

Exhibit B



# Preliminary Cost Estimate For the Reconstruction of

## PHILBRIC ROAD

From Betteravia Road  
To  
East Main Street



April 19, 2006



**Bengal Engineering, Inc.**

Civil, Bridge, Hydraulics, Structural & Highway Engineers

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**Preliminary Cost Estimate For the Reconstruction of PHILBRIC ROAD  
From Betteravia Road To East Main Street**

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### **Executive Summary**

The City of Santa Maria Public Works Department, Engineering Division, retained Bengal Engineering, Inc., to evaluate the cost to reconstruct Philbric Road from Betteravia Road to East Main Street

This Preliminary Cost estimate evaluates a single alternative to reconstruct the 22-foot-wide paved roadway on the existing alignment and profile.

No "improvements" are proposed as part of the project, such as turn lanes from east bound Betteravia to Northbound Philbric, intersection improvements at Philbric Road and Stowell Road or additional paved shoulder width.

### **Findings**

Bengal Engineering determined:

- 1) It is feasible to improve Philbric Road to benefit the community by providing better ride quality and lower yearly maintenance cost.
- 2) The approximate cost of the reconstruction is on the order of \$2.8 million including design, construction contract, and construction management.

This preliminary cost estimate was prepared with limited time and information.



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**Bengal's Scope of Work Included:**

- Field Review of project site.
- Review of the existing archive (County) plans.
- Conversations with County Traffic Engineering Technician, Mr. John Evans to discuss the traffic and design parameters for the project.
- Conversations with County Staff Construction Engineer (Construction Section), Mr. Cliff Replogle, PE, to discuss recent County projects in the area: costs/ methods/ history.
- Preparation of this brief memo detailing our findings—this Preliminary Cost Estimate

**Key Design Components for Alternative**

Bengal Engineering defined some of the key components defining a successful design, including:

- Reconstruct the roadway to provide adequate structural section to support the existing traffic.
- Accommodate farming activities nearby.
- Minimize project cost.



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## **Background**

Philbric Road was defined as Legislative Route Number (State Highway) Route LRN 148 in 1933.

It appears that in 1984, the previous routing of Route 176 (formerly LRN 148, from Route 101 in Santa Maria to Sisquoc), was deleted from the State highway system.

No "State" plans for the roadway were available in the Santa Barbara County Public Works archives. Time was not available to research the State archives.

We did find a scrap of information on page 10/16 from the 1956 County plans (archive 102141) for the construction of Betteravia Road which describe Philbric as a "State Route 148-B". The intersection of Betteravia and Philbric was the east terminus of the County project.

## **Traffic Data**

The county does not have Current ADT for the roadway. Mr. John Evans estimates the ADT to be about 2000, with perhaps 5% trucks, based on 1997 information.

Mr. Evans suggests a TI of 7.5 for design of the roadway.



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**Existing Roadway Configuration:**

- Philbric Road is typically about 21-22 feet-wide—made up of two 10.5 to 11-foot-wide lanes
- The existing roadway has no paved shoulders, no shoulder backing (gravel), and no bike lanes.
- There is no roadway landscaping.
- Consideration could be given to the construction of a turn lane from eastbound Betteravia to Northbound Philbric.
- Consideration could be give to improving the intersection between Stowell and Philbric (the "Y"). Cost for reconstruction this area is not included in this estimate.
- The existing CMPA pipes passing under Betteravia Road west of Philbric (see 1956 plans) were not included in this project as they are within the Betteravia corridor.
- A significant amount of mud is tracked onto the roadway. This particular year has been "wet", but has not had particularly heavy rain. Mud from the fields is expected to continue to be tracked to the roadway from the adjacent farm lands.



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### **The Reconstruction Alternative Considered**

One alternative was considered to improve Philbric Road.

With the limited information available, we propose to construct the roadway as follows:

- Pulverize the existing pavement on site (to about 0.5' deep)
- Use the grindings generated from the pulverizing operation to improve the roadway shoulders
- Construct a new roadway with "thick lift" of Asphalt concrete (alternating sides of the roadway as the structural section is constructed).

