

J:\GIS\OAK\_RSA\Projects\2012\Permit\04\_2012\Fig1\_Airport\_Location.mxd 3/21/2012 9:27:15 AM

- Major Cities
- County Boundaries
- Major Highways

Project Purpose: comply with federal law  
 and FAA airport design standards

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 MILES

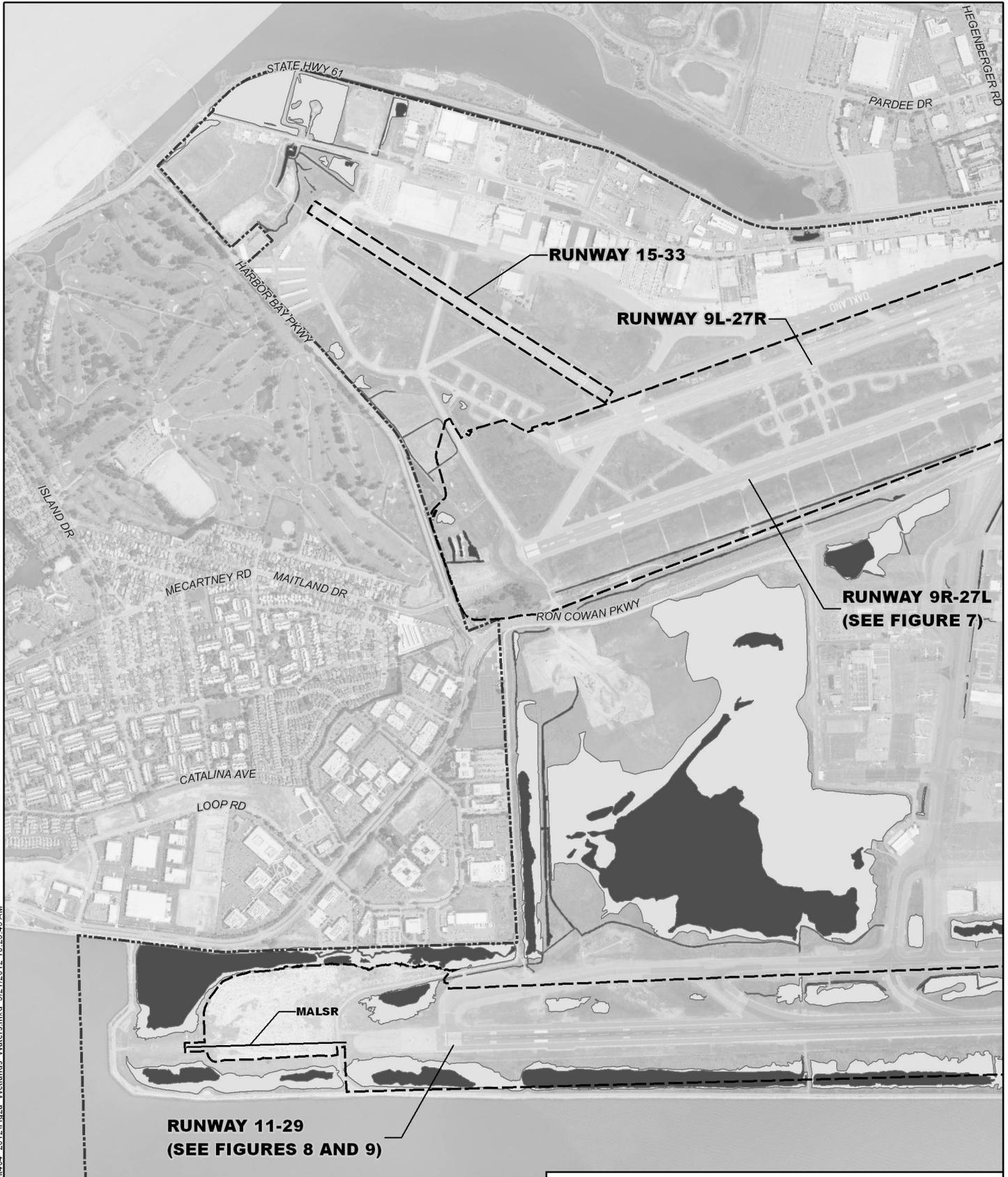
**AIRPORT LOCATION**

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404 Permit Application  
 Oakland International Airport  
 Runway Safety Area (RSA) Improvement Project

