b. The use of a track dozer or similar equipment is highly recommended for excavating and spreading the materials since the tracks distribute the weight of the dozer uniformly and reduce point loads. If available, wider tracked shoes for better flotation shall be used. Static rolling as oppose to dynamic (vibration) is essential when compacting the material to reduce the cyclic loading effect that will cause in increase in pore pressure and, thus reduce the shear strength of the subgrade soil (leads to pumping).

c. The weight of construction equipment is also important in maintaining stability, minimizing subgrade disturbance, and most importantly, reducing damage to existing underground utilities. It is foremost critical that small to medium equipment be used in the excavation and placement of the aggregate base and the asphalt placement.

Method of Payment:
Full compensation for excavation and disposal of unsuitable subgrade material when groundwater is encountered shall be paid per force account for Miscellaneous Work (As Directed) and shall include full compensation for furnishing all labor, materials (not including Geogrid and Aggregate Base), tools, equipment, incidentals and for doing all the work involved as directed by the Engineer and no additional compensation will be allowed therefor.

Geogrid used for subgrade stabilization treatment when groundwater is encountered shall be paid for at the contract unit price per square yard in accordance with section "Subgrade Enhancement Treatment (Geogrid)" of these special provisions.

Aggregate Base used for subgrade stabilization treatment when groundwater is encountered shall be paid for at the contract unit price per cubic yard in accordance with section "Aggregate Base" of these special provisions.

AGGREGATE BASE:

Aggregate base shall be placed in 2-inch lifts and rolled without vibration. Thickness shall be 4-inch within private access driveways/roadways and 6-inch within Public Right-of-Way as directed by the Engineer.

Aggregate base layer shall be at a minimum 90% relative compaction at full 4-inch and/or 6-inch depth.

Aggregate base shall be Class 2 and shall conform to the provisions in Section 26, "Aggregate Bases" of the Standard Specifications and these Special Provisions and shall meet the gradation requirements for 3/4 inch maximum.

The first paragraph of Section 26-1.02A, "Class 2 Aggregate Base" shall be modified to read:

Aggregate for Class 2 aggregate base shall be free from organic matter and other deleterious matter, and shall be of such nature that it can be compacted readily under watering and rolling to form a firm and stable base. Aggregate may consist of broken and crushed asphalt concrete or Portland cement concrete and may contain crushed aggregate base or other rock materials. The material may contain no more than 3 percent brick by weight as determined by California Test

Method 202 as modified: Brick material retained on a No.4 sieve shall be identified visually and separated manually. Brick quantification shall be based on total weight of dry sample. Also, material retained on the No.4 sieve shall contain no more than 15 percent of particles (gravel) that have no more than one fractured face.

The Quality Requirements contained in Section 26-1.02A shall be modified to read:

Quality Requirements

Test	Contract Compliance
Resistance (R-Value)	
Virgin Rock	78 Minimum
Crushed Miscellaneous	80 Minimum
Sand Equivalent	
Virgin Rock	25 Minimum
Crushed Miscellaneous	35 Minimum
Durability Index	35 Minimum
Percentage Wear	
100 Revolutions	15 Maximum
500 Revolutions	52 Maximum

Method of Payment:
The contract unit price paid per cubic yard for Class 2 Aggregate Base shall include full compensation for furnishing all labor, tools, materials, equipment, and incidentals, and for doing all the work involved and complete in place and no additional compensation will be allowed therefor.

No adjustment in the bid price per cubic yard for overages or underages from the stated quantity will be allowed. Sections 4-1.03B(1) and 4-1.03B(2) of the Standard Specifications do not apply for increases and decreases of pay quantity of more than 25% from the stated quantity. Payment shall be based on the actual field measured quantity.

HOT MIX ASPHALT:

Hot Mix Asphalt shall be 3-inch thick and placed in one lift or as directed by the Engineer. Compaction of the layer shall be a combination of static rolling and/or vibratory rolling. However, the initial breakdown shall require static rolling. Compaction in vibratory mode shall be at the direction of the Engineer. When vibration rolling is used, the amplitude and frequency of the roller should be adjusted accordingly to match with the asphalt thickness being compacted. The roller should be set to low amplitude and variable frequency to limit the depth effects of compaction down to the bottom of the aggregate base material.

Asphalt concrete shall be Type "A" and shall conform to the requirements of Section 39 of the Standard Specifications and the following:

Aggregate grading shall be three-quarter inch (3/4") maximum.

The asphalt lift thickness table, as shown in Section 39-6.01, "General Requirements" of the Standard Specifications, is revised as follows:

Total Thickness Shown on Plans	Minimum No. of Layers	Top Layer Thickness (foot)		Next Lower Layer Thickness (foot)		All Other Lower Layer Thickness (foot)	
		Min.	Max.	Min.	Max.	Min.	Max.
0.24-foot or less[a]	1	-	-	-	-	-	-
0.25-foot	2[b]	0.12	0.13	0.12	0.13	-	-
0.26 - 0.46 foot	2	0.12	0.21	0.14	0.25	-	-
0.47-foot or more	3 or more	0.15	0.21	0.15	0.25	0.17	0.25

Footnotes to asphalt thickness table are revised as follows:

a. No Change.

b. One layer of 0.25 foot thick may be placed as approved by the Engineer. When the Traffic Index specified is 5.5 or below, two layers shall be placed.

Asphalts:

Asphalt shall conform to the provisions in this Section, "Asphalts". Section 92, "Asphalts" of the Standard Specifications shall not apply.

Asphalt shall consist of refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt, prepared from crude petroleum. Asphalt shall be:

1. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin;
2. Free from water;
3. Homogeneous.

General:

The Contractor shall furnish asphalt in conformance with the State California Department of Transportation's "Certification Program for Suppliers of Asphalt". The Department maintains the program requirements, procedures, and a list of approved suppliers at:

http://www.dot.ca.gov/hq/esc/Translab/fpmcoc.htm

The Contractor shall ensure the safe transportation, storage, use, and disposal of asphalt.

The Contractor shall prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

Grade:

Performance graded (PG) asphalt binder shall conform to the following:

Property	AASHTO Test Method	Specification Grade		
		PG 64-10	PG 64-16	PG 70-10
Original Binder				
Flash Point, Minimum °C	T48	230	230	230
Solubility, Minimum %[b]	T44	99	99	99
Viscosity at 135 °C, Maximum, Pa·s	T316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T315	64 1.00	64 1.00	70 1.00
RTFO Test[e], Mass Loss, Maximum, %	T240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T315	64 2.20	64 2.20	70 2.20
Ductility at 25 °C Minimum, cm	T51	75	75	75
PAV[f] Aging, Temperature, °C	R28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*/sin(delta), kPa	T315	31[d] 5000	28[d] 5000	34[d] 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, Mpa Minimum M-value	T313	0 300 0.300	-6 300 0.300	0 300 0.300

Notes:

a. Not used.
b. The Engineer will waive this specification if the supplier is a Quality Supplier as defined by Department's "Certification Program for Suppliers of Asphalt".
c. The Engineer will waive this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
d. Test the sample at 3 °C higher if it fails at the specified test temperature. G*sin(delta) shall remain 5000 kPa maximum.
e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T240 or ASTM Designation: D2827.
f. "PAV" means Pressurized Aging Vessel.

Performance graded polymer modified asphalt binder (PG Polymer Modified) is:

Performance Graded Polymer Modified Asphalt Binder [a]

Property	AASHTO Test Method	Specification Grade		
		PG 58-34 PM	PG 64-28 PM	PG 76-22 PM
Original Binder				
Flash Point, Minimum °C	T 48	230	230	230
Solubility, Minimum % [b]	T 44[c]	98.5	98.5	98.5
Viscosity at 135°C, [d] Maximum, Pa·s	T 316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 1.00	64 1.00	76 1.00
RTFO Test , Mass Loss, Maximum, %	T 240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 2.20	64 2.20	76 2.20
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum (delta), %	T 315	Note e 80	Note e 80	Note e 80
Elastic Recovery[f], Test Temp., °C Minimum recovery, %	T 301	25 75	25 75	25 65
PAV[g] Aging, Temperature, °C	R 28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*sin(delta), kPa	T 315	16 5000	22 5000	31 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T 313	-24 300 0.300	-18 300 0.300	-12 300 0.300

Notes:

a. Do not modify PG Polymer Modifier using acid modification.
b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt".
c. The Department allows ASTM D5546 instead of AASHTO T44.
d. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
e. Test temperature is the temperature at which G*/sin(delta) is 2.2 kPa. A graph of log G*/sin(delta) plotted against temperature may be used to determine the test temperature when G*/sin(delta) is 2.2 Kpa. A graph of (delta) versus temperature may be used to determine delta at the temperature when G*/sin(delta) is 2.2 kPa. The Engineer also accepts direct measurement of (delta) at the temperature when G*/sin(delta) is 2.2 kPa.
f. Test without a force ductility clamp may be performed.
g. "PAV" means Pressurized Aging Vessel.

Sampling:

The Contractor shall provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. The sampling device shall be accessible between 24 and 30 inches above the platform. The Contractor shall provide a receptacle for flushing the sampling device.

The sampling device shall include a valve:

1. With a diameter between 1/2 and 3/4 inches;

2. Manufactured in a manner that a one-quart sample may be taken slowly at any time during plant operations;

3. Maintained in good condition.

The Contractor shall replace failed valves.

In the presence of the Engineer, the Contractor shall take 2 one-quart samples per operating day. The Contractor shall provide round friction top containers with one-quart capacity for storing samples.

Applying Asphalt:

Unless otherwise specified, the Contractor shall heat and apply asphalt in conformance with the provisions in Section 93, "Liquid Asphalts" of the Standard Specifications.

Section 39-2.01, "Asphalts" is replaced in its entirety with the followings:

Asphalt binder to be mixed with aggregate shall conform to the provisions in "Asphalts" of these Special Provisions.

The grade of asphalt binder shall be: PG 70-10

Liquid asphalt for prime coat shall conform to the provisions in Section 93, "Liquid Asphalts" of the Standard Specifications and shall be the Grade 64-10 unless otherwise designated by the contract item or otherwise specified in these Special Provisions.

Asphaltic emulsion for paint binder (tack coat) shall conform to the provisions in Section 94, "Asphaltic Emulsion" of the Standard Specifications for the rapid-setting or slow-setting type and grade approved by the Engineer. Grade 64-10 shall be used if not otherwise specified.

Section 39-3.01B (1) shall be amended to include:

Aggregate of the 3/4 inch or 1/2 inch maximum size and aggregate for asphalt concrete base shall be separated into 3 or more sizes and each size shall be stored in separate bins.

If 3 sizes are used, one bin shall contain that portion of the material which will pass the maximum size specified and be retained on a 3/8 inch sieve; one bin shall contain that portion of the material which will pass a 3/8 inch sieve and be retained on a No. 8 sieve; and one bin shall contain that portion of the material which will pass a No. 8 sieve.

Aggregate of 3/8 inch maximum size shall be separated into 2 sizes and each size shall be stored in separate bins. One bin shall contain that portion of the material which will pass the maximum size specified and be retained on a No. 8 sieve and one bin shall contain that portion of the material which will pass a No. 8 sieve.

The bin containing the fine material shall not contain more than 15 percent of material retained on the No. 8 sieve. The material in any of the other bins shall not contain more than 15 percent of material passing a No. 8 sieve. Failure to comply with this requirement shall be corrected immediately, and the material in the bins not meeting these requirements shall be re-screened or wasted.

All asphalt concrete for this project shall be supplied from one source unless approved by the Engineer. Said source shall be listed on the Contractors Source of Materials List as required in Section 6 of the Standard Specifications.

Asphaltic emulsion shall be furnished and applied as provided in Section 39-4.02.

In addition to the provisions in Section 39-5.01, "Spreading Equipment" of the Standard Specifications, asphalt paving equipment shall be equipped with automatic screed controls and a sensing device or devices.

When placing asphalt concrete to the lines and grades established by the Engineer, the automatic controls shall control the longitudinal grade and transverse slope of the screed. Grade and slope references shall be furnished, installed, and maintained by the Contractor. The Contractor shall use a ski device with a minimum length of 30 feet or as directed by the Engineer. The ski device shall be a rigid one piece unit and the entire length shall be utilized in activating the sensor.

When placing the initial mat of asphalt concrete on existing pavement, the end of the screed nearest the centerline shall be controlled by a sensor activated by a ski device not less than 30 feet. The end of the screed farthest from centerline shall be controlled by an automatic transverse slope device set to reproduce the cross slope designated by the Engineer, by a sensor activated by a similar ski device or as directed by the Engineer.

When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 0.12 inch tolerance. The end of the screed farthest from the previously placed mat shall be controlled in the same way it was controlled when placing the initial mat.

Should the methods and equipment furnished by the Contractor fail to produce a layer of asphalt concrete conforming to the provisions, including straightedge tolerance, of Section 39-6.03, "Compacting" of the Standard Specifications or elsewhere in these Special Provisions, the paving

operations shall be discontinued and the Contractor shall modify the equipment or methods, or furnish substitute equipment.

Should the automatic screed controls fail to operate properly during a day's work, the Contractor may manually control the spreading equipment for the remainder of that day. However, the equipment shall be corrected or replaced with alternative automatically controlled equipment conforming to the provisions in this section before starting another day's work.

General Criteria For Profiling:

In addition to the straightedge provisions in Section 39-6.03, "Compacting" of the Standard Specifications, asphalt concrete pavement shall conform to the surface tolerances specified herein.

The uppermost layer of asphalt concrete surfacing shall be profiled in the presence of the Engineer using a California Profilograph or equivalent in conformance with California Test 526 and as specified in these Special Provisions.

The California Profilograph or equivalent will not be required for the following areas of the pavement surface but shall conform to the straightedge requirements in Section 39-6.03, "Compacting" of the Standard Specifications:

1. Pavement with a total thickness less than 0.24 foot;

2. Pavement on horizontal curves with a centerline curve radius of less than 1,000 feet and the pavement within the superelevation transition on those curves;

3. Pavement placed in a single lift when required by the Special Provisions;

4. Pavement with extensive grade or cross slope correction which does not receive advance leveling operations in conformance with the provisions in Section 39-6.02, "Spreading" of the Standard Specifications;

5. Pavement for ramps and connectors with steep grades and high rates of superelevation, as determined by the Engineer;

6. Shoulders and miscellaneous areas.

The Contractor shall conform to California Test 526, except a zero (null) blanking band shall be used for determining the Profile Index. Prior to beginning profiles, the profilograph shall be calibrated in the presence of the Engineer. Two profiles shall be obtained within each traffic lane, 3 feet from and parallel with the edges of the lane.

Pavements profiled shall conform to the following Profile Index requirements:

1. Pavement on tangent alignment and pavement on horizontal curves having a centerline curve radius of 2,000 feet or more shall have a Profile Index of 0.16 foot or less for each 330 feet section profiled;

2. Pavement on horizontal curves having a centerline curve radius of 1,000 feet or more but less than 2,000 feet, including the pavement within the superelevation transition of these curves, shall have a Profile Index of 0.32 foot or less for each 330 feet section profile;

3. Pavement within any 330 feet section, containing high point areas with deviations in excess of 0.025 foot in a length of 25 feet or less, when tested in conformance with the requirements in California Test 526, shall be corrected by the Contractor regardless of the Profile Index.

The Contractor shall complete initial runs of the profilograph prior to opening the pavement to public traffic. If initial profiles cannot made prior to opening the pavement to public traffic, the initial runs of the profilograph shall be made the next day that traffic control is permitted for the area to be profiled.

Areas of the top surface of the uppermost layer of asphalt concrete pavement that do not meet the specified surface tolerances shall be brought within tolerance by abrasive grinding.

Abrasive grinding shall be performed to reduce individual deviations in excess of 0.025 foot, and to reduce the Profile Index of the pavement to be within the specified tolerance. Areas which have been subjected to abrasive grinding shall receive a seal coat. Deviations in excess of 0.025 foot which cannot be brought into specified tolerance by abrasive grinding shall be corrected by either (1) removal and replacement or (2) placing an overlay of asphalt concrete. The corrective method for each area shall be selected by the Contractor and shall be approved by the Engineer prior to beginning the corrective work. Replacement or overlay pavement not meeting the specified tolerances shall be corrected by the methods specified above. Corrective work shall be at the Contractor's expense. The Contractor shall run profilograms on the areas that have received abrasive grinding or corrective work until the final profilograms indicate the Profile Index of the area is within the specifed tolerance.

When abrasive grinding is used to bring the top surface of the uppermost layer of asphalt concrete surfacing within the specified surface tolerances, additional abrasive grinding shall be performed as necessary to extend the area ground in each lateral direction so that the lateral limits of grinding are at a constant offset from, and parallel with, the nearest lane line or pavement edge, and in each longitudinal direction so that the grinding begins and ends at lines normal to the pavement centerline, within a ground area. Ground areas shall be neat rectangular areas of uniform surface appearance.

The original of the final profilograms that indicate the pavement surface is within the Profile Index specified shall become the property of the County and shall be delivered to the Engineer prior to acceptance of the contract.

Method of Payment:
The contract bid price paid per ton for Hot Mix Asphalt shall include full compensation for furnishing all labor, tools, materials, equipment, and incidentals, and for doing all the work involved including the furnishing/application of asphaltic emulsion (paint binder) and header cutting and/or joining existing pavement as shown on the plans and/or as directed by the Engineer.

COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS:

The provisions of this section shall apply only to the following contract items:

ITEM CODE	ITEM
390130	Hot Mix Asphalt

The compensation payable for asphalt binder used in hot mix asphalt will be increased or decreased in conformance with the provisions of this section for paving asphalt price fluctuations exceeding 10 percent (Iu/Ib is greater than 1.10 or less than 0.90) which occur during performance of the work.

The adjustment in compensation will be determined in conformance with the following formulae when the item of asphalt concrete and asphalt rubber hot mix are included in a monthly estimate:

A. Total monthly adjustment = AQ

B. For an increase in paving asphalt price index exceeding 10 percent:

$A = 0.90 (Iu/Ib - 1.10) Ib$

C. For a decrease in paving asphalt price index exceeding 10 percent:

$A = 0.90 (Iu/Ib - 0.90) Ib$

D. Where:

A = Adjustment in dollars per ton of paving asphalt used to produce hot mix asphalt rounded to the nearest $0.01.

Iu = The California Statewide Paving Asphalt Price Index which is in effect on the first business day of the month within the pay period in which the quantity subject to adjustment was included in the estimate.

Ib = The California Statewide Paving Asphalt Price Index for the month in which the bid opening for the project occurred.

Q = Quantity in tons of paving asphalt that was used in producing the quantity of asphalt concrete shown under "This Estimate" on the monthly estimate using the amount of asphalt determined by the Engineer.

The adjustment in compensation will also be subject to the following:

A. The compensation adjustments provided herein will be shown separately on payment estimates. The Contractor shall be liable to the County for decreased

compensation adjustments and the County may deduct the amount thereof from moneys due or that may become due the Contractor.

B. Compensation adjustments made under this section will be taken into account in making adjustments in conformance with the provisions in Section 4-1.03B, "Increased or Decreased Quantities" of the Standard Specifications.

C. In the event of an overrun of contract time, adjustment in compensation for paving asphalt included in estimates during the overrun period will be determined using the California Statewide Paving Asphalt Price Index in effect on the first business day of the month within the pay period in which the overrun began.

The California Statewide Paving Asphalt Price Index is determined each month on the first business day of the month by the County using the median of posted prices in effect as posted by Chevron, Mobil, and Unocal for the Buena Vista, Huntington Beach, Kern River, Long Beach, Midway Sunset, and Wilmington fields.

In the event that the companies discontinue posting their prices for a field, the County will determine an index from the remaining posted prices. The County reserves the right to include in the index determination the posted prices of additional fields.

The California Statewide Paving Asphalt Price Index is available on the Division of Engineering Services website at: http://www.dot.ca.gov/hq/esc/oe/asphalt_index/astable.html.

ASPHALT CONCRETE DIKE:

Locations for Asphalt Concrete Dike installation will be determined in the field as directed by the Engineer.

Asphalt concrete dike shall be 6-inches high and conform to Riverside County Standard No. 212 as directed by the Engineer. A 2-foot transition from 0-inches to 6-inches shall be provided at either end of the asphalt concrete dike.

The pay quantity of asphalt concrete dikes shall be for placement, and shall be paid for as a separate item of work in addition to the price paid for the asphalt concrete material.

Asphalt binder to be mixed with the aggregate shall be PG 70-10 in accordance with the Special Provision for Asphalt, or as directed by the Engineer.

Method of Payment:
The contract unit prices paid per linear foot for Asphalt Concrete Dike shall include full compensation for furnishing all labor, materials other than asphalt concrete, tools, and equipment and for doing all the work involved in placing and compacting the dikes and transition ramps and no additional compensation will be allowed therefor.

Hot Mix Asphalt material used for asphalt concrete dike shall be paid for at the contract unit price per ton in accordance with section "Hot Mix Asphalt" of these special provisions.

No adjustment in the bid price per linear foot for overages or underages from the stated quantity will be allowed. Section 4-1.03B(1) and Section 4-1.03B(2) of the Standard Specifications for Increases/Decreases of more than 25% shall not apply. Payment shall be based on the actual field measured quantity.

SUBGRADE ENHANCEMENT FABRIC (GEOGRID):

Locations for Subgrade Enhancement Fabric (Geogrid) installation will be determined in the field as directed by the Engineer.

This work includes constructing a mechanically stabilized layer (MSL) with geogrid placed between the subgrade and pavement structure.

Geogrid shall be Tensar TX140, TerraGrid RX 1200, or approved equal. Geogrid material shall be woven, needlepunched polypropylene and shall be of the Type S2 or Type R2.

Biaxial and multi-axial geogrids shall be manufactured using polypropylene material. The geogrid reinforcement elements shall consist of regular network of integrally connected polymer tensile elements with aperture geometry capable of providing mechanical interlock with the surrounding soil, aggregate or other material.

Geogrids shall conform to the tables shown below. Unless otherwise shown, all values represent minimum average roll values (MARV) as defined in ASTM D4439.

TABLE 1: BIAXIAL

Property	Test Reference	Type[1]	
		S1	S2
Ultimate Tensile Strength lbs/ft (kN/m), Min.	ASTM D6637[1]	1300 (19)	1975 (28.8)
Tensile Strength @ 2% strain lbs/ft (kN/m), Min.	ASTM D6637[1]	450 (6.57)	600 (8.75)
Tensile Strength @ 5% strain lbs/ft (kN/m), Min.	ASTM D6637[1]	920 (13.4)	1340 (19.5)
Flexural Stiffness mg-cm	ASTM D7748	250000	750000
Junction strength, lbs/ft (kN/m), Min.	ASTM D7737[1]	1170 (17.1)	1778 (26)
Torsional Stiffness, cm-kg/degree	GRI:GG9[2]	3.2	6.5
Ultraviolet Stability, @ 500 hrs (%)	ASTM D4355-05	70	70

1. Biaxial geogrid contains four perpendicular intersecting ribs at each junction formed into a bi-directionally stable network of open rectangular apertures. Biaxial geogrid is used as secondary reinforcement in grade separation applications. Also used for subgrade stabilization, aggregate base reduction and/or life extension in pavement or railroad applications. All property values are listed for the cross machine direction with the exception of flexural stiffness, measured in the machine direction, and torsional stiffness which is measured at the junction.
2. Geosynthetic Research Institute, Test Method GG9, "Torsional Behavior of Bidirectional Geogrids When Subjected to In-Plane Rotation."

Table 2: MULTI-AXIAL				
Property	**Test Reference**	**Type[1]**		
		R1	**R2**	**R3**
Aperture Shape	Observation	Triangular	Triangular	Triangular
Radial Stiffness @ 0.5% Strain lbs/ft (kN/m), Min.	ASTM D6637[2]	10,285 (150)	15,430 (225)	20,580 (300)
Radial stiffness Ratio, dimensionless	ASTM D6637[3]	>0.60	>0.60	>0.60
Junction Strength Efficiency (%)	ASTM D7737[4]	93	93	93
Ultraviolet Stability, @ 500 hrs (%)	ASTM D4355-05	70	70	70

1. Multi-axial geogrid contains six or more intersecting ribs at each junction formed into a radially stable network of open equilateral triangular apertures. Multi-axial geogrid is used for subgrade stabilization, aggregate base reduction, asphalt concrete reduction, and/or life extension in pavement or railroad applications.
2. Minimum measured radial stiffness at 0.5% strain. Radial stiffness is measured on both the rib directions and the mid-rib directions (directions that bisect the angles between ribs).
3. Ratio of the minimum to maximum MARV values of radial stiffness at 0.5% strain
4. Load transfer capability determined in accordance with ASTM D7737 and ASTM D6637 and expressed as a percentage.

The geogrid shall be installed in accordance with this specification and installation guidelines and recommendations by the manufacturer. Additionally, the Contractor shall not:

1. Stockpile material on MSL geogrid
2. Place more MSL geogrid than can be covered in 48 hours

The geogrid may be temporarily secured in place with ties, staples, pins, or backfill or as directed by the Engineer.

When underlying subgrade is firm and stable with minimum rutting, rubber-tired equipment may pass over the MSL geogrid at speeds less than 5 mph. Do not use sudden braking or sharp turning movements.

Damaged or defective geogrid shall be replaced by the Contractor at no additional cost to the County. Replacement of damaged area shall consist of replacing the affected area adding 3 ft of geogrid beyond the limits of the affected area.

Method of Payment:

The contract bid price paid per square yard for Subgrade Enhancement Fabric (Geogrid) shall include full compensation for furnishing all labor, tools, material, equipment, and incidentals, and for doing all the work involved and complete in place for one layer of Geogrid in the area of the

Asphalt Concrete roadway construction and no additional compensation will be allowed therefor. The quantity shall be measured as one layer of Geogrid under asphalt concrete surfaces only, and does not include overlap.

No adjustment in the bid price per square yard for overages or underages from the stated quantity will be allowed. Sections 4-1.03B(1) and 4-1.03B(2) of the Standard Specifications do not apply for increases and decreases of pay quantity of more than 25% from the stated quantity. Payment shall be based on the actual field measured quantity.

MINOR CONCRETE (GUTTER DEPRESSION) – V-DITCH:

Locations for Minor Concrete (Gutter Depression) V-ditch will be determined in the field as directed by the Engineer.

Minor Concrete (gutter depression) V-ditch shall be constructed in accordance with the County Road Improvement Standards and Specifications, as directed by the Engineer and in conformance with Section 51, 73 and 90 of Standard Specifications, except as herein modified:

The Contractor is hereby notified that the existing soils have high sulfate/chloride solution content. In order to decrease the probability of these solutions penetrating the concrete, the concrete mix shall be Class 1 with Type V Portland cement with a maximum W/C ratio of 0.4.

Additionally, an impermeable membrane (6-mil visqueen) shall be placed under all buried concrete surfaces as directed by the Engineer.

Preparation of subgrade for the concrete structures shall be done in conformance with the requirements of Section 73-1.02 of the Standard Specifications.

Construction of V-ditch shall include, but not be limited to, the following:

1) Removal and disposal of any existing material, soil and aggregate as required;
2) Establishing grades, and assuring that all grades are met;
3) Performing all grading and compaction, as directed by the Engineer;
4) Construction of new V-ditch;
5) All scoring/grooving and required saw cutting;
6) Repair of any existing asphalt and PCC surfacing;
7) Installing 1/2" wide expansion joints;
8) All landscaping, and related work, to return the area adjacent to the V-ditch to its original condition and to conform the area to the new improvements;

The area along the V-ditch shall be filled and compacted with native or select material and graded to match and provide a smooth transition from the edge of the V-ditch, to the satisfaction of the Engineer.

Method of Payment:
The contract unit bid price paid per cubic yard Minor Concrete (Gutter Depression) [V-Ditch] shall include full compensation for furnishing all labor, equipment, materials and tools, and incidentals, and for doing all the work involved in the construction and complete in place including the furnishing and placing of impermeable membrane (6-mil visqueen) and expansion joints as specified in these special provisions and as directed by the Engineer and no additional compensation will be allowed therefor.

No adjustment in the bid price per cubic yard for overages or underages from the stated quantity will be allowed. Sections 4-1.03B(1) and 4-1.03B(2) of the Standard Specifications do not apply for increases and decreases of pay quantity of more than 25% from the stated quantity. Payment shall be based on the actual field measured quantity.

