

March 23, 2011

Motorola 52nd Street Superfund Site

OU1 End Use Alternatives Analysis



Operable Unit 1 (OU1) Remediated Groundwater

- ▶ Freescale currently provides treated groundwater from OU1 pump and treat system to ON Semiconductor for use as manufacturing process water at its 52nd Street facility
- ▶ ON Semiconductor originally announced in 2009 that it would be closing manufacturing operations at its 52nd Street facility in early 2010
 - Without manufacturing, the supply of treated water from OU1 is greater than the water demand at ON Semiconductor
 - ON Semiconductor has extended its manufacturing operations at the 52nd Street facility; shutdown of manufacturing operations is currently proposed for June 2011
- ▶ ADEQ approved discharge to sanitary sewer for 1-year while final end use alternative is selected and implemented

Sanitary Sewer Connection Update

Connection to COP Sanitary Sewer

- ▶ ON Semiconductor currently discharges manufacturing process water, including water provided by OU1 remedy, to City of Phoenix (COP) sanitary sewer – much of infrastructure already in place
- ▶ Design & construction of the new sanitary sewer completed and approved by the COP February 1, 2011
- ▶ COP Industrial Wastewater Discharge Permit received and effective February 1, 2011 through January 31, 2016
- ▶ Periodic, short-term discharges to sanitary sewer will be necessary in the future for either final end use alternative to allow for periodic maintenance
- ▶ ON Semiconductor and Freescale are still evaluating whether ON Semiconductor can continue to utilize a small percentage (5 to 10%) of the remediated water for industrial purposes



PROCESS WATER

17000 GAL

11/30/2010

QUALITIES GWTP
FEED STORAGE
101
CAP 1000 GAL



PLACE PALLET
CLEAN UP

101-101
101-101
101-101
101-101



11/30/2010

Final End Use Alternatives

History of alternatives analysis

- ▶ Beginning in 2009, Freescale submitted several evaluation reports on alternatives for end use of the treated water
 - June 2009 – *Evaluation of Remediated Groundwater End Use Alternatives*
 - April 2010 – *Evaluation of Remediated Groundwater End Use Alternatives, Revised*
 - September 2010 – *Update on Evaluation of Remediated Groundwater End Use Options*

- ▶ The *Final Evaluation Report, End Use Alternatives for Remediated Groundwater* report was submitted to ADEQ/EPA in December 2010

Final Alternatives for Use of Remediated Water

- ▶ Injection in the OU1 area; and
- ▶ Delivery to SRP Grand Canal via the Old Crosscut Canal for beneficial use for agricultural irrigation
- ▶ Two pipeline alignment options for each alternative