This concept will be use minimizing earthwork and cost.

The R-value of the subgrade is unknown, but it appears to be low (slits and clays).

For comparison, the 1995 Structural Section at Betteravia Road Interchange is 0.8 AC (type B) over 1.10 AB (Class 2). The 1956 plans show Betteravia road to be 0.25 AC over 0.5 AB at Philbric—a section which has been overlaid numerous times since.

The roadway profile may be raised slightly (about 0.3 feet) to minimize export and improve drainage from roadway without adversely affecting farmland along side the road.

Note that the 1956 plans describe "PCC" pavement. We did not have time to investigate for the presence of the PCC pavement, but we did dig out corners from 2 random potholes to see if we could detect the presence of PCC. We found none at those locations. More investigation is required.



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**Construction sequence will include approximately:**

- Establish traffic control: lane closure and detours.
- Provide 1 lane traffic with flaggers and perhaps pilot car May be able to use dirt shoulder with dust control.
- Pulverize half of roadway, windrow material on the shoulder of the on same side.
- Place initial lift of AC.
- Shift traffic to "other side" of the roadway.
- Repeat process for the other side of the roadway: pulverize then overlay
- Build up roadway to perhaps 0.15 below finished grade, alternating sides of roadway.
- Recut roadside ditches within right of way.
- Dress shoulders using grindings.
- Final Cap of AC.
- Place Pavement Delineation and Signing.
- 

**Proposed Roadway Improvements and Configuration**

The proposed roadway will provide a 2-lane roadway including the following features:

- Two 11-foot-wide travel lanes
- 8 to 10-foot wide shoulders (south of the Regional Landfill) capped with rolled AC grindings.

**Right-of-Way**

No right of way research was undertaken for this estimate.

**Materials Report**

No materials testing was undertaken with the limited time available for this estimate.





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### **Limitations**

- This study focuses on a project alternative that can be implemented with the limited time and information available.
- Roadway geometrics and right of way were not reviewed as part of this estimate.
- No materials testing was performed as part of this estimate.
- Bengal Engineering did not review permits, environmental studies, agreements or the work of others associated with this project.
- This study did not investigate traffic safety or accident history for the roadway.
- Widening of the roadway was not included within the scope of this project.
- No archive plans were readily available for the existing roadway.
- County Staff provided informal advice for traffic engineering for this estimate as a courtesy to the City, with limited time and information. No formal traffic study has been undertaken.