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March 2012 **FIGURE 1**



**WETLANDS AND WATERS OF THE U.S.  
ON THE AIRPORT (WEST)**

404 Permit Application  
Oakland International Airport  
Runway Safety Area (RSA) Improvement Project

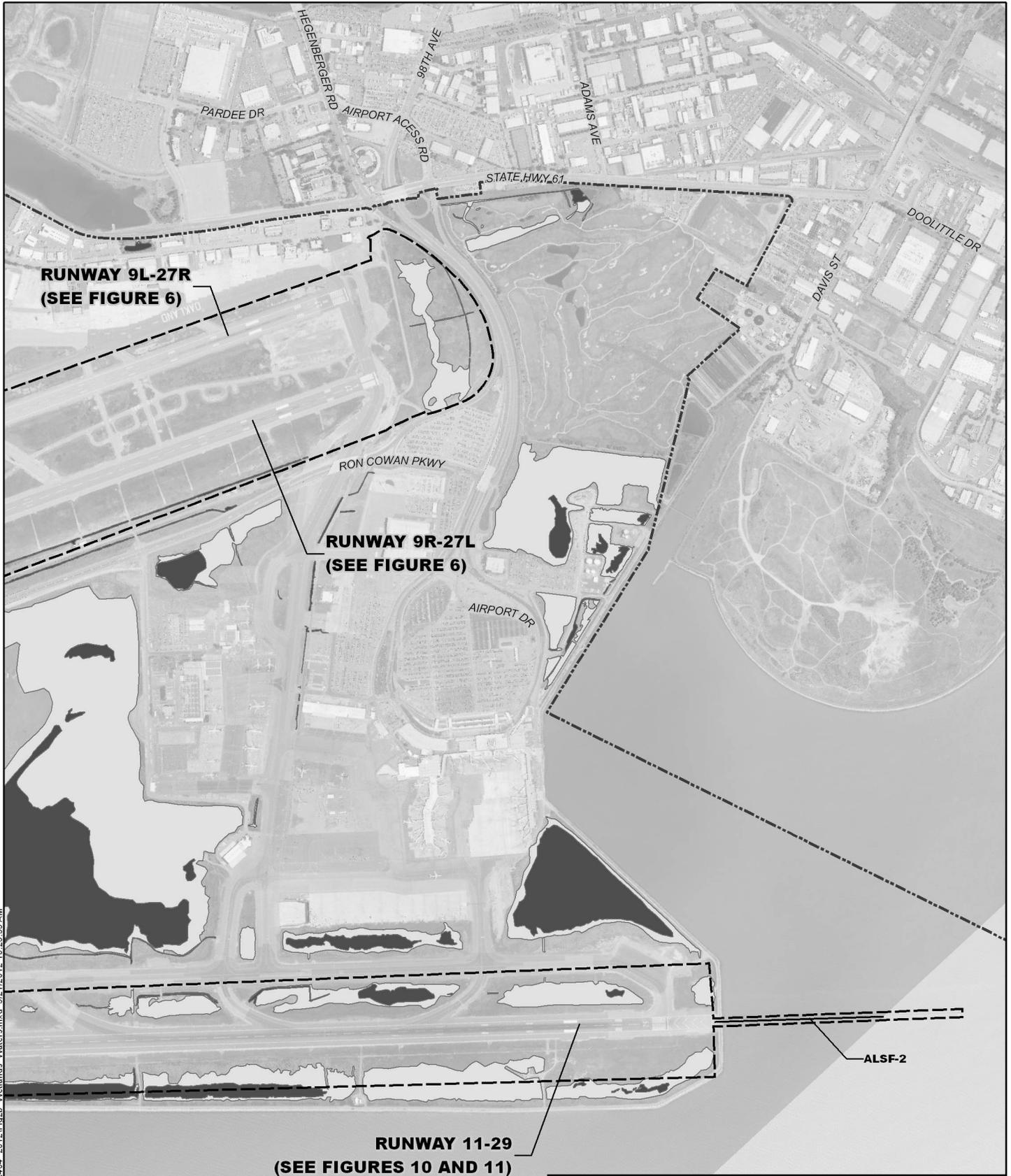
March 2012

**FIGURE 2A (LEFT)**

-  Detailed Study Area
-  Airport Boundary
-  Wetlands
-  Waters of the U.S.



Project Purpose: comply with federal law  
and FAA airport design standards



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-  Detailed Study Area
-  Airport Boundary
-  Wetlands
-  Waters of the U.S.



Project Purpose: comply with federal law and FAA airport design standards

**WETLANDS AND WATERS OF THE U.S.  
ON THE AIRPORT (EAST)**

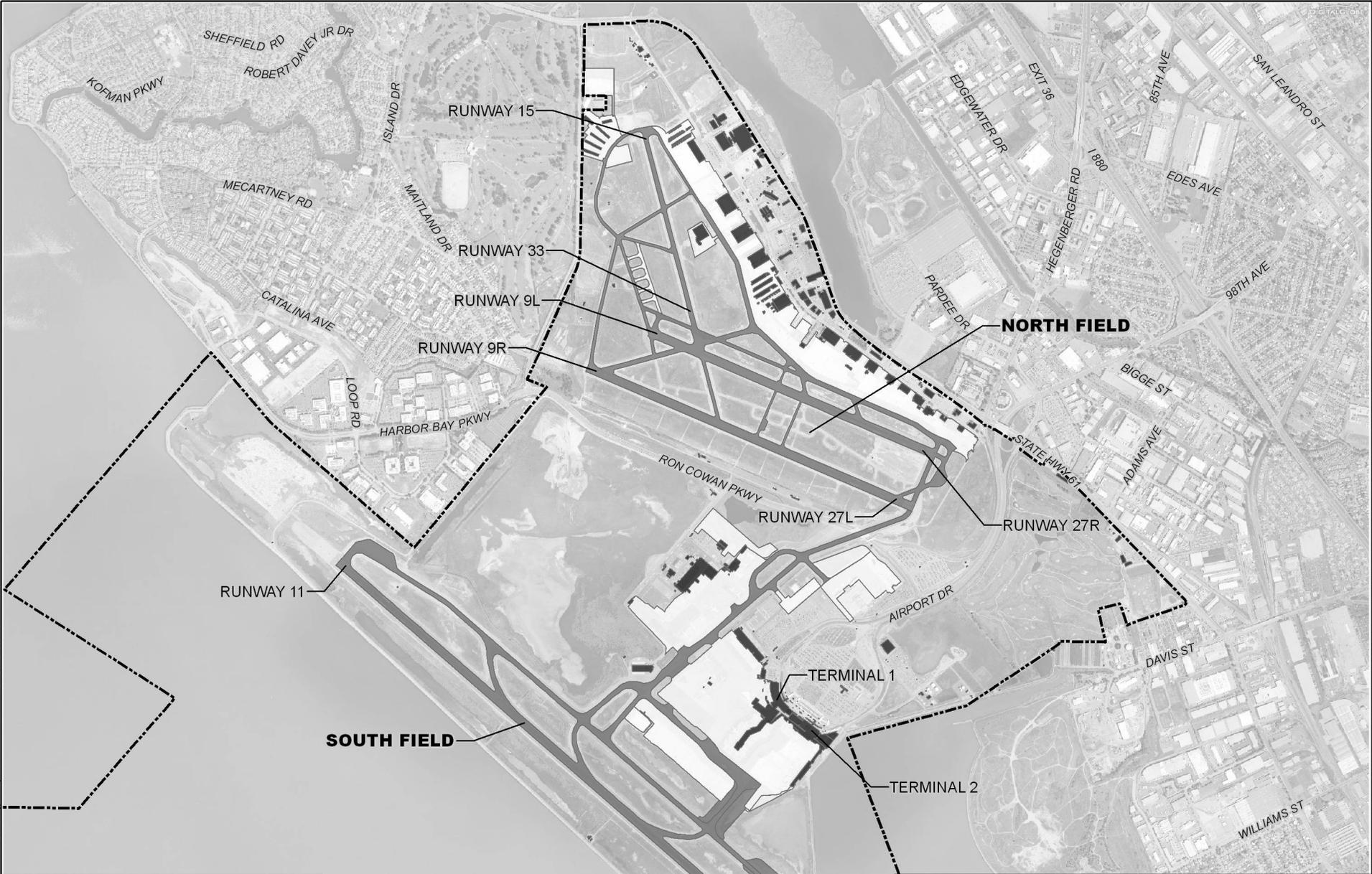
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404 Permit Application  
Oakland International Airport  
Runway Safety Area (RSA) Improvement Project

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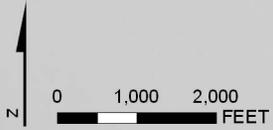
March 2012 **FIGURE 2B (RIGHT)**

Source: Aerial Photo, NAIP, 2010.



L:\GIS\OAK\_RSA\Projects\2012\Permit\04\_2012\Fig3\_Airport\_Facilities.mxd 3/21/2012 10:30:39 AM

