinate with utility owners, COUNTY and CALTRANS staff with respect to all utility related matters. ENGINEER will implement utility coordination and relocation in accordance with CALTRANS Right of Way Manual Chapter 13 and necessary COUNTY procedures. ENGINEER will prepare Utility Plan sheets at a scale of 1"=40', depicting all known existing utility facilities from record research and field verification. Dimensions are to be shown in English units.

ENGINEER will provide additional notifications letters to the utilities and/or call utilities, as necessary, until a written response is received from the utility. ENGINEER will prepare letters for COUNTY signature as required. ENGINEER will prepare and send correspondence under ENGINEER's signature when feasible and appropriate. ENGINEER is responsible to complete and mail the documents, and provide the COUNTY with a copy.

ENGINEER will coordinate inclusion of special provisions in COUNTY's bid documents for adjustment and relocations of utility facilities as alternate bid items, if requested by the owning utility. Said work may require utility agreements be prepared between the COUNTY and owning utility companies. ENGINEER will prepare agreements and shall provide information and exhibits as required to support the preparation of utility agreements, if needed.

4.1 UTILITY BASE MAP

ENGINEER will expand the Utility Base Map from the As-builts received from the "A" Letters previously obtained during the PA/ED Phase. ENGINEER will obtain record copies of utility maps from each utility owner within the project limits for existing and/or proposed utility facilities. The Utility Base Map will be used throughout the design development process and will be updated upon obtaining field potholing information.

Deliverable: *Utility Base Map*

4.2 UTILITY POTHOLING

ENGINEER will perform "potholing" of utilities that may be in conflict with the proposed project improvements. ENGINEER will coordinate the use of field survey crews to locate potholed utilities by coordinates and elevations that may be in conflict with bridge abutments, drainage facilities, bridge foundations, and signal and light pole foundations based on the project's survey controls. Subsequently, potholing information will be included on the design plans.

Deliverable: *Potholing Exhibit and Report*

4.3 UTILITY SUBMITTALS

ENGINEER will send the plans of the 65% submittal showing the existing utility location information to the utility companies for their review and comment, including request for all property rights information. This will provide notice to the utility companies of the approved project and will facilitate continued coordination. ENGINEER will include mapping and/or exhibits that clearly define the project limits as part of the requests for utility information. All utilities in conflict with the approved alignment will be highlighted with possible options for relocation. ENGINEER will provide written responses to utility companies with regard to stated concerns and conduct design coordination meetings as needed to mitigate conflicts. ENGINEER will prepare "Report of Investigations" for all utilities within the project footprint. For utility conflicts that require relocating, the ENGINEER will prepare "Notice to Owners" and if required "Utility Agreements".

ENGINEER will schedule meetings with the utility companies to discuss relocation or protection in place of the impacted utilities. ENGINEER will schedule site meetings with affected utility companies to resolve relocations and/or necessary protections during construction. It will further be clarified if relocations will be constructed by the project Contractor or by utility forces. ENGINEER will coordinate and communicate with respect to utility facilities that are to be installed within the planned bridge structure including preparation of agreements as required. ENGINEER will coordinate and communicate with respect to utility facilities that are to be installed prior to or concurrent with COUNTY's construction project, including preparation of agreements as required.

ENGINEER will check horizontal and vertical clearances for utilities and coordinate design with the various utility companies to address conflicts.

ENGINEER will coordinate with Imperial Irrigation District to arrange for new electrical service points to

supply service to proposed signalized intersections, street lights along proposed project, and soffit bridge lighting at the proposed Overhead.

Deliverable: *Utility Letters, Report of Investigations, Notice of Owners, Utility Agreements*

T5 GEOTECHNICAL DESIGN REPORT

Geotechnical work will include conducting a field investigation, performing laboratory tests, and conducting analyses to develop geotechnical parameters and recommendations for the design and construction of proposed structures, roadway embankment, and pavement structural sections.

5.1 GEOTECHNICAL FIELD INVESTIGATIONS

ENGINEER will review existing soil investigation data, published geologic maps, and other literature pertaining to the site, such as U.S. Geological Survey records, to aid in evaluating geologic conditions.

The geotechnical field investigation plan to be performed by ENGINEER is presented in Table 1 below. Borings will be excavated using a truck-mounted drill rig equipped with 8-inch diameter hollow-stem augers. Large bulk samples will be collected for the near-surface soil. Relatively undisturbed and disturbed samples will be collected at approximately 5-foot intervals. The California sampler will be used alternating with the Standard Penetration Test (SPT) sampler.

TABLE 1. PROPOSED SOIL BORING INFORMATION

Design Element	Number of Borings/CPTs and Approximate Depth
Overhead	2 abutment borings: 80 feet each 4 bent borings: 100 feet
Slab Bridges at Lincoln Canal	4 borings:70 feet each
Roadway Pavement	10 borings: 5 feet or Grab sample each
Roadway Embankments	2 borings: 60 feet each

Note: Some of the above borings are used for more than one Design Element.

The borehole locations will be shown on a Boring Location Plan. This plan will be used to secure encroachment permits from property owners, Caltrans, COUNTY, Community of Mecca, and UPRR. Underground Service Alert will be contacted to delineate public utilities and easements within the sites prior to performing drilling operations. The boring locations will be surveyed by ENGINEER to confirm horizontal coordinates and ground surface elevation.

Spoils generated from the boring excavations will be mixed with cement and water, and used to backfill the boreholes; spoils will not be stored in drums, tested for contaminants, or disposed of off-site by

ENGINEER. Asphalt concrete cold-patch will be used to replace asphalt that is removed by excavations, and quick-set cement will be used to replace concrete that is removed by excavations.

ENGINEER field personnel will collect soil samples for laboratory testing, including bulk samples of near-surface soils and small disturbed and relatively undisturbed ring samples of deeper soils. The small disturbed and relatively undisturbed soil samples will be collected using split-spoon samplers at a vertical interval of about 5 feet, alternating between the Standard Penetration Test (SPT) sampler and the Modified California Drive (MCD) sampler. Samples of subsurface soils will be logged during the field investigation, secured in their containers or collected in plastic bags, and transported to the ENGINEER laboratory. Depth to ground water, if any, will be noted.

Travel lane or shoulder closures may be required to accomplish the field investigation. Traffic control will be established in accordance with COUNTY, Caltrans, or Community of Mecca requirements, or the W.A.T.C.H. Manual. Flagmen services will likely be required during drilling of borings within the UPRR right-of-way.

5.2 LABORATORY TESTING

ENGINEER will select representative soil samples for laboratory testing. Various laboratory tests will be performed to determine or derive physical and engineering characteristics of soils. Anticipated laboratory soil tests include: grain size distribution, direct shear, consolidation/collapse potential, R-value, Atterberg Limits, Unconsolidated-Undrained (UU) Triaxial, maximum density and optimum moisture content, and soil corrosion tests. Tests will be conducted in general accordance with California Test methods or ASTM standards.

5.3 GEOTECHNICAL ENGINEERING ANALYSIS

Results obtained from the field investigation and laboratory testing, as well as previously performed geotechnical borings drilled at the site, will be used to characterize subsurface soils and conditions and create idealized profiles for design purposes. In coordination with the roadway and structure design, such as obtaining foundation locations and loads furnished by the structure design engineer, the ENGINEER will perform the following analyses for the project:

- Evaluation of seismicity, estimation of Peak Bedrock Acceleration based on the Caltrans design criteria, recommendations of an ARS curve for the bridge structural design and evaluation of seismic induced soil liquefaction potential.

