

10.3.3 Transition Grout Installation

1. The tremie pipe shall extend from the ground surface to the bottom of the zone to be grouted. Cement grout shall be placed from bottom to top, in a continuous operation. The tremie pipe shall be slowly raised as the grout is placed, but the discharge end of the grout pipe must be submerged in the emplaced grout at all times until grouting is completed.
2. The CONTRACTOR shall take whatever precautions are necessary to prevent borehole and/or casing collapse during placement of the transition grout. In the event any borehole and/or casing collapses prior to completion of the transition grout, the CONTRACTOR shall take whatever steps are necessary to reopen the borehole, replace the casing and place the seal as specified. Any such remedial action shall be conducted at the CONTRACTOR's expense.
3. The CONTRACTOR shall calculate the amount of transition grout necessary to complete the annular seal. The volume placed shall not be less than the calculated volume of the annular space between the borehole and the well casing. The CONTRACTOR shall record all calculations and volumes used, and measurements obtained after each interval is pumped. The CONTRACTOR shall provide the calculations and volumes to the Engineer for his review and approval.
4. No activity shall occur directly adjacent to the well site, nor will stand-by time be granted, during a minimum 1-hour period immediately following the placement of the transition grout. The casing shall be adequately secured such that no damage or contamination will occur during this period.

END OF SECTION

SECTION 11. SANITARY SEAL

11.1 GENERAL

11.1.1 Description

This Section includes the completion of the sanitary seal, sealing the annular space between the borehole and the well casing in the upper portion of the borehole.

11.1.2 Submittals

Delivery receipts and certified cement mix design receipts for cement placed for sanitary seal, if applicable.

11.1.3 Measurement and Payment

Payment for the sanitary seal will be based on measurement of vertical feet of sanitary seal installed at the unit price for Bid Item No. 9. No stand-by time will be paid for any down-time between the placement of the transition seal and the installation of the sanitary seal, or during the 24 hours the sanitary seal is curing.

11.1.4 Related Work Specified Elsewhere

None.

11.2 MATERIALS

11.2.1 Sanitary Seal

1. Cement used for the sanitary seal shall be a Type II Portland cement conforming to ASTM C150 (latest edition).
2. The cement mix used for the sanitary seal shall be a 10.5-sack sand-cement grout. There shall be not more than two parts by weight of sand to one part by weight of cement. The water-cement ratio shall be 7 gallons per sack of cement (94 pounds).
3. Water used for the cement mix shall be clean and of potable quality.
4. Materials used as additives for Portland cement mixtures in the field shall meet the requirements of ASTM C494 (latest edition), "Standard Specifications for Chemical Admixtures for Concrete."
5. Special quick-setting cement, retardants to setting, and other additives, including hydrated lime to make the mix fluid (up to 10 percent of the volume of cement) may be used.

11.3 EXECUTION

11.3.1 General

After placement of the casings, screens, filter pack, transition sand, pellet seal and transition seal, the sanitary seal shall be installed. The annular space between the well casing and the borehole shall be grouted by tremie with sanitary seal material from the top of the annular seal to the ground surface. A general schematic diagram of the well construction, including the location of sanitary seal, is provided in Figure 1 – Groundwater Well Details for CG-7, Figure 2 – Groundwater Well Details for CG-8, Figure 3 – Groundwater Well Details for HE-6, Figure 4 – Groundwater Well Details for HG-33 and Figure 5 – Groundwater Well Details for HG-34.

11.3.2 Sanitary Seal Mixture

1. Water, sand and cement shall be mixed in the ratios specified in Section 10.2.1.
2. The final mixture of sanitary seal shall be thoroughly blended before pumping. Cement and sand shall be completely incorporated into the mixture, no unmixed lumps of material shall exist in the mixture.