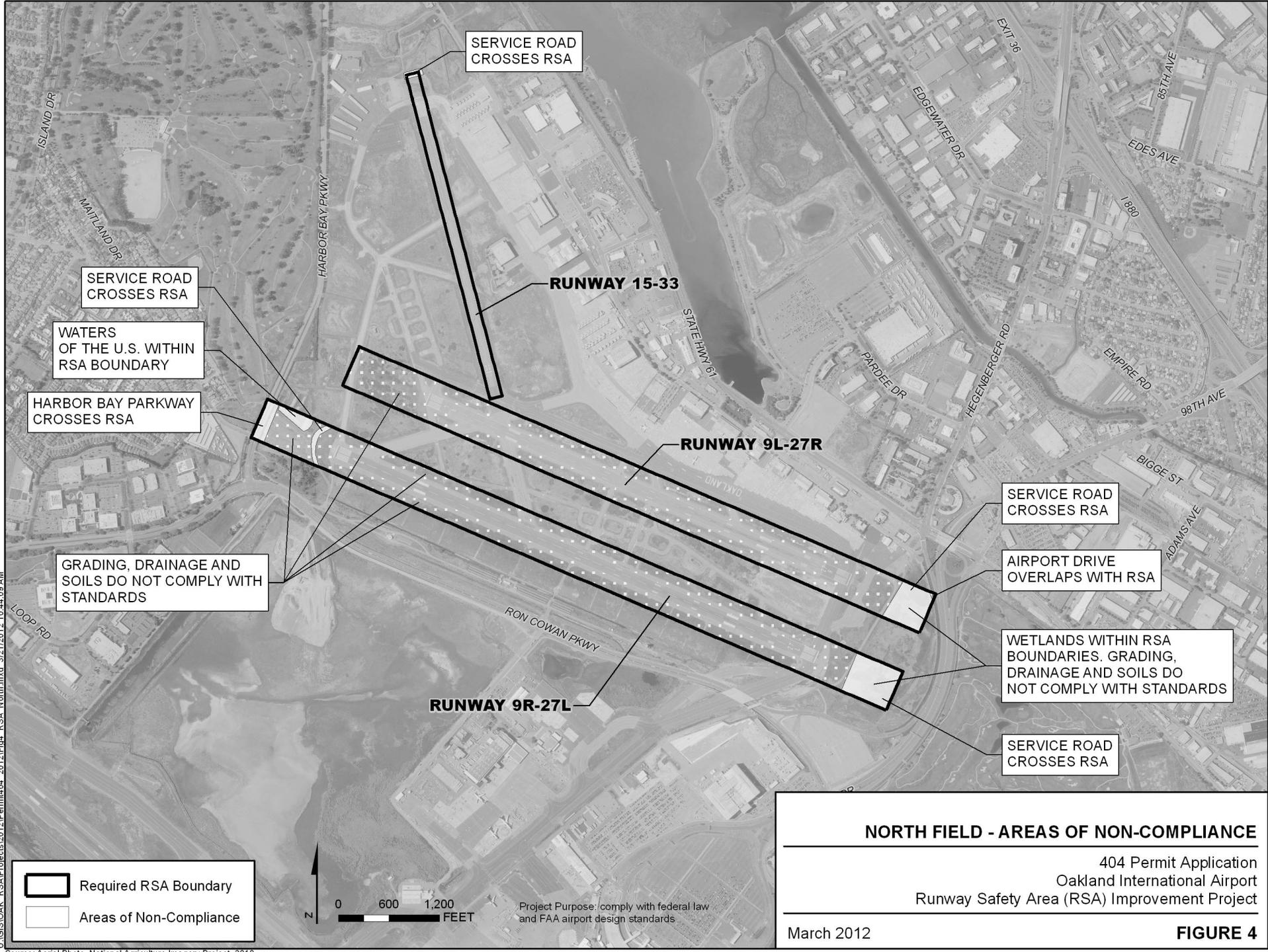
	Airport Boundary
	Existing Runways and Taxiways
	Apron Area
	Existing Buildings



Project Purpose: comply with federal law and FAA airport design standards

<b>PRIMARY AIRPORT FEATURES</b>	
404 Permit Application Oakland International Airport Runway Safety Area (RSA) Improvement Project	
March 2012	<b>FIGURE 3</b>

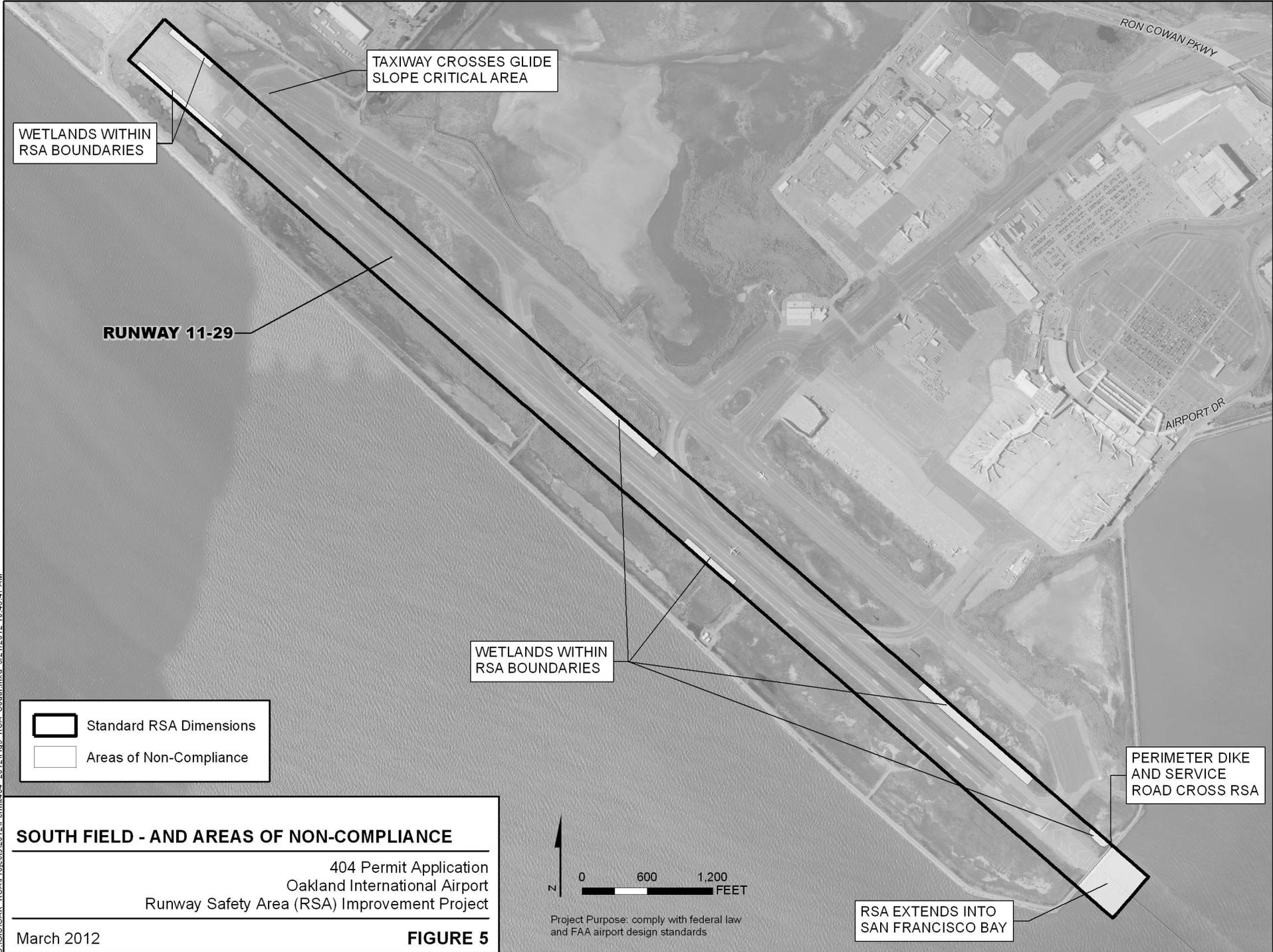
Source: Aerial Photo, Digital Globe, April 2007.