- Foundation analysis for proposed structures (overhead and slab bridges).
- Assessment of global stability and settlement of roadway embankments.
- Evaluation of soil corrosivity conditions and recommendations for mitigation measures.
- Pavement structural section design in accordance with the Caltrans method.

5.4 GEOTECHNICAL REPORTS

5.4.1 Preliminary Foundation Report

The Preliminary Foundation Report (PFR) will be developed at an early stage in the project by the ENGINEER to provide general description of the site geology, including anticipate soil types, foundation types, and site seismicity for the structures design, based on the pre-field investigation and prior to field exploration. The PFR is used to support the structure type selection and structure general plan development. The PFR will be prepared in general accordance with the Caltrans Guidelines for Structure Foundation Report dated December 2009.

Deliverable: *Preliminary Foundation Report*

5.4.2 Foundation Report

A Foundation Report will be developed by the ENGINEER for the railroad overhead and for the two slab bridges at the Lincoln Canal following completion of the geotechnical field investigation and laboratory testing. The report will include descriptions of subsurface soil conditions, geological conditions, boring logs, site seismicity, geotechnical analysis, and recommendations for structure foundations, including spread footing and/or pile foundation data tables and soil springs for use in structure analysis. The Foundation Report will be prepared in general accordance with the Caltrans Guidelines for Structure Foundation Report dated December 2009.

A Preliminary Foundation Report will be submitted with the 65% structure design submittal and a Final Foundation Report will be submitted with the 95% structure design submittal.

Deliverable: *Preliminary and Final Foundation Report*

5.4.3 Geotechnical Design Report

ENGINEER will prepare a Geotechnical Design Report for design and construction of embankments, and shall present the data obtained during field exploration and laboratory testing. The Geotechnical Design Report will summarize design parameters for roadway embankments.

Deliverable: *Draft and Final Geotechnical Design Report*

5.4.4 Roadway Materials Report

ENGINEER will prepare a Roadway Materials Report that will provide the recommended pavement structural section design based on traffic indices and results of the R-value test.

ENGINEER will obtain the necessary encroachment permits from the COUNTY and Caltrans to allow the placement of exploratory borings on necessary roads. Several exploratory borings along the alignment will be obtained in order to characterize existing soil and pavement conditions and to sample the underlying soil for sand equivalent, sieve analysis and R-value testing. Samples of probable pavement subgrade soils will be obtained along with existing pavement information on Avenue 66 and SR-195.

Deliverable: *Draft and Final Roadway Materials Report*

T6 HYDRAULICS

6.1 STORM WATER DATA REPORT (SWDR)

ENGINEER will develop a PS&E level SWDR in accordance with Caltrans Project Planning and Design Guide and Storm Water Management Plan. The document will build upon the Storm Water Data Report prepared by ENGINEER during the Project Approval/Environmental Document (PA/ED) phase of the project. ENGINEER will identify potential storm water quality impacts and develop options to avoid, reduce or minimize the potential for storm water quality impacts. ENGINEER will ensure that the project includes sufficient right-of-way and budget for required storm water controls and identify project-specific permanent and temporary Best Management Practices (BMPs) that may be required to mitigate impacts. Drainage areas and total disturbed area shall be defined, as shall climatic conditions, existing drainage site conditions, site permeability, soil texture, existing vegetation and groundwater. The SWDR is anticipated to include the following:

Evaluation Documentation Form – ENGINEER will determine hydraulic conditions, disturbed soil areas, local pollution control requirements and total maximum daily loads (TMDLs) within the project vicinity.

Site Data and Storm Water Quality Design Issues – ENGINEER will define site data and storm water quality design issues in accordance with checklists SW-1, SW-2 and SW-3 from the Caltrans Project Planning and Design Guide:

- Receiving water bodies/303(d) list/Pollutants of Concern

- Regional Water Quality Control Board (RWQCB) special requirements/concerns
- Local agency requirements/concerns
- Project design considerations (climate, soil, topography, geology, groundwater, right of way requirements, slope stabilization)
- Right of way BMP costs and funding
- Measures for avoiding or reducing potential storm water impacts

Design Pollution Prevention BMPs – ENGINEER will describe proposed design pollution prevention BMPs to be used on the project in accordance with checklists DPP-1, Parts 1-5:

- Downstream effects related to potentially increased flow
- Slope/Surface protection systems
- Concentrated flow conveyance systems
- Preservation of existing vegetation

Permanent Treatment BMPs– ENGINEER will describe proposed permanent treatment BMPs to be used on the project in accordance with checklists T-1, Parts 1-7:

- Biofiltration Swales/Strips
- Dry weather diversion
- Infiltration basins
- Detention basins
- Gross solids removal devices
- Traction sand traps
- Media filters
- Multi-chamber treatment train
- Wet basins

Construction Cost Information – ENGINEER will prepare a summary of construction costs included in the Preliminary Construction Cost Estimate Summary associated with storm water pollution prevention.

Deliverable: *Draft and Final SWDR*

6.2 DRAINAGE REPORT

ENGINEER will update and expand upon the Preliminary Hydrology and Drainage Report that was prepared during the Project Approval/Environmental Document (PA/ED) phase of the project.

ENGINEER has previously determined the existing drainage patterns and storm drain facilities in the project area, including existing channels/ditches, pipe/culvert locations, sizes, local rainfall intensities, and flows. This information will be used for on- and off-site hydrologic analyses of the existing and post-project condition, emphasizing the objective of maintaining existing flow patterns and runoff amounts.

The on-site analyses will include identifying where new facilities are needed, developing drainage boundaries for the areas within the project limits, developing flows for each facility based on Rational Method calculations, and laying out the new/retrofitted storm drain facilities. The off-site analyses involve obtaining flows for the water courses draining toward and/or through the project area from outside the project limits and designing new or upgraded facilities for these flows. If flows are not readily available for these water courses and the contributing watersheds exceed 0.5 square miles, ENGINEER will approximate the off-site flows based on the conveyance of facilities immediately up- or downstream. For off-site watersheds less than 0.5 square miles in area, drainage boundaries will be developed and flows calculated based on the Rational Method where appropriate.

A draft Drainage Report will be prepared to document the hydrologic and hydraulic analysis and will provide a detailed discussion of the following: existing conditions and facilities in the project area, the on- and off-site hydrologic analyses, existing and post-project drainage patterns, conditions and any issues of special concern or significance, results of the on- and off-site hydraulic analyses and any issues of special concern or significance. The draft report will be submitted to the COUNTY for review at the 65% milestone and will be finalized upon completion of the 100% PS&E.

Deliverable: *Draft and Final Drainage Report*

6.3 HYDRAULIC DESIGN REPORT

The proposed project includes two structures crossing the Lincoln Canal. For both proposed structures ENGINEER will conduct a detailed hydraulic analysis to evaluate the freeboard, overtopping, and stage increases using the 50-, 100- and 200-year frequencies as required by the various agencies with jurisdiction in this project area (Riverside County, and Riverside County Flood Control and Water Conservation District). ENGINEER will use the preliminary results of this analysis to optimize the selected structure design such that upstream and downstream impacts are reduced and/or eliminated as needed to satisfy Federal, State, and local requirements.

A scour analysis will be performed that will consider abutment and contraction scour. The potential for

aggradation or degradation will also be evaluated based on a review of any recent survey data together with historic data collected from USGS quadrangles.