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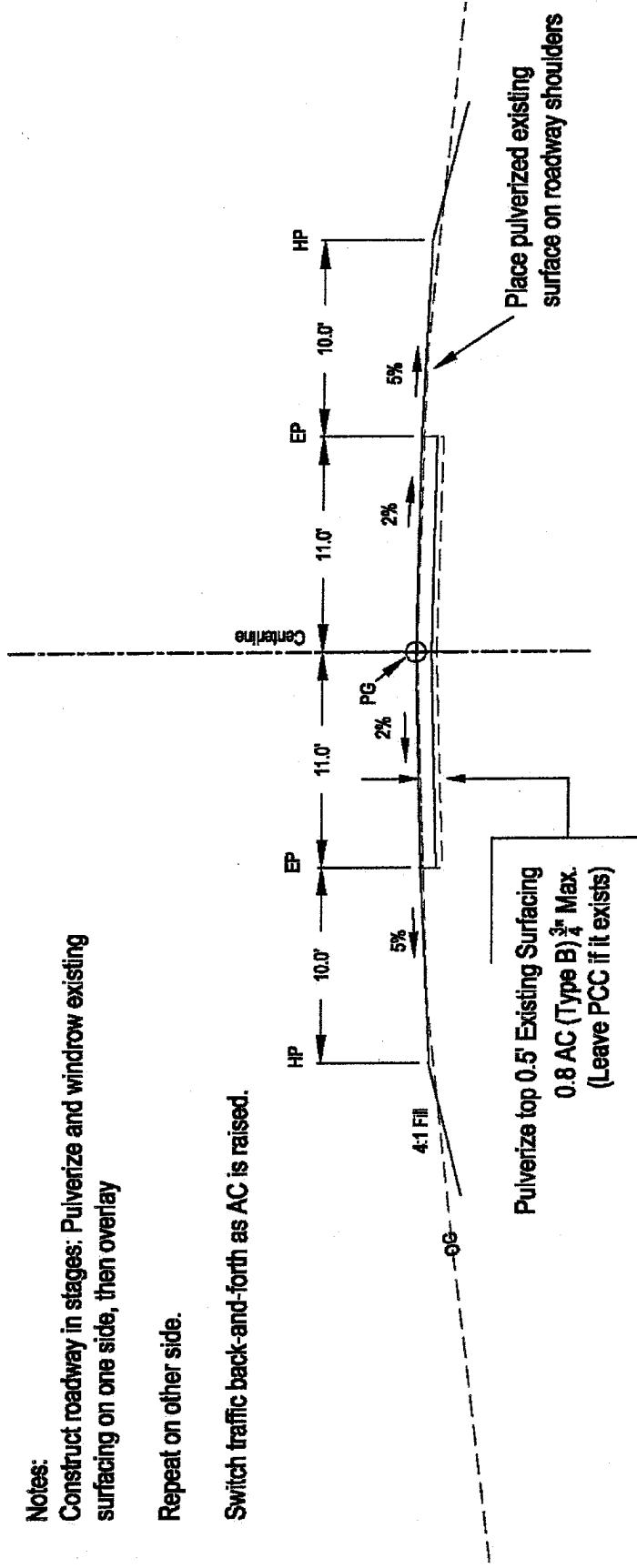
**Appendix A: Cross Section of the Proposed Improvements**

**Notes:**

Construct roadway in stages: Pulverize and windrow existing surfacing on one side, then overlay

Repeat on other side.

Switch traffic back-and-forth as AC is raised.



**TYPICAL CROSS SECTION**  
"Philbric" Line  
No Scale



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**Appendix B: Project Cost Estimate**

**Preliminary Estimate:**  
**Reconstruction of Philbric Road**  
**Form Betteravia to East Main (City Landfill)**

April 19, 2006

**Dist-County -Rte 05-SB-#**  
**PM N/A**  
**EA; tbd**

	%	Quantity	Unit	Unit rate	Cost
<b>1 Earthwork</b>					
Roadway Excavation (see "a" below):	na	0	CY	\$35	\$0
Imported Borrow	na	0	CY	\$10	\$0
Clear and Grubbing	na	LS	LS	LS	\$5,000
Pulverize Existing AC (0.5' deep; leave PCC)	na	30433	SY	\$5	\$152,167
Regrade Shoulders (Both Sides included in item)	na	124.5	STA	\$500	\$62,250
Develop Water Supply	na	LS	LS	LS	\$10,000
<b>Subtotal Earthwork</b>					<b>\$229,417</b>

a. No "Export", Subgrade materials used to raise profile of roadway slightly.

<b>2 Pavement Structural Section</b>					
PCC Pavement ( Depth)	na	0	na	\$0	\$0
PCC Pavement ( Depth)	na	0	na	\$0	\$0
Asphalt Concrete: (0.8' thick) (see "a" below)	na	15,338	TON	\$85	\$1,303,764
Lean Concrete Base	na	0	na	\$0	\$0
Cement - Treated Base	na	0	na	\$0	\$0
Aggregate Base	na	0	CY	\$10	\$0
Aggregate Subbase	na	0	CY	\$40	\$0
Pavement Reinforcing Fabric	na	0	SY	\$4	\$0
Edge Drains	na	0	na	\$0	\$0
<b>Subtotal Pavement Structural Section</b>					<b>\$1,303,764</b>

a. Asphalt prices are currently much higher than they have been in the past.