Reinjection Alternative

Reinjection Alternative



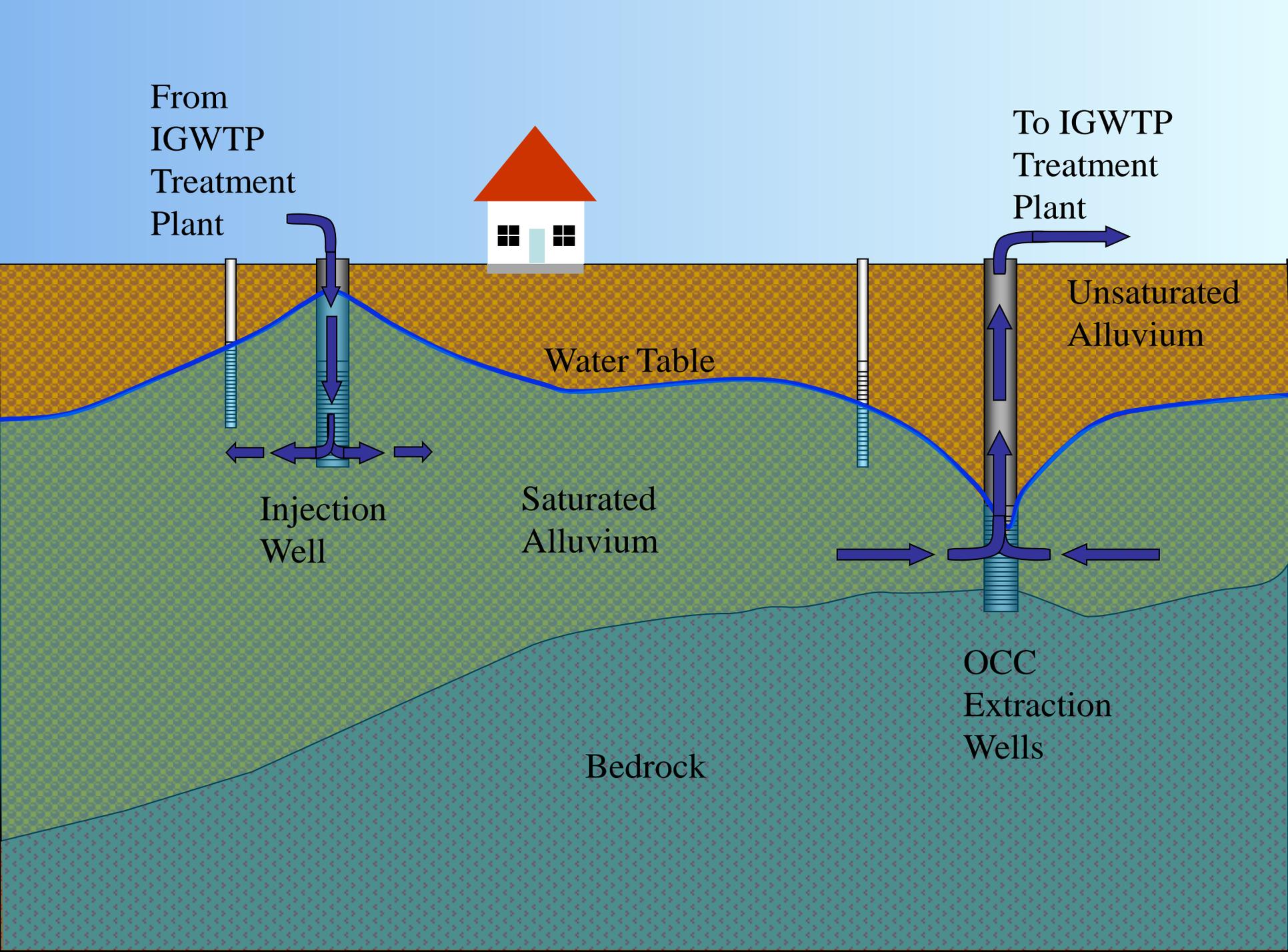
OU1 Alternative End Use Evaluation

- IGWTP
- Old CrossCut Canal (OCC)
- Injection Options 1 and 2



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FIGURE 1b
OU1 End Use Alternatives
Injection Options 1 and 2