L:\GIS\OAK\_RSA\Projects\2012\Permit\04\_2012\Fig4\_RSA\_North.mxd 3/21/2012 10:44:09 AM

Source: Aerial Photo, National Agriculture Imagery Project, 2010.

Project Purpose: comply with federal law and FAA airport design standards



WETLANDS WITHIN RSA BOUNDARIES

TAXIWAY CROSSES GLIDE SLOPE CRITICAL AREA

**RUNWAY 11-29**

WETLANDS WITHIN RSA BOUNDARIES

PERIMETER DIKE AND SERVICE ROAD CROSS RSA

RSA EXTENDS INTO SAN FRANCISCO BAY

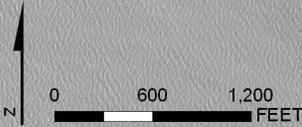
-  Standard RSA Dimensions
-  Areas of Non-Compliance

**SOUTH FIELD - AND AREAS OF NON-COMPLIANCE**

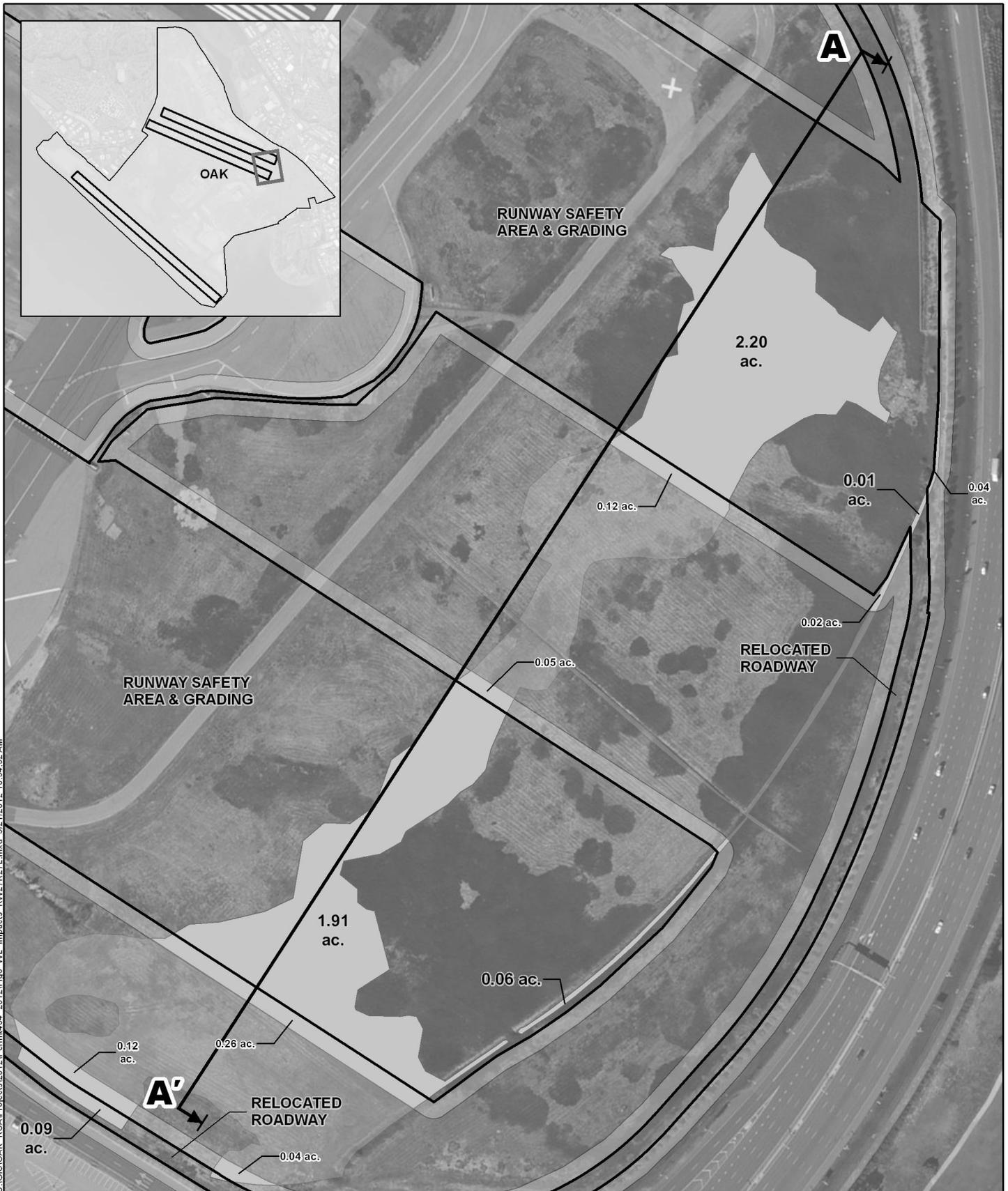
404 Permit Application  
Oakland International Airport  
Runway Safety Area (RSA) Improvement Project

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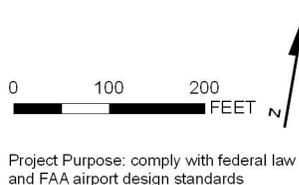
**FIGURE 5**



Project Purpose: comply with federal law and FAA airport design standards



- Cross-section Location (see Figure 12)
- Extent of Permanent Impacts
- Extent of Temporary Impacts
- Non-Tidal Wetlands