ROADSIDE SIGN - ONE POST:

Locations for Roadside Signs will be determined in the field as directed by the Engineer.

The "One-Way" sign shall be in accordance with MUTCD Sign Standard No. R6-1.

The Contractor shall furnish and install roadside signs at the locations shown on the plans or as directed by the Engineer, in conformance to the provisions in Section 56-2 "Roadside Signs," of the State Standard Specifications and these Special Provisions.

All Signs shall be installed on new square perforated steel tube posts in accordance with County Standard No. 1222.

All roadway signs shall have retroreflective sheeting. Except as stated below, the retro-reflectivity for all roadway signs, both temporary and permanent installations, shall meet or exceed ASTM Standard D 4956 Type III (3M Co. High Intensity Grade or approved equal). The retroreflectivity for R1-1 ("STOP") signs and W3-1 (Stop Ahead) signs shall meet ASTM Standard D 4956 Type IX (3M Co. Diamond Grade or approved equal).

Method of Payment:
The contract unit price paid per each for Roadside Sign - One Post shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work including all necessary concrete excavation and backfill as specified in the Standard Specifications.

RELOCATE ROADSIDE SIGN & REPLACE POST:

Locations for relocated signs will be determined in the field as directed by the Engineer.

Sign relocation shall conform to the provisions in Section 56 of the Standard Specifications and as directed by the Engineer.

Unless otherwise approved by the Engineer, each roadside sign shall be installed at the new location on the same day that the sign is removed from its original location.

All signs shall be installed using hex head bolts, washers, nuts and jam nuts in accordance with Standard Plans RS2 or as directed by the Engineer.

All Signs shall be installed on new square perforated steel tube posts in accordance with County Standard No. 1222.

Method of Payment:
The contract unit price paid per each for Relocate Roadside Sign & Replace Post shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work including all necessary concrete excavation and backfill as specified in the Standard Specification and these Special Provisions and no additional compensation will be allowed therefor.

BARRIER POST (BOLLARD):

Locations for Barrier Posts will be determined in the field as directed by the Engineer.

Barrier Posts shall be galvanized steel with no sharp edges, 6-inches in diameter, 4-feet above ground surface, 2-feet below ground surface, embedded in an 18-inch diameter concrete footing for the full underground depth, filled with concrete with a rounded top, and painted with yellow reflective paint.

Method of Payment:
Full compensation for conforming to the requirements of this article including all labor, equipment, materials and incidentals, to install concrete filled barrier posts as directed by the Engineer, shall be included in the contract unit prices paid per each for Barrier Post (Bollard) and no additional compensation will be allowed therefor.

WELDED STEEL EPOXY LINED AND COATED PIPE:

Welded steel pipe under access roads and driveways shall be of the size shown and shall conform to the provisions in Section 70, "Miscellaneous Facilities", Section 70-1.02B, "Welded Steel Pipe" of the Standard Specifications and these Special Provisions.

The steel pipe shall be Schedule 40.

Epoxy Coating:

The interior and exterior surfaces of the steel pipes shall be protected from corrosion by fusion-bonded epoxy lining and coating in accordance with the requirements of AWWA C213.

Repair of internal and external wall coatings must comply with the following:

1. Breaks or scuffs in the epoxy coating that are less than 36 square inches must be repaired by the application of epoxy material similar to and compatible with the durability, adhesion and appearance of the original epoxy coating under section 4.4.4.1.2 of the AWWA C213.
2. Repair coating must be a minimum thickness of 0.01 inch, 10 mils, after drying.
3. The County will reject a pipe section if individual breaks exceed 36 square inches or if the total area of breaks exceed 0.5 percent of the total surface area of the pipe section.

Bedding:

Where it becomes necessary to remove boulders or other interfering objects at subgrade for bedding, any void below such subgrade shall be filled with suitable bedding material.

If soft, soft, spongy, unstable, or other unsuitable material is encountered upon which the bedding material or pipe is to be placed, this material shall be removed to a depth ordered by the Engineer and replaced with bedding material suitably densified. Payment for additional bedding so ordered, will be considered as included in the contract bid price paid per linear foot for the different sizes of steel pipe. If the necessity for such additional bedding material has been caused by an act or failure to act on the part of the Contractor or is required for the control of groundwater, the Contractor shall bear the expense of the additional excavation and bedding.

Bedding material shall first be placed on a firm and unyielding subgrade so that the pipe is supported for the full length of the barrel. There shall be 4 inches minimum of bedding below the pipe barrel. There shall be a minimum side clearance of 6 inches on each side of the pipe barrel. The material in the bedding zone shall be placed, and densified by mechanical compaction.

Method of Payment:

The contract price paid per linear foot for the different sizes of Welded Steel Epoxy Lined and Coated Pipe includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all of the work involved in installing the different sizes of pipe, including coatings, linings, complete in place, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

HIGH DENSITY POLYETHYLENE (HDPE) PIPE:

Plastic Pipe shall conform to the provisions in Section 64, "Plastic Pipe", of the Standard Specifications, except as otherwise specified in these specifications.

Plastic Pipe shall be Type S corrugated polyethylene pipe with smooth interior wall manufactured from high density polyethylene (HDPE) virgin compounds.

Installation shall be in accordance with the plans, Standard Specifications, these specifications, and as recommended by the pipe manufacturer.

All the joints of the HDPE pipes need to be watertight. The watertight joints shall conform to section 64 of the Standard specifications. Full compensation of all labor, materials, tools, and incidentals for making the HDPE pipes watertight shall be included in the payment for the different sizes of the HDPE Pipe.

At all pipe joint locations, the inside of the pipe shall be smooth and free of obstructions.

Except as otherwise designated by classification on the plans or in the specifications, joints for culvert and drainage pipes shall conform to the plans or specifications for standard joints.

Pipe shall be placed in a trench 12" minimum wider than the outside diameter of the pipe being installed. Trenching shall be 6" minimum in width on each side of the pipe.

The pipe shall be placed in the bottom of the trench and the trench shall be backfilled.

If so directed by the Engineer, the pipe shall be backfilled with two sack slurry.

The slurry shall be allowed to cure a minimum of two days prior to final paving.

Slurry cement backfill shall conform to Section 19-3.062 of the Standard Specifications, except that full compensation therefor shall be considered as included in the prices paid for the contract unit bid price paid per linear foot for HDPE Pipe of the types specified in the Bid Items list and no additional compensation will be allowed therefor.

Temporary road steel plates shall be installed over the trench to allow traffic movements until the new asphalt concrete is installed or as directed by the Engineer.

Full compensation for providing, installing and maintaining temporary road steel plates shall be considered as included in the contract unit bid prices paid per linear foot for HDPE Pipe of the types specified in the Bid Items list and no additional compensation will be allowed therefor.

Full compensation for the removal and disposal of existing pipe shall be considered as included in the contract unit bid prices paid per linear foot for HDPE Pipe.

Method of Payment:
The contract price paid per linear foot for the different sizes of HDPE Pipe includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all of the work involved in installing HDPE Pipe, complete in place, including structure excavation and backfill, slurry encasement, and removing and properly disposing of existing pipe that is being replaced, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

MISCELLANEOUS WORK AS DIRECTED:

Miscellaneous Work As Directed shall consist of unexpected and/or necessary work that is not included in other contract bid items, as determined by the Engineer. Miscellaneous Work As Directed shall be performed as directed by the Engineer and in accordance with the applicable standards and specifications.

Method of Payment:
Payment for implementing Miscellaneous Work As Directed will be paid for on a force account basis, in accordance with Section 9-1.03 of the Standard Specifications, up to the fixed bid price, for the work performed.

OBSTRUCTIONS:

Attention is directed to Sections 8-1.10, "Utility and Non-Highway Facilities", and 15, "Existing Highway Facilities" of the Standard Specifications and these Special Provisions.

Existing utility and privately owned facilities shall be protected in accordance with Section 7-1.11, "Preservation of Property" and these Special Provisions. The Contractor is also responsible to protect those facilities that are to be relocated by others prior to or during construction, and shall protect those facilities in both their existing and their ultimate locations. The Contractor shall cooperate with owners and their Contractors of utility and privately owned facilities, for the relocation of said facilities, in accordance with Section 7-1.14, "Cooperation" of the Standard Specifications.

All water valves and covers, gas valves and covers, sewer manholes, survey monuments, survey markers and any other utility appurtenances shall be protected in place.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workmen and the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipe lines greater than 6 inches in diameter or pipe lines operating at pressures greater than 60 psi (gage); underground electric supply system conductors or cables either directly buried or in duct or conduit which do not have concentric neutral conductors or other effectively grounded metal shields or sheaths; and underground electrical conductors with potential to ground of more than 300 volts. The Contractor shall notify the Engineer at least twenty-four hours prior to performing any work in the vicinity of such facilities.

Attention is directed to the requirements of Government Code Sections 4216-4216.9 pertaining to existing utility facilities.

Method of Payment:
Full compensation for all costs, including labor, equipment, materials and incidentals, required to comply with the requirements of this section above, including protection of water valves and covers, gas valves and covers, sewer manholes, survey monuments, survey markers and any other utility appurtenances, shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

CONSTRUCTION PROGRESS SCHEDULE:

The Contractor shall submit to the Engineer a practicable progress schedule within 20 working days of approval of the contract, and within 10 working days of the Engineer's written request at any other time.

The schedule shall show the location order in which the Contractor proposes to carry out the work, the dates on which the Contractor will start several relevant features of the work (Mobilization, Grading, Paving, Clean-Up) and the contemplated dates for completing those relevant features.

The progress schedules submitted shall be consistent in all respects with the time and order of work requirements for the contract.

The Contractor may use the Mobile Home Index Map as reference to schedule order of work for the project sites by geographic location.

The Contractor may perform concurrent work on a maximum of four (4) projects sites at one time. Work on the project sites scheduled for work shall be completed to the satisfaction of the Engineer. The Contractor shall not start work on other project sites until directed to do so by the Engineer.

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Appendix A

AQMD Recommendations

Dust Abatement Attachments

Table of Contents

AQMD SIGNAGE RECOMMENDATIONS

November, 2001

Plan holder shall post signage at specified locations on the subject property in accordance with the standards specified below. The exception to the standards is that all letters shall be 4 inches high, with the names and telephone numbers of appropriate contacts and services in bold print, as indicated in the standards. These signs shall also include the SCAQMD toll free complaint line 1-800-CUT-SMOG (1-800-288-7664) and the telephone number for the Environmental Observer. These signs shall be posted within 50 feet of the curb on all four (4) corners of the subject property.

For each Dust Control Plan aggregating less than, or equal to, ten (10) acres:

1. The applicant shall install a sign on such property which is visible to the public that meets the following requirements:

   (a) Such sign shall measure at least four (4) feet wide by four (4) feet high and conform to the specifications in 1 (a) below.

For each Dust Control Plan aggregating over ten (10) acres:

2. The applicant shall install a sign on such property which is visible to the public that meets the following requirements:

   (a) Such sign shall measure at least eight (8) feet wide by four (4) feet high and conform to the specifications in 1 (b) below.

THE SIGN SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

1. **The sign boards shall be constructed with materials capable of withstanding the environment in which they are placed.**

   (a) For 4' x 4' signs, the District recommends the following:

   I. ¾ " A/C laminated plywood board
   II. Two 4" x 4" posts
   III. The posts should be attached to the edges of the plywood board with at least 2 carriage bolts on each post.
   IV. The front surface of the sign board should be painted in the contrasting color of a white background with black lettering.

   (b) For 4' x 8' signs, the District recommends the following:

   I. 1" A/C laminated plywood board
   II. Two 5" x 6" posts
   III. The posts should be attached to the 4' edges of the plywood board with at least 2 carriage bolts on each post.
   IV. The front surface of the sign board should be painted in the contrasting color of a white background with black lettering.

2. **The sign board shall be installed and maintained in a condition such that members of the public can easily view, access, and read the sign at all times until the expiration date of the Dust Control plan.**

   (a) For 4' x 4' signs, the District recommends the following:
   - I. The lower edge of the sign board should be mounted at least 2' above the existing ground surface to facilitate ease of viewing.
   - II. The posts should be set in a hole at least 3' deep with concrete footings to preclude downing by high winds.
   - III. On the construction site, the sign should be positioned such that nothing obstructs the public's view from the primary street access point.
   - IV. For construction projects that are developed in phases, the sign should be moved to the area that is under active construction.
   - V. In situations where all phases of the construction project are completed on a property prior to expiration of the Dust Control Plan, a written request for cancellation of the Dust Control Plan must be submitted to the Engineer.

   (b) For 4' x 8' signs, the District recommends the following:
   - I. The lower edge of the sign board should be mounted at least 2' above the existing ground surface to facilitate ease of viewing.
   - II. The posts should be set in a hole at least 4' deep with concrete footings to preclude downing by high winds.
   - III. On the construction site, the sign should be positioned such that nothing obstructs the public's view from the primary street access point.
   - IV. For construction projects that are developed in phases, the sign should be moved to the area that is under active construction.
   - V. In situations where all phases of the construction project are completed on a property prior to expiration of the Dust Control Plan, a written request for cancellation of the Dust Control Plan must be submitted to the Engineer.

3. **The sign board shall contain the following information:**

   (a) Project Name
   (b) Name of Prime Contractor
   (c) Phone Number of Contractor's Employee Responsible for Dust Control Matters
   (d) County designated phone number (to be provided by the Engineer)
   (e) South Coast Air Quality Management District Phone Number

4. **The sign board shall be designed to the following alpha and numeric text dimensions (sign boards written in longhand are unacceptable).**

   (a) For a permittee subject to the 4' x 4' sign requirement, the District provides the following example: (as modified by the County of Riverside for use on County Public Works projects)

1" UPPERCASE Letters →	PROJECT NAME:		← 3 ½ " Title Case Bold Letters
1" UPPERCASE Letters →	CONTRACTOR		← 3 ½ " Title Case Bold Letters
1" Title Case Letters →	Contractor's Dust Control Phone #		← 3" Bold Numbers
1" Title Case Letters →	County of Riverside Phone #		← 3" Bold Numbers
1" Title Case Letters →	Phone Number:	**SCAQMD 1-800-CUT-SMOG**	← 3 ½ " Bold Numbers

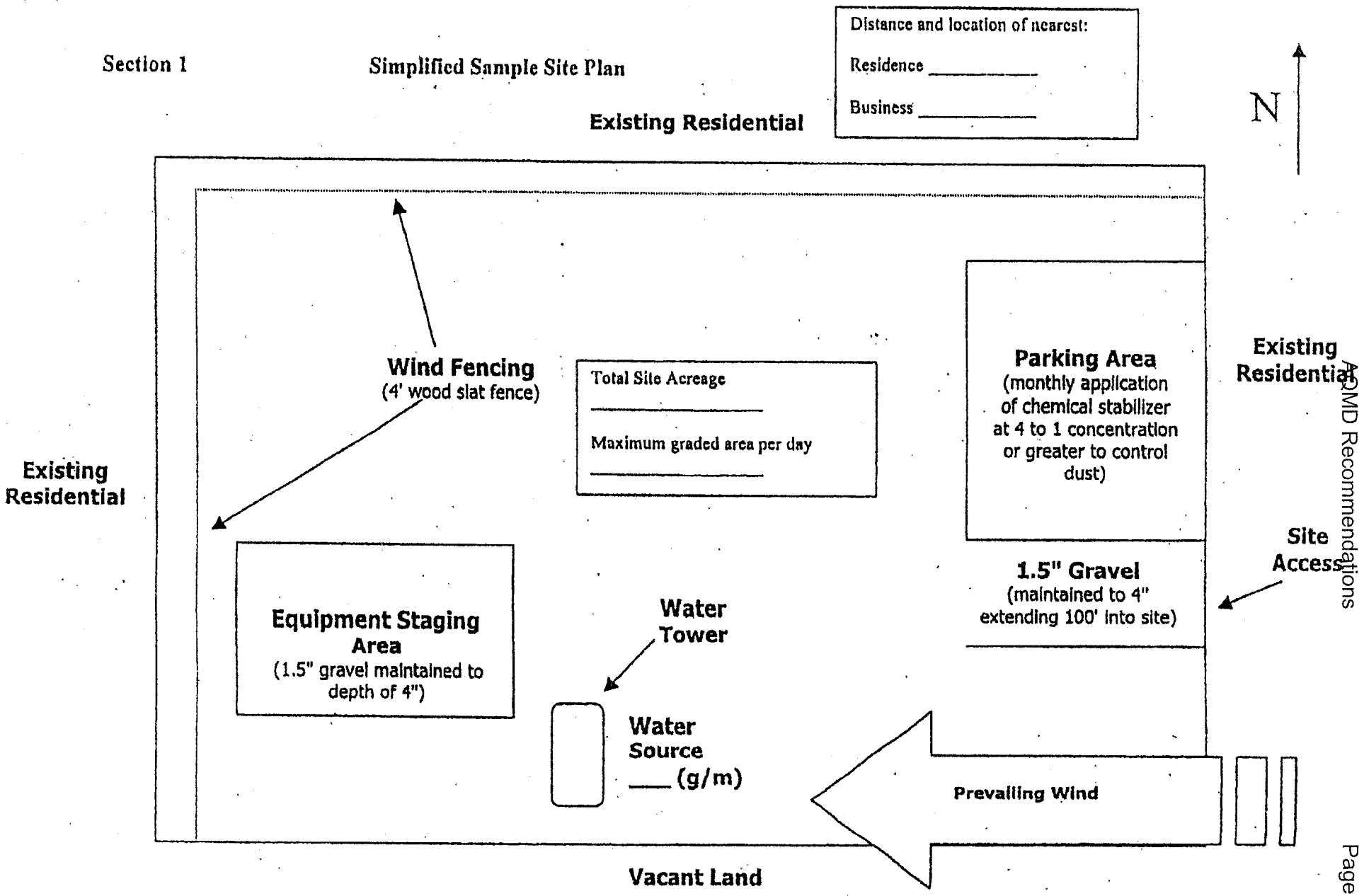
"Title Case" means the first letter of a word is capitalized and subsequent letters are lower case.

(b) For a permittee subject to the 4' x 8' sign requirement, the District provides the following example: (as modified by the County of Riverside)

2" UPPERCASE Letters →	PROJECT NAME:		← 4" Title Case Bold Letters
2" UPPERCASE Letters →	CONTRACTOR		← 4" Title Case Bold Letters
2" Title Case Letters →	Contractor's Dust Control Phone #		← 4" Bold Numbers
2" Title Case Letters →	County of Riverside Phone #	**909-**	← 4" Bold Numbers
2" Title Case Letters →	Phone Number:	**SCAQMD 1-800-CUT-SMOG**	← 4 ½ " Bold Numbers
2" Title Case Letters →	**COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT**		

Section 1

Simplified Sample Site Plan



Remember...
DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK, REGARDLESS OF CONSTRUCTION STATUS

Plan Review Checklist
Clearing/Grubbing/Mass Grading Phase

☐ If feasible, use grading permit conditions to break the project into phases so that only a portion of the site is disturbed at any given time to ensure control of fugitive dust. This technique is critical for project sites with greater than 100 acres.

☐ Prior to initiating activity, pre-water site through use of portable irrigation lines. At least 72 hours of pre-watering is recommended for each area prior to initiating earth-movement. Require the Applicant to specify water source and available flow rate (g/m).

☐ Water applied continuously to all disturbed portions of the site by means of water truck/water pull as necessary to maintain sufficient visible moisture on the soil surface. For reference, one 2,000 gallon water truck can treat approximately 4 acres of active construction per hour. Also, for cut and fill activities, one 10,000 gallon water pull is estimated to be necessary for each 7,000 cubic yards of daily earth-movement. Multiple 4,000-gallon water trucks may be used in place of one 10,000-gallon water pull. Touch and visual contrast are reasonably good indicators of soil moisture. Surface areas that are dry to the touch and appear lighter-colored require the application of additional water to prevent visible or fugitive dust. Require the Applicant to specify the number of watering vehicles available for dust control during mass grading and during off-hours as well as availability of back-up water trucks if the site experiences dust control problems.

☐ Water towers are necessary for projects with more than 10 acres of active construction. Without a water tower, it can take up to 30 minutes to fill a 2,000 gallon water truck. Also, multiple water towers are necessary for projects that use water pulls as filling one 10,000 gallon water pull can drain a water tower which takes up to 40 minutes to refill.

☐ Wind fencing is necessary between the site and nearby residences or businesses. Off-site upwind fencing and on-site wind fencing for larger projects can also keep blowsand from being deposited onto the site or traveling through the site.

☐ A perimeter watering system consisting of portable irrigation equipment may be an effective mitigation system to protect surrounding residences and businesses. The portable watering system may be used in place of or in conjunction with watering trucks. The local jurisdiction may also be provided access to this equipment.

Remember...
DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK, REGARDLESS OF CONSTRUCTION STATUS

☐ Construction site accesses are to be improved with 1.5" gravel maintained to a depth of 4", at least 20' wide, and extending 100 feet into the site. If the project site is not balanced, a wheel washing system and/or ribbed steel plates should be placed in the roadway before the vehicle enters the graveled area to clean the tires and prevent trackout.

☐ Equipment staging areas are to be treated with 1.5" gravel maintained to a depth of 4".

☐ Employee parking areas are to be covered with 1.5" gravel maintained to a depth of 4" or treated with chemical dust suppressants at a 4 to 1 ratio on at least a monthly basis to prevent fugitive dust.

☐ Chemical dust suppressants are to be mixed at a ratio of 20 to 1 and applied to all disturbed surfaces that are proposed to remain inactive for a period of at least 10 consecutive days. These products are effective in preventing and controlling dust. Recordkeeping is necessary to demonstrate compliance.

☐ All project sites greater than 100 acres shall monitor daily wind speeds and AQMD forecasted wind events (call 1.800.CUT.SMOG, press one for air quality information, and then press five for Coachella Valley wind forecasts). Operators shall maintain these records for review by any local code enforcement officer or AQMD inspector.

☐ An environmental observer whose primary duty is to oversee dust control at the site is to be used for construction projects greater than 100 acres and/or sites with more than 50 acres of active construction. The environmental observer is tasked with monitoring dust abatement measures and authorized to deploy additional water trucks and other dust control actions (i.e., wind fencing, street sweepers, chemical dust suppressants, etc.) as necessary to prevent or control fugitive dust.

☐ Other (specify):_____

_____

_____

_____

_____

_____

_____

Remember...
DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK, REGARDLESS OF CONSTRUCTION STATUS

Plan Review Checklist
Finish Grading Phase

☐ Water applied continuously to all disturbed portions of the site by means of water truck/water pull as necessary to maintain sufficient visible moisture on the soil surface. For reference, one 2,000 gallon water truck can treat approximately 4 acres of active construction per hour. Also, for cut and fill activities, one 10,000 gallon water pull is estimated to be necessary for each 7,000 cubic yards of daily earth-movement. Multiple 4,000-gallon water trucks may be used in place of a 10,000-gallon water pull. Touch and visual contrast are reasonably good indicators of soil moisture. Surface areas that are dry to the touch and appear lighter-colored require the application of additional water to prevent visible or fugitive dust. Require the Applicant to specify the number of watering vehicles available for dust control during finish grading and during off-hours as well as availability of back-up water trucks if the site experiences dust control problems.

☐ Water towers are necessary for projects with more than 10 acres of active construction. Without a water tower, it can take up to 30 minutes to fill a 2,000 gallon water truck. Also, multiple water towers are necessary for projects that use water pulls as filling one 10,000 gallon water pull can drain a water tower which takes up to 40 minutes to refill.

☐ Wind fencing is necessary between the site and nearby residences or businesses to reduce fugitive dust. Off-site upwind fencing and on-site wind fencing for larger projects can also keep blowsand from being deposited onto the site or traveling through a site.

☐ Chemical dust suppressants are to be applied at a concentration of at least 10 to 1 to finish graded areas once final elevations have been reached. For areas that will remain inactive for longer periods, vegetation can be a cost-effective alternative to chemical stabilization. Wind fencing or other obstructions can keep the stabilized area free from future disturbances.

☐ Construction site access(es) are to be improved with 1.5" gravel maintained to a depth of at least 4", with a minimum width of at least 20', extending 100 feet into the project site.

☐ Equipment staging areas are to be treated with 1.5" gravel maintained to a depth of 4".

☐ Internal roadway networks are to be treated with chemical dust suppressants at a minimum rate of at least 4 to 1 and retreated on a monthly basis once final roadway elevations have been reached.

☐ Employee parking areas are to be treated with chemical dust suppressants at a mix ratio of at least 4 to 1 and retreated on at least a monthly basis or covered with 1.5" gravel maintained to a depth of 4" to prevent fugitive dust.

☐ Other (specify):_____

_____

_____

_____

Remember...
DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK, REGARDLESS OF CONSTRUCTION STATUS

Plan Review Checklist
Construction Phase

☐ Water applied continuously to all disturbed portions of the site by means of water truck/water pull is necessary to maintain sufficient visible moisture on the soil surface. For reference, one 2,000 gallon water truck can treat approximately 4 acres of active construction per hour. Touch and visual contrast are reasonably good indicators of soil moisture. Surface areas that are dry to the touch and appear lighter-colored require the application of additional water to prevent visible or fugitive dust. Require the Applicant to specify the number of watering vehicles available for dust control during the construction phase and during off-hours as well as availability of back-up water trucks if the site experiences dust control problems.

☐ Wind fencing is necessary between the site and nearby residences or businesses. Off-site upwind fencing and on-site wind fencing for larger projects can also keep blowsand from being deposited onto the site or traveling through the site. Block walls, if part of the final project, can replace wind fencing during the construction phase.

☐ Chemical dust suppressants are to be applied at a concentration of at least 20 to 1 to finish graded areas once final elevations have been reached. For areas that will remain inactive for longer periods, vegetation can be a cost-effective alternative to chemical stabilization. Wind fencing or other obstructions can keep the stabilized area free from future disturbances.

☐ Construction site accesses are to be improved with 1.5" gravel, maintained to a depth of 4", with a width of at least 20', extending 100' into the project site. Paving internal roadways can substitute for gravel.

☐ Internal roadway networks are to be paved as early as feasible in the construction phase. Street sweeping of internal and/or external access roads will likely be required to control entrained road dust.

☐ Employee parking areas are to be treated with chemical dust suppressants at a mix ratio of no less than 4 to 1 and retreated on a monthly basis, or more frequently if fugitive dust is observed. If internal roadway is complete, employees are to be instructed to park on paved roads.

☐ Other (specify):_____

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Remember...
DUST CONTROL IS REQUIRED 24 HOURS A DAY, 7 DAYS A WEEK, REGARDLESS OF CONSTRUCTION STATUS

REASONABLY AVAILABLE CONTROL MEASURES

Paragraph (d)(3) of Rule 403 allows activities outside the South Coast Air Basin (see Figure 2-1) to implement reasonably available control measures in lieu of best available control measures. Additionally, as specified by subparagraph (f)(3)(D) of Rule 403, any person seeking approval of a fugitive dust emissions control plan for projects outside the South Coast Air Basin must demonstrate to the satisfaction of the District that the given activity is employing all reasonably available fugitive dust control measures.

The District has prepared the attached listing of reasonably available fugitive dust control measures for a variety of source categories. This list is based on the U.S. Environmental Protection Agency's reference document entitled, "Control of Open Fugitive Dust Sources," Midwest Research Institute, September 1988.

The District encourages the use of those dust control measures that minimize the use of potable water. When water is needed, reclaimed water should be utilized to the greatest extent feasible.

REASONABLY AVAILABLE CONTROL MEASURES

The left column contains a listing of the sources of fugitive dust which are intended for emission control under District Rule 403 and a listing of control measures and high-wind measures. The right column contains a description of the reasonably available fugitive dust control measures for each of the sources.

Source: (1) Land Clearing/Earth-Moving

CONTROL MEASURES	DESCRIPTION
(A) Watering	(1) Application of water by means of trucks, hoses and/or sprinklers prior to conducting any land clearing. This will increase the moisture content of the soils; thereby increasing its stability. (2) Pre-application of water to depths of proposed cuts. (3) Once the land clearing/earth moving activities are complete, a second application of water can generate a thin crust that stabilizes the disturbed surface area provided that it is not disturbed. (Security fencing can be used to prevent unwanted future disturbances of sites where a surface crust has been created).
(B) Chemical stabilizers	(1) Only effective in areas which are not subject to daily disturbances. (2) Vendors can supply information on product application and required concentrations to meet the specifications established by the Rule.
(C) Wind fencing	(1) Three- to five-foot barriers with 50% or less porosity located adjacent to roadways or urban areas can be effective in reducing the amount of windblown material leaving a site. (2) Would likely be used in conjunction with other measures (e.g., watering, chemical stabilization, etc.) to ensure that visible emissions do not cross a property line.
(D) Cover haul vehicles	(1) Entire surface area of hauled earth should be covered once vehicle is full.
(E) Bedliners in haul vehicles	(1) When feasible, use in bottom-dumping haul vehicles.