Based on the results of the hydraulic and scour analyses, ENGINEER will prepare a Draft Hydraulic Design Report to satisfy State and local criteria. The report will be submitted to the COUNTY for one round of comments. Comments on the draft report will be addressed and the Hydraulic Design Report will be updated and finalized.

Deliverable: *Draft and Final Hydraulic Design Report*

6.4 NPDES GENERAL CONSTRUCTION PERMIT

ENGINEER's Qualified Stormwater Developer (QSD) will prepare the Notice of Intent (NOI) as well as the Storm Water Pollution Prevention Plan (SWPPP) and, at the COUNTY's discretion, upload these documents to the SMARTS system. Preparation of the NOI will include calculating the total disturbed and percent impervious area of the project site, preparing the required map attachments, and completing the NOI application. All permit fees will be paid directly by COUNTY.

Preparation of the SWPPP will involve the following tasks:

- Developing a detailed project information exhibit;
- Determining the risk level classification of the project;
- Identifying the sources that could add pollutants to storm water discharges or could result in non-storm water discharges;
- Selecting risk level appropriate Best Management Practices (BMPs) that will control each of the identified pollutants;
- Identifying the required construction site monitoring efforts and, dependent on risk level, preparing a monitoring and sampling exhibit;
- Integrating appropriate post-construction storm water BMPs;
- Developing a maintenance, inspection and repair program.

A draft SWPPP will be provided to the COUNTY for review and comment. Upon receipt of comments, ENGINEER will make the necessary modifications to the SWPPP and prepare a final SWPPP for use in obtaining the NPDES permit. ENGINEER will provide QSD services through the issuance of the Waste Discharge Identification Number.

Deliverable: *NOI/SWPPP*

T7 65% SUBMITTAL

7.1 65% ROADWAY PLANS

Roadway, Construction Details, Erosion Control, Grading Plans, Drainage Plans, Stage Construction Plans, Signing and Striping Plans

ENGINEER will prepare the plans for the roadway improvements, which will follow the 35% roadway plans prepared during the PA/ED Phase. The 65% plans will be submitted for review by the COUNTY and Caltrans. The 65% submittal will include construction details, erosion control, grading plans, drainage plans, utilities, stage construction plans, signing and striping plans, and electrical plans.

Deliverable: *65% Roadway including Title Sheet/Typical Sections/Plans/Profile/Superelevation/ Construction Details/Erosion Control/Grading Plans/Drainage Plans/Utilities/Stage Construction Plans/ Signing and Striping Plans /Structure Plans*

Utility Plans

ENGINEER will prepare 65% utility plans. The plans will include the following:

- Identify utility companies affected by the project and delineate utilities within the project's sphere of influence on the plans.
- Include all existing utilities (above ground and below ground) identified by location, size, type and owner.
- Known utility conflicts with construction notes indicating action to be taken and by whom.
- Inventory numbers of poles, vaults and other surface facilities.

In addition to information provided by the owning utility companies and through research of other record maps, field surveys shall be used to locate utility features such as manholes, valves, fire hydrants, poles, risers, etc., which will be reflected on the plans.

Deliverable: *65% Utility Plans*

Signals and Lighting Plans

ENGINEER will prepare the 65% traffic signal and lighting plans. The plans will include the following:

- Construction of three new traffic signals at 1) the new intersection of SR-195/Avenue 66; 2) the new intersection of the new roadway and Lincoln Street; and 3) the intersection of Home Avenue/Avenue 66.
- Provided intersection and bridge lighting for the proposed project between SR-195 and Home

Avenue

- Soffit lighting for the new roadway Overhead of the UPRR railroad
- Electrical design to show preferred service location
- Application to electric purveyor for electric service point(s), including any and all electricity use calculations information
- Obtain service address for appropriate municipality
- Application to electric purveyor for electric service, including coordination with account holder for signatures, payments of fees, etc.

The traffic signal, intersection and bridge lighting will be designed to current COUNTY and CA MUTCD standards. This will include any ADA considerations. Bridge soffit lighting will be designed and analyzed per UPRR standards. All new electrical service points will be coordinated with Imperial Irrigation District.

Deliverable: *65% Signal and Lighting Plans/Details*

Intersection Control Evaluation (ICE)

ENGINEER, will perform intersection control evaluation to comply with Caltrans new ICE policy to evaluate alternatives for intersection configuration including stop control, signal, and a roundabout for the intersection of SR-195 and Avenue 66.

Deliverable: *ICE Decision Matrix*

7.2 65% STRUCTURE PLANS

ENGINEER will use the conceptual bridge type and span configuration previously approved by COUNTY and UPRR during the PA/ED Phase. ENGINEER will develop a General Plan for the proposed bridge. The Bridge General Plan for the proposed alternative will be prepared showing the plan, profile and typical section views. Denoted on these views will be the lanes, shoulders, sidewalks, utility locations, horizontal and vertical permanent clearances, falsework opening sizes, abutment heights, barrier types, lighting, aesthetic treatments, and slope protections.

This task includes the structure design and the preparation of plans, specifications and quantities for the new roadway Overhead, Lincoln Channel Bridge at new roadway and Lincoln Avenue Bridge at Private Road.

The 65% bridge plans comprise all anticipated plan sheets and details for the unchecked bridge design.

The bridge design will follow UPRR and Caltrans structure design procedures, specifications, manuals and standards including following publications: BNSF Railway – UP Railroad Guidelines for Railroad Grade Separation Projects, AREMA Manual for Railway Engineering, AASHTO LRFD Bridge Design Specifications 2007 Edition with California Amendments, Caltrans Memo to Designers, Caltrans Bridge Design Aids, Caltrans Seismic Design Criteria (Version 1.7) and Caltrans Bridge Design Details manual. The design of the foundations for each structure will be coordinated between the bridge design engineer and the geotechnical engineer.

The plans will be prepared for use with Caltrans Standard Plans and Specifications dated 2010. The structure plans will be prepared in English Units, using Microstation software.

ENGINEER will prepare the bridge design, detailing all elements of the bridge and completing the full design with a set of stamped calculations prepared by a Registered Civil Engineer.

The overhead structure will be submitted to the COUNTY, Caltrans and UPRR. The channel bridges will be submitted to the COUNTY only.

Deliverable: *65% Draft Structure Plans/ Structure Pay Item List*

Overhead Bridge Type Selection

The Type Selection Package will follow the format provided in Caltrans Memo to Designers and include a memorandum with discussions of the following: bridge types considered, site geometric and hydraulic constraints, life cycle costs of considered alternatives, environmental impacts, community concerns, construction duration, UPRR clearance requirements and any maintenance requirements. Specific bridge treatment ideas will be discussed in the memo including abutment, barrier, approach walls, bridge lighting, and any unique sidewalk scoring pattern. Included with the Package submittal will be the memorandum, the bridge General Plan, the Bridge Foundation Plan, the Preliminary Foundation Report, and Drainage Report.

A meeting to confirm the selected bridge type and functional/aesthetic features will be scheduled at the COUNTY or at Caltrans to conclude the type selected bridge prior to the start of detailed design. Any changes to the Bridge Type Selection Memo will be recorded in the meeting minutes. ENGINEER will initiate a request through the COUNTY for a type selection meeting with Caltrans Office of Special Funded Projects.

The Bridge Type Selection Memo will be submitted to UPRR and concurrence from UPRR on structure

clearances will be obtained before proceeding with bridge design beyond General Plan development.