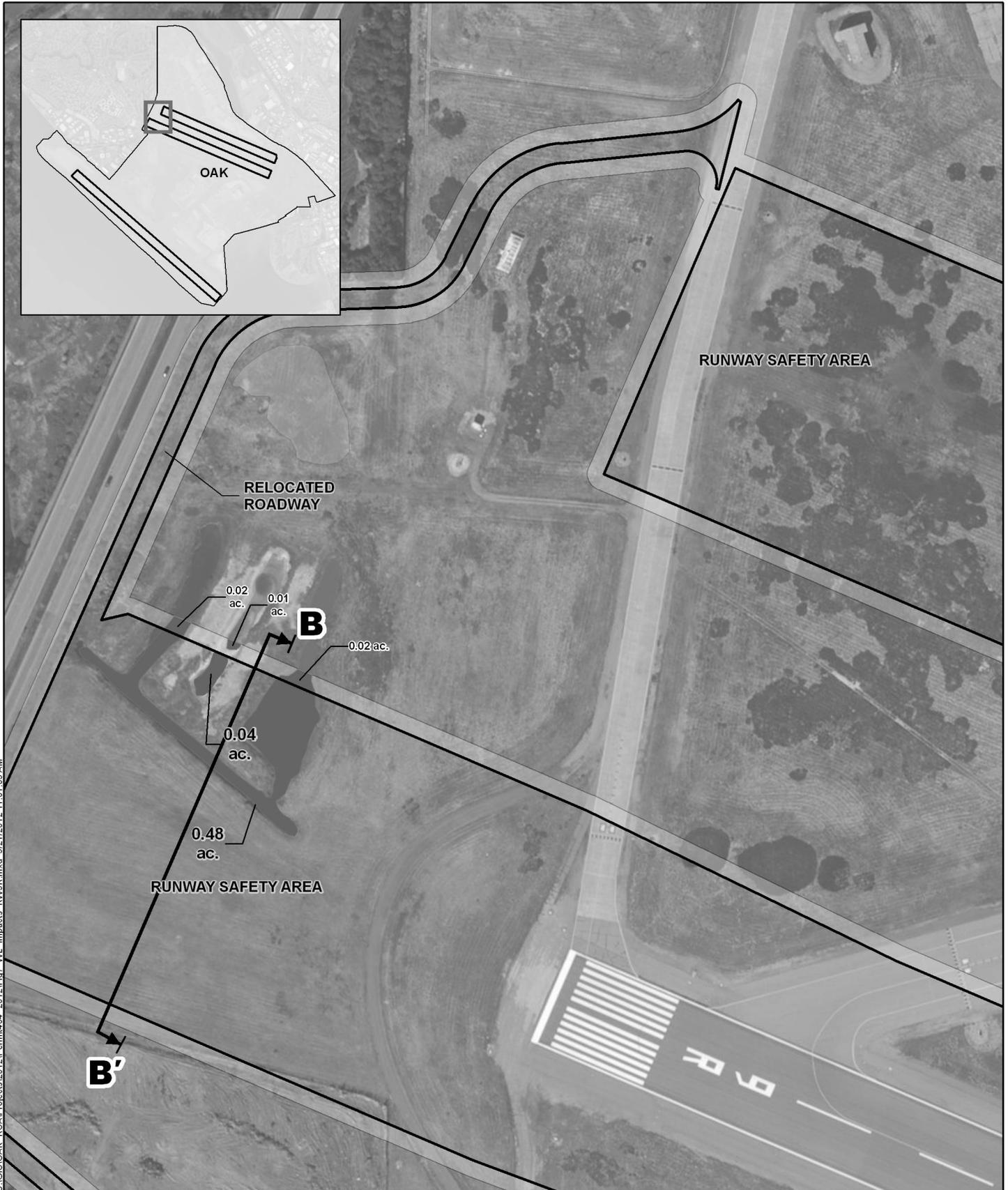


**WETLAND IMPACTS - RUNWAY 27R-27L**

404 Permit Application  
 Oakland International Airport  
 Runway Safety Area (RSA) Improvement Project

March 2012

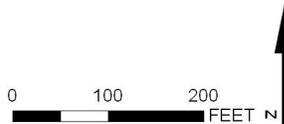
**FIGURE 6**



U:\GIS\OAK\_RSA\Projects\2012\Permit\d4\_2012\Fig7\_WL\_Impacts\_RV9R.mxd 3/21/2012 11:01:03 AM

Source: Aerial image, Bing, 2010.

-  Cross-section Location (see Figure 12)
-  Extent of Permanent Impacts
-  Extent of Temporary Impacts
-  Non-Tidal Waters of the U.S.



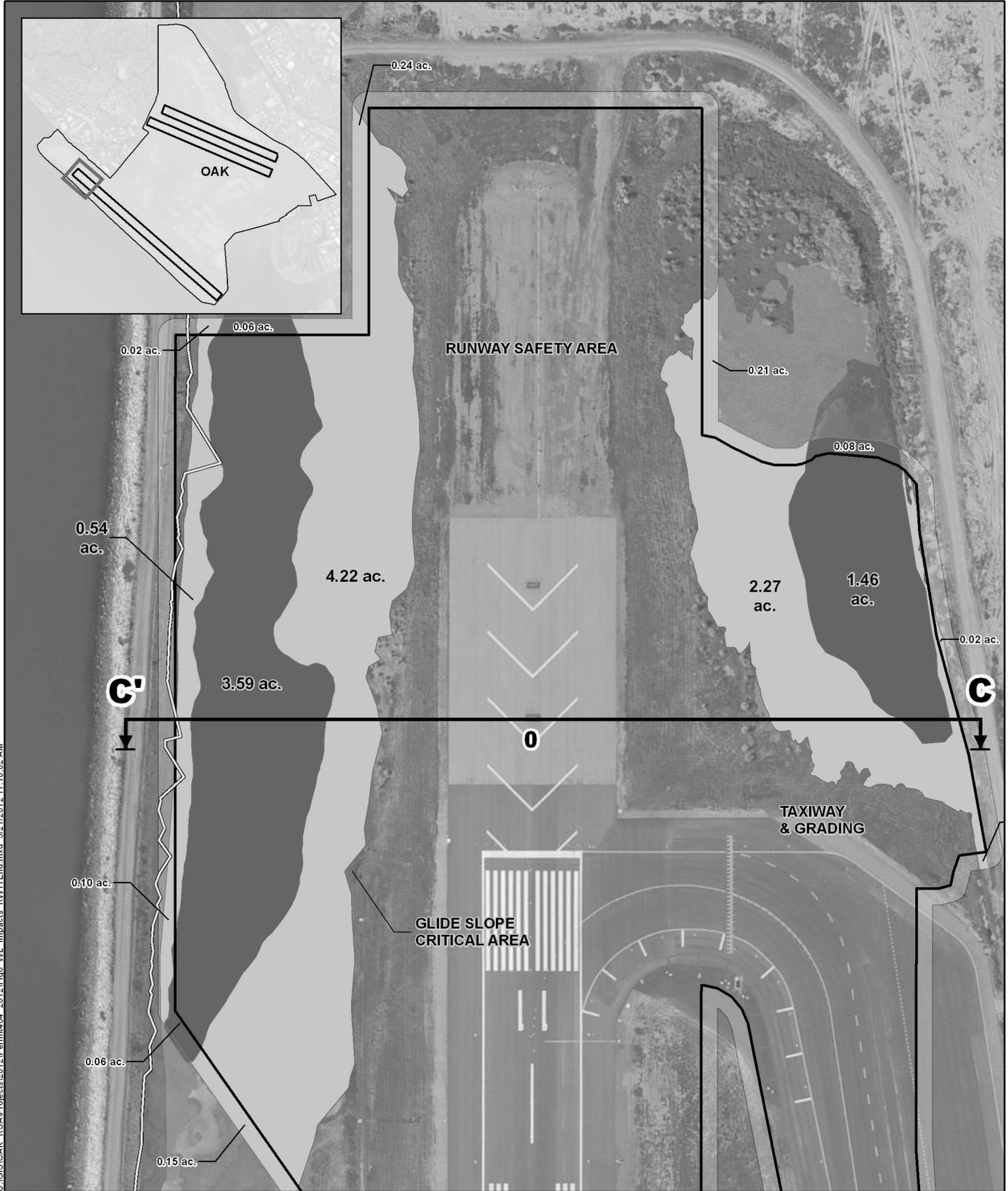
Project Purpose: comply with federal law and FAA airport design standards

### WETLAND IMPACTS - RUNWAY 9R

404 Permit Application  
Oakland International Airport  
Runway Safety Area (RSA) Improvement Project

March 2012

**FIGURE 7**



U:\GIS\OAK\_RSA\Projects\2012\Permit\d04\_2012\Fig8\_WL\_Impacts\_RW11End.mxd 3/21/2012 11:10:02 AM

Source: Aerial Image, Bing, 2010.

- Cross-section Location (see Figure 12)
- BCDC Jurisdiction
- Extent of Permanent Impacts
- Extent of Temporary Impacts

- Non-Tidal Wetlands
- Non-Tidal Waters of the U.S.