HIGH WIND MEASURE

(a) Cease all active operations; or
(b) Apply water within 15 minutes to any soil surface which is being moved or otherwise disturbed.

Source: (2) Unpaved Roads

CONTROL MEASURES	DESCRIPTION
(F) Paving	(1) Requires street sweeping/cleaning if subject to material accumulation.
(G) Chemical stabilization	(1) Vendors can supply information as to application methods and concentrations to meet the specifications established by the Rule (2) Not recommended for high volume or heavy equipment traffic use.
(H) Watering	(1) In sufficient quantities to keep surface moist. (2) Required application frequency will vary according to soil type, weather conditions, and vehicular use.
(I) Reduce speed limits	(1) 15 mile per hour maximum. May need to be used in conjunction with watering or chemical stabilization to prevent visible emissions from crossing the property line.
(J) Reduce vehicular trips	(1) Access restriction or redirecting traffic to reduce vehicle trips by a minimum of 60 percent.
(K) Gravel	(1) Gravel maintained to a depth of four inches can be an effective measure. (2) Should only be used in areas where paving, chemical stabilization or frequent watering is not feasible..

HIGH WIND MEASURE

(c) Apply a chemical stabilizer (to meet the specifications established by the Rule) prior to wind events; or
(d) Apply water once each hour; or
(e) Stop all vehicular traffic.

Source: (3) **Storage Piles**

CONTROL MEASURES	DESCRIPTION
(L) Wind sheltering	(1) Enclose in silos. (2) Install three-sided barriers equal to height of material, with no more than 50 percent porosity.
(M) Watering	(1) Application methods include: spray bars, hoses and water trucks. (2) Frequency of application will vary on site-specific conditions.
(N) Chemical stabilizers	(1) Best for use on storage piles subject to infrequent disturbances.
(O) Altering load-in/load-out procedures	(1) Confine load-in/load-out procedures to leeward (downwind) side of the material. (2) May need to be used in conjunction with wind sheltering to prevent visible emissions from crossing the property line.
(P) Coverings	(1) Tarps, plastic, or other material can be used as a temporary covering. (2) When used, these should be anchored to prevent wind from removing coverings.

HIGH WIND MEASURE

(f) Apply chemical stabilizers (to meet the specifications established by the Rule) prior to wind events; or
(g) Apply water once per hour; or
(h) Install temporary covers.

Source: (4) Paved Road Track-Out

CONTROL MEASURES	DESCRIPTION
(Q) Chemical stabilization	(1) Most effective when used on areas where active operations have ceased. (2) Vendors can supply information on methods for application and required concentrations.
(R) Sweep/clean roadways	(1) Either sweeping or water flushing may be used.
(S) Cover haul vehicles	(1) Entire surface area should be covered once vehicle is full.
(T) Bedliners in haul vehicles	(1) When feasible, use in bottom dumping vehicles.
(U) Site access improvement	(1) Pave internal roadway system. (2) Most important segment, last 100 yards from the connection with paved public roads

HIGH WIND MEASURE

(i) Cover all haul vehicles; and
(j) Clean streets with water flushing, unless prohibited by the Regional Water Quality Control Board.

Source: (5) Disturbed Surface Areas/ Inactive Construction Sites

CONTROL MEASURES	DESCRIPTION
(Q) Chemical stabilization	(1) Most effective when used on areas where active operations have ceased. (2) Vendors can supply information on methods for application and required concentrations.
(R) Watering	(1) Requires frequent applications unless a surface crust can be developed.
(S) Wind fencing	(1) Three- to five-foot barriers with 50% or less porosity adjacent to roadways or urban areas can be effective in reducing the amount of wind blown material leaving a site.
(T) Vegetation	(1) Establish as quickly as possible when active operations have ceased. (2) Use of drought tolerant, native vegetation is encouraged.

HIGH WIND MEASURES

(k) Apply chemical stabilizers (to meet the specifications established by the Rule); or
(l) Apply water to all disturbed surface areas 3 times per day.

BEST AVAILABLE CONTROL MEASURES

Rule 403, paragraph (d)(2) requires active operations [defined in Rule 403, paragraph (c)(1)] within the South Coast Air Basin (see Figure 2-1) to implement at least one best available control measure for each fugitive dust source type on site. Additionally, as specified by subparagraph (f)(3)(D) of Rule 403, any person seeking approval of a fugitive dust emissions control plan for projects within the South Coast Air Basin must demonstrate to the satisfaction of the AQMD that the given activity is employing all best available fugitive dust control measures.

The AQMD has prepared the attached listing of best available fugitive dust control measures for a variety of source categories. This list is based on the U.S. Environmental Protection Agency's reference document entitled, "Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures," Office of Air and Radiation, September 1992.

The AQMD encourages the use of those dust control measures that minimize the use of potable water. When water is needed, reclaimed water should be utilized to the greatest extent feasible.

BEST AVAILABLE CONTROL MEASURES

The left column contains a listing of the sources of fugitive dust which are intended for emission control under District Rule 403 and a listing of control measures and high-wind measures. The right column contains a description of the best available fugitive dust control measures for each of the sources.

Source: (1) Land Clearing/Earth-Moving

CONTROL MEASURES	DESCRIPTION
(A) Watering (pre-grading)	(1) Application of water by means of trucks, hoses and/or sprinklers prior to conducting any land clearing. This will increase the moisture content of the soils; thereby increasing its stability. (2) Pre-application of water to depths of proposed cuts.
(A-1) Watering (post-grading)	(1) In active earth-moving areas water should be applied at sufficient frequency and quantity to prevent visible emissions from extending more than 100 feet from the point of origin.
(A-2) Pre-grading planning	(1) Grade each phase separately, timed to coincide with construction phase; or (2) Grade entire project, but apply chemical stabilizers or ground cover to graded areas where construction phase begins more than 60 days after grading phase ends.
(B) Chemical stabilizers	(1) Only effective in areas which are not subject to daily disturbances. (2) Vendors can supply information on product application and required concentrations to meet the specifications established by the Rule.
(C) Wind fencing	(1) Three- to five-foot barriers with 50% or less porosity located adjacent to roadways or urban areas can be effective in reducing the amount of windblown material leaving a site. Must be implemented in conjunction with either measure (A-1) or (B).
(D) Cover haul vehicles	(1) Entire surface area of hauled earth should be covered once vehicle is full.
(E) Bedliners in haul vehicles	(1) When feasible, use in bottom-dumping haul vehicles.

HIGH WIND MEASURE

(a) Cease all active operations; or
(b) Apply water within 15 minutes to any soil surface which is being moved or otherwise disturbed.

Source: (2) Unpaved Roads

CONTROL MEASURES	DESCRIPTION
(F) Paving	(1) Requires street sweeping/cleaning if subject to material accumulation.
(G) Chemical stabilization	(1) Vendors can supply information as to application methods and concentrations to meet the specifications established by the Rule (2) Not recommended for high volume or heavy equipment traffic use.
(H) Watering	(1) In sufficient quantities to keep surface moist. (2) Required application frequency will vary according to soil type, weather conditions, and vehicular use.
(I) Reduce speed limits	(1) 15 mile per hour maximum. May need to be used in conjunction with watering or chemical stabilization to prevent visible emissions from crossing the property line.
(J) Reduce vehicular trips	(1) Access restriction or redirecting traffic to reduce vehicle trips by a minimum of 60 percent.
(K) Gravel	(1) Gravel maintained to a depth of four inches can be an effective measure. (2) Should only be used in areas where paving, chemical stabilization or frequent watering is not feasible.

HIGH WIND MEASURE

(a) Apply a chemical stabilizer (to meet the specifications established by the Rule) prior to wind events; or
(b) Apply water once each hour; or
(c) Stop all vehicular traffic.

Source: (3) Storage Piles

CONTROL MEASURES	DESCRIPTION
(L) Wind sheltering	(1) Enclose in silos. (2) Install three-sided barriers equal to height of material, with no more than 50 percent porosity.
(M) Watering	(1) Application methods include: spray bars, hoses and water trucks. (2) Frequency of application will vary on site-specific conditions.
(N) Chemical stabilizers	(1) Best for use on storage piles subject to infrequent disturbances.
(O) Altering load-in/load-out procedures	(1) Confine load-in/load-out procedures to leeward (downwind) side of the material. Must be used in conjunction with either measure (L), (M), (N), or (P).
(P) Coverings	(1) Tarps, plastic, or other material can be used as a temporary covering. (2) When used, these should be anchored to prevent wind from removing coverings.

HIGH WIND MEASURE

(a) Apply chemical stabilizers (to meet the specifications established by the Rule) prior to wind events; or
(b) Apply water once per hour; or
(c) Install temporary covers.

Source: (4) **Paved Road Track-Out**

CONTROL MEASURES	DESCRIPTION
Compliance with District Rule 403.	Paragraph (d)(5).

Source: (5) Disturbed Surface Areas/ Inactive Construction Sites

CONTROL MEASURES	DESCRIPTION
(Q) Chemical stabilization	(1) Most effective when used on areas where active operations have ceased. (2) Vendors can supply information on methods for application and required concentrations.
(R) Watering	(1) Requires frequent applications unless a surface crust can be developed.
(S) Wind fencing	(1) Three- to five-foot barriers with 50% or less porosity adjacent to roadways or urban areas can be effective in reducing the amount of wind blown material leaving a site. Must be used in conjunction with either measure (Q), (R), or (T).
(T) Vegetation	(1) Establish as quickly as possible when active operations have ceased.*

HIGH WIND MEASURES

(a) Apply chemical stabilizers (to meet the specifications established by the Rule); or
(b) Apply water to all disturbed surface areas 3 times per day.

* Use of drought tolerant, native vegetation is encouraged.

TABLE 1

BEST [REASONABLY]* AVAILABLE CONTROL MEASURES FOR HIGH WIND CONDITIONS

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice [once] per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice [once] per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 1 may be used.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2
DUST CONTROL ACTIONS FOR EXEMPTION FROM PARAGRAPH (d)(4)*

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)*

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 [70] percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 [70] percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 [30] days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)*

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 [70] percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 3

TRACK-OUT CONTROL OPTIONS

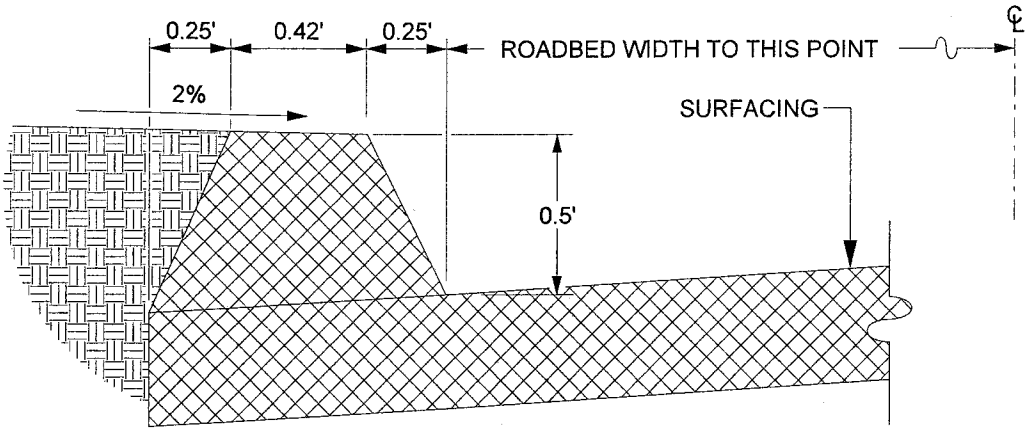
PARAGRAPH (d)(5)(B)

CONTROL OPTIONS

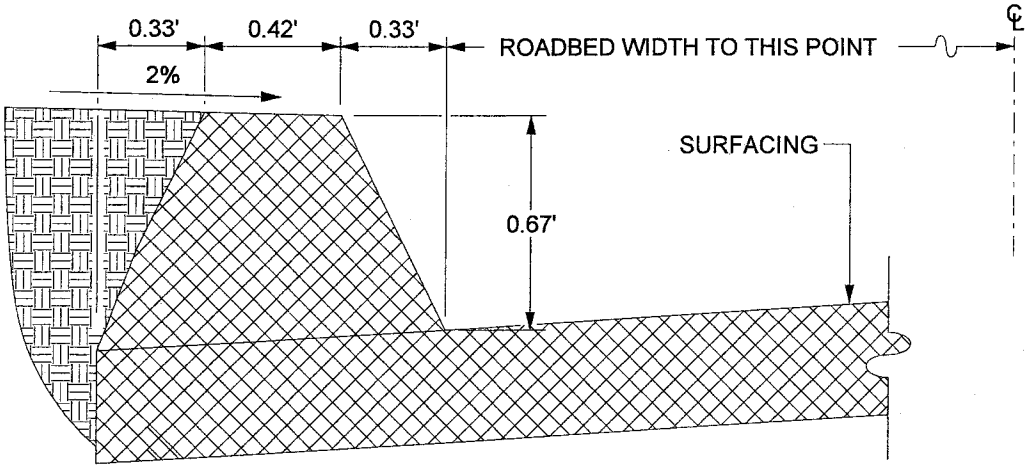
(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

Appendix B

Reference Drawings



6" A.C. DIKE



8" A.C. DIKE

NOT TO SCALE

NOTE: A.C. DIKE REQUIRED WHERE FILL SLOPES ARE STEEPER THAN 4:1, MATERIAL IS SUSCEPTIBLE TO EROSION, OR WHERE ROADWAY GRADIENT EXCEEDS 3%.

APPROVED BY:

DATE: 05/01/07

DIRECTOR OF TRANSPORTATION
GEORGE A. JOHNSON, RCE 42328

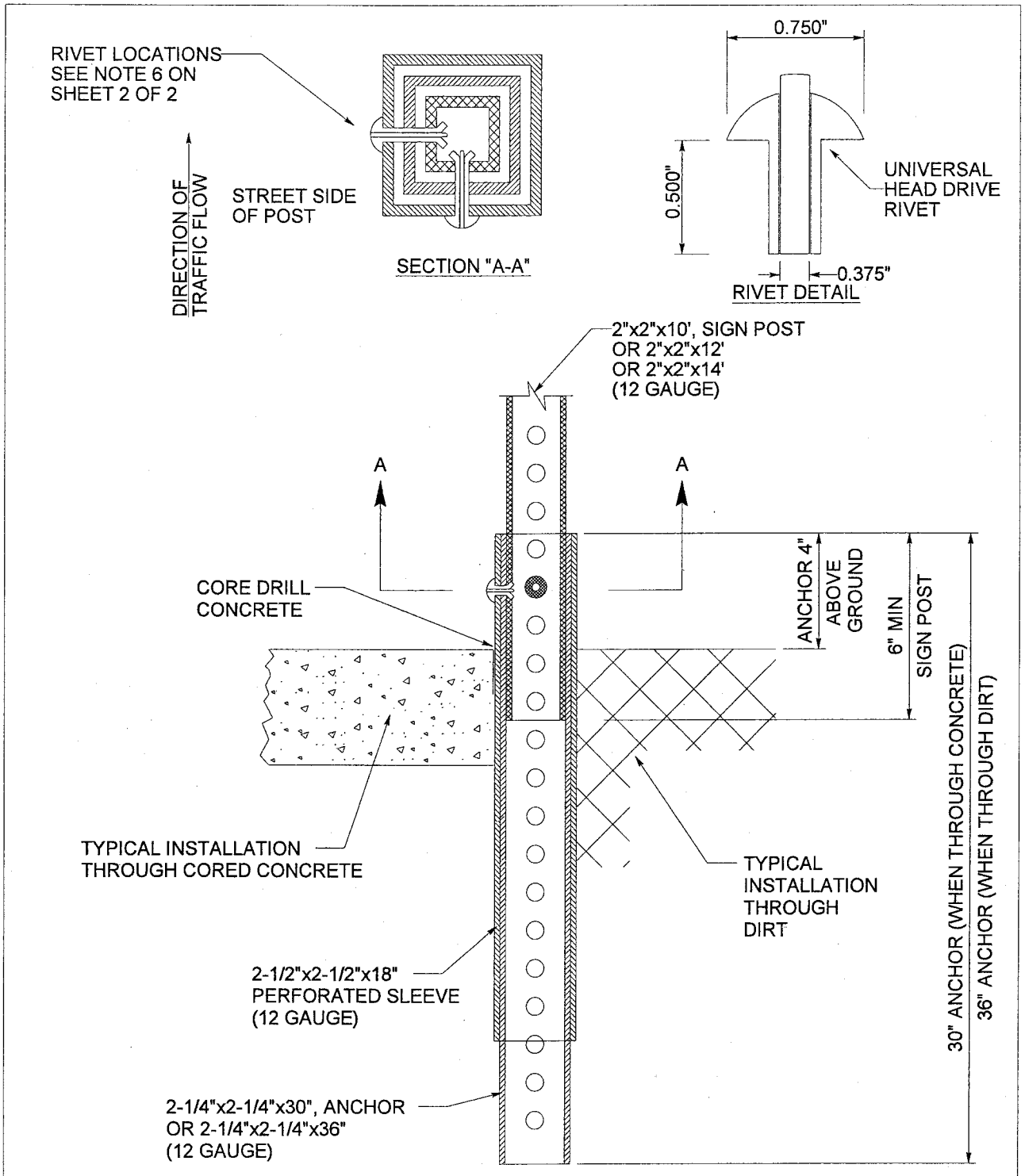
REGISTERED PROFESSIONAL ENGINEER
GEORGE A. JOHNSON
No. CE 42328
Exp. 3-31-08
CIVIL
STATE OF CALIFORNIA

COUNTY OF RIVERSIDE

ASPHALT CONCRETE DIKES

STANDARD NO. 212

REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
		1				4			
		2				5			
		3				6			



APPROVED BY:

DIRECTOR OF TRANSPORTATION — DATE
JUAN C. PEREZ, RCE 49568

REGISTERED PROFESSIONAL ENGINEER — No. Exp. — CIVIL — STATE OF CALIFORNIA

COUNTY OF RIVERSIDE

SIGN POST INSTALLATION

STANDARD No. 1222 (1 of 2)

REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
		1	JK	JP	08-05-10	4			
		2				5			
		3				6			

NOTES:

1. SQUARE PERFORATED STEEL TUBE POST WITH TWO PIECE ANCHOR AND SLEEVE, "TELESPAR", SHALL BE USED FOR ALL TRAFFIC CONTROL AND INFORMATIONAL SIGNS WITHIN ROAD RIGHT-OF-WAY.
2. THE NUMBER OF POSTS REQUIRED FOR SIGN INSTALLATION SHALL BE DETERMINED BY THE AREA OF THE SIGN OR COMBINATION OF SIGNS TO BE INSTALLED. A SINGLE POST SHALL BE USED WHERE BOTH THE LENGTH AND WIDTH ARE 48" OR LESS. DOUBLE POSTS SHALL BE USED WHERE EITHER THE LENGTH OR WIDTH EXCEEDS 48".
3. THE 2 PIECE ANCHOR AND SLEEVE ASSEMBLY SHALL CONSIST OF A 2 1/4" SQUARE BY 30" (THROUGH SIDEWALK) OR 36" (THROUGH SOIL) ANCHOR WITH A 2 1/2" SQUARE BY 18" SLEEVE. ALL SLEEVES AND ANCHORS SHALL BE 12 GAUGE.
4. THE ANCHOR AND SLEEVE ASSEMBLIES SHALL BE DRIVEN SIMULTANEOUSLY UNTIL ONLY 4" REMAINS ABOVE GROUND LEVEL.
5. ALL DIRT SHALL BE REMOVED FROM THE INSIDE TOP 6" MINIMUM OF THE ANCHOR ASSEMBLY TO ALLOW FOR THE INSTALLATION OF THE SIGN POST.
6. INSTALL 2" SQUARE SIGN POST MINIMUM 6" INTO THE ANCHOR ASSEMBLY AND SECURE IN PLACE WITH TWO 3/8" DRIVE RIVETS AS SHOWN. THE RIVETS SHALL BE INSTALLED ON THE SIDE FACING TRAFFIC FLOW AND THE SIDE OF APPROACHING TRAFFIC AS SHOWN IN ORDER TO ACHIEVE THE MAXIMUM BREAK-AWAY EFFECT.
7. INSTALLATION ACCORDING TO THESE REQUIREMENTS IS ESSENTIALTO MAINTAIN BREAK-AWAY CHARACTERISTICS OF THE POST SYSTEM.
8. SEE STANDARD No's. 815 AND 816 FOR PLACEMENT OF SIGN POST.
9. ALL ANCHOR ASSEMBLIES SHALL BE CORE DRILLED THROUGH CONCRETE AND ASPHALT.
10. ALL SIGNS ATTACHED TO PERFORATED POSTS SHALL HAVE ZINC COATED OR S.S. WASHERS BEHIND THE RIVET THAT ARE LARGER THAN THE HEAD OF THE RIVET.
11. ALL REGULATORY, WARNING AND GUIDE SIGNS INSTALLED SHALL BE 0.080 INCHES IN THICKNESS.
12. ALL SIGNS 36" OR LARGER SHALL BE INSTALLED WITH BACK BRACES SPECIFICALLY DESIGNED FOR 2" SQUARE PERFORATED POSTS. (2" RISE)
13. IN SOME INSTANCES CONCRETE FOUNDATION MAY BE REQUIRED TO ENSURE PROPER STABILITY, THIS OPTION IS TO BE USED AT THE DISCRESTION OF THE ENGINEER OR ONSITE INSPECTOR.

APPROVED BY:

DIRECTOR OF TRANSPORTATION DATE
JUAN C. PEREZ, RCE 49568

REGISTERED PROFESSIONAL ENGINEER — No. Exp. — CIVIL — STATE OF CALIFORNIA

COUNTY OF RIVERSIDE

SIGN POST INSTALLATION NOTES

STANDARD No. 1222 (2 of 2)

REVISIONS		REV.	BY:	APR'D	DATE	REV.	BY:	APR'D	DATE
		1	JK	JP	08-05-10	4			
		2				5			
		3				6			

Appendix C

Paving Locations

South Coast Air Quality Management District

AB 1318 Sentinel Mitigation Fees Fund

Air Quality Emission Reduction Project

Coachella Valley Mobile Home Park Paving Project

PAVING LOCATIONS

SCAQMD Contract No. 13442

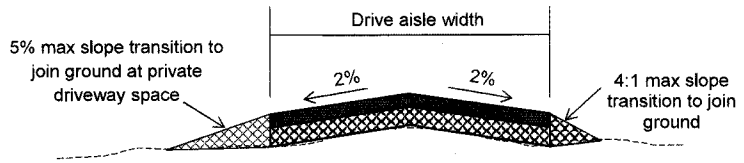
County of Riverside Project No. C4-0053

Contents

Dig Alert

Locations of any utilities shown on the exhibits are approximate and based on available records. Existing locations of buried electrical, telephone, cable tv, gas, drain lines, water services and sewer services are unknown and should be considered present on the site at potentially very shallow locations. Contractor shall protect existing utilities in place.

Detail



NOTICE: This project was made possible by a grant from the South Coast air Quality Management District (SCAQMD) AB 1318 Mitigation Fees fund to reduce or mitigate emissions within Coachella Valley. This report was prepared as a result of work paid for, in whole or in part, by a grant from the SCAQMD. The opinions, findings, conclusions, and recommendations are those of the author and do not necessarily represent the views of SCAQMD. SCAQMD, its officers, employees, contractors, and subcontractors make no warranty, expressed or implied, and assume no legal liability for the information in this report. SCAQMD has not approved or disapproved this report, nor has SCAQMD passed upon the accuracy or adequacy of the information contained herein.