<b>3 Drainage (Modify Existing Drainage + new)</b>					
Regrade Ditches: North of Stowell		20	STA	\$1,000	\$20,000

<b>4 Specialty Items</b>					
Retaining Walls	na	0	SF	\$0	\$0
Noise Barriers	na	0	na	\$0	\$0
Curb and Gutter	na	0	LF	\$0	\$0
Sidewalk	na	0	LF	\$0	\$0
Highway Planting (budget figure--	na	LS	LS	LS	\$0
Replacement Planting	na	0	na	\$0	\$0
Irrigation System (& Modifications)	na	LS	LS	LS	\$0
Relocate Private Irrigation	na	0	na	\$0	\$0
Erosion Control (Type D)	na	LS	LS	LS	\$0
Slope Protection	na	LS	LS	LS	\$0
Water Pollution Control (see "a" below)	na	LS	LS	LS	\$20,000
Hazardous Waste Mitigation work	na	0	na	\$0	\$0
Environmental Mitigation (budget figure)	na	LS	LS	LS	\$20,000
Resident Engineers Office Space	na	0	na	\$0	\$0
<b>Subtotal Specialty Items</b>					<b>\$40,000</b>

a. Work undertaken in mid-summer to avoid muddy season

**Preliminary Estimate:**  
**Reconstruction of Philbric Road**  
**Form Betteravia to East Main (City Landfill)**

April 19, 2006

Dist-County -Rte 05-SB-#

PM N/A

EA; tbd

	%	Quantity	Unit	Unit rate	Cost
<b>5 Traffic Items</b>					
Lighting (Intersection Lighting)		0	LS	\$0	\$0
Traffic Delineation Items	na	LS	LS	LS	\$15,000
Modify Existing Traffic Signals	na	0	EA	\$0	\$0
New Traffic Signals	na	0	EA	\$0	\$0
Overhead Sign Structures	na	0	na	\$0	\$0
Roadside Signs	LS	0	LS	\$0	\$5,000
Traffic Control System	na	LS	LS	LS	\$50,000
Transportation Management Plan	na	LS	LS	LS	\$50,000
<b>Subtotal Traffic Items</b>					<b>\$120,000</b>
<b>Subtotal Items 1 through 5</b>					<b>\$1,693,181</b>
<b>6 Minor Items</b>	5%				<b>\$84,659</b>
<b>7 Roadway Mob</b>	10%				<b>\$177,784</b>
<b>8a Supplemental Work</b>	10%				<b>\$177,784</b>
<b>8b Contingency</b>	15%				<b>\$266,676</b>
<b>Subtotal - Roadway</b>					<b>\$2,400,084</b>
<b>9 Structures Items</b>					
<b>Subtotal Structures Items</b>					<b>\$0</b>
<b>Subtotal Construction</b>					<b>\$2,400,084</b>
<b>10 Utility Reloc (Budget)</b>	na	LS	LS	LS	<b>\$0</b>
(OH Lines appear out-of-way)					
Utilities in line with Proposed driveways relocated at expense of others					
<b>11 Env Mitigation (Structure)</b>	na	LS	LS	LS	<b>\$0</b>
<b>14 Right of Way</b>					
R/W Acquisition: (see "a" below)		0	Acre	\$0	\$0
Driveways and Misc.		LS	LS	LS	\$25,000
<b>Subtotal - R/W (w/out Utilities)</b>					<b>\$25,000</b>
a.) Assume new new R/W required					
<b>Total Capital-Construction Cost</b>					<b>\$2,425,084</b>
<b>Engineering Design</b>	7.5%				<b>\$181,881</b>
<b>Construction Management &amp; Oversight</b>	7.5%				<b>\$181,881</b>
<b>Total Estimated Cost (Construction + Design + Construction Management)</b>					<b>\$2,788,846</b>