Project Purpose: comply with federal law and FAA airport design standards

0 100 200 FEET

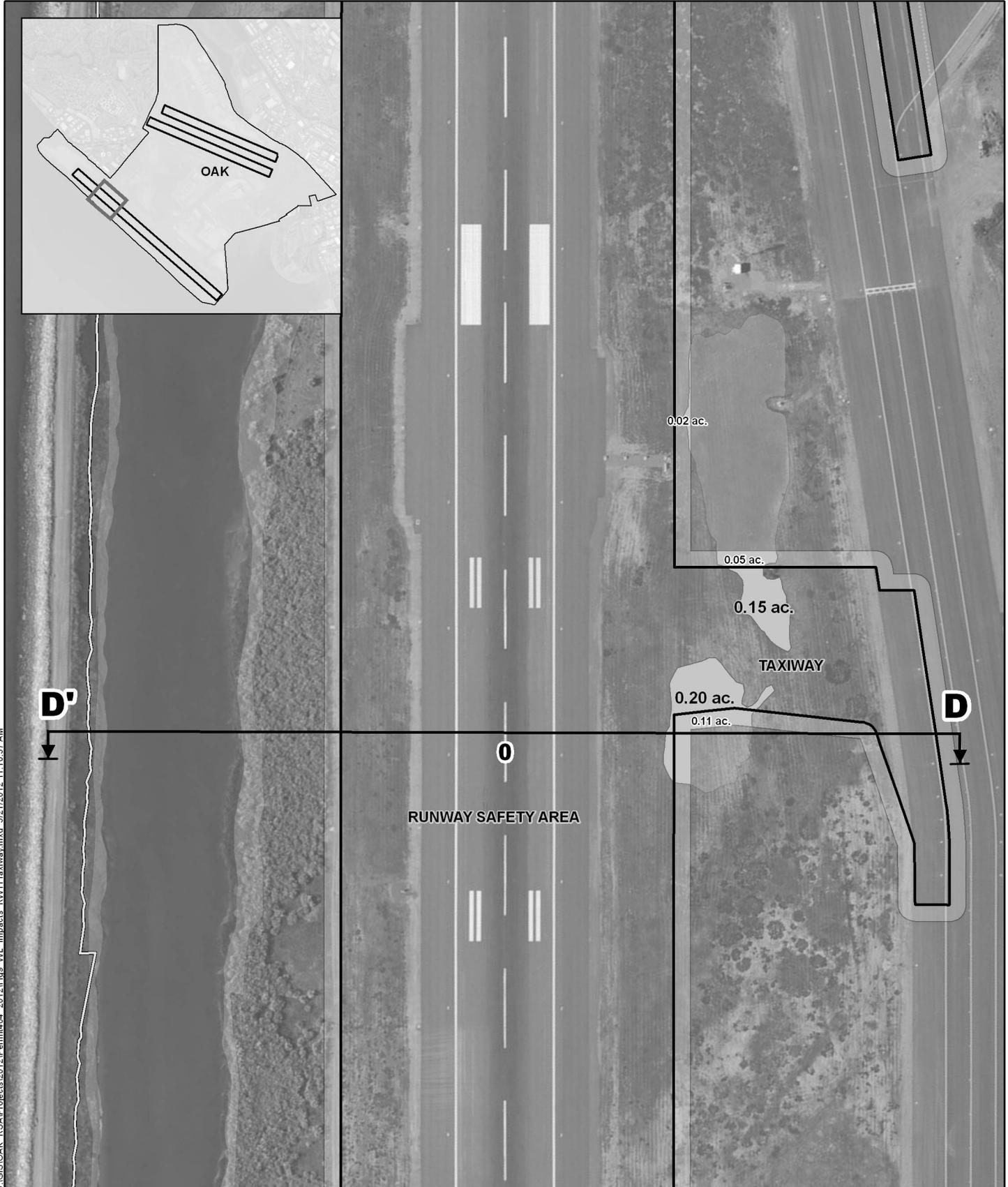


**WETLAND IMPACTS - RUNWAY 11 (END)**

404 Permit Application  
Oakland International Airport  
Runway Safety Area (RSA) Improvement Project

March 2012

**FIGURE 8**



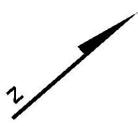
U:\GIS\OAK RSA\Projects\2012\Permit\d4\_2012\Fig9 WL Impacts\_RW11Taxiway.mxd 3/21/2012 11:10:37 AM

Source: Aerial Image, Bing, 2010.

-  Cross-section Location (see Figure 13)
-  BCDC Jurisdiction
-  Extent of Permanent Impacts
-  Extent of Temporary Impacts

 Non-Tidal Wetlands

Project Purpose: comply with federal law and FAA airport design standards  
 0 100 200  
 FEET



**WETLAND IMPACTS -  
 RUNWAY 11 (NEW TAXIWAY)**

404 Permit Application  
 Oakland International Airport  
 Runway Safety Area (RSA) Improvement Project

March 2012

**FIGURE 9**

\\cd\U\GIS\OAK\_RSAP\Projects\2012\Permit404\_2012\Fig10\_WL\_Impacts\_RW11\_29.mxd 3/21/2012 11:15:56 AM



Source: Aerial image, Bing, 2010.

-  BCDC Jurisdiction
-  Extent of Permanent Impacts
-  Extent of Temporary Impacts
-  Non-Tidal Wetlands