Coachella Valley Mobile Home Parks

Mobile Home Parks

0 3,600 7,200 14,400

Feet

N

W E

S

Disclaimer: Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

JOHNSON STREET

N

0' 100' 200'

20' DRIVE AISLES

18' DRIVE AISLES

4" PIPE

USBOR IRRIGATION LINE

LOCATION #2
LA PENA
92241 NATIONAL AVENUE, MECCA CA
APN 757-290-003-2

©2/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

PIERCE STREET

N

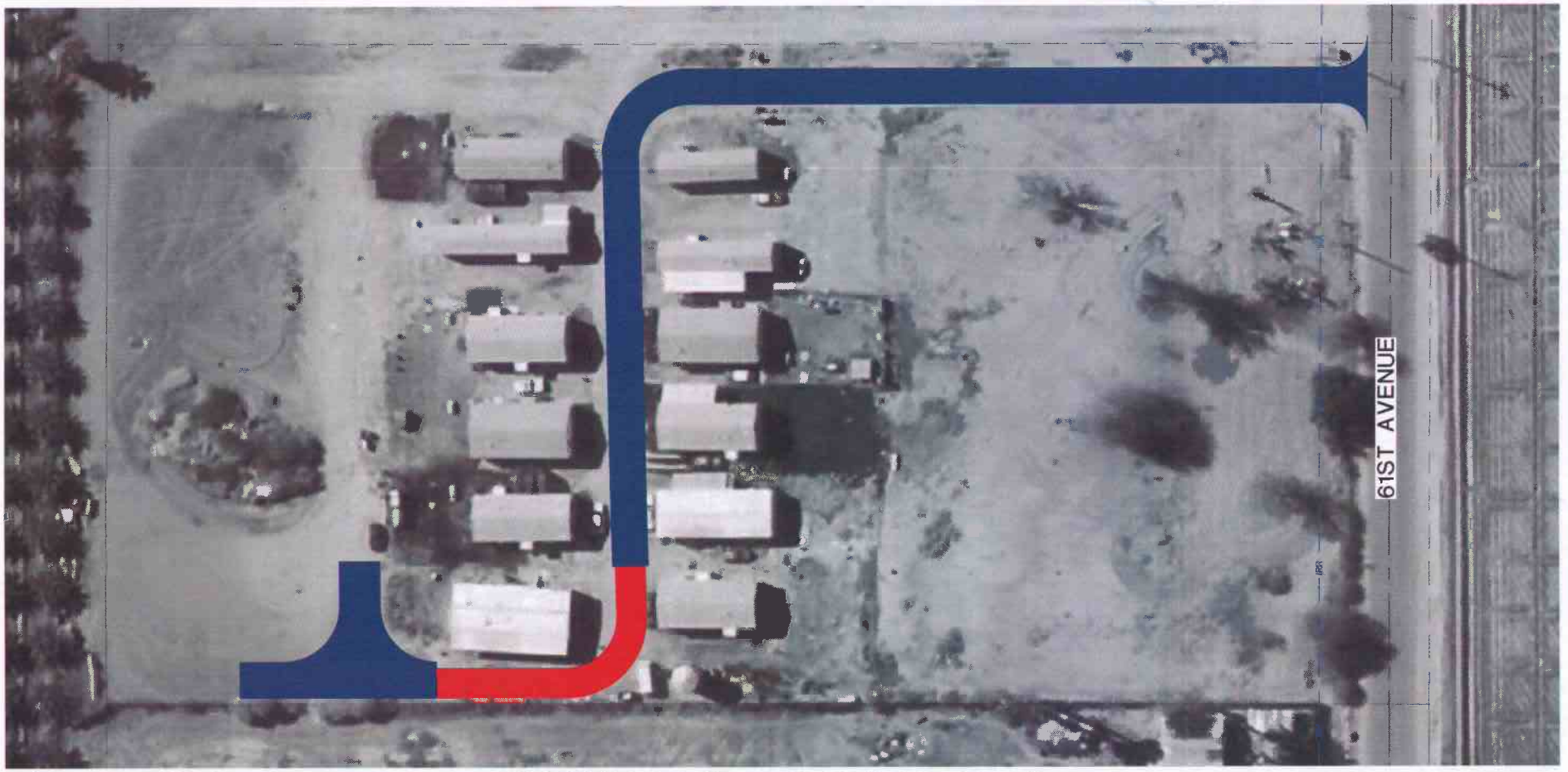
0' 50' 100'

20' DRIVE AISLE

IRR USBOR IRRIGATION LINE

LOCATION #3
DURAN
88375 56TH AVENUE, THERMAL CA
APN 757-100-013

02/26/2014



NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

TYLER STREET

N

0' 50' 100'

18' DRIVE AISLE

15' DRIVE AISLE

USBOR IRRIGATION LINE

LOCATION #4
MCDANIEL
85865 61ST AVENUE, THERMAL CA
APN 759-140-009

02/26/2014

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

PIERCE STREET

20' DRIVE AISLE

18' DRIVE AISLE

12' DRIVE AISLE

USBOR IRRIGATION LINE

N

0' 100' 200'

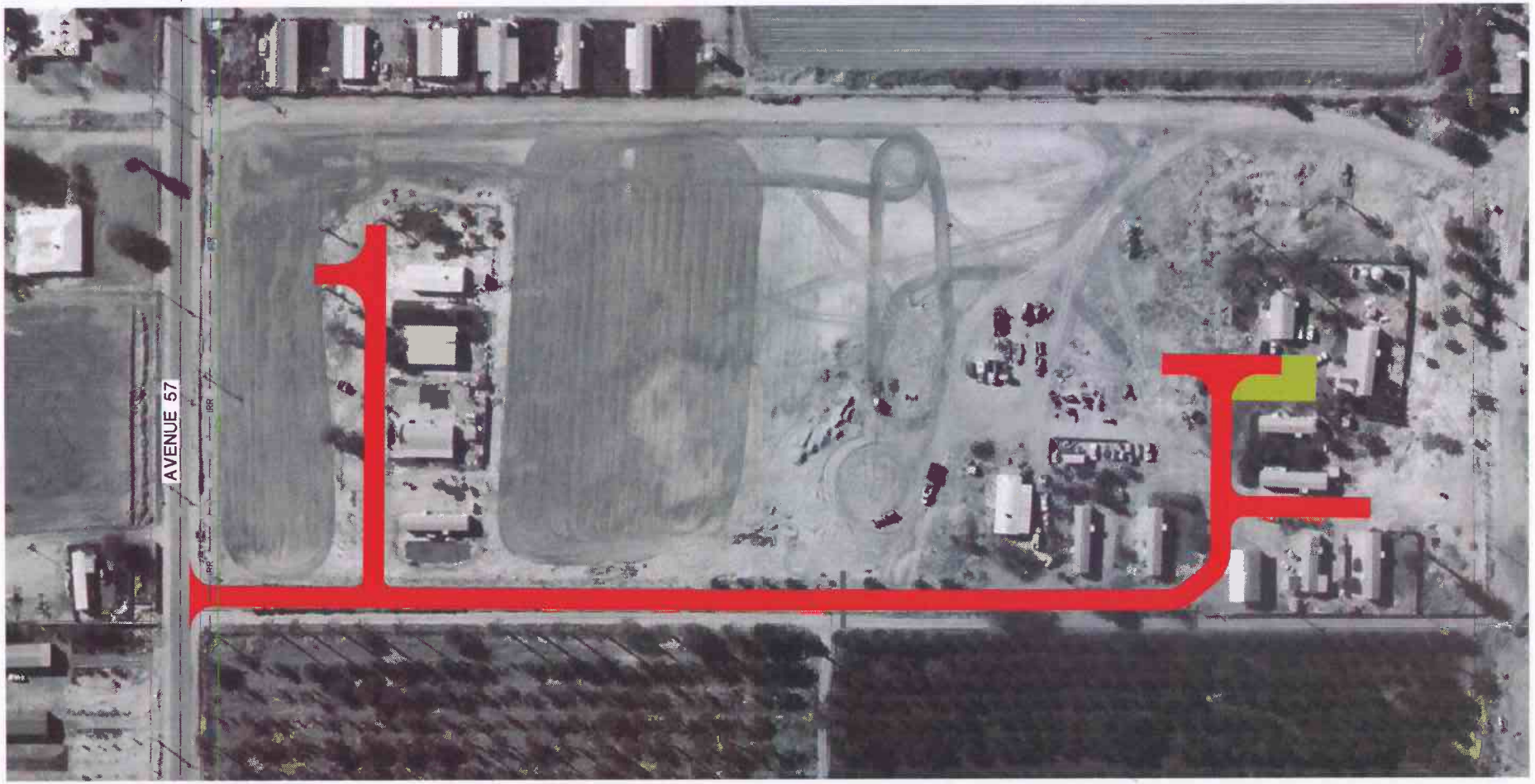
LOCATION #5
VALENZUELA
88385 AIRPORT BLVD, THERMAL, CA
APN 757-100-009

02/26/2014

FILLMORE STREET

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.



20' DRIVE AISLE

ADDITIONAL PAVING

CVWD DRAIN LINE

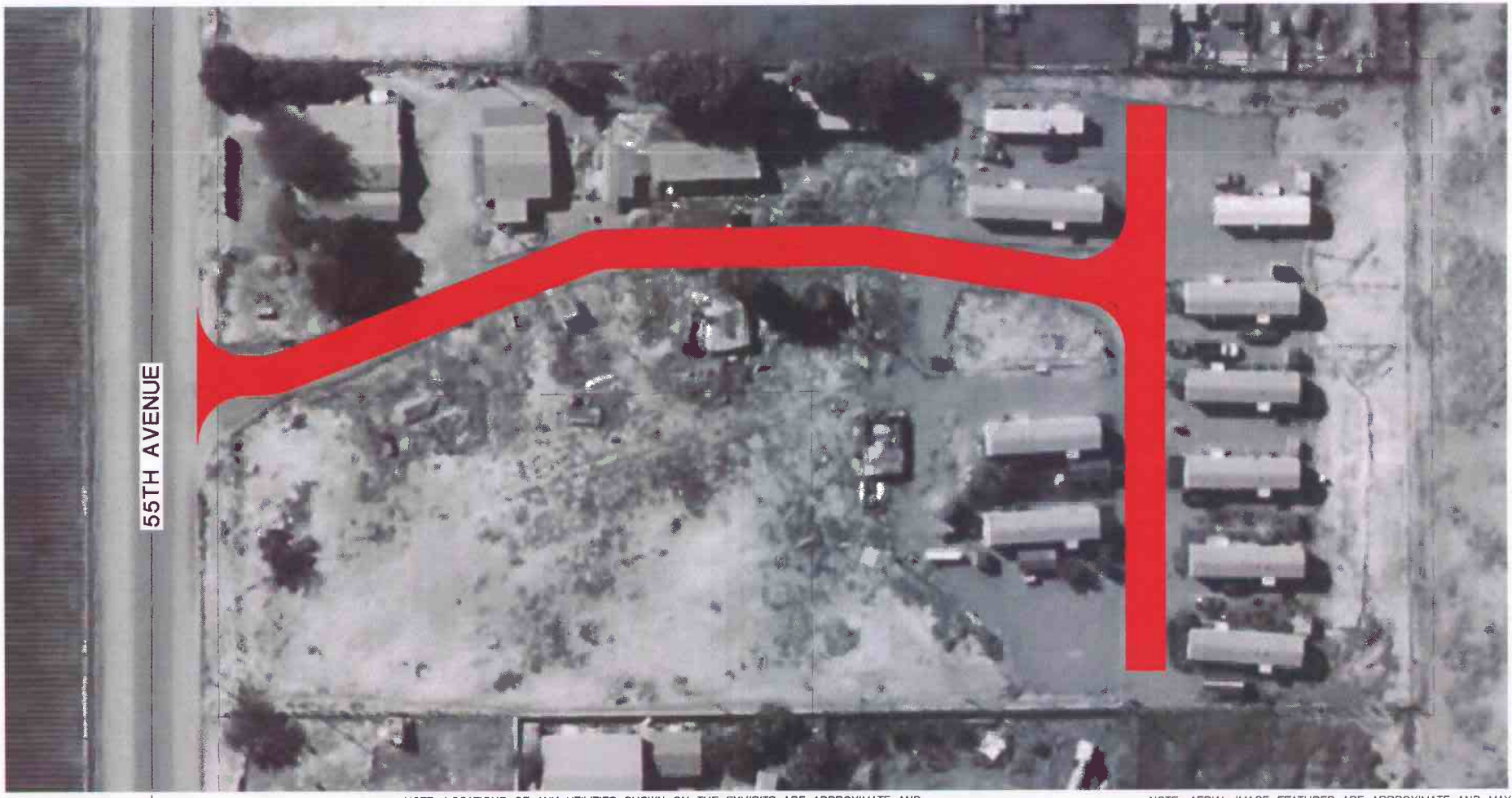
USBOR IRRIGATION LINE

N

0' 100' 200'

LOCATION #6
DURAN
88300 AVENUE 57, THERMAL, CA
APN 757-110-020

02/26/2014



SHADY LANE

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

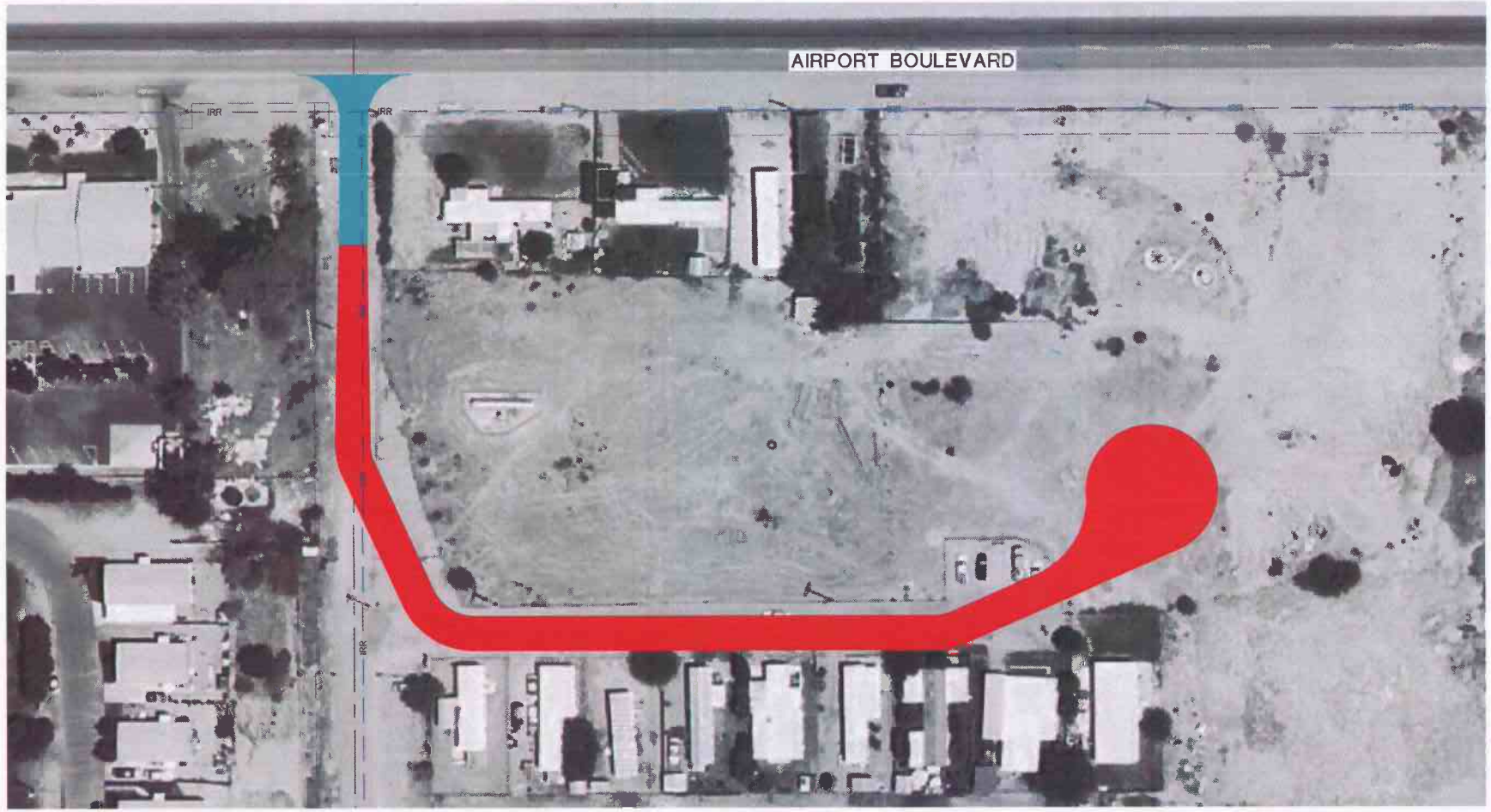
N

0' 50' 100'

20' DRIVE AISLE

LOCATION #7
SANCHEZ
85400 AVENUE 55, THERMAL, CA
APN 763-240-030

02/26/2014



NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

N

0' 60' 120'

20' DRIVE AISLE

16' DRIVE AISLE

USBOR IRRIGATION LINE

LOCATION #8
HERNANDEZ
84155 AVENUE 56, THERMAL, CA
APN 759-020-032

©2/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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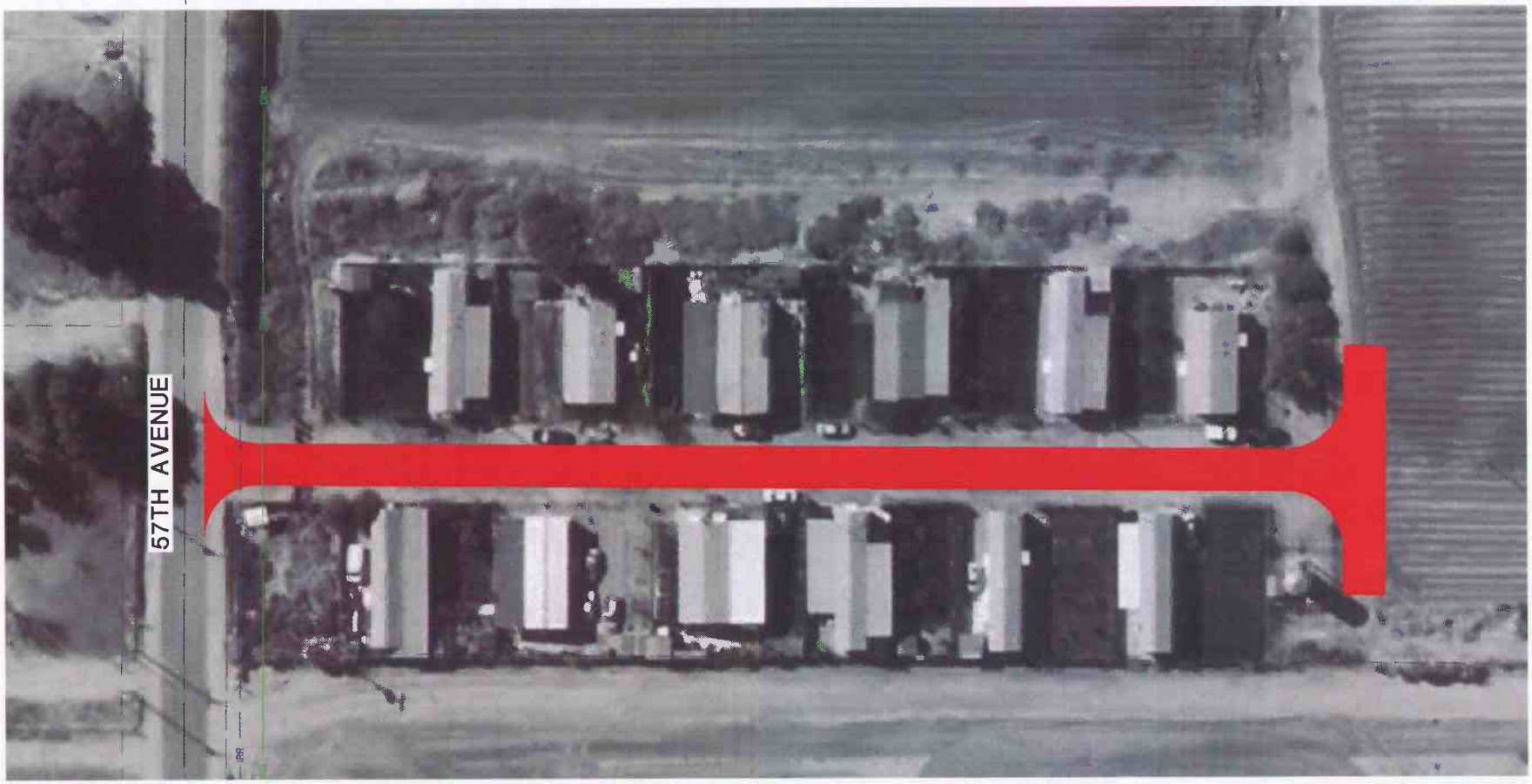
FILLMORE STREET



N

0' 50' 100'

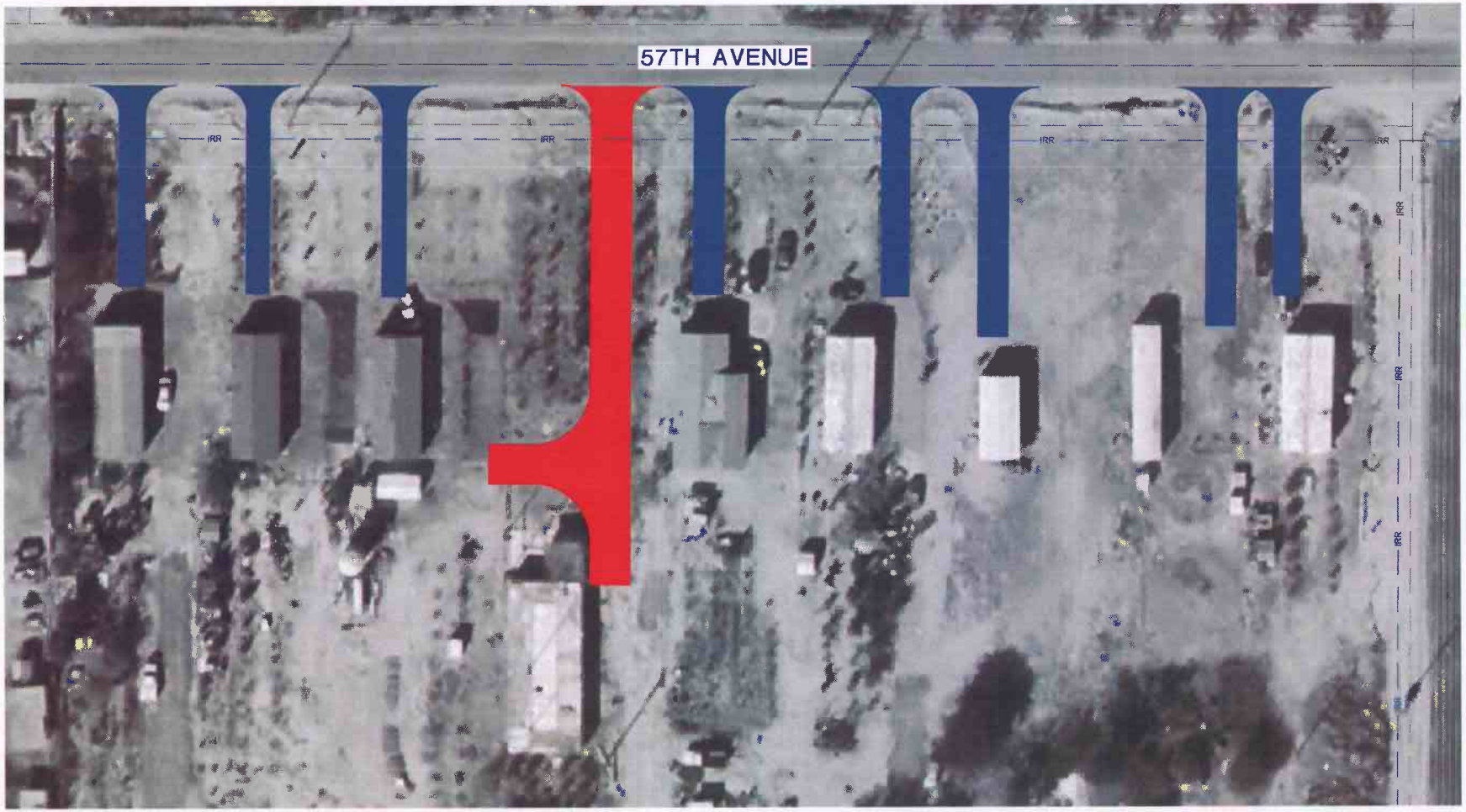
20' DRIVE AISLE

USBOR IRRIGATION LINE

USBOR IRRIGATION LINE

LOCATION #9
LEON, ROBERSON
88210 AVENUE 57, THERMAL, CA
APN 757-110-025

02/26/2014



NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

N

0' 50' 100'

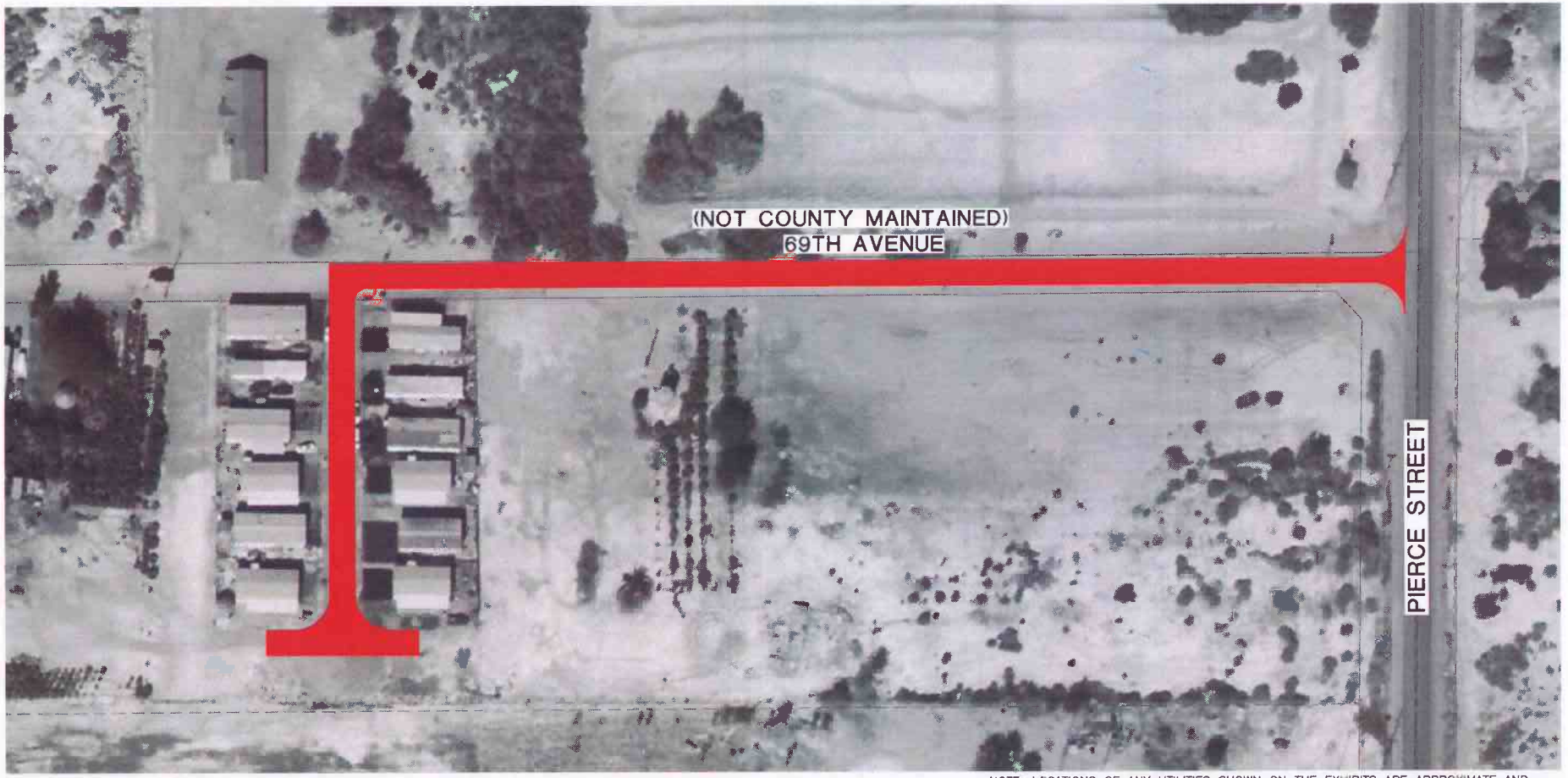
13' DRIVE AISLE

20' DRIVE AISLE

IRR USBOR IRRIGATION LINE

LOCATION #10
CRUZ, ENCIZO, PONCE
88455 AVENUE 57, THERMAL CA
APN 757-140-009

02/26/2014



NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

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N

0' 80' 160'

20' DRIVE AISLE

LOCATION #11
CASTRO
88773 AVENUE 69TH, THERMAL CA
APN 749-140-015

02/26/2014

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

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N

0' 100' 200'

20' DRIVE AISLE

LOCATION #12
VALENCIA
90125 AVENUE 70, MECCA CA
APN 729-090-008

02/26/2014

70TH AVENUE

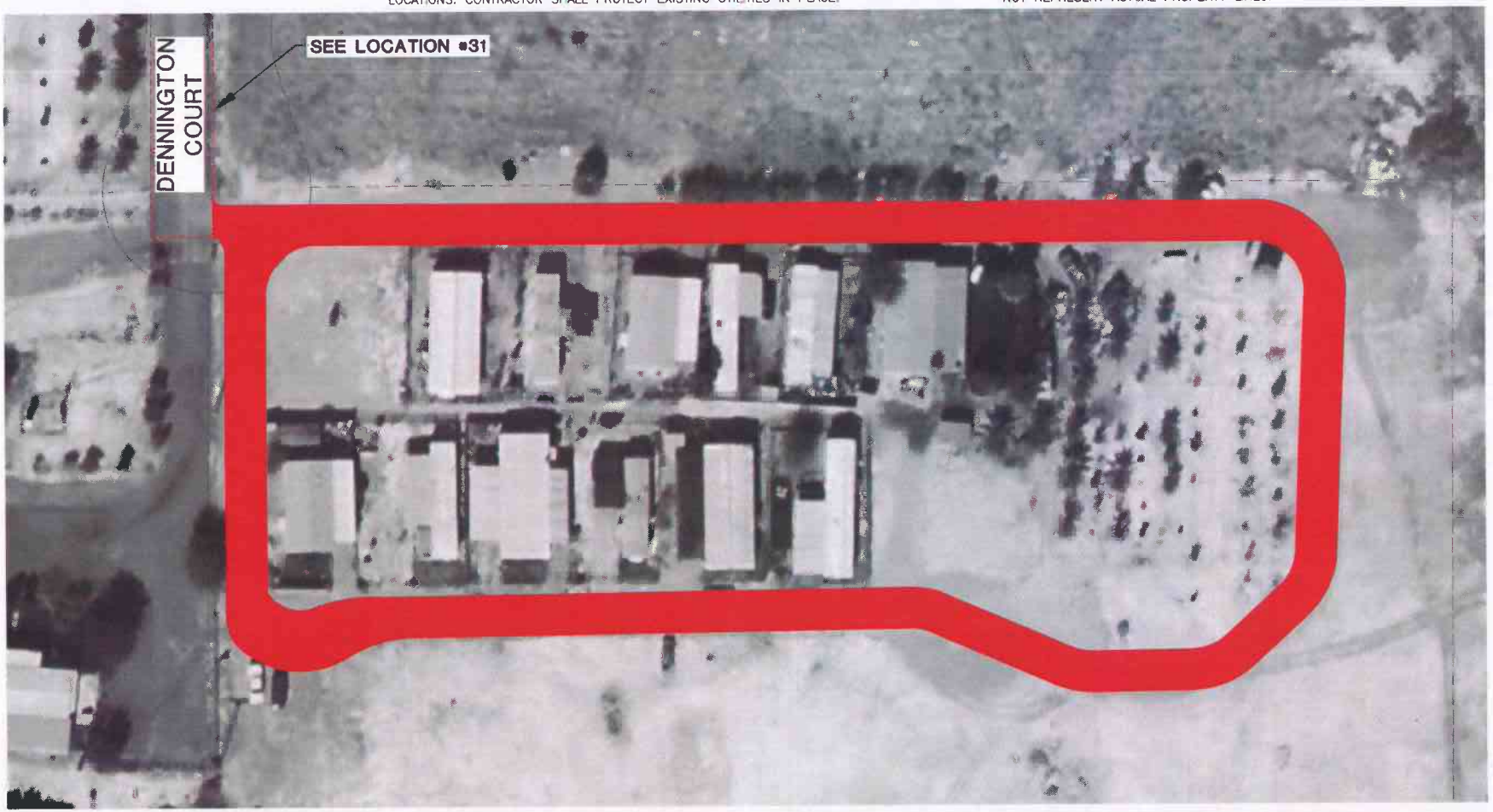
NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