Estimate Prepared by: Scott Onishuk: April 19, 2006

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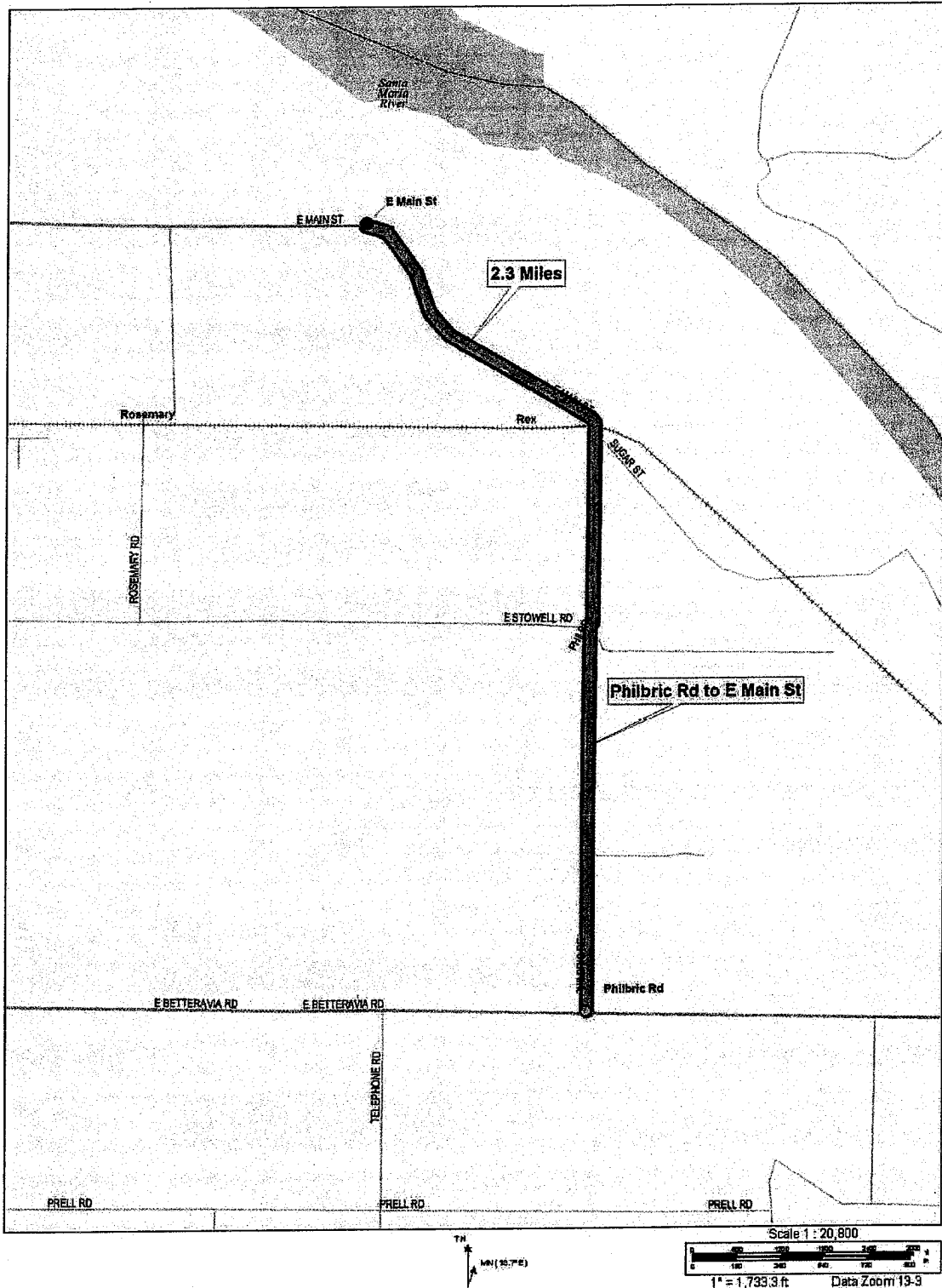
Estimate Checked by: Md. Wahiduzzaman: April 19, 2006

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**Appendix C: Project Map**





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**Appendix D: Project Photos**



Intersection of Betteravia Rd. & Philbric Rd. Note turning traffic movements.



Betteravia / Philbric: note standing water in roadside ditch.



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Looking North on Philbric from Betteravia:  
Note mud on roadways.  
Note roadside ditches for crops.