Deliverable: *Bridge Type Selection Package, including Bridge General Plan, Bridge Draft Foundation Plan, Bridge General Plan Estimate, Bridge Preliminary Foundation Report*

Lincoln Channel Bridge General Plans

ENGINEER will prepare general plans for the slab bridges over the Lincoln Channel showing the alignment, dimensions, grading, stream channelization and scour protection.

Deliverable: *Lincoln Channel General Plans*

7.3 65% QUANTITIES AND ESTIMATE

ENGINEER will prepare detailed quantity calculations from the 65% roadway and structure plans. The quantities will be based on estimated calculations, using a contingency of 20%. Unit prices will be estimated from Caltrans cost data, other ENGINEER projects recently advertised and other COUNTY or regional project bid results.

Deliverable: *65% Quantities and Estimates*

T8 ENVIRONMENTAL PERMITTING

Following the approval of the Environmental Document and based on the results of the Biological Report, ENGINEER will prepare applications and conduct coordination to obtain the following regulatory permits:

8.1 SECTION 1602 STREAMBED ALTERATION

ENGINEER shall coordinate with the Department of Fish and Wildlife to obtain a Section 1602 Streambed Alteration Agreement. Alterations to the Lincoln Street Storm Water Channel will require notification of proposed streambed alterations. ENGINEER shall delineate boundaries of CDFW jurisdiction, assess project impacts, and prepare a Notification of Streambed Alteration, and enter into a Streambed Alteration Agreement with CDFW.

Deliverable: *Obtain Section 1602 permit*

8.2 SECTION 404 CLEAN WATER ACT

ENGINEER will submit the permit application along with all necessary engineering and environmental support information so that the Army Corps of Engineers may authorize use of the Section 404 Nationwide 14 Permit.

Deliverable: *Obtain Section 404 permit*

8.3 SECTION 401 CLEAN WATER ACT

ENGINEER shall prepare an application for Water Quality Certification that will include a project location map and design plans. A 401 Water Quality Certification shall be filed through the Regional Water Quality Control Board in accordance with Sections 3830 through 3869 of Title 23 of the California Code of Regulations.

Deliverable: *Obtain Section 401 permit*

8.4 ENVIRONMENTAL MITIGATION

8.4.1 Paleontological Monitoring

ENGINEER will coordinate paleontological monitoring of geotechnical borings in compliance with mitigation indicated in the NEPA and CEQA environmental documents. The approved Paleontological Mitigation Plan will be implemented to include a weekly email summary submitted to the Caltrans Task Manager/Paleontology Coordinator and a Final Report will be provided upon completion of the monitoring effort.

Deliverable: *Final Report of Paleontological Monitoring*

8.4.2 Compensatory Mitigation Coordination

ENGINEER will coordinate with the COUNTY to facilitate the compensatory mitigation fee payment with Coachella Valley Association of Governments (CVAG) for compliance with the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP). To facilitate the process, the ENGINEER shall contact with CVAG and provide exhibits, GIS files of the impact areas, and copies of the Natural Environment Study as necessary. Payment of mitigation fee is not included.

Deliverable: *Obtain compensatory mitigation confirmation.*

T9 95% SUBMITTAL

9.1 95% ROADWAY PLANS

Roadway, Construction Details, Erosion Control, Grading Plans, Drainage Plans, Utilities, Stage Construction Plans, Signing and Striping Plans, Electrical Plans

Upon receipt of comments on the 65% submittal, ENGINEER will prepare a written response to each comment from the COUNTY. Resolution of any difficult comments will be facilitated in a meeting with the COUNTY.

ENGINEER will update the 65% plans and prepare the 95% plan submittal.

Deliverable: *95% Roadway including Title Sheet/Typical Sections/Plans/Profile/Superelevation/ Construction Details/Erosion Control/Grading Plans/Drainage Plans/Utilities/Stage Construction Plans/ Signing and Striping Plans /Electrical Plans/Responses to Comments*

9.2 95% STRUCTURE PLANS

ENGINEER will complete the independent design check for each of the bridges to be performed by a registered civil engineer completely independent from the designer. The design checker will prepare a complete set of design check calculations to verify the capacity of all substructure and superstructure elements. All structure plan details will be reviewed by the check engineer for completeness and accuracy.

ENGINEER will address any comments from the COUNTY, Caltrans and UPRR 65% review. The designer will also address ENGINEER Quality Control Review comments as well as coordination input from roadway design, electrical design, drainage design and the utility coordinator. The designer and checker will meet to resolve any discrepancies noted in the design and the structure plans will be updated accordingly.

In addition to submitting to the COUNTY, the overhead structure will be submitted to Caltrans and UPRR.

Deliverable: *95% Checked Structure Plans/Structure Design Calculations/Structure Design Check Calculations/ Final Foundation Report/Responses to Comments*

9.3 95% QUANTITIES AND ESTIMATE

ENGINEER will prepare detailed quantity calculations from the 95% plans. The detailed item list will be updated for any new items added between the 65% and 95% design. The quantities will now be based on detailed calculations, allowing the contingency to be reduced to 15%. Quantities will be calculated using the roadway design software and checked using hand calculations and the design plans. Unit prices will be estimated from Caltrans cost data, other ENGINEER projects recently advertised and other County or regional project bid results.

Deliverable: *95% Checked Quantities and Estimates*

9.4 95% DRAFT SPECIAL PROVISIONS

Project Special Provisions will be based upon the Caltrans 2010 Standard Specifications and Standard

Special Provisions. ENGINEER will prepare a full set of special provisions for the project in Microsoft Word for the 95% submittal, gathering all necessary input from each design discipline.

ENGINEER will make recommendations for special provisions language with regard to utility issues, recommendations for construction windows of time for utility relocation activities, recommendations for inclusion of utility bid items, etc.

ENGINEER will work with COUNTY staff to make edits to the as necessary and to make the project requirements clear.

Deliverable: *95% Draft Special Provisions/Responses to Comments*

T10 100% SUBMITTAL

10.1 100% ROADWAY PLANS (INCLUDING CROSS SECTIONS)

ENGINEER will prepare 100% Roadway Design plans based on comments received from the COUNTY on the 95% plans. The plans will be checked for accuracy and completeness, and will incorporate any changes to the other roadway plans that may have been updated or modified.

Cross sections will be generated along the alignment at a minimum of 50 ft intervals. Additional cross sections will be generated at points such as the following: begin/end of tapers and unique features.

Deliverable: *100% Roadway including Title Sheet/Typical Sections/Plans/Profile/Superelevation/ Construction Details/Erosion Control/Grading Plans/Drainage Plans/Utilities/Stage Construction Plans/ Signing and Striping Plans /Electrical Plans/Cross-Sections/ Responses to Comments*

10.2 100% STRUCTURE PLANS

ENGINEER will prepare the 100% submittal and coordinate all last comments from the COUNTY or other agency to obtain approval. ENGINEER will provide final plans to the COUNTY and Caltrans.

Deliverable: *100% Structure Plans/Supplemental Structure Design and Check Calculations/ Responses to Comments*

10.3 100% QUANTITIES AND ESTIMATE

ENGINEER will update the quantities from the 95% submittal. Quantities will be updated in the calculations, the estimate and on the quantity plan sheets for any changes made between the 95% and Final Submittals.

The Engineer's Estimate will be updated for current and projected unit prices at the time of bidding.