PIERCE STREET

DENNINGTON COURT

SEE LOCATION #31



N

0' 50' 100'

20' DRIVE AISLE

LOCATION #13

MAGANA

88875 AVENUE 70, THERMAL CA

APN 749-190-012

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

PIERCE STREET

N

0' 100' 200'

20' DRIVE AISLE

18' DRIVE AISLE

LOCATION #14
GONZALEZ
89200 AVENUE 81, THERMAL CA
APN 755-251-013

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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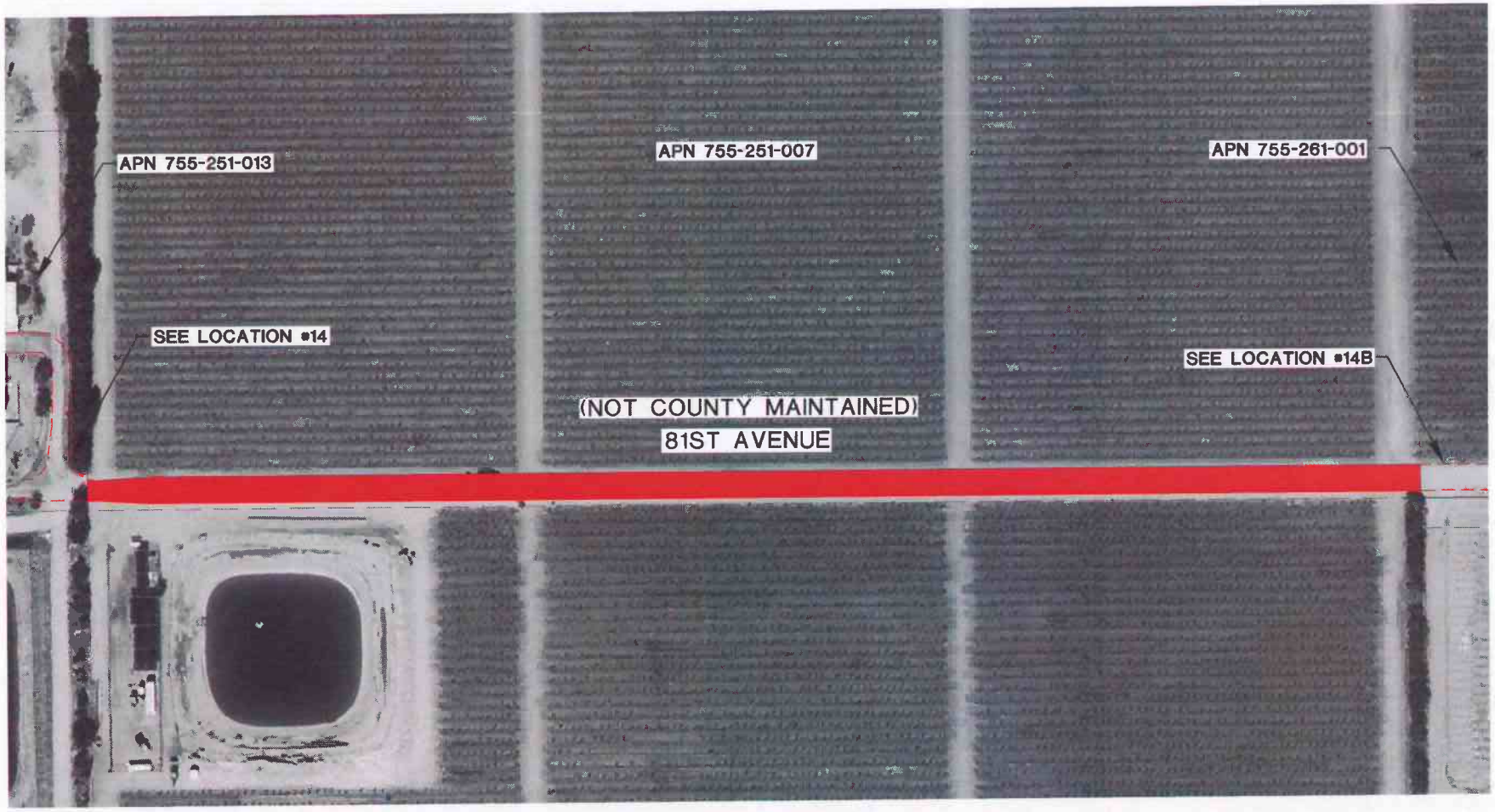


N

0' 100' 200'

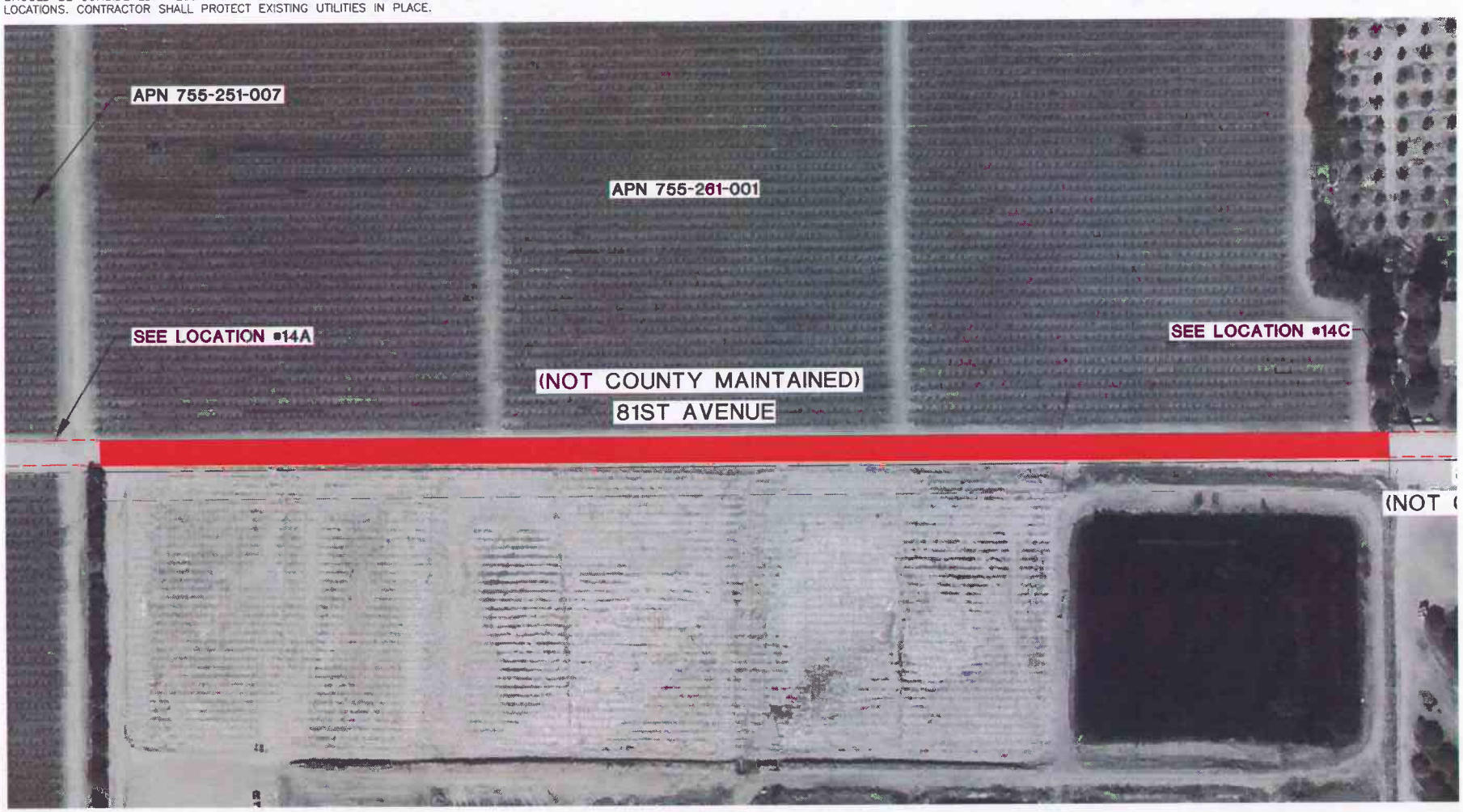
26' DRIVE AISLE

LOCATION #14A
SUN WORLD INTERNATIONAL
THERMAL CA
APN 755-251-007

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.



N

0' 100' 200'

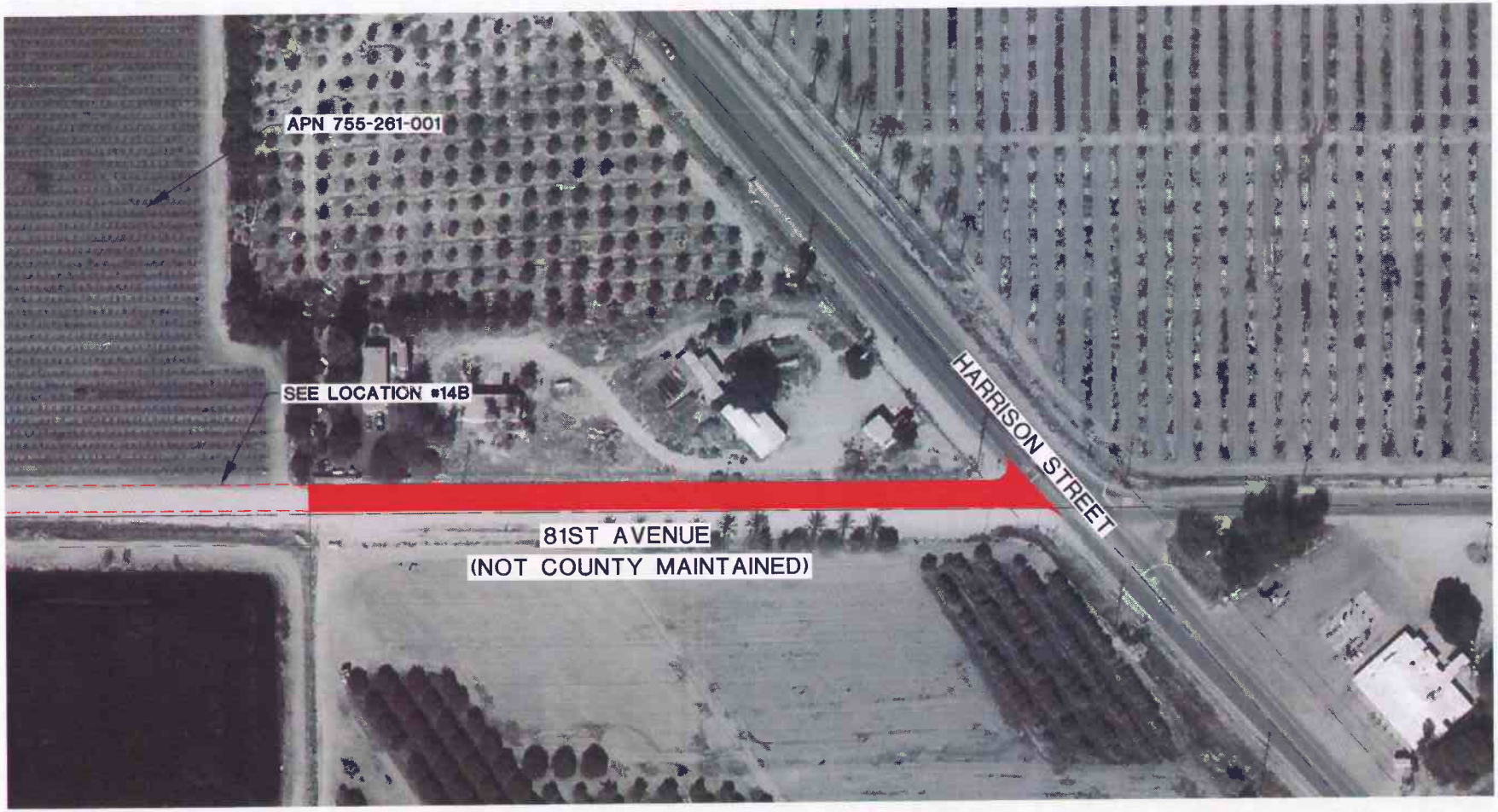
26' DRIVE AISLE

LOCATION #14B
SUN WORLD INTERNATIONAL
THERMAL, CA
APN 755-270-020

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.



N

0' 100' 200'

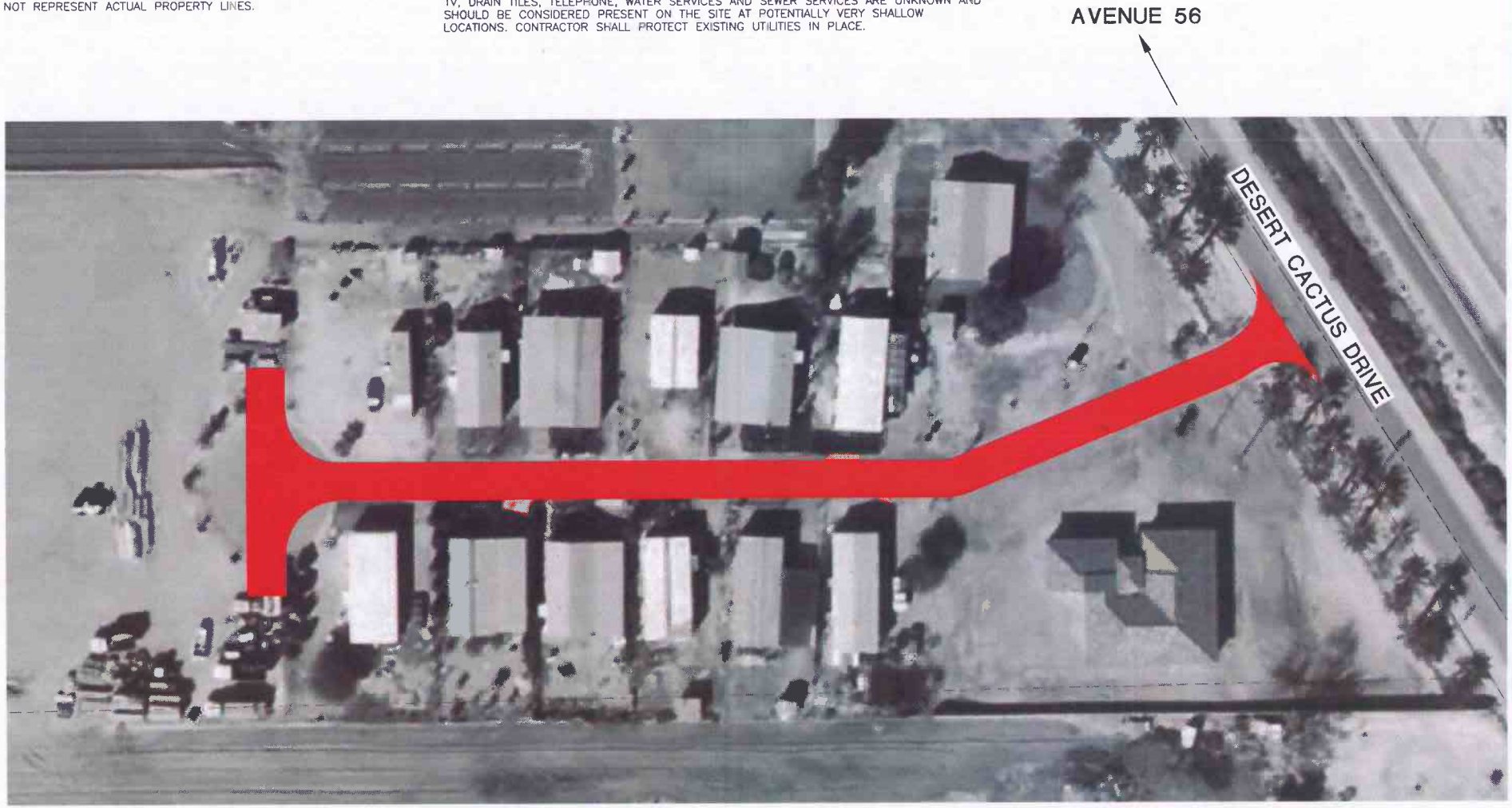
26' DRIVE AISLE

LOCATION #14C
81ST AVENUE, THERMAL CA

02/26/2014

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.



N

0' 50' 100'

20' DRIVE AISLE

LOCATION #15
NUNEZ, CAMPOS
56523 DESERT CACTUS, THERMAL CA
APN 757-080-018

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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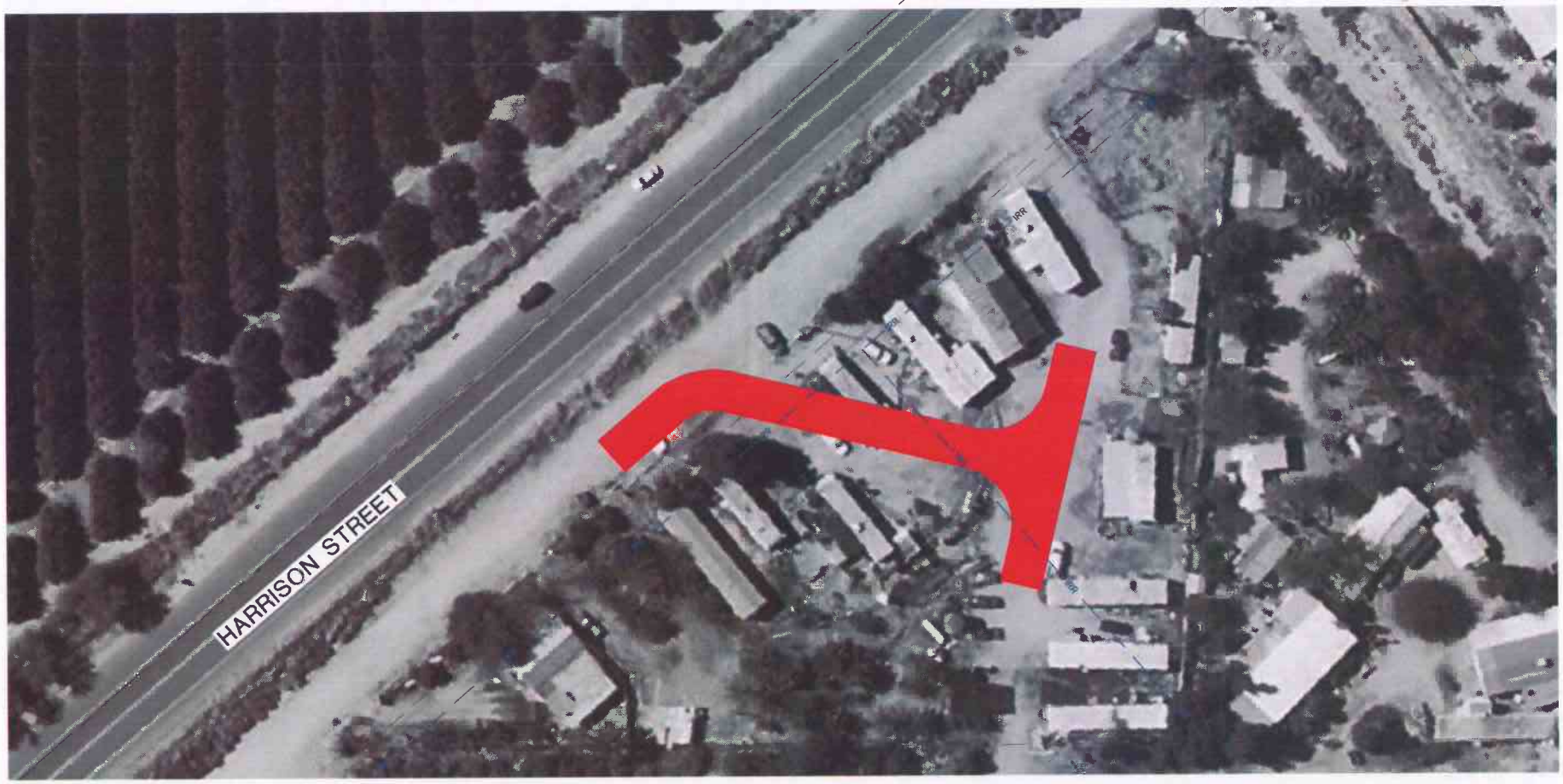
81ST AVENUE



N

0' 50' 100'

20' DRIVE AISLE

USBOR IRRIGATION LINE

LOCATION #16
VALENZUELA
81550 HARRISON ROAD, THERMAL CA
APN 737-110-002

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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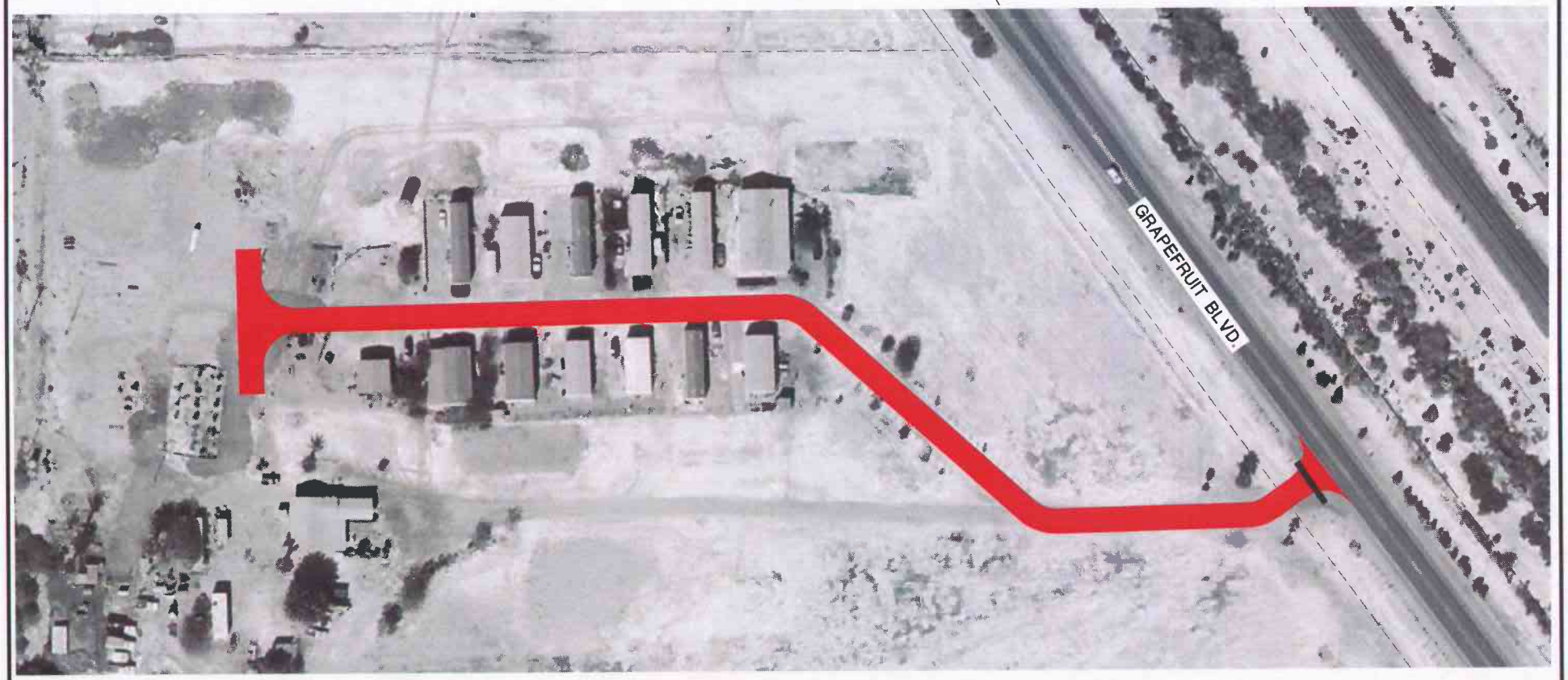
62ND AVENUE



20' DRIVE AISLE

15" PIPE

N

0' 60' 120'

LOCATION #17
DUARTE
62775 HIGHWAY 111, THERMAL CA
APN 749-050-011

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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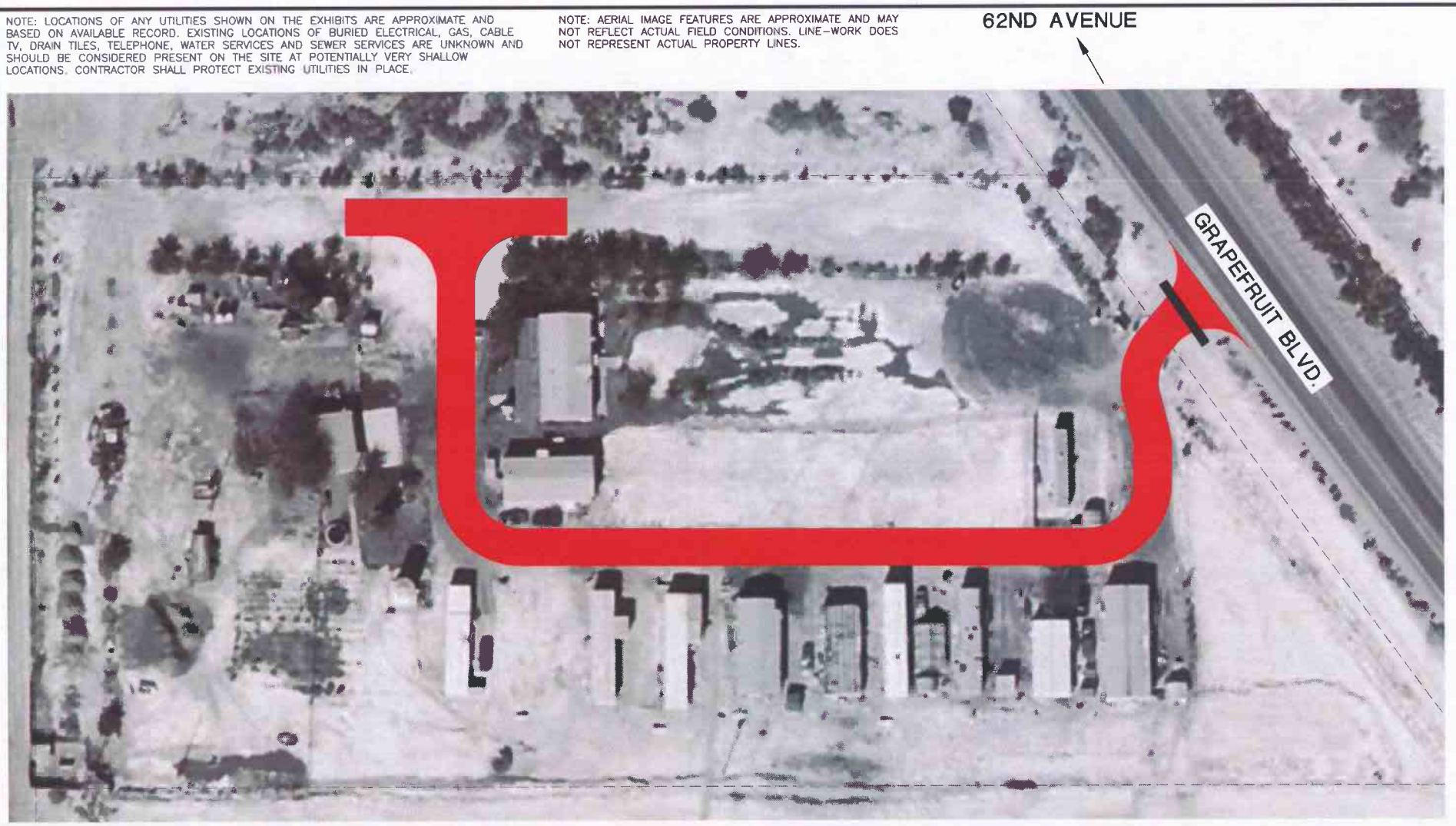
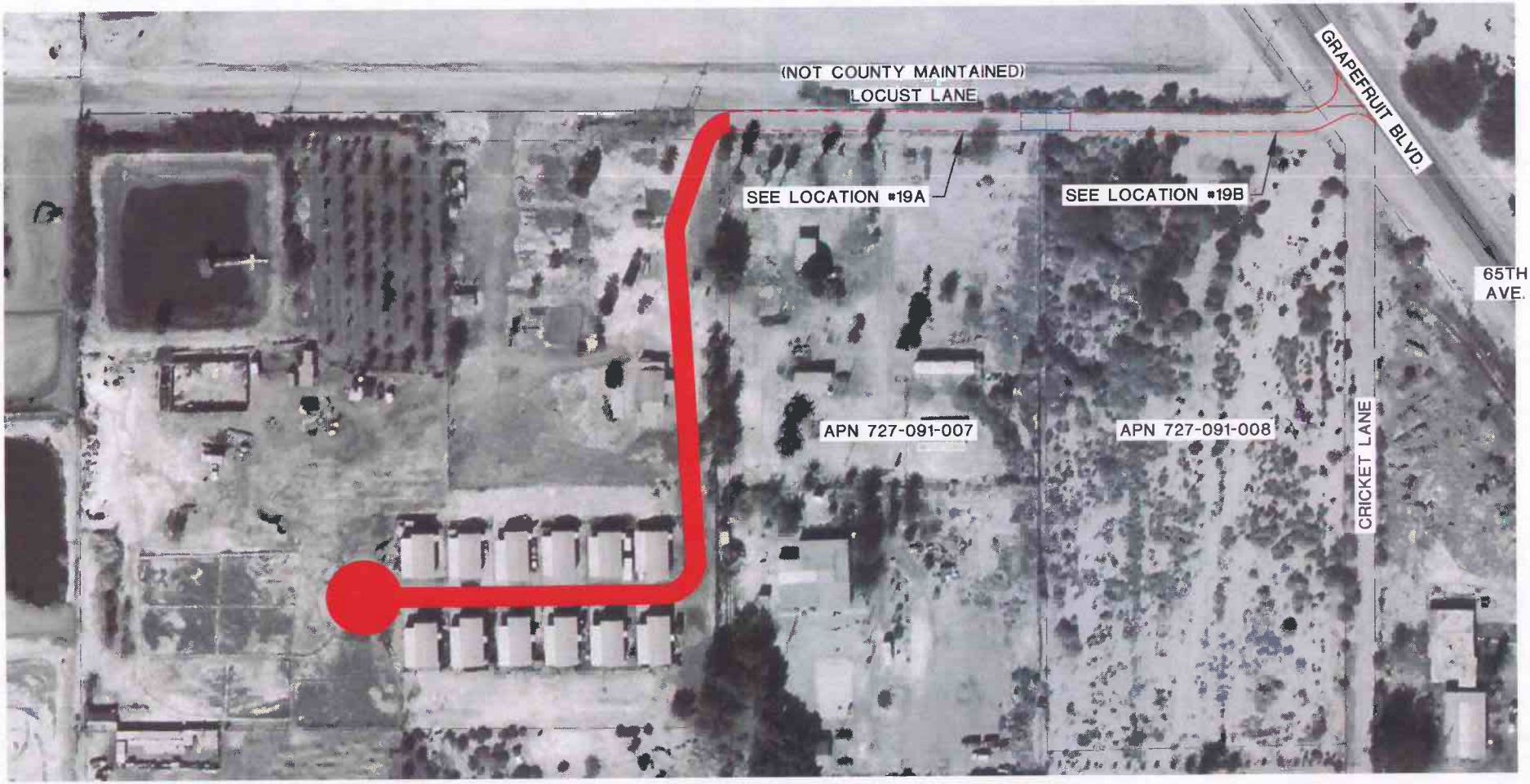