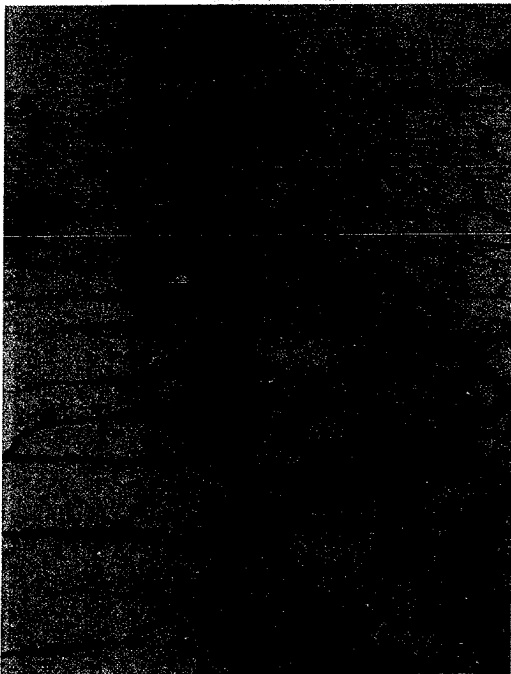


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Looking North on Philbric from about 1000' north of Betteravia..  
Note quality of pavement at photo right.



Close up view of the pavement on  
Philbric Road.



Shallow roadside ditch delivers water  
to crops, and softens roadway  
subgrade.  
Note cracks in pavement.

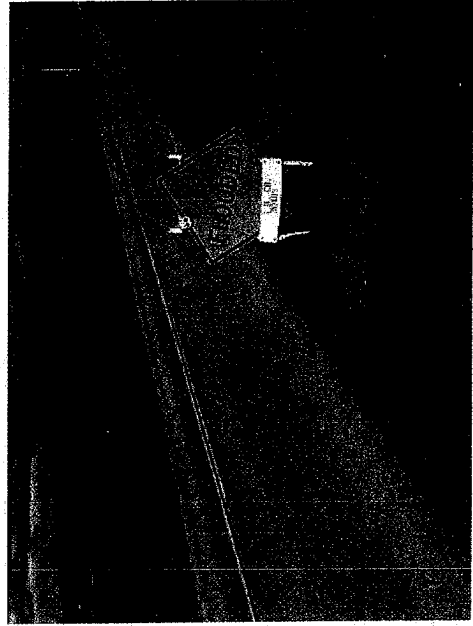


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Intersection of Philbric (photo left), and Stowell Road (photo right).  
A reservoir is behind berm supporting telephone pole at photo right.  
Note mud and standing water on roadway.

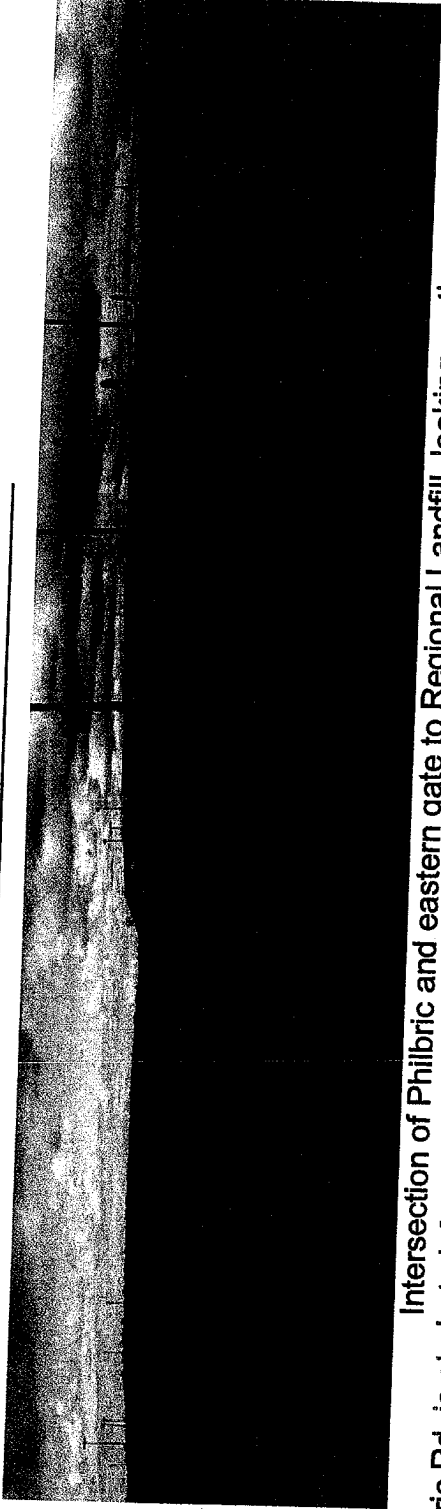


County-placed sign on Philbric Road north of Stowell Road.