0      200      400  
 FEET

Project Purpose: comply with federal law  
 and FAA airport design standards

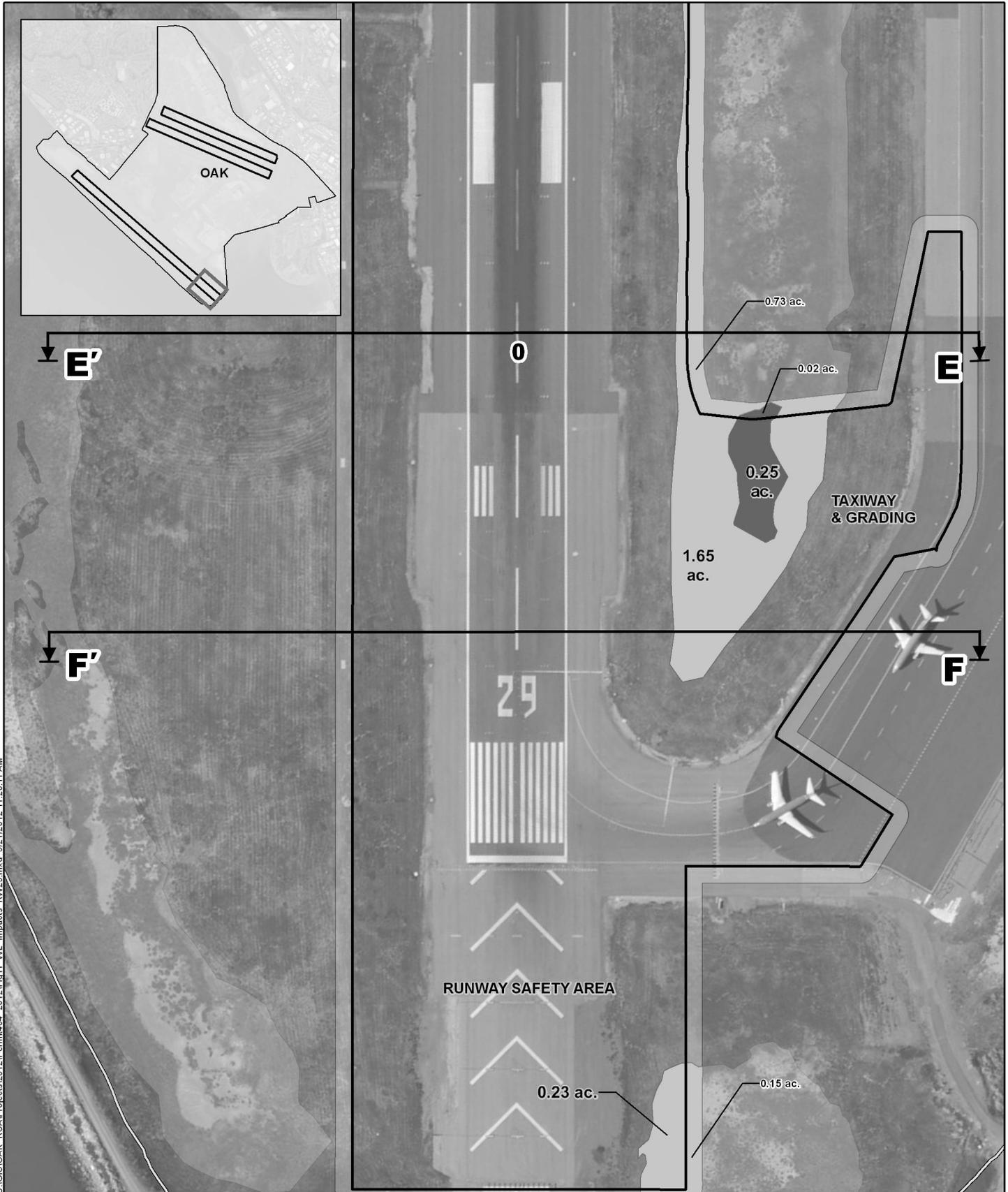


**WETLAND IMPACTS - RUNWAY 11-29**

404 Permit Application  
 Oakland International Airport  
 Runway Safety Area (RSA) Improvement Project

March 2012

**FIGURE 10**



U:\GIS\OAK\_RSA\Projects\2012\Permit\04\_2012\Fig11\_WL\_Impacts\_RW29.mxd 3/21/2012 11:20:11 AM

↔ Cross-section Location  
(see Figure 13)

— BCDC Jurisdiction

▭ Extent of Permanent Impacts

▭ Extent of Temporary Impacts

▭ Non-Tidal Wetlands

▭ Non-Tidal Waters of the U.S.

Project Purpose: comply with federal law  
and FAA airport design standards

0 100 200  
FEET

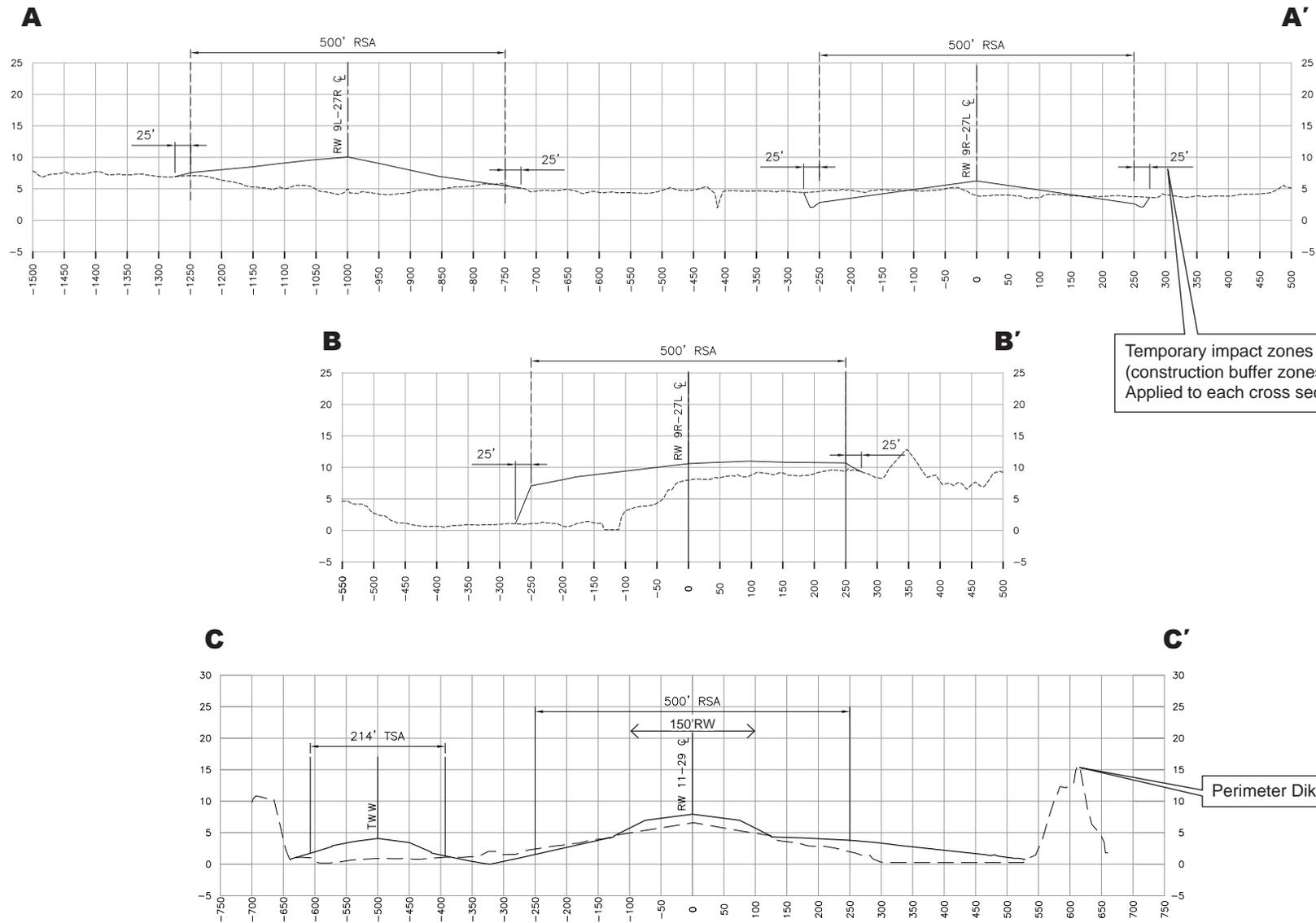


### WETLAND IMPACTS - RUNWAY 29

404 Permit Application  
Oakland International Airport  
Runway Safety Area (RSA) Improvement Project

March 2012

**FIGURE 11**



Temporary impact zones  
(construction buffer zones –  
Applied to each cross section)