LOCATION #18
LOPEZ
62325 HIGHWAY 111, THERMAL CA
APN 749-050-010

02/26/2014



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N

0' 100' 200'

20' DRIVE AISLE

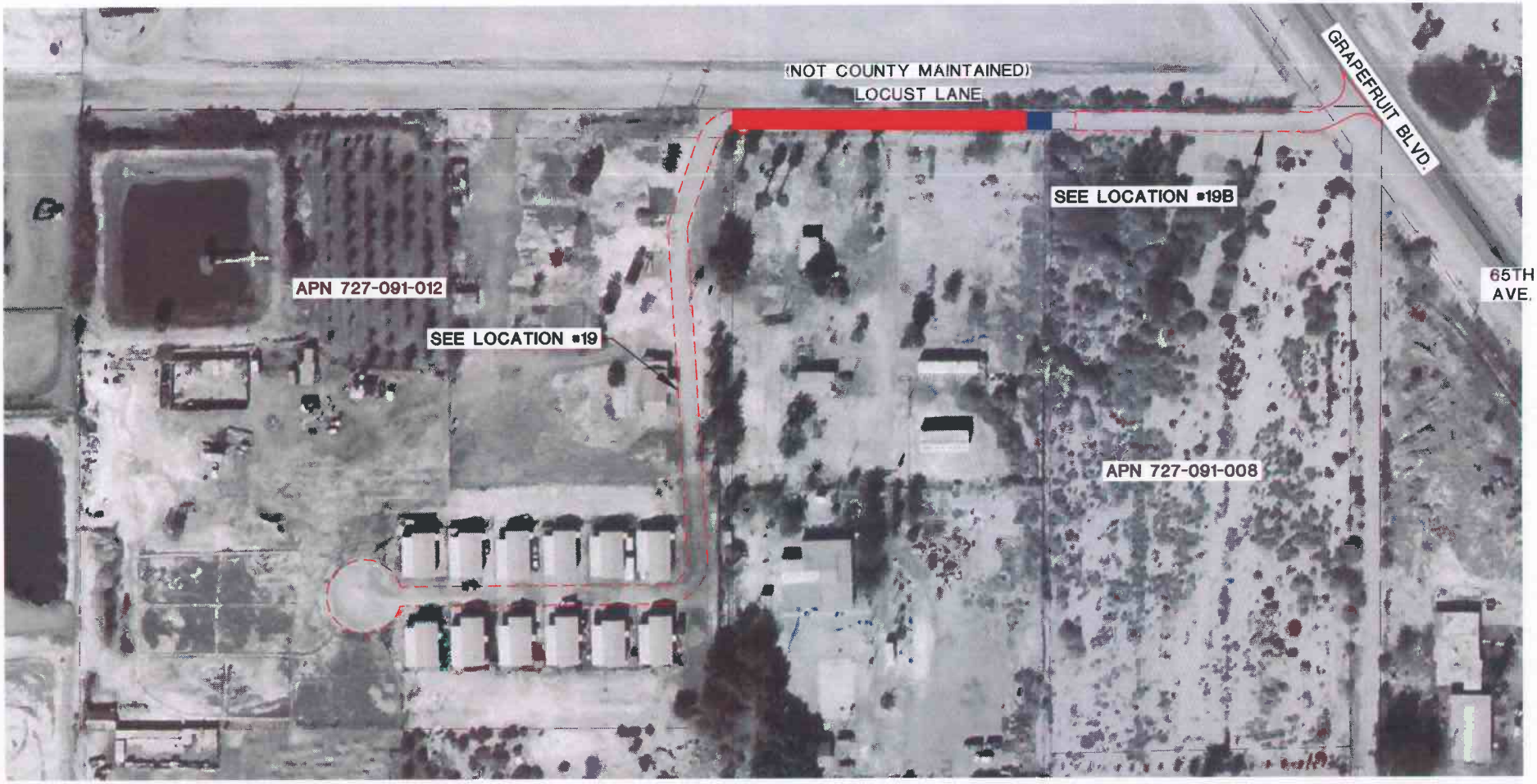
LOCATION #19

GARCIA, FUENTES

64545 HIGHWAY 111, MECCA CA

APN 727-091-012

02/26/2014



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N

0' 100' 200'

20' WIDE DRIVEWAY

18' WIDE DRIVEWAY

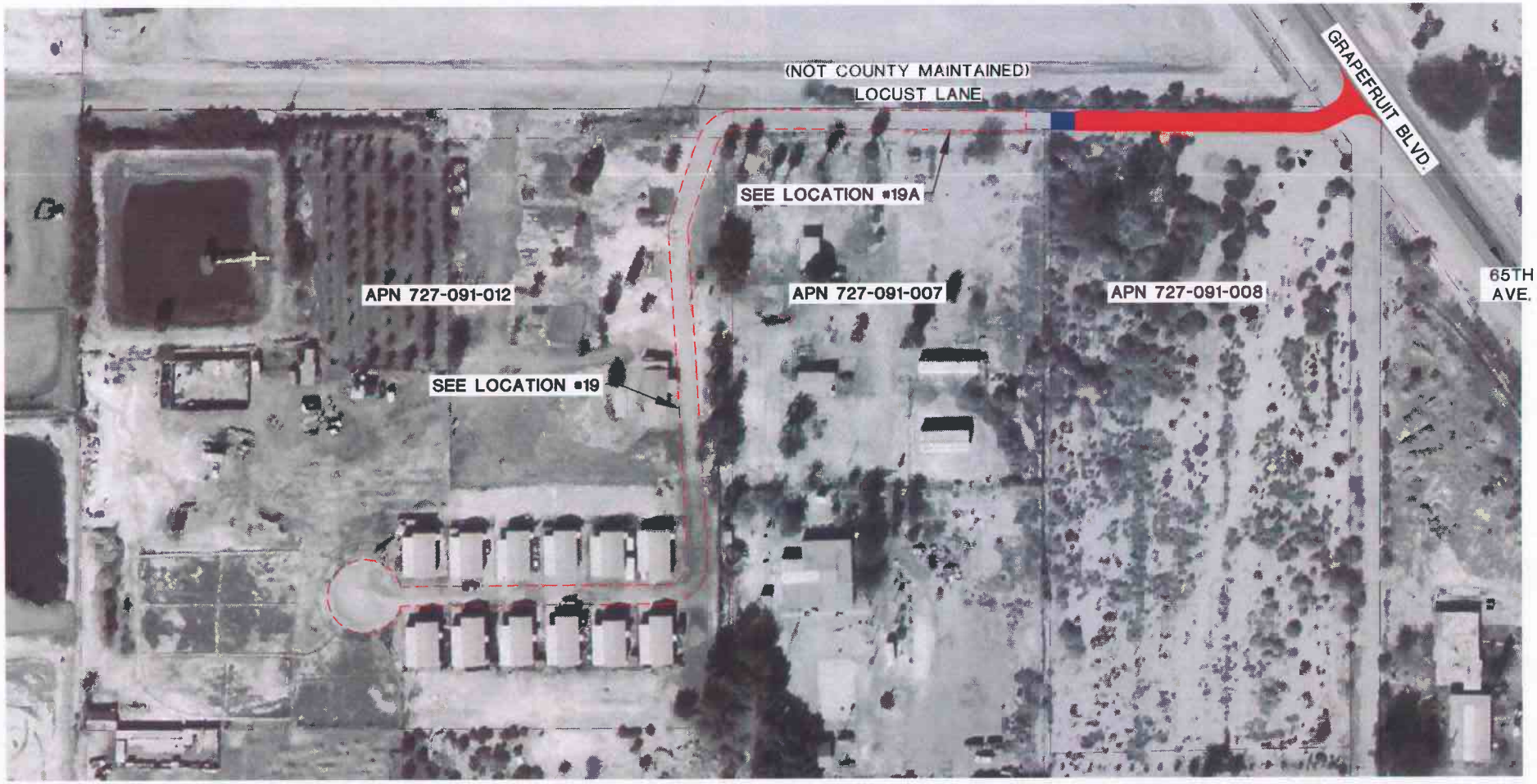
LOCATION #19A

PEREZ

MECCA CA

APN 727-091-007

02/26/2014



NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

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N

0' 100' 200'

20' WIDE DRIVEWAY

18' WIDE DRIVEWAY

LOCATION #19B
ZEPEDA
MECCA CA
APN 727-091-008

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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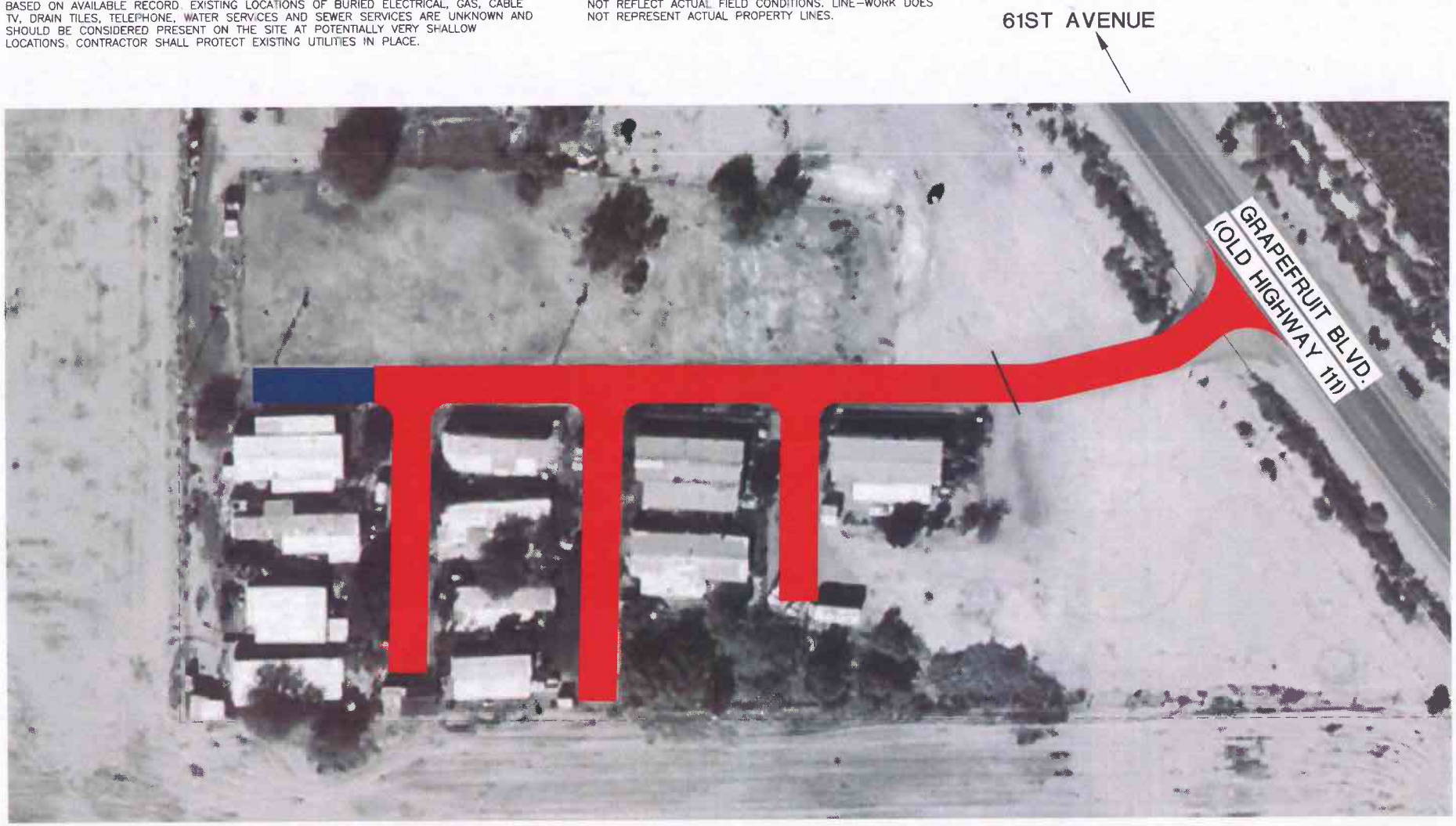

N

0' 50' 100'

20' DRIVE AISLE

18' DRIVE AISLE

4" PIPE

LOCATION #20

ACEVES

65830 HIGHWAY 111, THERMAL CA

APN 757-341-002

02/26/2014

76TH AVE

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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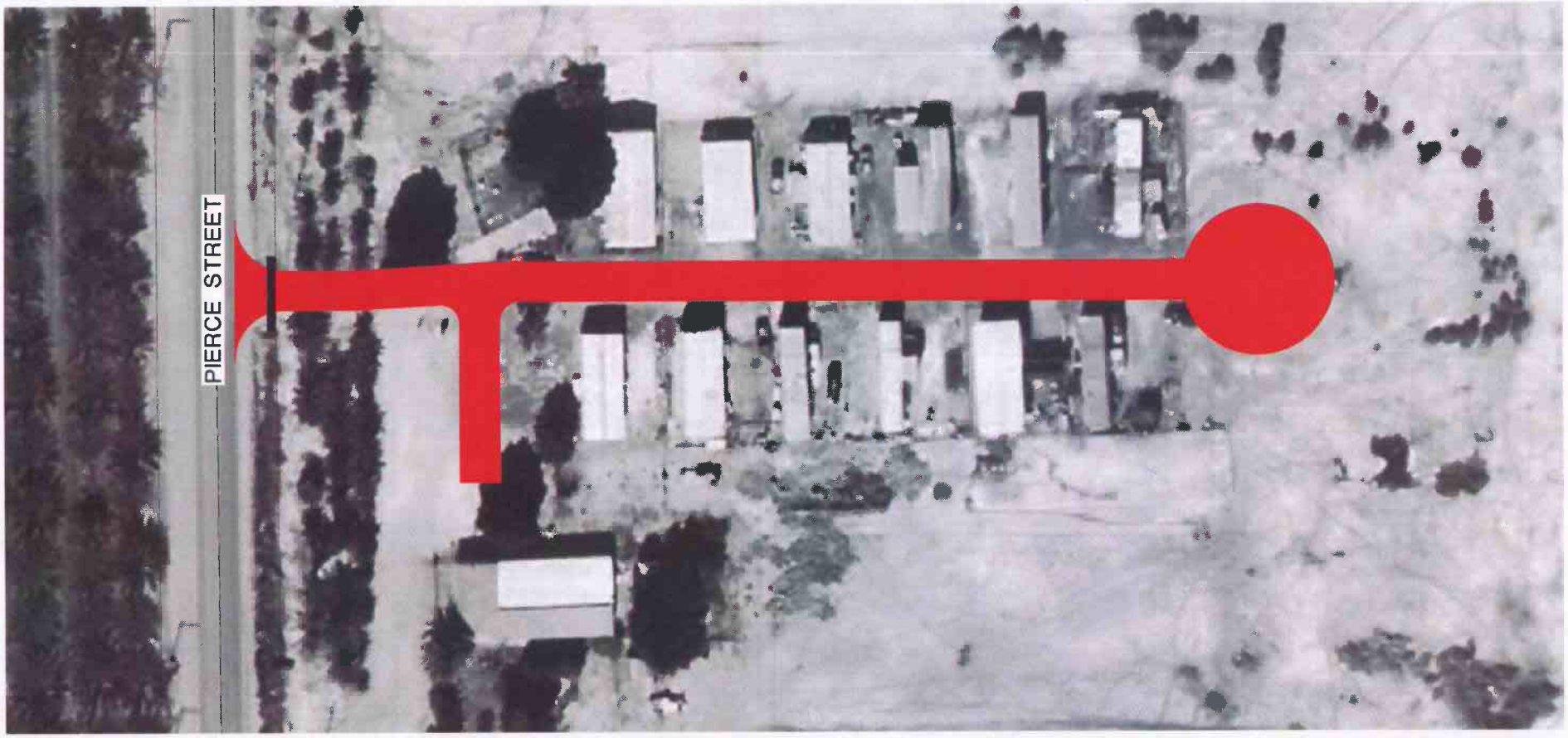

N

0' 50' 100'

20' DRIVE AISLE

24" PIPE

LOCATION #21

MORA

65658 HIGHWAY 195, THERMAL CA

APN 755-180-001

©2/26/2014

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

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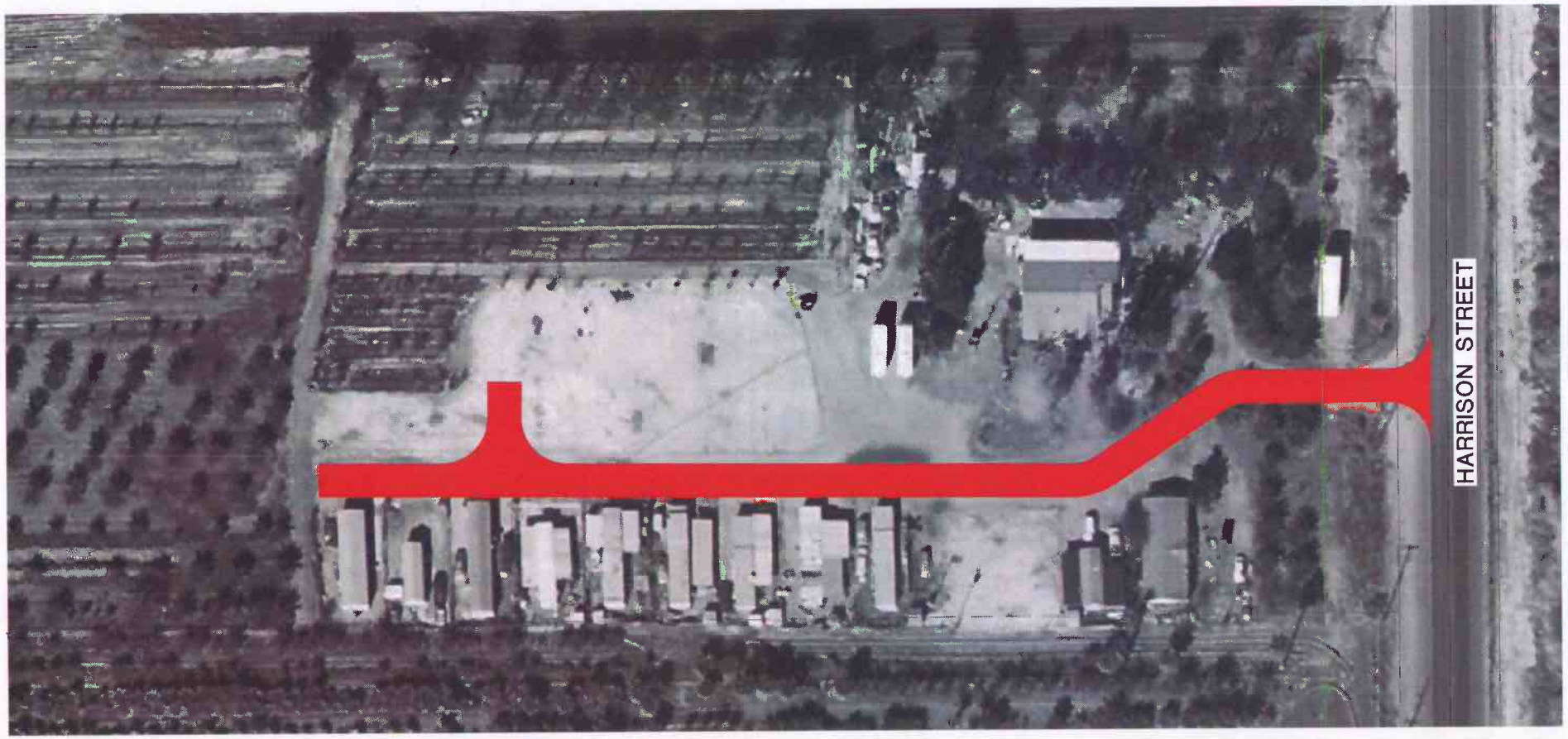
61ST AVENUE



N

0' 60' 120'

20' DRIVE AISLE

CVWD DRAIN LINE

LOCATION #22

GARCIA

61335 HIGHWAY 86, THERMAL CA

APN 759-120-011

02/26/2014

66TH AVENUE

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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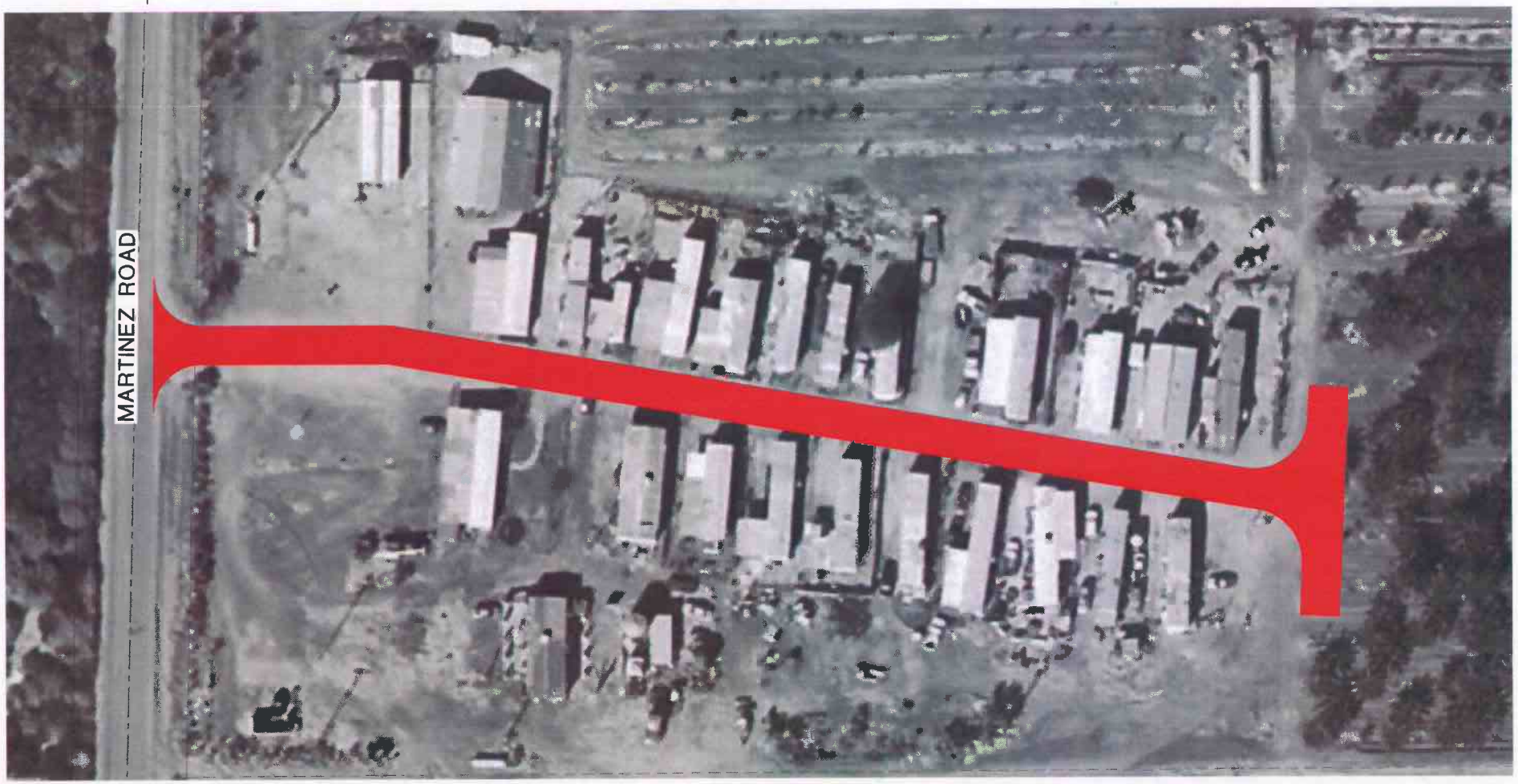


N

0' 50' 100'