Deliverable: *100% Quantities and Estimate/Responses to Comments*

10.4 100% SPECIAL PROVISIONS

ENGINEER will review the COUNTY comments on the draft special provisions and meet with the COUNTY to discuss any revisions that could have a major impact on construction. The draft special provisions will be updated and revised as many times as necessary to obtain COUNTY approval. The special provisions will be prepared and stamped and by a licensed Civil Engineer in the State of California. ENGINEER will respond to each comment made by the COUNTY with a written response explaining how the comment was addressed.

Deliverable: *100% Special Provisions/Responses to Comments*

T11 FINAL APPROVED SUBMITTAL

11.1 100% SUBMITTAL

Final Roadway Design

ENGINEER will prepare Final Roadway Design plans based on comments received from the COUNTY on the 100% plans. The plans will be checked for accuracy and completeness, and will incorporate any changes to the other roadway plans that may have been updated or modified.

Upon approval, ENGINEER will provide signed plans to be incorporated into the bid package.

Deliverable: *Final Roadway Design/Roadway Cross Sections /Responses to Comments*

Final Structure Design

ENGINEER will prepare the Final Structure Design plans based on comments received from the COUNTY on the 100% plans. The plans will be checked for accuracy and completeness, and will incorporate any changes to the other structure plans that may have been updated or modified. Upon approval, ENGINEER will provide signed plans to be incorporated into the bid package.

Deliverable: *Final Structure Plans/ Responses to Comments*

Final Quantities and Estimate

ENGINEER will update the quantities from the 100% submittal. Quantities will be updated in the calculations, the estimate and on the quantity plan sheets for any changes made between the 100% and Final Submittals.

Deliverable: *Final Bid Item List with Quantities/Final Engineer's Estimate/Responses to Comments*

Final Special Provisions

ENGINEER will prepare the final special provisions and meet with the COUNTY to discuss any revisions that could have a major impact on construction. Upon approval, ENGINEER will provide signed special provisions to be incorporated into the bid package

Deliverable: *Final Signed Special Provisions/Responses to Comments*

ARTICLE AIV • CONSTRUCTION BID SUPPORT (PHASE IV)

Contract Award, Contract Analysis, and Construction Bidding Support. In the event that clarification is needed during the bid phase, ENGINEER will be available to provide a written response. Corrective action taken will be in the form of an addendum prepared by ENGINEER and issue by the COUNTY or by a covering change order after the award of the construction contract.

ARTICLE AV • CONSTRUCTION SUPPORT (PHASE V)

A. CONSTRUCTION SUPPORT AND AS-BUILT PLANS

ENGINEER will attend the pre-construction meeting with the successful construction contractor. During construction, ENGINEER will furnish all necessary additional drawings as required and will review shop drawings submitted by the construction contractor. ENGINEER will be available to visit the job site for on-site review of construction and other visits to the job site as requested to resolve any discrepancies in the contract documents. ENGINEER will prepare and deliver to the COUNTY "As-Built" plans at the completion of project construction. The plans will be delivered in Microstation format and/or mylar hard copies as desired by the COUNTY within three months of completion of the project.

B. ENVIRONMENTAL MITIGATION MONITORING

ENGINEER shall provide environmental support during construction of the project. The ENGINEER shall oversee implementation of the construction mitigation measures cited in the NEPA and CEQA environmental documents and permits. Environmental staff shall provide documentation of the mitigation efforts through completion of an Environmental Commitments Record/Mitigation Monitoring and Reporting Program matrix and site visits during pre-construction, the beginning of construction, and towards the completion of construction.

Deliverable: *Environmental Commitments Record/Mitigation Monitoring and Reporting Program matrix for the project files.*

C. BIOLOGICAL CONSTRUCTION MITIGATION MEASURES.

ENGINEER shall provide a qualified biologist to provide the following services in compliance with the NEPA and CEQA environmental documents:

- Oversee the placement of Environmentally Sensitive Area fencing or staking to avoid impacts to the Lincoln Street Stormwater Channel, mesquite, and active nest sites, if found;
- Conduct pre-construction burrowing owl and nesting bird surveys consistent with the 2012 California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation;
- Conduct clearance surveys for Crissal thrasher and Le Conte's thrasher and applicable Covered Species within the Conservation Area.

Deliverable: *ENGINEER shall provide a final report documenting results of the pre-construction and clearance surveys.*

AMENDMENT 1 • APPENDIX B1 • SCHEDULE OF SERVICES

ARTICLE BI • INTRODUCTION

The Engineer shall perform the covenants set forth in Appendix A and Appendix A1 in accordance with the performance requirements of Article V of the original agreement. All Covenants set forth in the Agreement and this Amendment 1 shall be completed by June 30, 2020, unless extended by supplemental agreement.

A. PHASES

The Services to be provided are divided into the following 5 phases:

1. Alignment Studies
2. Project Approval & Environmental Documentation (PA/ED)
3. Plans, Specifications and Estimates (PS&E)
4. Bid Support
5. Construction Support

AMENDMENT 1 • APPENDIX C1 • PS&E AND CONSTRUCTION SUPPORT
FEE PROPOSAL WORKSHEETS

Avenue 66 Grade Separation in Mecca, CA Fee Proposal Summary March 19, 2014

COMPANIES		PHASE III	PHASE IV	PHASE V	TOTAL
Dokken Engineering Prime		$ 1,378,723.16	$ 36,022.35	$ 137,056.39	**$ 1,551,801.90**
Earth Mechanics Inc. Geotech		$ 172,946.01			**$ 172,946.01**
MSA Consulting, Inc. Survey		$ 78,145.15			**$ 78,145.15**
TOTAL		**$ 1,629,814.32**	**$ 36,022.35**	**$ 137,056.39**	**$ 1,802,893.06**

Phase III **Plans, Specs & Estimates**
Phase IV **Bid Support**
Phase V **Construction Support**

FEE PROPOSAL WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Project Summary	All Phases
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

DIRECT LABOR

PERSONNEL	POSITION	HOURS		RATE	AMOUNT
Rick Liptak	Principal In Charge	60	@	$100.00	$6,000.00
Juann Ramos	Project Manager	1,200	@	$70.00	$84,000.00
Liz Diamond	QA/QC	80	@	$75.00	$6,000.00
Kris Kofoed	Project Engineer-Roadway	2,277	@	$42.00	$95,634.00
Martin Maechler	Project Engineer-Structures	998	@	$65.00	$64,870.00
Staff	Senior Engineer	482	@	$65.00	$31,330.00
Namat Hosseinion	Senior Environ Planner	86	@	$63.00	$5,418.00
Staff	Associate Engineer	1,588	@	$44.00	$69,872.00
Staff	Assistant Engineer	3,132	@	$28.00	$87,696.00
Staff	Assoc. Env. Planner	226	@	$42.00	$9,492.00
Staff	Env. Planner/Biologist	200	@	$30.00	$6,000.00
Staff	SR CAD/Detailer	760	@	$50.50	$38,380.00
Staff	Engineering Technician	220	@	$22.00	$4,840.00
		TOTAL HOURS	11,309	TOTAL DIRECT LABOR	$509,532.00

MULTIPLIERS

ESCALATION @		(Rates Vary by Phase)	
OVERHEAD @	97.28%	(of Direct Labor + Escalation)	$495,672.73
PAYROLL ADDITIVES @	66.92%	(of Direct Labor + Escalation)	$340,978.81
PROFIT (FIXED FEE) @	10.0%	(of Direct Labor + Escalation + Overhead + Payroll Additives)	$134,618.35
		TOTAL MULTIPLIERS	$971,269.90