Perimeter Dike

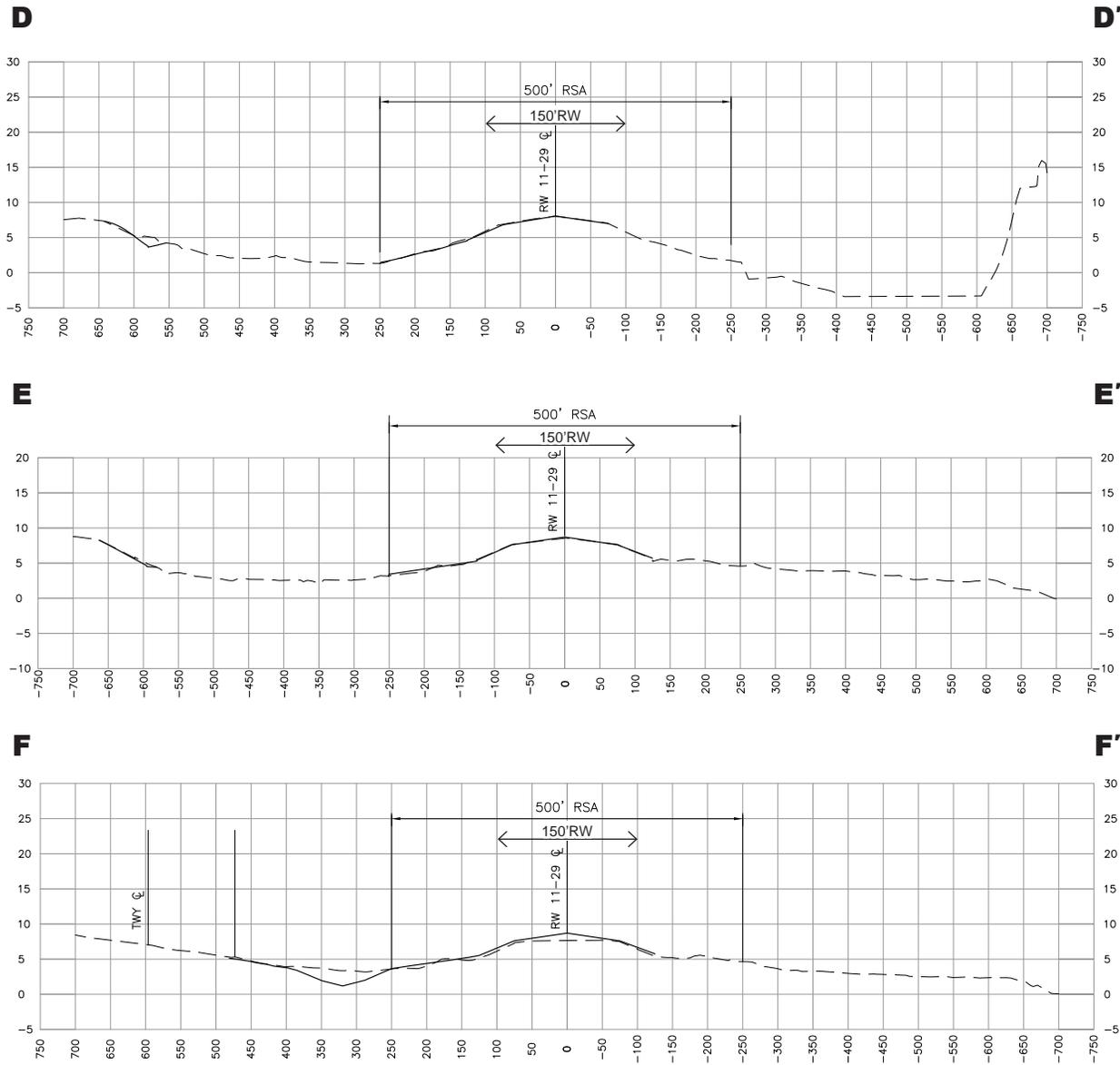
RSA=Runway Safety Area  
TW=Taxiway  
TSA=Taxiway Safety Area  
----- = Pre-project ground level  
——— = Post-project ground level

25' = Temporary impacts (construction buffer zones)  
A/A' = Runways 9L-27L (see Figure 6)  
B/B' = Runways 9R (runway centerline at 0; see Figure 7)  
C/C' = Taxiway W and Runway 11 (runway centerline at 0; see Figure 8)

Vertical (y) axes = Elevation relative to NAVD88 datum  
Horizontal (x) axes = Feet off of indicated centerline, positive or negative

Project Purpose: Comply with federal law and FAA Airport Design Standards.

**CROSS SECTIONS A-A', B-B', C-C'**  
404 Permit Application  
Oakland International Airport  
Runway Safety Area (RSA) Improvement Project  
March 2012 **FIGURE 12**



RSA=Runway Safety Area  
 TW=Taxiway  
 TSA=Taxiway Safety Area  
 - - - - = Pre-project ground level  
 ——— = Post-project ground level

D/D' = Runways 11-29 (see Figure 9)  
 E/E' = Runway 29 (runway centerline at 0; see Figure 11)  
 F/F' = Runway 29 (runway centerline at 0; see Figure 11, includes TSA)  
 Vertical (y) axes = Elevation relative to NAVD88 datum  
 Horizontal (x) axes = Feet off of indicated centerline, positive or negative

Project Purpose: Comply with federal law and FAA Airport Design Standards.

**CROSS SECTIONS D-D', E-E' AND F-F'**  
 404 Permit Application  
 Oakland International Airport  
 Runway Safety Area (RSA) Improvement Project  
 March 2012 **FIGURE 13**



U:\GIS\OAK\_RSA\Projects\2012\Permit\04\_2012\Fig14\_Mitigation\_Sites\_overview.mxd 3/21/2012 11:35:03 AM  
 Source: Aerial Photo, Bing 2010.

**PROPOSED WETLAND MITIGATION SITES**

404 Permit Application  
 Oakland International Airport  
 Runway Safety Area (RSA) Improvement Project

March 2012

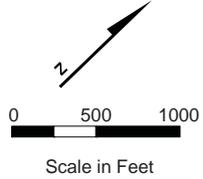
**FIGURE 14**



03/2012 hk 11578SR-W2KF03TECHDRAW\Port of Oakland - RSA\Graphics 2012\404\_Permit\Figs15\_march12\_ver2.indd

Source: Ducks Unlimited, Inc., 2011.

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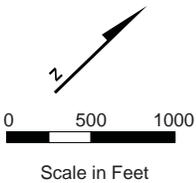
Project Purpose: Comply with federal law and FAA Airport Design Standards.

<b>SEARS POINT WETLAND RESTORATION OVERALL SITE PLAN</b>	
404 Permit Application Oakland International Airport Runway Safety Area (RSA) Improvement Project	
March 2012	<b>FIGURE 15A (LEFT)</b>



Source: Ducks Unlimited, Inc., 2011.

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Project Purpose: Comply with federal law and FAA Airport Design Standards.

**SEARS POINT WETLAND RESTORATION  
 OVERALL SITE PLAN**

404 Permit Application  
 Oakland International Airport  
 Runway Safety Area (RSA) Improvement Project

March 2012

**FIGURE 15B (RIGHT)**

03/2012 hk \15785R-W2KF03TECHDRAW\Port of Oakland - RSA\Graphics 2012\404 - Permit\Figs\15 - march12 - ver2.indd