20' DRIVE AISLE

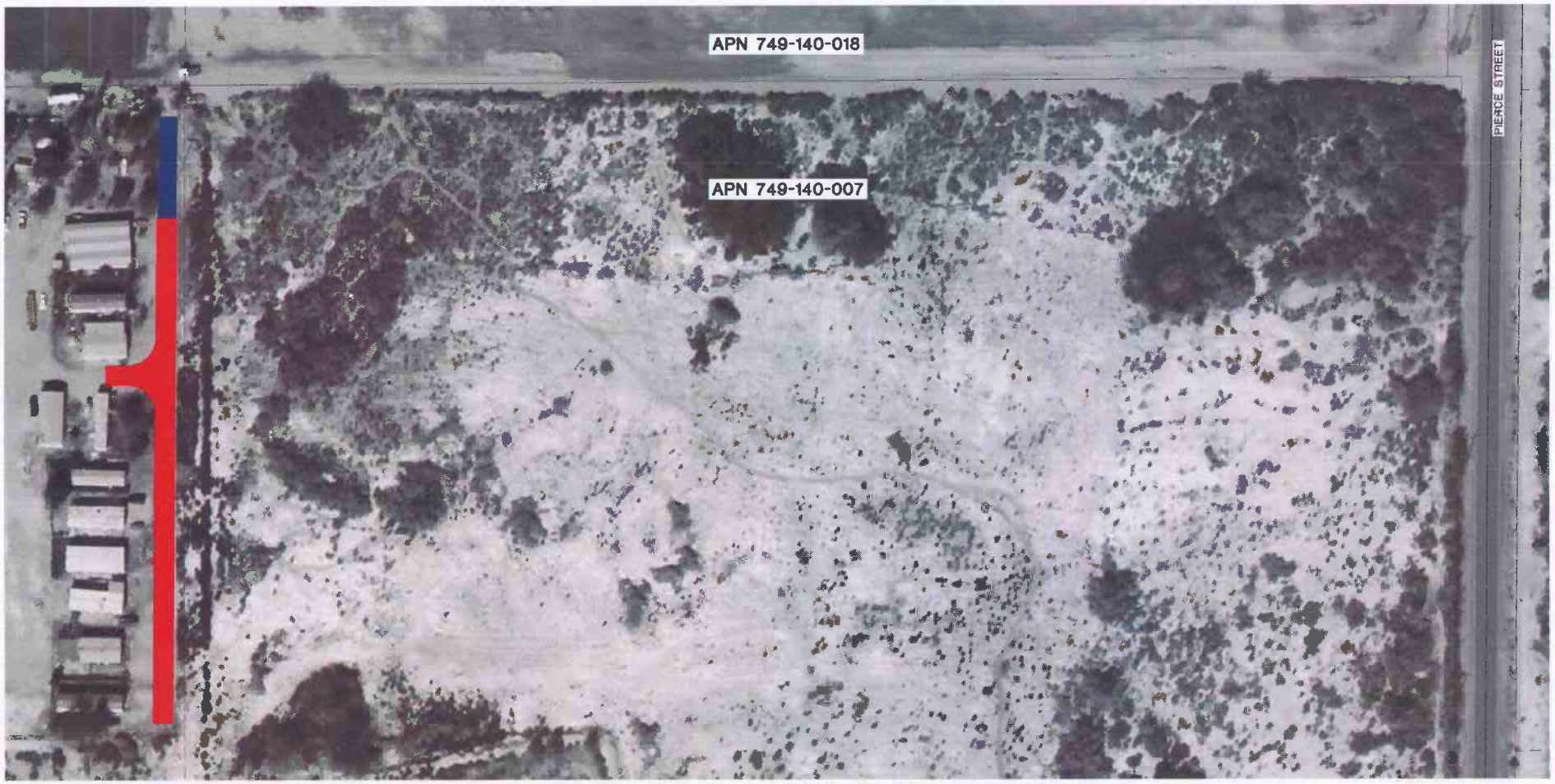
LOCATION #24

AGUIRRE

66250 MARTINEZ RD, THERMAL CA

APN 751-200-018

02/26/2014



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70TH AVENUE

N

0' 100' 200'

20' DRIVE AISLE

18' DRIVE AISLE

LOCATION #26

BARAJAS

69751 PIERCE ST., THERMAL CA

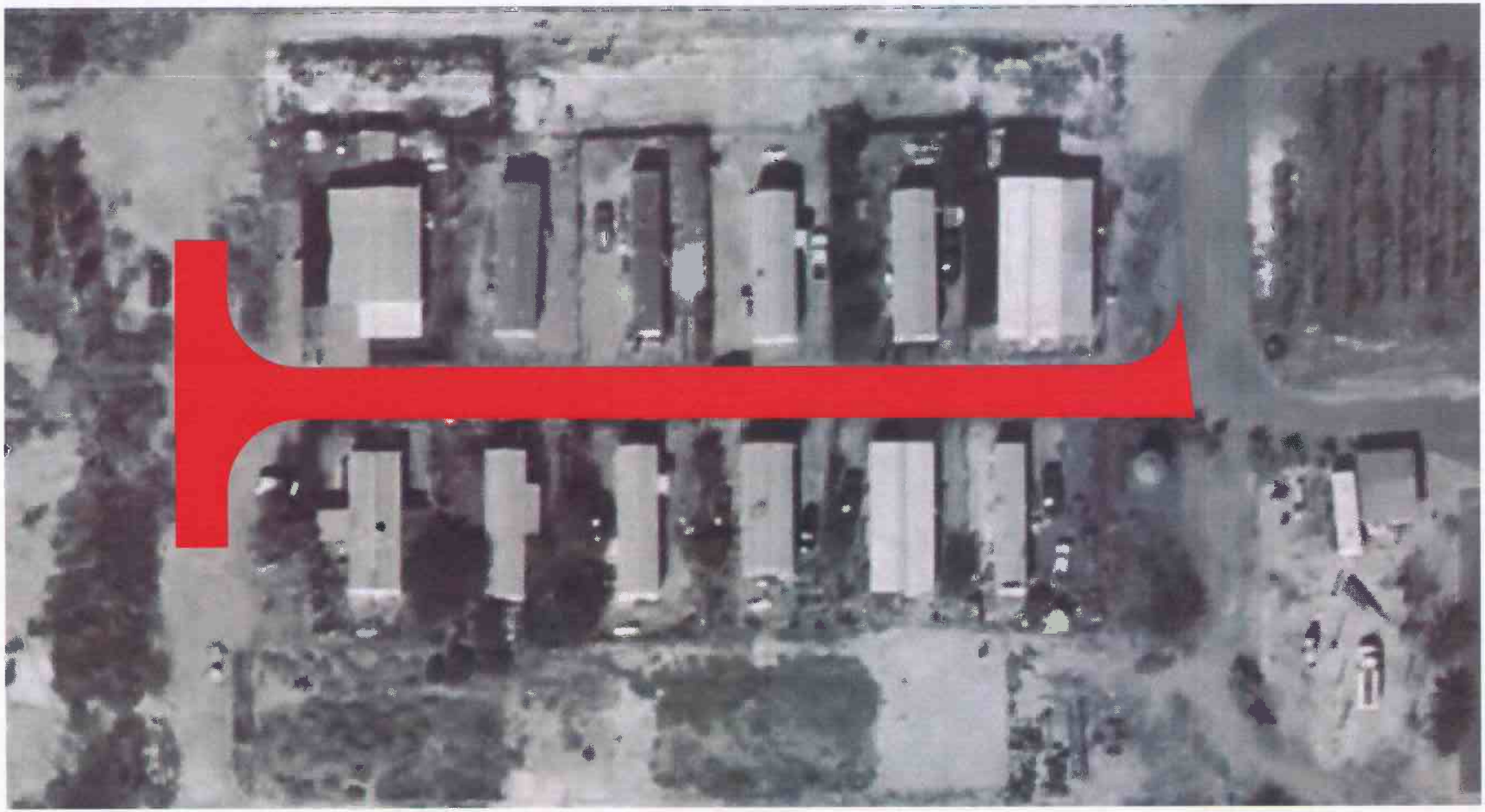
APN 749-140-006

02/26/2014

NOTE: AERIAL IMAGE FEATURES ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. LINE-WORK DOES NOT REPRESENT ACTUAL PROPERTY LINES.

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

69TH AVENUE



PIERCE ST.

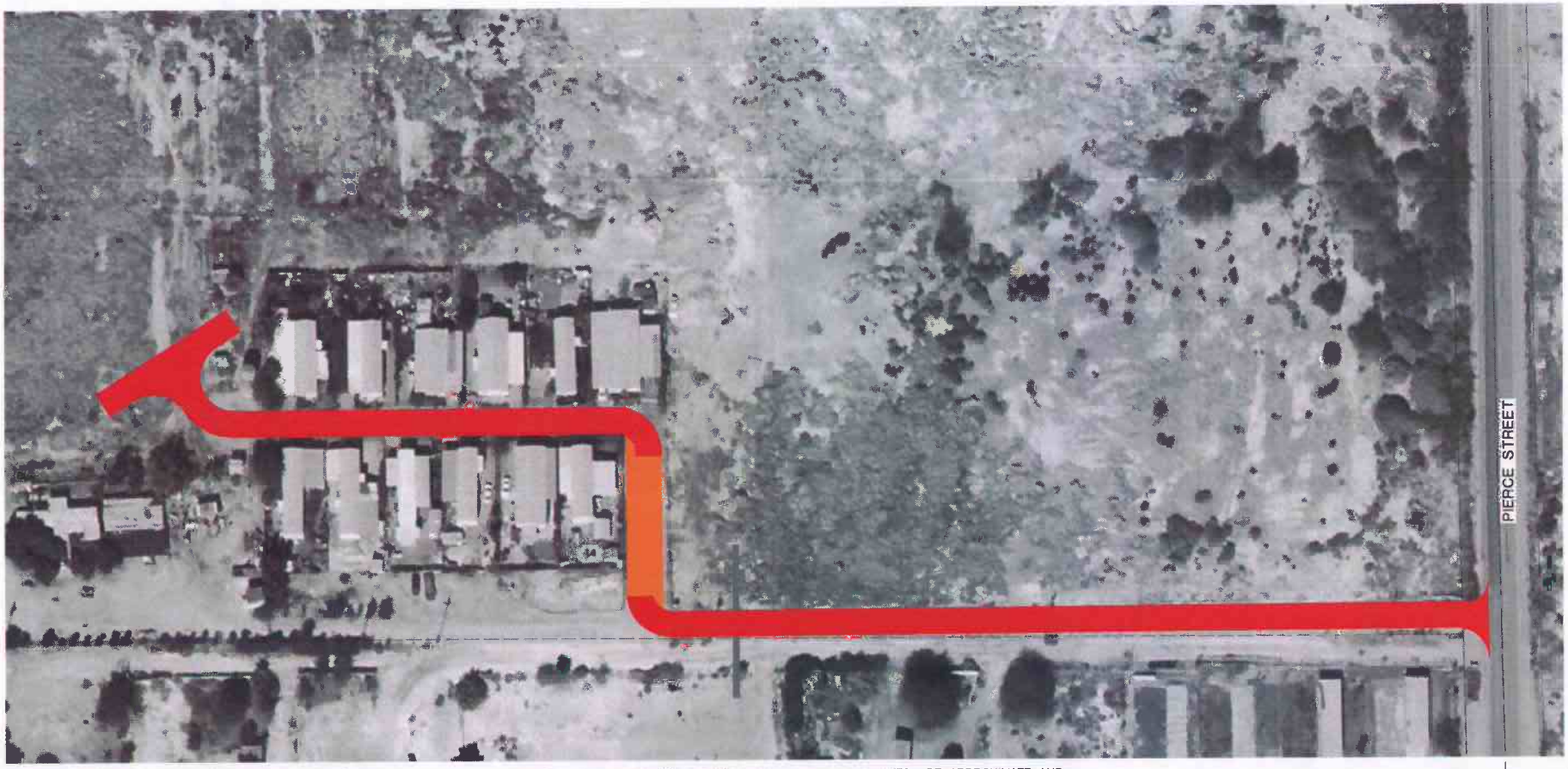
N

0' 40' 80'

20' DRIVE AISLE

LOCATION #27
VARGAS
69455 PIERCE ST., THERMAL CA
APN 749-140-017

02/26/2014



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73RD AVE

N

0' 80' 160'

20' DRIVE AISLE

30' DRIVE AISLE

LOCATION #29

ARELLANO/MAJORADO

72753 PIERCE ST., THERMAL CA

APN 749-260-008

02/26/2014

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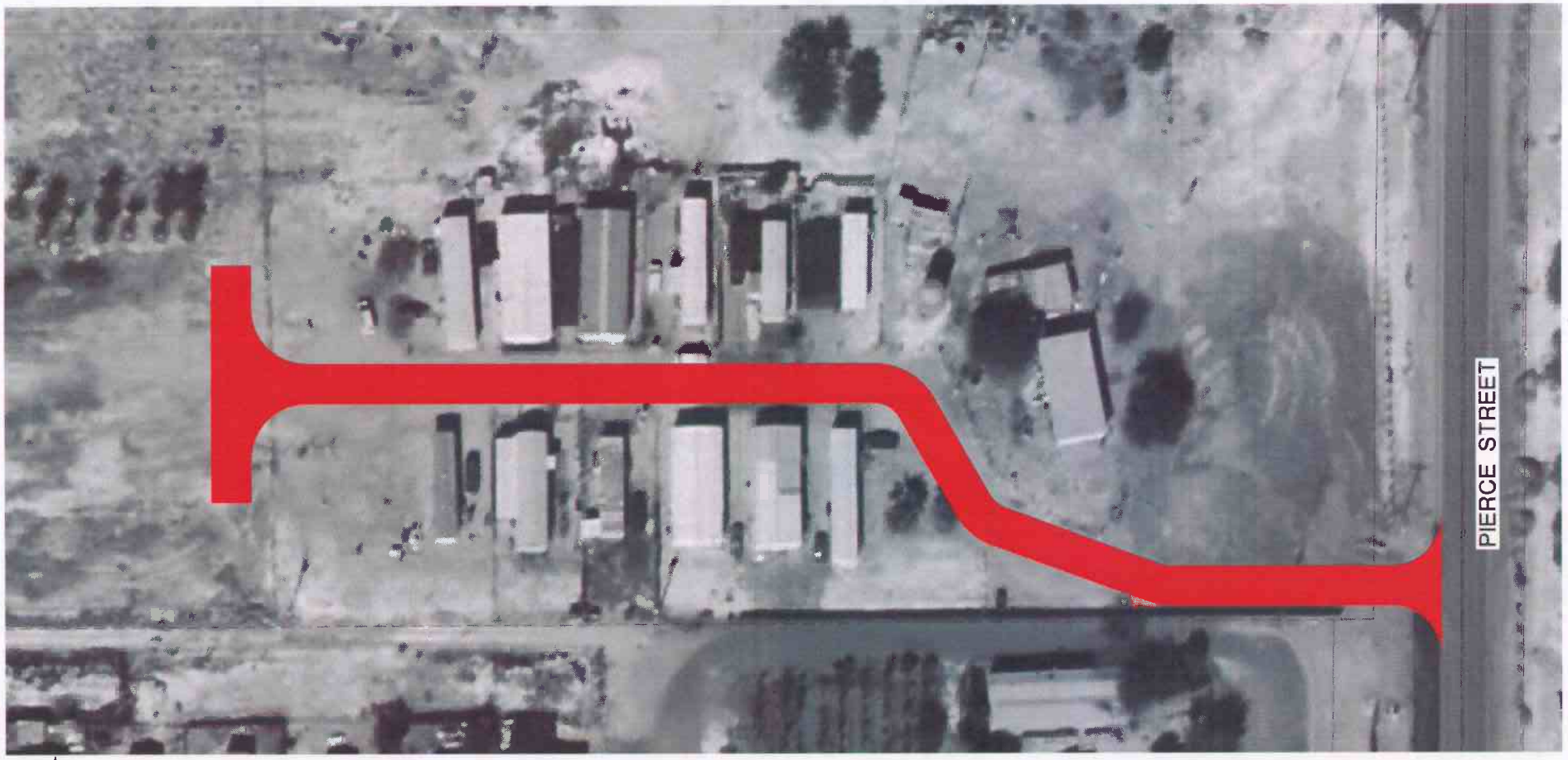
69TH AVENUE



N

0' 50' 100'

20' DRIVE AISLE

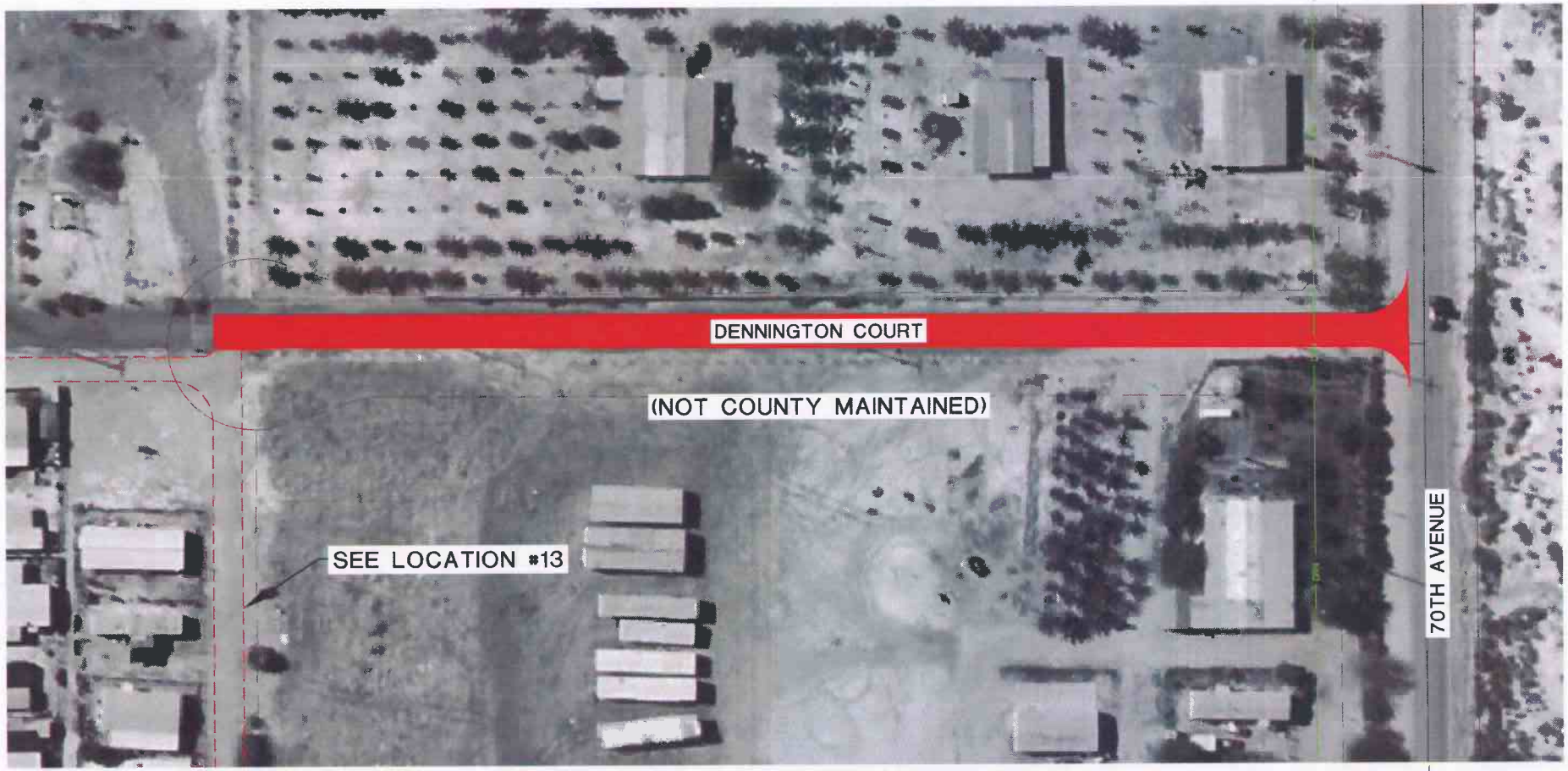
LOCATION #30

GAMEZ

69353 PIERCE ST., THERMAL CA

APN 749-140-016

02/26/2014



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PIERCE STREET

20' DRIVE AISLE

CVWD DRAIN LINE

N

0' 60' 120'

LOCATION #31

DENNINGTON ROAD
THERMAL, CA

02/26/2014

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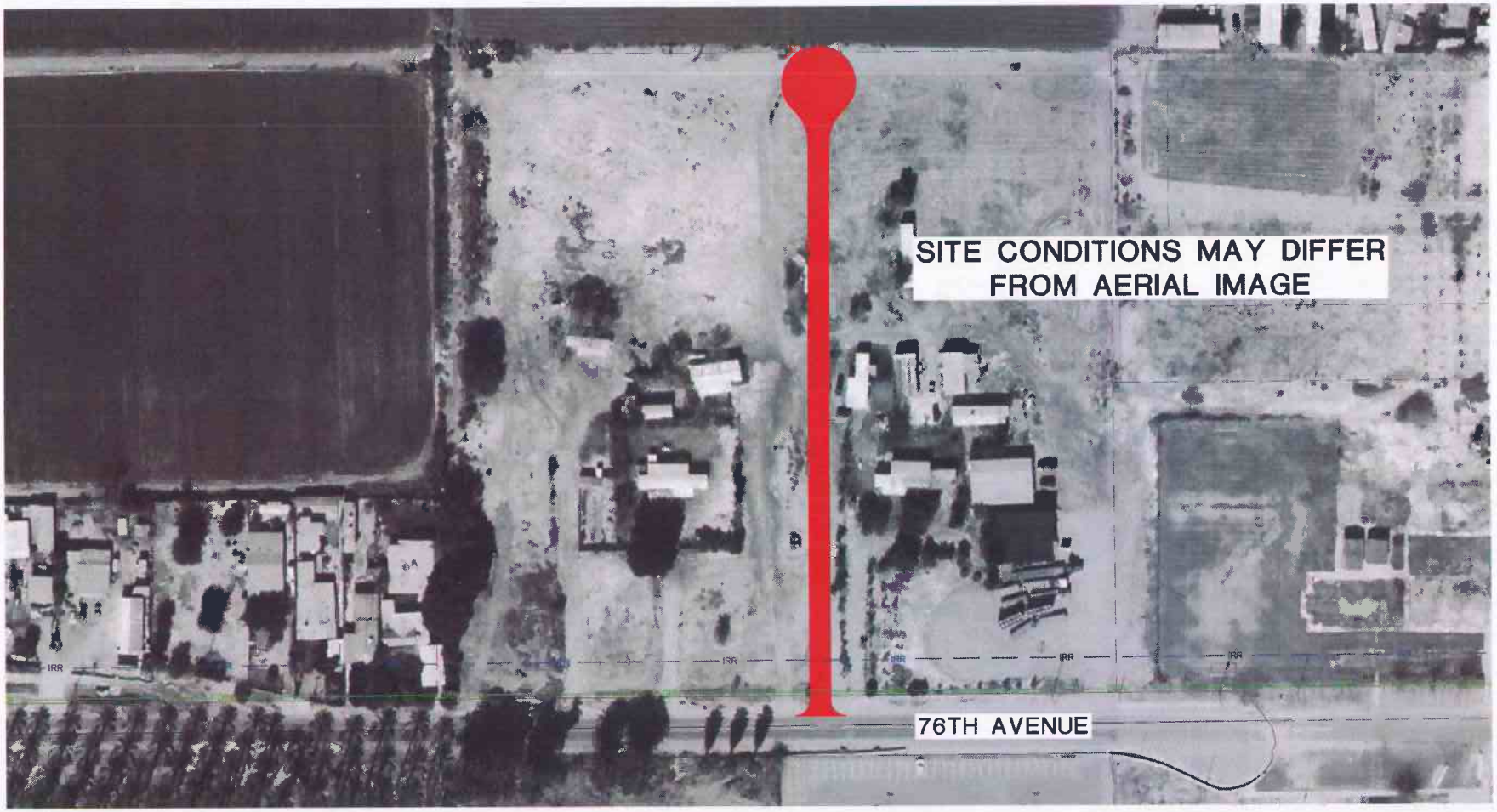

N

0' 100' 200'

20' WIDE DRIVEWAY

USBOR IRRIGATION LINE

CVWD DRAIN LINE

LOCATION #32
RODRIGUEZ, RUIZ
88676 AVENUE 76, THERMAL CA
APN 755-150-021

02/26/2014

MONROE STREET

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N

0' 50' 100'

18' DRIVE AISLE

20' DRIVE AISLE

CVWD DRAIN LINE

LOCATION #33

TRUJILLO, GARCIA

82350 AVENUE 58TH, THERMAL CA

APN 764-130-023

02/26/2014

MONROE STREET

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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N

0' 50' 100'

20' WIDE DRIVEWAY

CVWD DRAIN LINE

LOCATION •33A
ABARCA
THERMAL CA
APN 764-130-024

02/26/2014

MONROE STREET

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N

0' 50' 100'

20' WIDE DRIVEWAY

18' DRIVE AISLE

CVWD DRAIN LINE

LOCATION #33B
TRUJILLO, GARCIA
THERMAL CA
APN 764-130-023

02/26/2014

PIERCE STREET

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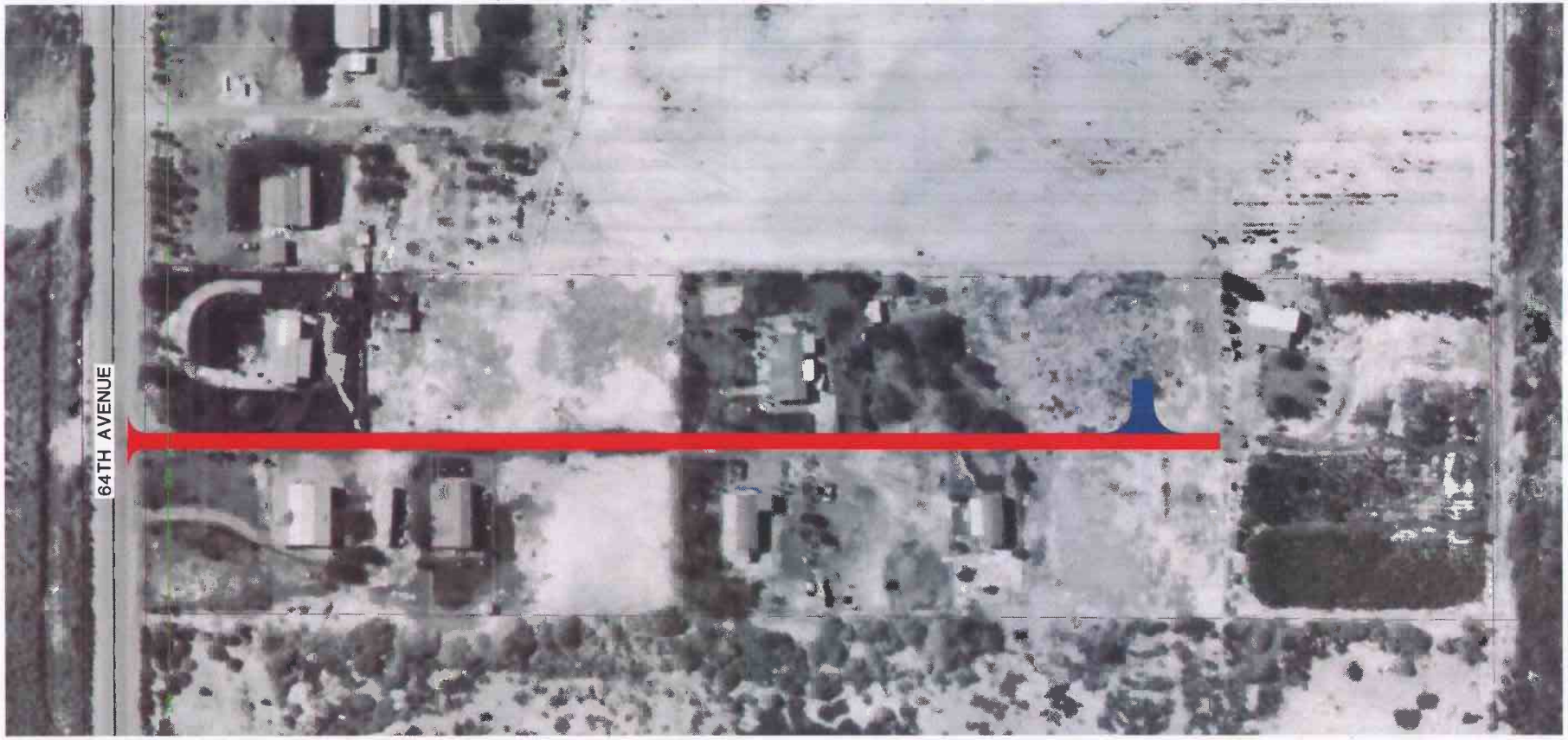

N

0' 100' 200'