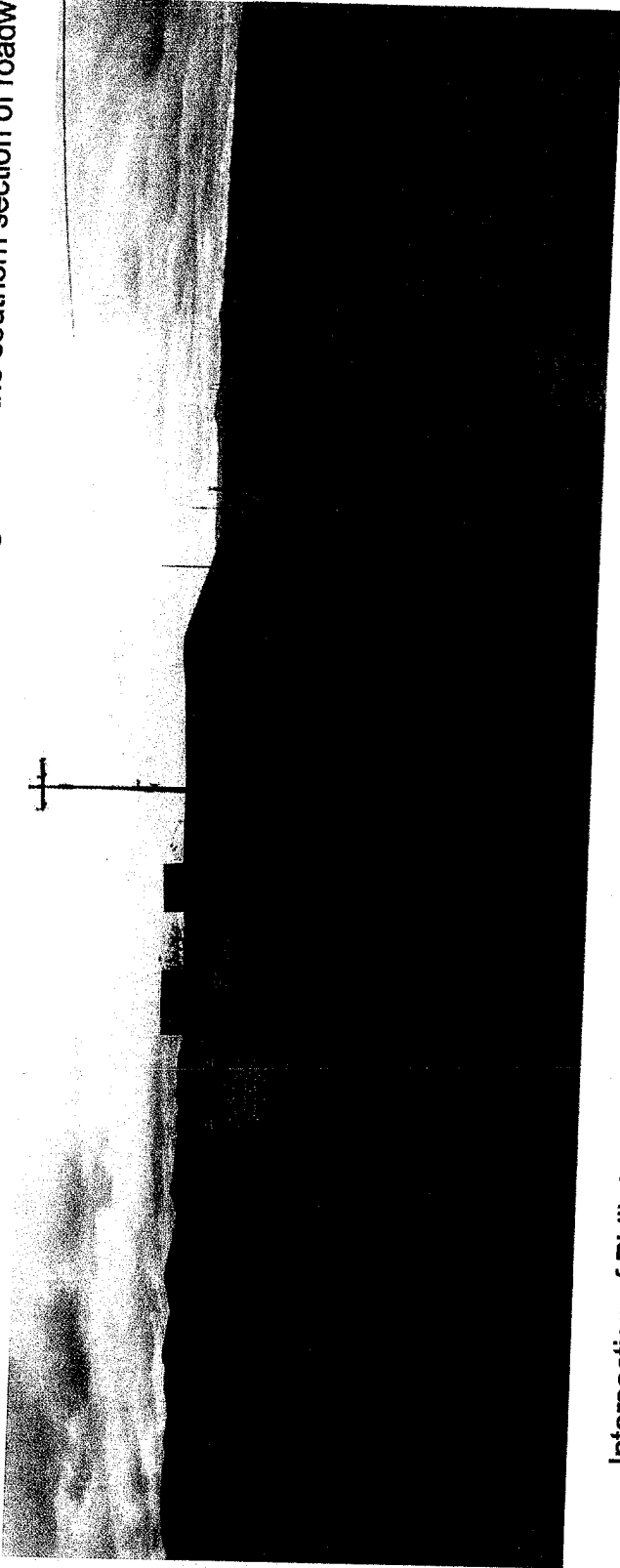


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Intersection of Philbric and eastern gate to Regional Landfill, looking north west  
.Philbric Rd. is at photo left. Note roadway shoulders are narrower in this region than the southern section of roadway.



Intersection of Philbric and western gate to Regional Landfill, the western end of proposed project.