Conflicts with 56th St Remedy

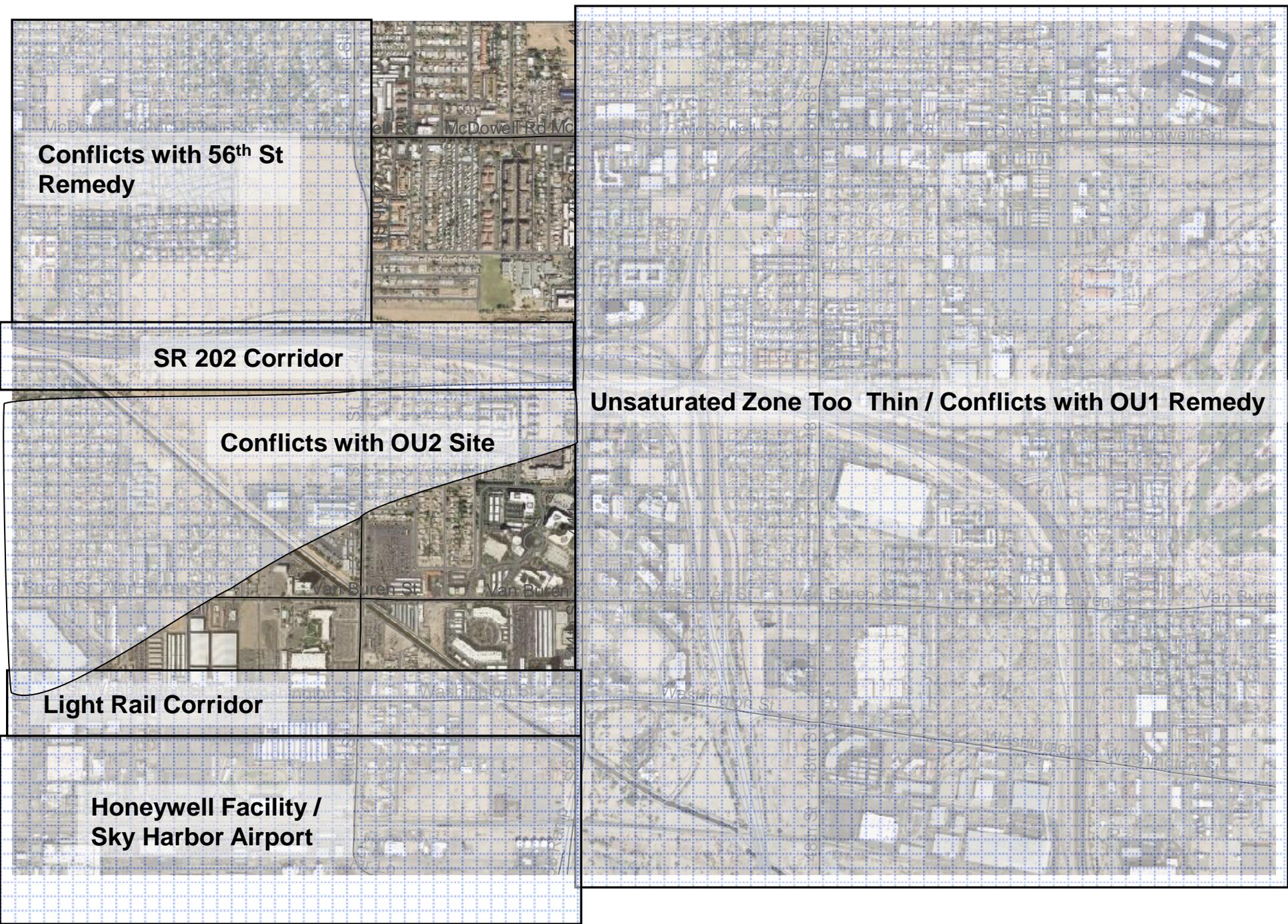
SR 202 Corridor

Conflicts with OU2 Site

Light Rail Corridor

Honeywell Facility / Sky Harbor Airport

Unsaturated Zone Too Thin / Conflicts with OU1 Remedy





Legend Map source: Google Earth, 2010

- Existing Monitoring Well
- Possible Injection Well Location
- Possible Redevelopment Injection Well Location
- Possible Monitor Well Location