OTHER DIRECT COSTS

••• Billed at Actual Cost •••

ITEM	QUANTITY	UNIT		UNIT COST	AMOUNT
Paleontology Monitoring	1	LS	@	$35,000.00	$35,000.00
Utility Potholing	1	LS	@	$20,000.00	$20,000.00
Roundabout Design Check	1	LS	@	$6,000.00	$6,000.00
UPRR Flagging	1	LS	@	$10,000.00	$10,000.00
				TOTAL ODC'S	$71,000.00

SUB CONSULTANT SERVICES

COMPANY	LABOR	MULTIPLIERS	ODC's	TOTAL
Earth Mechanics Inc.	$43,931.50	$87,714.51	$41,300.00	$172,946.01
MSA Consulting, Inc.	$25,519.40	$51,957.50	$668.25	$78,145.15
			TOTAL SUBCONSULTANT SERVICES	$251,091.16

TOTAL $1,802,893.06

FEE PROPOSAL WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	**Plans, Specs & Estimates**	**Phase III**
PROJECT:		DATE:
Avenue 66 Grade Separation in Mecca, CA		**March 19, 2014**

DIRECT LABOR

PERSONNEL	POSITION	HOURS		RATE	AMOUNT
Rick Liptak	Principal In Charge	40	@	$100.00	$4,000.00
Juann Ramos	Project Manager	1,050	@	$70.00	$73,500.00
Liz Diamond	QA/QC	80	@	$75.00	$6,000.00
Kris Kofoed	Project Engineer-Roadway	2,057	@	$42.00	$86,394.00
Martin Maechler	Project Engineer-Structures	778	@	$65.00	$50,570.00
Staff	Senior Engineer	458	@	$65.00	$29,770.00
Namat Hosseinion	Senior Environ Planner	56	@	$63.00	$3,528.00
Staff	Associate Engineer	1,588	@	$44.00	$69,872.00
Staff	Assistant Engineer	2,932	@	$28.00	$82,096.00
Staff	Assoc. Env. Planner	176	@	$42.00	$7,392.00
Staff	Env. Planner/Biologist	80	@	$30.00	$2,400.00
Staff	SR CAD/Detailer	630	@	$50.50	$31,815.00
Staff	Engineering Technician	120	@	$22.00	$2,640.00
		TOTAL HOURS	**10,045**	TOTAL DIRECT LABOR	**$449,977.00**

MULTIPLIERS

ESCALATION @		(of Direct Labor)	
OVERHEAD @	97.28%	(of Direct Labor + Escalation)	$437,737.63
PAYROLL ADDITIVES @	66.92%	(of Direct Labor + Escalation)	$301,124.61
PROFIT (FIXED FEE) @	10.0%	(of Direct Labor + Escalation + Overhead + Payroll Additives)	$118,883.92
		TOTAL MULTIPLIERS	**$857,746.16**

OTHER DIRECT COSTS

••• Billed at Actual Cost •••

ITEM	QUANTITY	UNIT		UNIT COST	AMOUNT
Paleontology Monitoring	1	LS	@	$35,000.00	$35,000.00
Utility Potholing	1	LS	@	$20,000.00	$20,000.00
Roundabout Design Check	1	LS	@	$6,000.00	$6,000.00
UPRR Flagging	1	LS	@	$10,000.00	$10,000.00
			TOTAL ODC'S		**$71,000.00**

SUB CONSULTANT SERVICES

COMPANY	LABOR	MULTIPLIERS	ODC's	TOTAL
Earth Mechanics Inc.	$43,931.50	$87,714.51	$41,300.00	$172,946.01
MSA Consulting, Inc.	$25,519.40	$51,957.50	$668.25	$78,145.15
			TOTAL SUBCONSULTANT SERVICES	**$251,091.16**

TOTAL **$1,629,814.32**

FEE PROPOSAL WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Bid Support	Phase IV
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

DIRECT LABOR

PERSONNEL	POSITION	HOURS		RATE	AMOUNT
Rick Liptak	Principal In Charge	8	@	$100.00	$800.00
Juann Ramos	Project Manager	30	@	$70.00	$2,100.00
Liz Diamond	QA/QC			$75.00	
Kris Kofoed	Project Engineer-Roadway	60	@	$42.00	$2,520.00
Martin Maechler	Project Engineer-Structures	60	@	$65.00	$3,900.00
Staff	Senior Engineer	24	@	$65.00	$1,560.00
Namat Hosseinion	Senior Environ Planner			$63.00	
Staff	Associate Engineer			$44.00	
Staff	Assistant Engineer			$28.00	
Staff	Assoc. Env. Planner			$42.00	
Staff	Env. Planner/Biologist			$30.00	
Staff	SR CAD/Detailer	30	@	$50.50	$1,515.00
Staff	Engineering Technician			$22.00	
		TOTAL HOURS	212	TOTAL DIRECT LABOR	**$12,395.00**

MULTIPLIERS

ESCALATION @		(of Direct Labor)	
OVERHEAD @	97.28%	(of Direct Labor + Escalation)	$12,057.86
PAYROLL ADDITIVES @	66.92%	(of Direct Labor + Escalation)	$8,294.73
PROFIT (FIXED FEE) @	10.0%	(of Direct Labor + Escalation + Overhead + Payroll Additives)	$3,274.76
		TOTAL MULTIPLIERS	**$23,627.35**

OTHER DIRECT COSTS

••• Billed at Actual Cost •••

ITEM	QUANTITY	UNIT	UNIT COST	AMOUNT
Paleontology Monitoring		LS	$35,000.00	
Utility Potholing		LS	$20,000.00	
Roundabout Design Check		LS	$6,000.00	
UPRR Flagging		LS	$10,000.00	
			TOTAL ODC'S	

SUB CONSULTANT SERVICES

COMPANY	LABOR	MULTIPLIERS	ODC's	TOTAL
Earth Mechanics Inc.				
MSA Consulting, Inc.				
			TOTAL SUBCONSULTANT SERVICES	

TOTAL **$36,022.35**

FEE PROPOSAL WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Construction Support	Phase V
PROJECT:		DATE:
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

DIRECT LABOR

PERSONNEL	POSITION	HOURS		RATE	AMOUNT
Rick Liptak	Principal In Charge	12	@	$100.00	$1,200.00
Juann Ramos	Project Manager	120	@	$70.00	$8,400.00
Liz Diamond	QA/QC			$75.00	
Kris Kofoed	Project Engineer-Roadway	160	@	$42.00	$6,720.00
Martin Maechler	Project Engineer-Structures	160	@	$65.00	$10,400.00
Staff	Senior Engineer			$65.00	
Namat Hosseinion	Senior Environ Planner	30	@	$63.00	$1,890.00
Staff	Associate Engineer			$44.00	
Staff	Assistant Engineer	200	@	$28.00	$5,600.00
Staff	Assoc. Env. Planner	50	@	$42.00	$2,100.00
Staff	Env. Planner/Biologist	120	@	$30.00	$3,600.00
Staff	SR CAD/Detailer	100	@	$50.50	$5,050.00
Staff	Engineering Technician	100	@	$22.00	$2,200.00
	TOTAL HOURS	1,052		TOTAL DIRECT LABOR	$47,160.00