15' DRIVE AISLE

20' DRIVE AISLE

CVWD DRAIN LINE

LOCATION #34
CERVERA, MORA
89860 AVENUE 64TH, THERMAL CA
APN 749-060-021

02/26/2014

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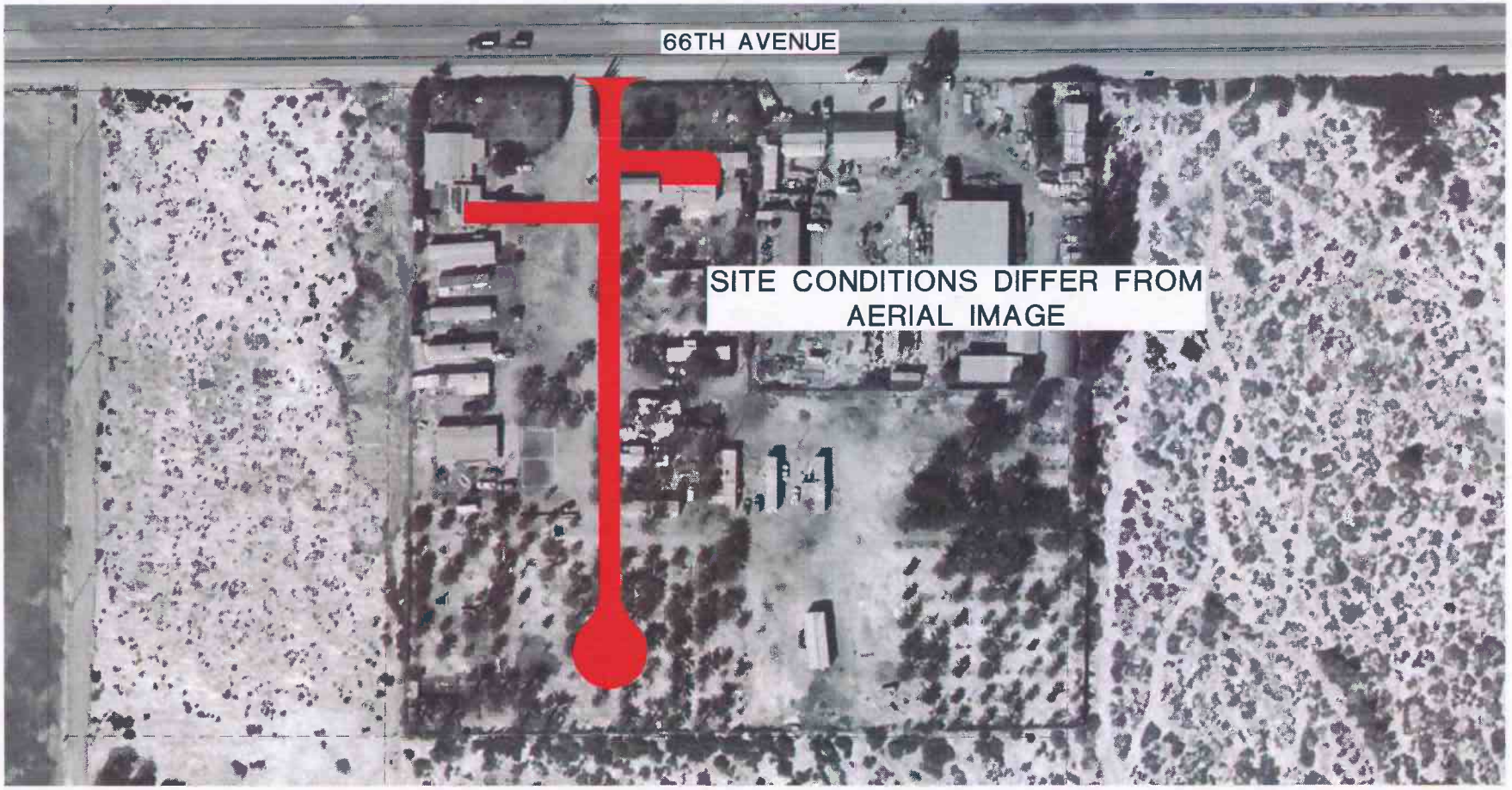

N

0' 100' 200'

20' DRIVE AISLE

LOCATION #35
GARCIA
88455 AVENUE 66TH, THERMAL CA
APN 749-090-031

02/26/2014

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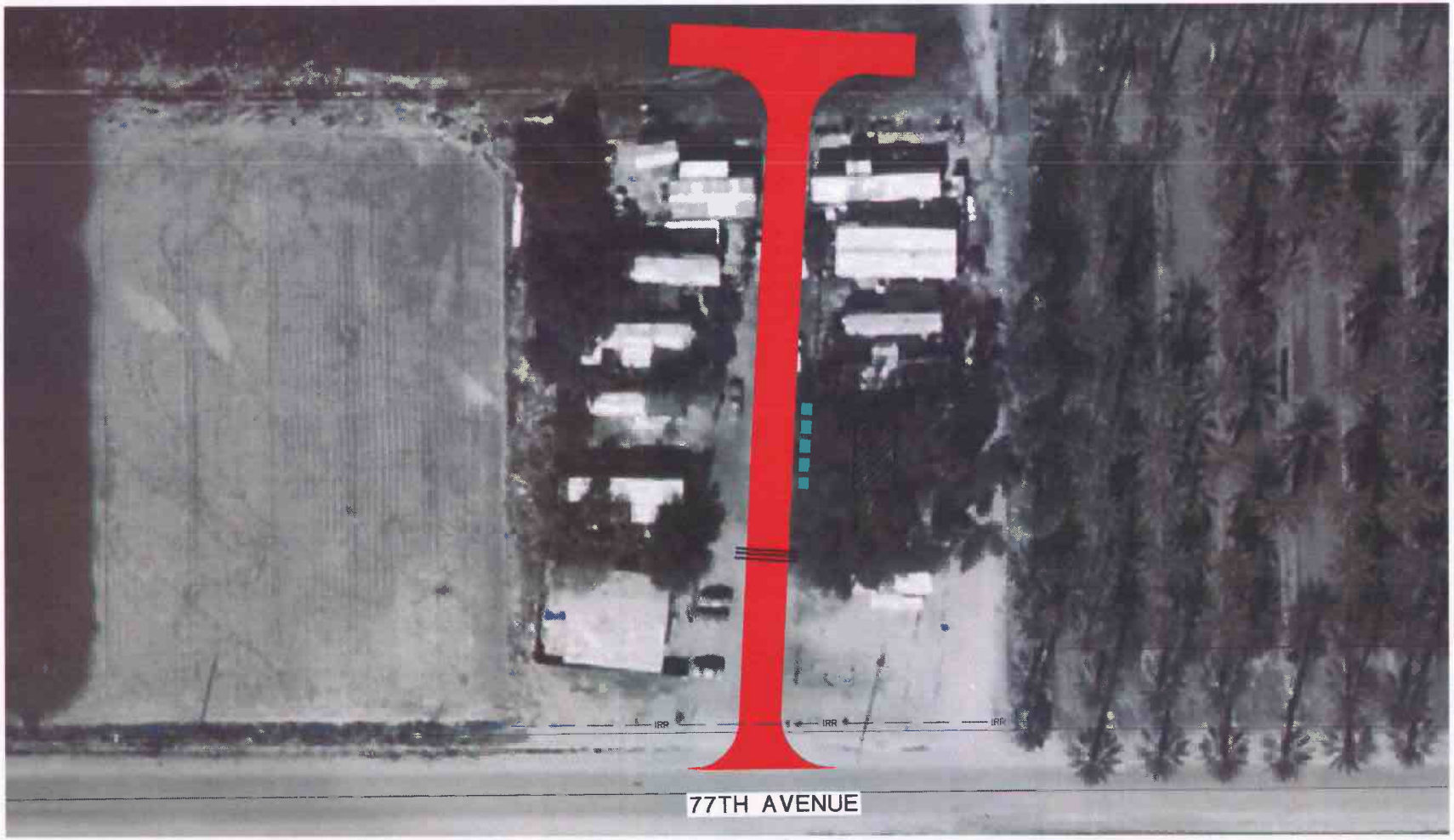


FILLMORE STREET

N

0' 50' 100'

20' DRIVE AISLE

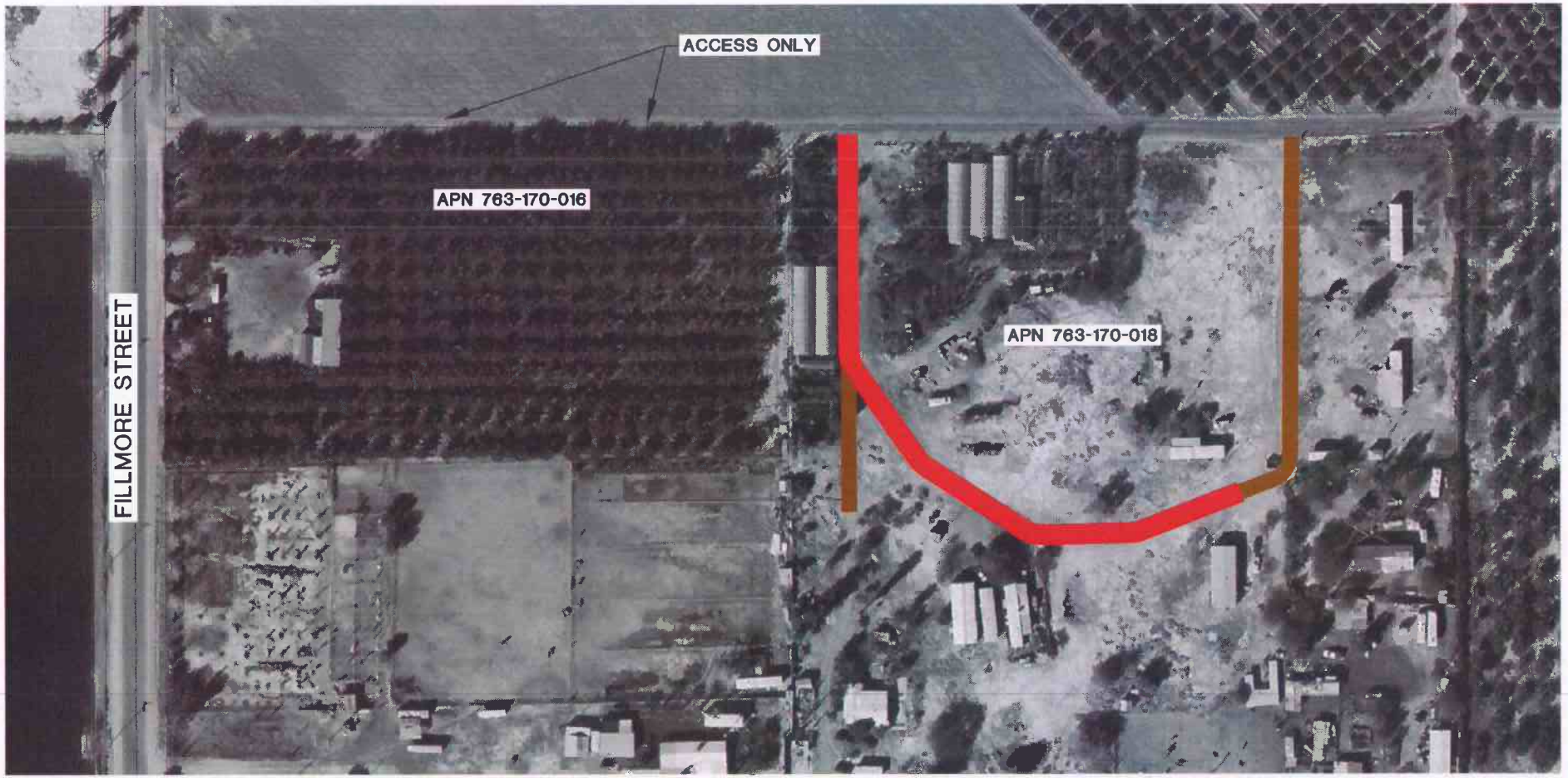
USBOR IRRIGATION LINE

4" PIPE

GRADE EARTHEN SWALE

LOCATION #36
CISNEROS
88410 AVENUE 77TH, THERMAL CA
APN 755-161-007

02/26/2014



PIERCE STREET

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N

0' 80' 160'

20' DRIVE AISLE

15' DRIVE AISLE

LOCATION #37
CAMPOS & MOTTU
52742 FILLMORE AVENUE, THERMAL CA
APN 763-170-018-9

02/26/2014

NOTE: LOCATIONS OF ANY UTILITIES SHOWN ON THE EXHIBITS ARE APPROXIMATE AND BASED ON AVAILABLE RECORD. EXISTING LOCATIONS OF BURIED ELECTRICAL, GAS, CABLE TV, DRAIN TILES, TELEPHONE, WATER SERVICES AND SEWER SERVICES ARE UNKNOWN AND SHOULD BE CONSIDERED PRESENT ON THE SITE AT POTENTIALLY VERY SHALLOW LOCATIONS. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE.

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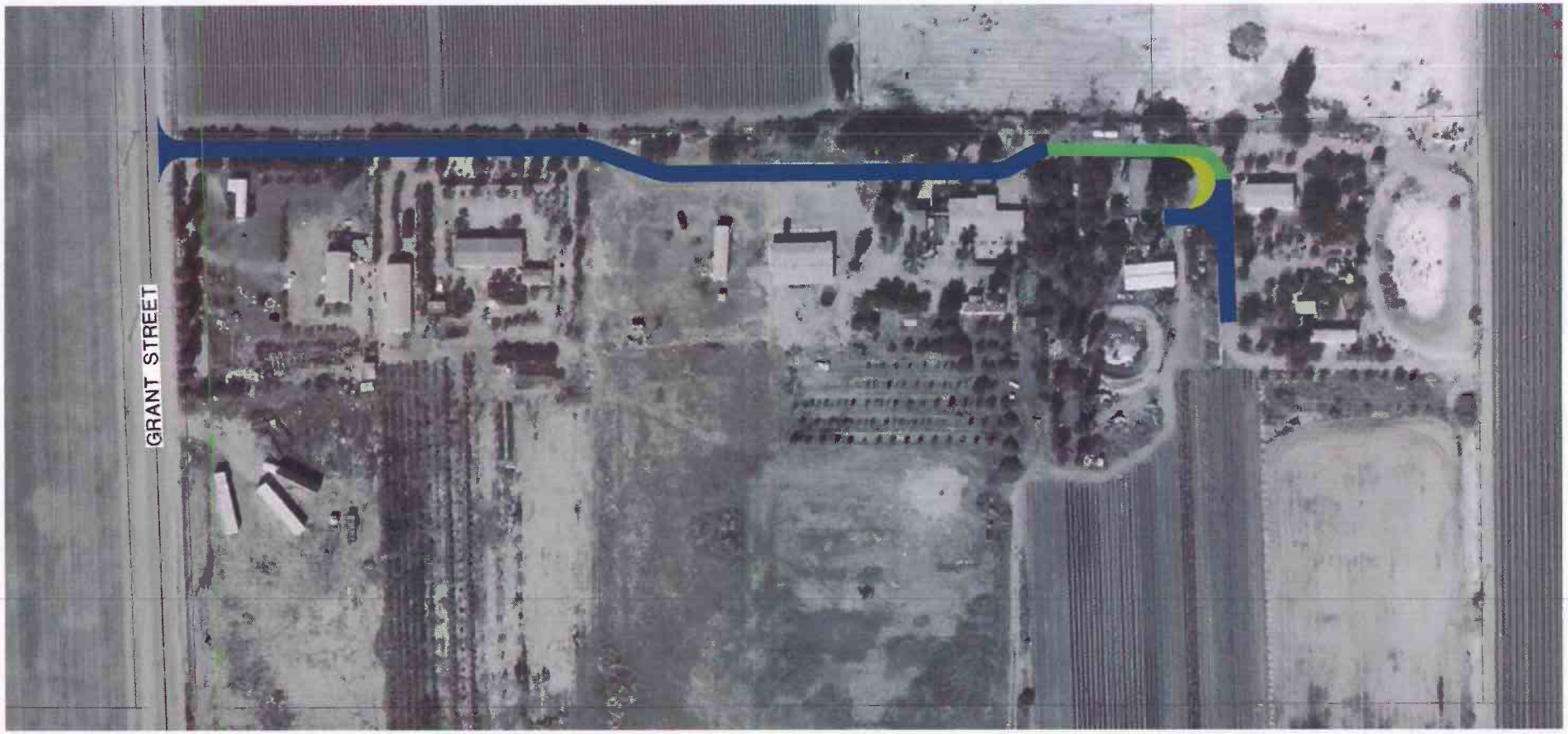


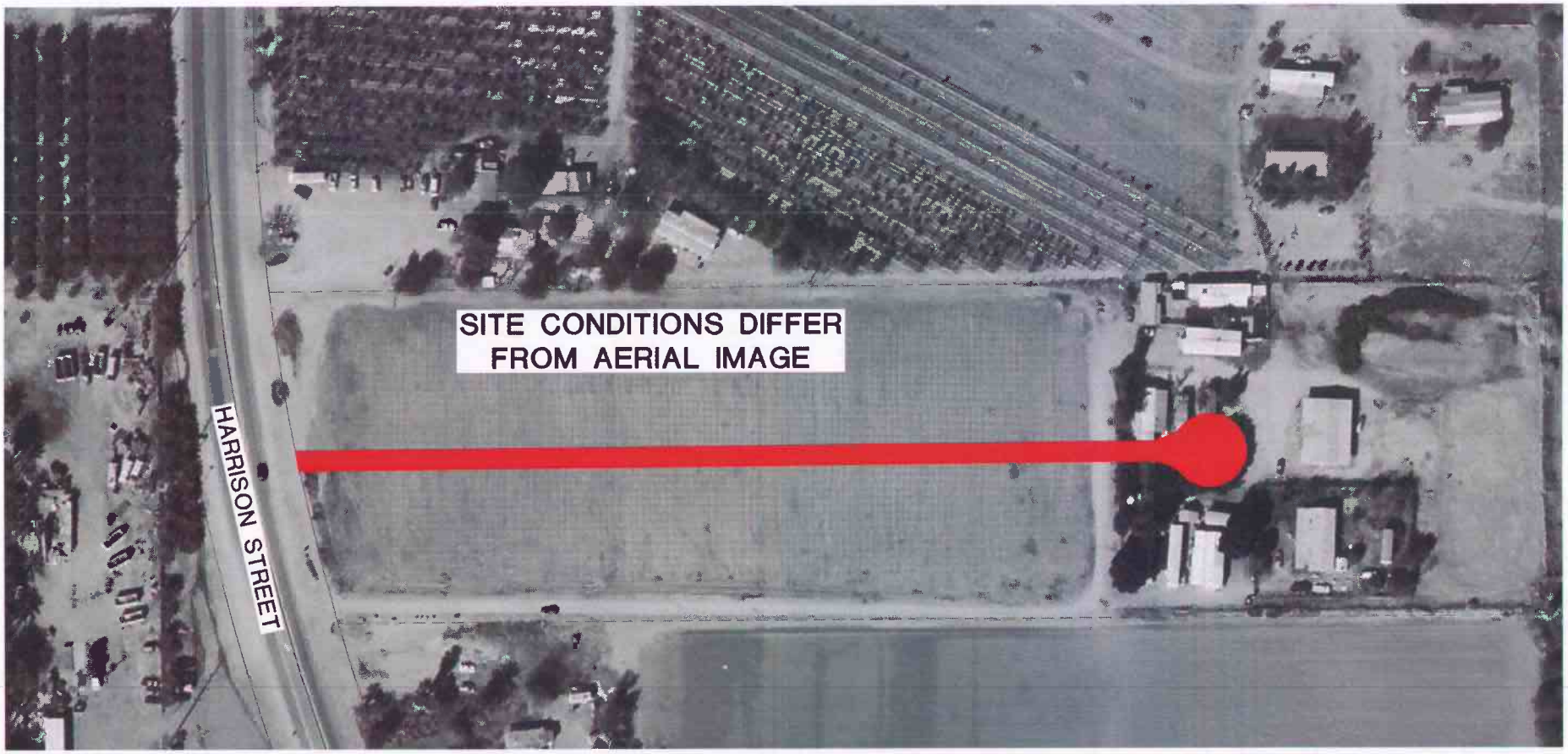
LOCATION #38

MARTINEZ

69780 GRANT ST., THERMAL CA

APN 729-070-011

02/26/2014



66TH AVENUE

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N

0' 100' 200'

20' DRIVE AISLE

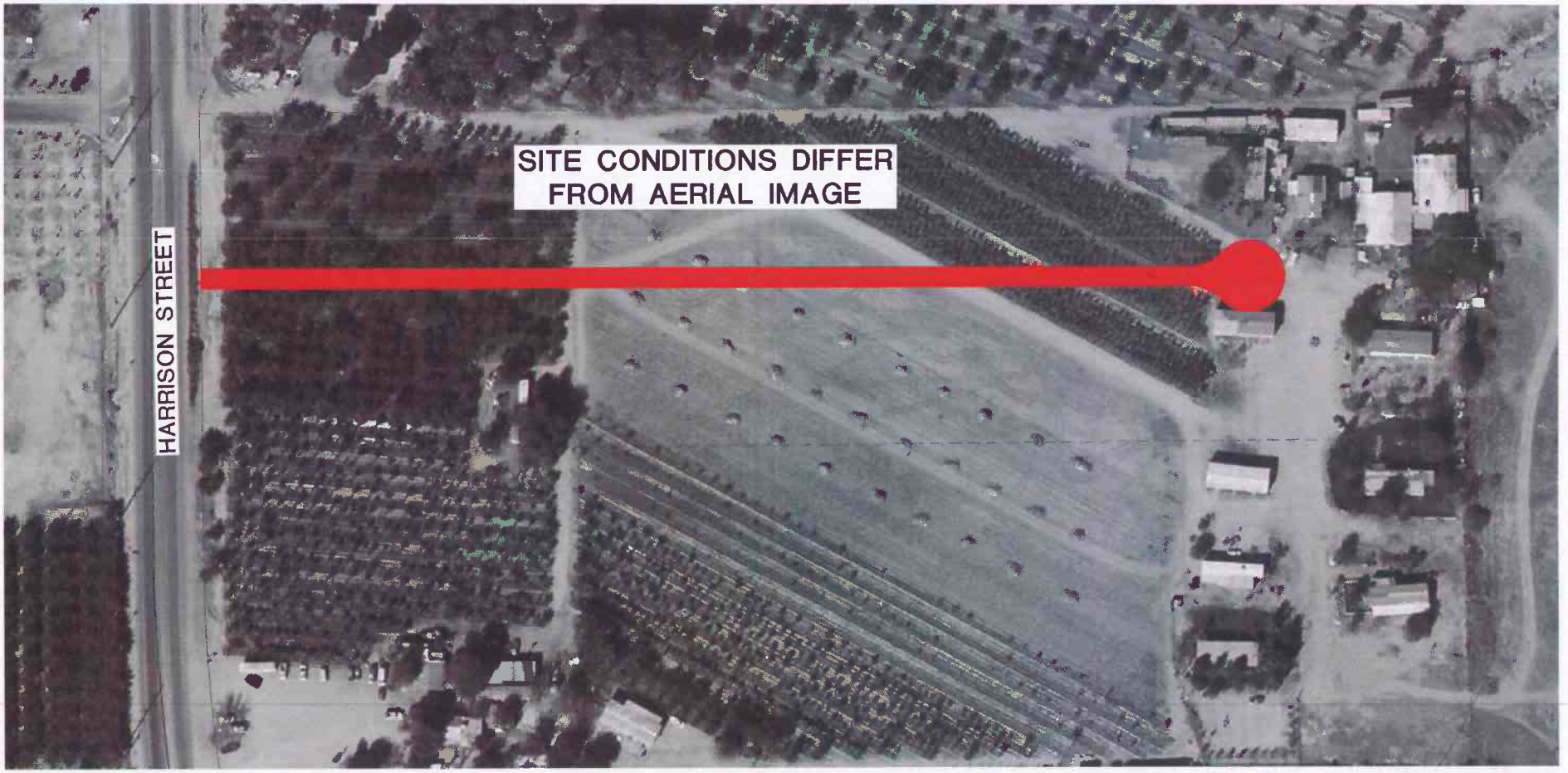
LOCATION #39

GARCIA

61101 HIGHWAY 86, THERMAL CA

APN 751-080-003

02/26/2014



66TH AVENUE

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N

0' 100' 200'

20' DRIVE AISLE

LOCATION #40

CASTRO

76250 HIGHWAY 86, THERMAL CA

APN 751-080-012

02/26/2014

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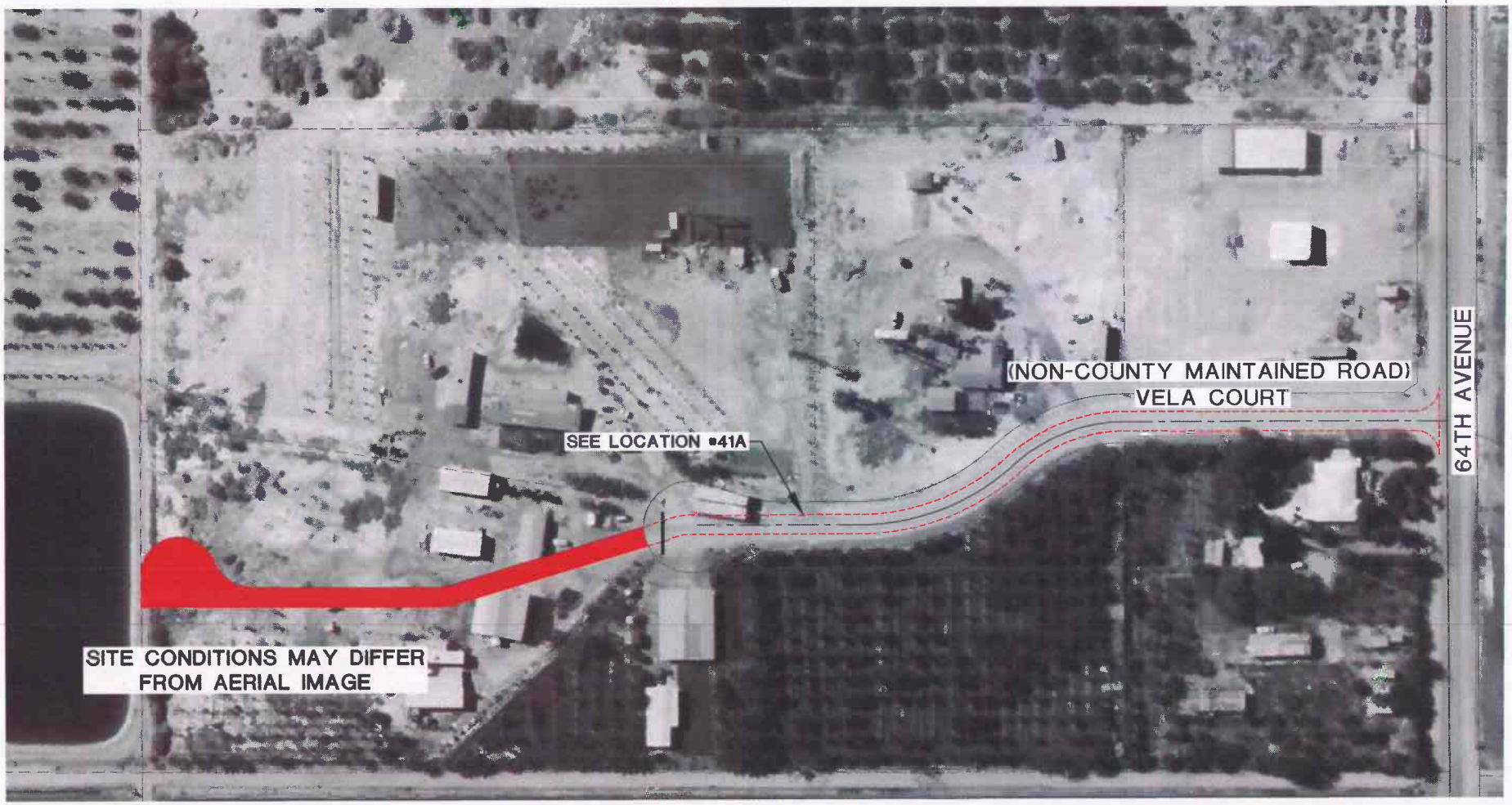

20' DRIVE AISLE

10" PIPE

N

0' 100' 200'

LOCATION #41

ESPINOZA

64270 VELA CT, THERMAL CA

APN 749-330-003

02/26/2014