SR 202 Red Mountain Freeway

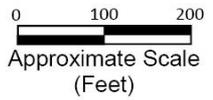
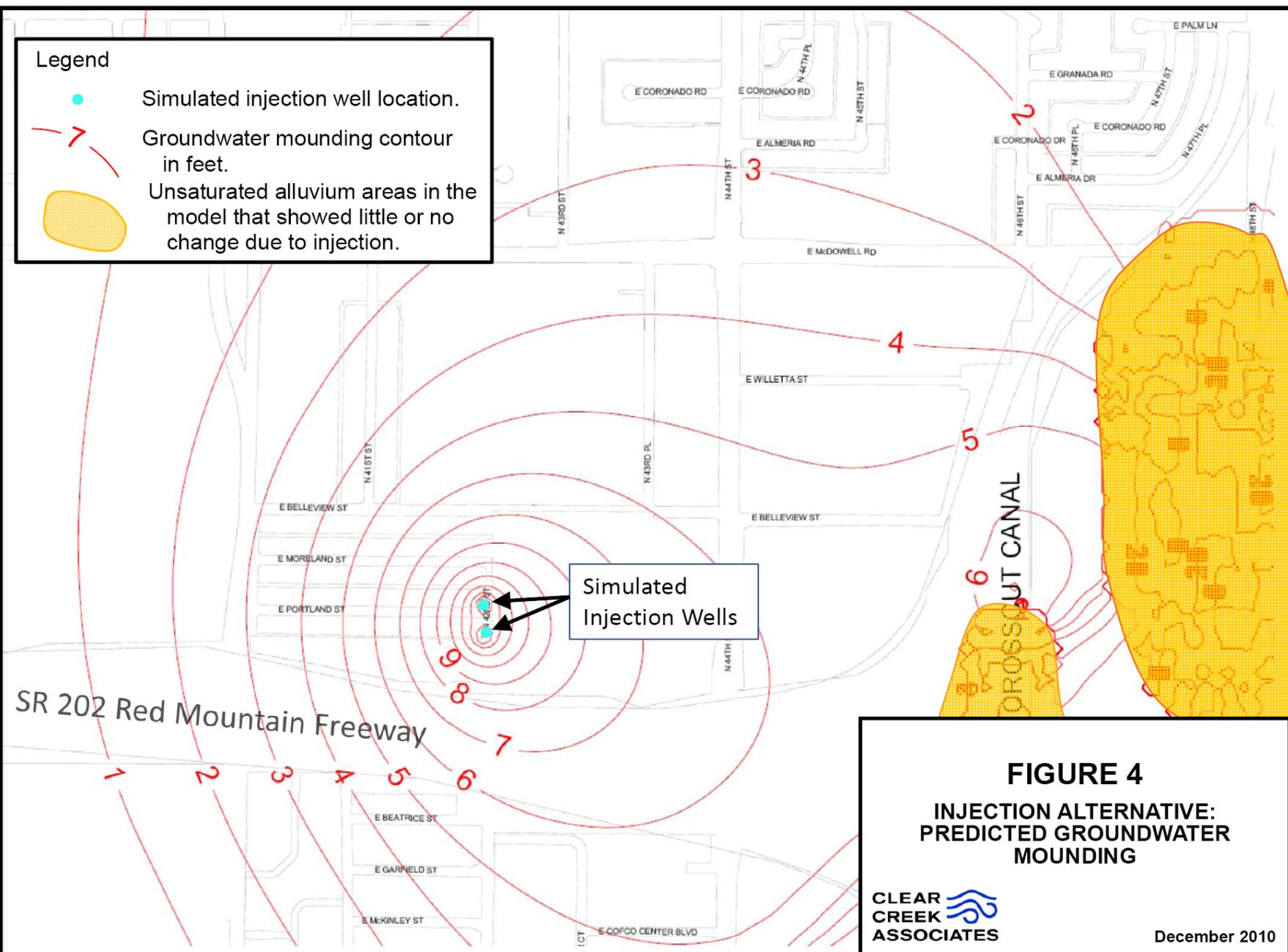