MULTIPLIERS

ESCALATION @		(of Direct Labor)	
OVERHEAD @	97.28%	(of Direct Labor + Escalation)	$45,877.25
PAYROLL ADDITIVES @	66.92%	(of Direct Labor + Escalation)	$31,559.47
PROFIT (FIXED FEE) @	10.0%	(of Direct Labor + Escalation + Overhead + Payroll Additives)	$12,459.67
		TOTAL MULTIPLIERS	$89,896.39

OTHER DIRECT COSTS

••• Billed at Actual Cost •••

ITEM	QUANTITY	UNIT	UNIT COST	AMOUNT
Paleontology Monitoring		LS	$35,000.00	
Utility Potholing		LS	$20,000.00	
Roundabout Design Check		LS	$6,000.00	
UPRR Flagging		LS	$10,000.00	
			TOTAL ODC'S	

SUB CONSULTANT SERVICES

COMPANY	LABOR	MULTIPLIERS	ODC's	TOTAL
Earth Mechanics Inc.				
MSA Consulting, Inc.				
			TOTAL SUBCONSULTANT SERVICES	

TOTAL **$137,056.39**

MANHOUR WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Manhour Summary	All Phases
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

TASK	PRINCIPAL IN CHARGE	PROJECT MANAGER	QA/QC	PROJECT ENGINEER-ROADWAY	PROJECT ENGINEER-STRUCTURES	SENIOR ENGINEER	SENIOR ENVIRON PLANNER	ASSOCIATE ENGINEER	ASSISTANT ENGINEER	ASSOC. ENV. PLANNER	ENV. PLANNER/BIOLOGIST	SR CAD/DETAILER	ENGINEERING TECHNICIAN	HOURS	(Top & Bottom) HOURS
	$290.62	$203.43	$217.97	$122.06	$188.90	$188.90	$183.09	$127.87	$81.37	$122.06	$87.19	$146.76	$63.94		
PHASE TOTALS	**60**	**1,200**	**80**	**2,277**	**998**	**482**	**86**	**1,588**	**3,132**	**226**	**200**	**760**	**220**	**11,309**	**11,309**
PHASE III	40	1,050	80	2,057	778	458	56	1,588	2,932	176	80	630	120	10,045	10,045
PHASE IV	8	30		60	60	24						30		212	212
PHASE V	12	120		160	160		30		200	50	120	100	100	1,052	1,052

TASK														HOURS
PHASE TOTALS														
PHASE III														
PHASE IV														
PHASE V														

MANHOUR WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Plans, Specs & Estimates	Phase III
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

TASK	PRINCIPAL IN CHARGE	PROJECT MANAGER	QA/QC	PROJECT ENGINEER-ROADWAY	PROJECT ENGINEER-STRUCTURES	SENIOR ENGINEER	SENIOR ENVIRON PLANNER	ASSOCIATE ENGINEER	ASSISTANT ENGINEER	ASSOC. ENV. PLANNER	ENV. PLANNER/BIOLOGIST	SR CAD/DETAILER	ENGINEERING TECHNICIAN	HOURS	COST
	$290.62	$203.43	$217.97	$122.06	$188.90	$186.90	$183.09	$127.87	$81.37	$122.06	$87.19	$146.76	$63.94		
Total Manhours	40	1,050	80	2,057	778	458	56	1,588	2,932	176	80	630	120	10,045	
T1 PROJECT MANAGEMENT															
1.1 Project Coordination and Project Team Meetings	40	360		120										520	$ 99,508
1.2 QA/QC			80					80						160	$ 27,667
1.3 Permits		60		60					80					200	$ 26,040
T2 UPRR & PUC COORDINATION AND LIAISON															
2.1 Union Pacific Railroad Coordination and ROE		40		120										160	$ 22,785
2.2 UPRR Concurrence Letter		24		60										84	$ 12,206
2.3 PUC Application for New Crossing		16		80										96	$ 13,020
2.4 UPRR Agreements		40		60										100	$ 15,461
T3 SURVEYING/RIGHT OF WAY ENGINEERING															
3.1 Coordination with County/CT/UPRR		4		8										12	$ 1,790
3.2 Supplemental Field Survey		4		8										12	$ 1,790
3.3 Property Owner Exhibits		16		120					200					336	$ 34,177
3.4 Plats and Legal Exhibits		8		8										16	$ 2,604
3.5 RFA Document and Approvals		16		48					40					104	$ 12,369
T4 UTILITY COORDINATION															
4.1 Utility Base Map		4		40					120					164	$ 15,461
4.2 Utility Potholing		16		80					180					276	$ 27,667
4.3 Utility B &C Letters, Notice of Conflicts		16		120					120					256	$ 27,667
T5 GEOTECHNICAL DESIGN REPORT															
5.1 Geotechnical Field Investigation		16		8										24	$ 4,231
5.2 Laboratory Testing															
5.3 Geotechnical Engineering Analysis															
5.4 Geotechnical Reports		40		36	40	16								132	$ 23,110
T6 HYDRAULICS															
6.1 Storm Water Data Report (SWDR)		2		12		12		40	80					146	$ 15,763
6.2 Drainage Report		4		24		12		80	160					280	$ 29,260
6.3 Hydraulic Design Report		4		15		24		80	160					283	$ 30,428
6.4 NPDES General Construction Permit				8		16		16	16					56	$ 7,347
T7 65% SUBMITTAL															
7.1 65% Roadway Plans		80		320		200		120	680					1,400	$ 163,793
7.2 65% Structure Plans		8		48	420	80		400	200			450	120	1,726	$ 243,077

MANHOUR WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Plans, Specs & Estimates	Phase III
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

TASK	PRINCIPAL IN CHARGE	PROJECT MANAGER	QA/QC	PROJECT ENGINEER-ROADWAY	PROJECT ENGINEER-STRUCTURES	SENIOR ENGINEER	SENIOR ENVIRON PLANNER	ASSOCIATE ENGINEER	ASSISTANT ENGINEER	ASSOC. ENV. PLANNER	ENV. PLANNER/BIOLOGIST	SR CAD/DETAILER	ENGINEERING TECHNICIAN	HOURS	COST
7.3 65% Quantities and Estimates		8		32	32	4		100	120			60			356	$ 43,692
T 8 ENVIRONMENTAL PERMITTING																
8.1 Section 1602 Streambed Alteration		8		8			8			24	36				84	$ 10,137
8.2 Section 404 Clean Water Act		8		8			8			24	36				84	$ 10,137
8.3 Section 401 Clean Water Act		8		8			4			48	8				76	$ 9,893
8.4 Environmental Mitigation		8		16			36			80					140	$ 19,937
T9 95% SUBMITTAL																
9.1 95% Roadway Plans		80		280		8		180	340						888	$ 102,647
9.2 95% Structure Plans		24			100	24		80	48			80			356	$ 54,183
9.3 95% Quantities and Estimates		16		24	20			24	48						132	$ 16,937
9.4 95% Draft Special Provisions		16		24	20	6		200							266	$ 36,670
T10 100% DESIGN SUBMITTAL																
10.1 100% Roadway Plans		40		160		12		24	210						446	$ 50,091
10.2 100% Structure Plans		8			60	16		16	24			40			164	$ 25,854
10.3 100% Quantities and Estimates		8		8	6			8	16						46	$ 6,062
10.4 100% Special Provisions		16		6	20	4		60							106	$ 16,193
T11 FINAL APPROVED SUBMITTAL																
11.1 100% Submittal		24		80	60	24		80	90						358	$ 48,069

MANHOUR WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Bid Support	Phase IV
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

TASK	PRINCIPAL IN CHARGE	PROJECT MANAGER	QA/QC	PROJECT ENGINEER-ROADWAY	PROJECT ENGINEER-STRUCTURES	SENIOR ENGINEER	SENIOR ENVIRON PLANNER	ASSOCIATE ENGINEER	ASSISTANT ENGINEER	ASSOC. ENV. PLANNER	ENV. PLANNER/BIOLOGIST	SR CAD/DETAILER	ENGINEERING TECHNICIAN	HOURS	COST
	$290.62	$203.43	$217.97	$122.06	$188.90	$188.90	$183.09	$127.87	$81.37	$122.06	$87.19	$146.76	$83.94		
Total Manhours	8	30		60	60	24						30		212	
CONSTRUCTION BID SUPPORT															
Construction Bid Support	8	30		60	60	24						30		212	$ 36,022

MANHOUR WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Dokken Engineering	Construction Support	Phase V
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 19, 2014

TASK	PRINCIPAL IN CHARGE	PROJECT MANAGER	QA/QC	PROJECT ENGINEER-ROADWAY	PROJECT ENGINEER-STRUCTURES	SENIOR ENGINEER	SENIOR ENVIRON PLANNER	ASSOCIATE ENGINEER	ASSISTANT ENGINEER	ASSOC. ENV. PLANNER	ENV. PLANNER/BIOLOGIST	SR CAD/DETAILER	ENGINEERING TECHNICIAN		HOURS	COST
	$290.62	$203.43	$217.97	$122.06	$188.90	$188.90	$183.09	$127.87	$81.37	$122.06	$87.19	$146.76	$63.94			
Total Manhours	12	120		160	160		30		200	50	120	100	100		1,052	
CONSTRUCTION SUPPORT																
Construction Support	12	120		160	160		30		200	50	120	100	100		1,052	$ 137,056

SUBCONSULTANT FEE PROPOSAL WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Earth Mechanics Inc.	**Geotech**	**Phase III**
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		**March 20, 2014**

DIRECT LABOR

PERSONNEL	POSITION	HOURS		RATE	AMOUNT
Lino Cheang	Project Manager	164	@	$76.50	$12,546.00
Wendy Drummond	Principal Engineer	148	@	$64.25	$9,509.00
Raja Sivasubramaniam	Senior Geologist	60	@	$54.00	$3,240.00
Reynold Jie	Project Engineer	388	@	$38.00	$14,744.00
Jianmin Fang	Senior Technician	90	@	$32.00	$2,880.00
Jianmin Fang	Staff Engineer	30	@	$33.75	$1,012.50
	TOTAL HOURS	**880**		TOTAL DIRECT LABOR	**$43,931.50**

MULTIPLIERS

ESCALATION @		(of Direct Labor)	
OVERHEAD @	172.42%	(of Direct Labor + Escalation)	$75,746.69
PAYROLL ADDITIVES @		(of Direct Labor + Escalation)	
PROFIT (FIXED FEE) @	10.0%	(of Direct Labor + Escalation + Overhead + Payroll Additives)	$11,967.82
		TOTAL MULTIPLIERS	**$87,714.51**

OTHER DIRECT COSTS ••• Billed at Actual Cost •••

ITEM	QUANTITY	UNIT		UNIT COST	AMOUNT
1. Drillling Rig Rental	7	Day	@	$3,000.00	$21,000.00
2. Traffic Control	2	Day	@	$900.00	$1,800.00
3- Soil Lab Tests	1	LS	@	$8,500.00	$8,500.00
4- Permit Fees	1	LS	@	$1,500.00	$1,500.00
5- Traffic Control Plans	1	LS	@	$1,000.00	$1,000.00
6- RR Protective Liability Insurance	1	LS	@	$7,500.00	$7,500.00
			TOTAL ODC'S		**$41,300.00**

TOTAL **$172,946.01**

SUBCONSULTANT MANHOUR WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
Earth Mechanics Inc.	Geotech	Phase III
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 20, 2014

TASK	PROJECT MANAGER	PRINCIPAL ENGINEER	SENIOR GEOLOGIST	PROJECT ENGINEER	SENIOR TECHNICIAN	STAFF ENGINEER								HOURS	COST
	$229.24	$192.53	$161.82	$113.87	$95.89	$101.14									
Total Manhours	**164**	**148**	**60**	**388**	**90**	**30**								**880**	
TASK 5 GEOTECHNICAL DESIGN REPORT															
5.1 Geotechnical Field Investigation	10			30	80									120	$ 13,380
5.2 Laboratory Testing	6	6		24	10									46	$ 6,222
5.3 Geotechnical Engineering Analysis	80	70	20	166										336	$ 53,956
5.4 Geotechnical Reports	34	60	20	82										196	$ 31,920
TASK 6 FOUNDATION REPORT															
6.1 Foundation Report	34	12	20	86		30								182	$ 26,168

SUBCONSULTANT FEE PROPOSAL WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
MSA Consulting, Inc.	**Survey**	**Phase III**
PROJECT:		DATE:
Avenue 66 Grade Separation in Mecca, CA		**March 20, 2014**

DIRECT LABOR

PERSONNEL	POSITION	HOURS		RATE	AMOUNT
Staff	Senior Project Manager - Survey	38	@	$47.30	$1,797.40
Staff	Office Surveyor	454	@	$33.00	$14,982.00
Staff	Two-Man Field	92	@	$95.00	$8,740.00

TOTAL HOURS **584** TOTAL DIRECT LABOR **$25,519.40**

MULTIPLIERS

ESCALATION @		(of Direct Labor)	
OVERHEAD @	150.00%	(of Direct Labor + Escalation)	$38,279.10
PAYROLL ADDITIVES @	26.00%	(of Direct Labor + Escalation)	$6,635.04
PROFIT (FIXED FEE) @	10.0%	(of Direct Labor + Escalation + Overhead + Payroll Additives)	$7,043.35

TOTAL MULTIPLIERS **$51,957.50**

OTHER DIRECT COSTS

••• Billed at Actual Cost •••

ITEM	QUANTITY	UNIT		UNIT COST	AMOUNT
Special Mailing Costs	5	Packages	@	$89.67	$448.35
Mileage	300	Miles	@	$0.56	$166.50
Photocopies	174	Sheets (8.5 X 11)	@	$0.10	$17.40
Printing	12	Sheets (24 X 36)	@	$3.00	$36.00

TOTAL ODC'S **$668.25**

TOTAL **$78,145.15**

SUBCONSULTANT MANHOUR WORKSHEET

COMPANY:	SCOPE OF WORK:	PHASE:
MSA Consulting, Inc.	Survey	Phase III
PROJECT:		**DATE:**
Avenue 66 Grade Separation in Mecca, CA		March 20, 2014

TASK	SENIOR PROJECT MANAGER - SURVEY	OFFICE SURVEYOR	TWO-MAN FIELD	HOURS	COST
	$143 60	$100 19	$268 42		
Total Manhours	**38**	**454**	**92**	**584**	
TASK 3 RIGHT OF WAY ENGINEERING					
3.1 Coordination with County/CT/UPRR	14	16	16	46	$ 8,228
3.2 Supplemental Field Survey	8	32	76	116	$ 26,275
3.3 Property Owner Exhibits					
3.4 Plats and Legal Exhibits	16	406		422	$ 42,974
3.5 RFA Documentation and Approvals					