FIGURE 5
INJECTION ALTERNATIVE
WELL LOCATIONS

CLEAR CREEK ASSOCIATES

December 2010

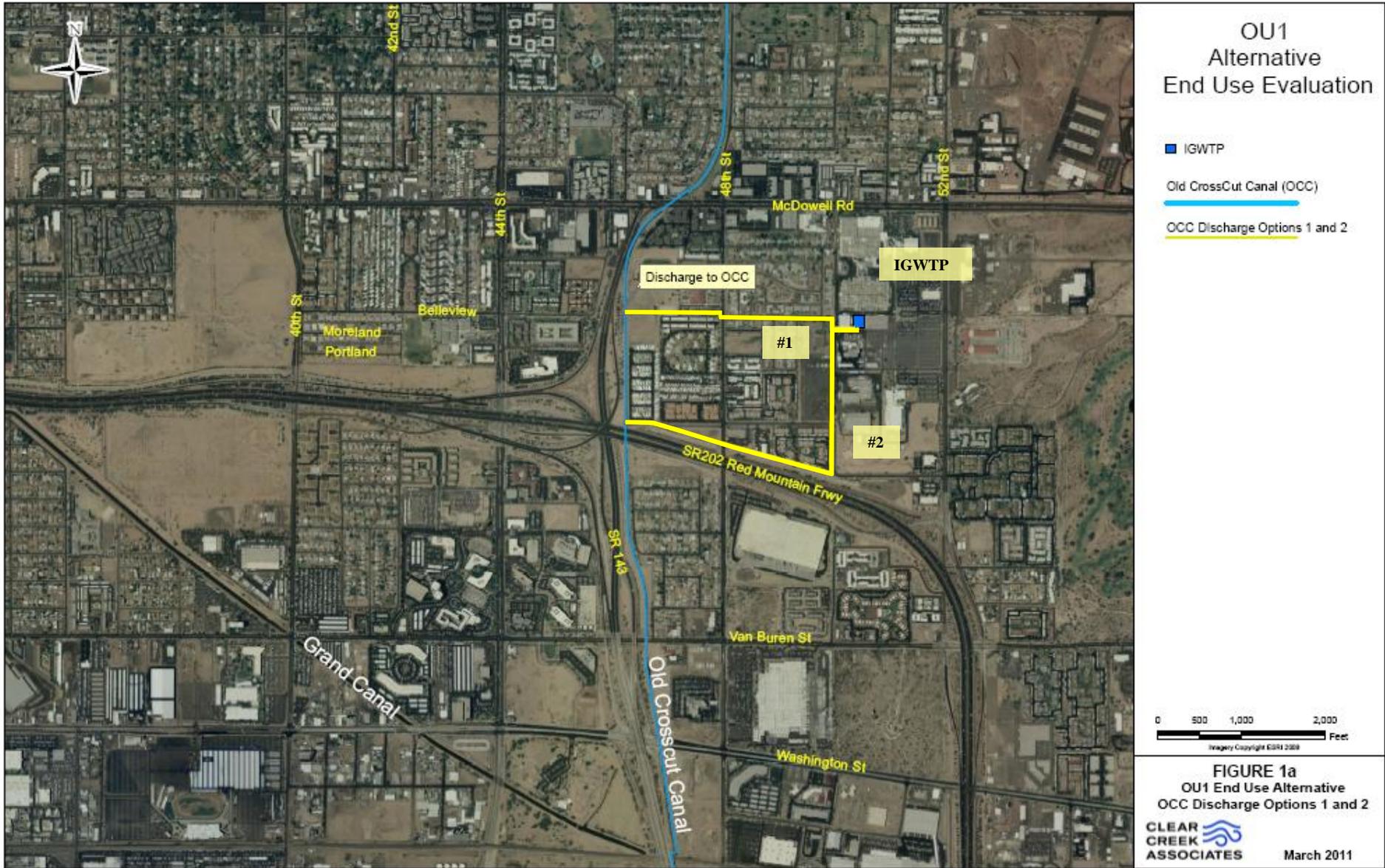


Determination on Injection

- ▶ Determined not to be preferred alternative because:
 - Significant access restrictions for siting injection wells
 - Operation and maintenance complications with injection wells
 - Lower operational reliability compared to discharge to OCC
 - Disposal of well redevelopment water is problematic
 - Injection well may need to be replaced over long-term
 - Much longer implementation time frame than discharge to OCC
 - More water discharged to the City sewer while building
 - Significant disruption to neighborhood caused by both construction and frequent maintenance activities compared to discharge to OCC
 - ADOT policy against granting access along axis of freeway
 - Cost potentially more than 3 times higher than discharge to OCC without corresponding increase in benefit to remedy

OCC Discharge Alternative

OCC Discharge Alternative



Determination on Discharge to SRP

- ▶ Evaluations showed delivery to the Grand Canal via the Old Crosscut Canal (OCC) as best option for end use
 - Greater operational certainty and reliability than injection
 - Less overall infrastructure which means less disruption to the neighborhoods in installing
 - Shorter timeframe to implement which also means less discharge to the City sewer during implementation
 - Minimal maintenance required means less disruption to the neighborhood
 - Less costly to implement
 - SRP provides for long-term beneficial re-use of the treated water for the foreseeable future
 - Irrigation
 - Aquifer recharge at the New River Aqua Fria Underground Storage Project (NAUSP)

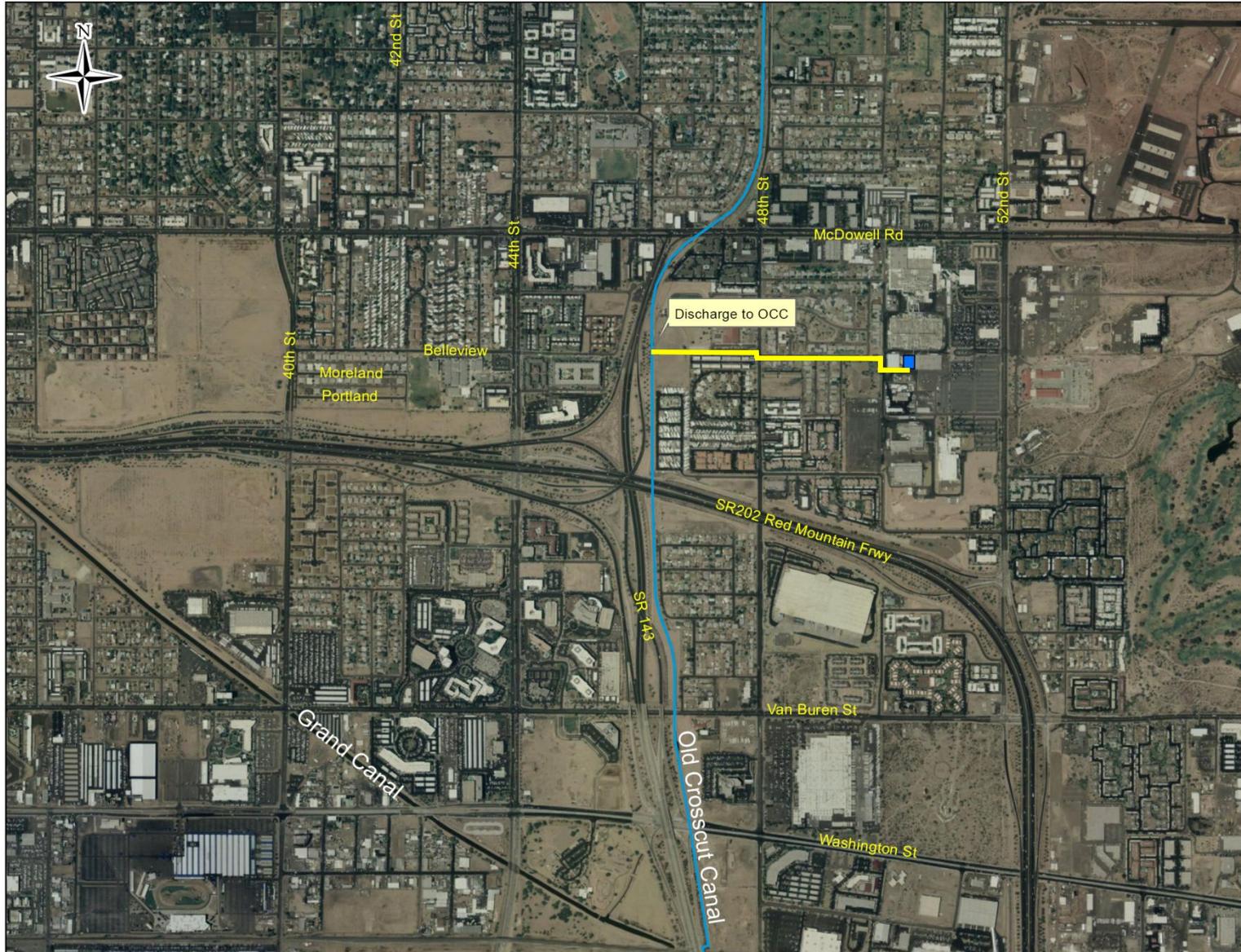
Preferred Alternative

▶ Preferred Discharge Alternative:

- Discharge to Grand Canal via OCC for beneficial re-use as irrigation water and/or aquifer recharge

▶ Preferred pipeline route:

- 50th Street to Culver Street, across Brunson-Lee Elementary School property to OCC alignment



OU1 Alternative End Use Evaluation

- IGWTP
- Old CrossCut Canal (OCC)
- OCC Discharge Preferred Alternative



FIGURE 11
OU1 Preferred Alternative

**CLEAR
CREEK
ASSOCIATES**

December 2010

Current Freescale Activity

- ▶ Sanitary sewer connection complete
- ▶ New City of Phoenix (COP) industrial wastewater permit in place
- ▶ Flow meter may need to be reprogrammed or replaced to record data required for COP permit
- ▶ Awaiting ADEQ and EPA response on December 2010 final evaluation and preferred alternative

OU1 Record of Decision

- ▶ Change in discharge end use of OU1 treated groundwater will require an Explanation of Significant Difference (ESD) to the Record of Decision (ROD) for OU1
- ▶ ADEQ and EPA will send out fact sheet and hold public meeting to allow the agencies and Freescale to hear and consider any concerns about ESD
- ▶ ESD then finalized and notice published in local newspaper with a brief description of the ESD