11.3.3 Sanitary Seal Installation

5. The tremie pipe shall extend from the ground surface to the bottom of the zone to be grouted. The sanitary seal shall be placed from bottom to top, in a continuous operation. The tremie pipe shall be slowly raised as the sanitary seal is placed, but the discharge end of the grout pipe must be submerged in the emplaced sanitary seal at all times until placement is completed.
6. The CONTRACTOR shall take whatever precautions are necessary to prevent borehole and/or casing collapse during placement of the sanitary seal. In the event any borehole and/or casing collapses prior to completion of the sanitary seal, the CONTRACTOR shall take whatever steps are necessary to reopen the borehole, replace the casing and place the seal as specified. Any such remedial action shall be conducted at the CONTRACTOR's expense.
7. The CONTRACTOR shall calculate the amount of seal material necessary to complete the sanitary seal. The volume placed shall not be less than the calculated volume of the annular space between the borehole and the well casing. The CONTRACTOR shall record all calculations and volumes used, and measurements obtained after each interval is pumped. The CONTRACTOR shall provide the calculations and volumes to the Engineer for his review and approval.
8. No activity shall occur directly adjacent to the well site, nor will stand-by time be granted, during a minimum 24-hour period immediately following the placement of the sanitary seal. The casings shall be adequately secured such that no damage or contamination will occur during this period.

END OF SECTION

SECTION 12. ABOVE GROUND WELL HEAD COMPLETION

12.1 GENERAL

12.1.1 Description

This Section includes the completion of the well head by installing a monument above-ground surrounded by cement-filled bollards.

12.1.2 Measurement and Payment

Payment of the well completion shall be made at the unit price for Bid Item No.1 1.

12.1.3 Related Work Specified Elsewhere

SECTION 7 WELL CASING AND SCREEN.

12.1.4 Submittals

1. The CONTRACTOR shall submit a schematic drawing of the above-ground monument and documentation from the manufacturer that the above-ground monument meets the requirements of this Section.
2. Prior to, or at the time of delivery to the site, the CONTRACTOR shall submit to the Engineer a copy of the purchase order placed with the monument manufacturer for the vault to be supplied for the project.
3. Prior to, or at the time of delivery to the site, a Bill of Lading (or invoice) shall be submitted to the Engineer certifying that the monument being delivered to the CONTRACTOR and hence to the well site, is the monument ordered by the CONTRACTOR per the specifications in this Section.

12.2 MATERIALS

12.2.1 Above-Ground Installation

1. The above-ground monument installed to protect the wellhead shall be an EMCO Wheaton A0728-006, or County approved equal.
2. Four protective bollards comprised of mild steel piping measuring 4 inches in diameter and 7 feet in length, shall be used for each well site.
3. Structural concrete to backfill the holes that will hold the bollards in place and completely fill the interiors of the bollards.
4. Yellow reflecting paint and taping to increase the visibility of the bollards.

12.3 EXECUTION

12.3.1 Above-Ground Monument Installation

1. Upon completion of well development, the CONTRACTOR shall excavate around the well casing to approximately 2.5 feet below ground surface, to a sufficient width, to facilitate the installation of the monument.
2. CONTRACTOR shall cut off the well casing such that the casing extends approximately 24 inches above the top of surrounding ground surface. The cut edges shall be regular in appearance and CONTRACTOR shall file the edges to remove all burrs and sharp corners from the edge. CONTRACTOR shall equip each cut well casing with a fitted J-plug.

3. CONTRACTOR shall install an approximate six-inch thick layer of crushed rock base in the base area between the well casing and the excavation walls to support the monument. The rock base shall be compacted and leveled to provide a supportive surface.
4. CONTRACTOR shall install the monument on top of the crushed rock base such that the elevation of the top of the monument is approximately three-feet above the surrounding ground surface.
5. CONTRACTOR shall install an additional approximate six-inch layer of crushed rock base in the space between the monument and the well casing, and in the space between the monument and the surrounding excavation walls, to provide lateral stability to the vault. The rock base shall be compacted and leveled within the vault to provide a supportive surface free of trip hazards.
6. CONTRACTOR shall install concrete between the monument and the excavation walls, from the top of the rock base to an elevation matching the surrounding grade.
7. CONTRACTOR shall install a concrete pad measuring four feet by four feet by four-inches in thickness, centered on the monument. The concrete pad shall consist of structural concrete installed in a single pour at the same time the concrete is placed surrounding the monument.
8. CONTRACTOR shall install four bollards around the well monument to protect the well casing from vehicular traffic, such that they are positioned no more than six (6) inches from the corners of the concrete pad and spaced no more than five (5) feet along the concrete pad sides, as determined by the Engineer. Each bollard shall be free of burrs and sharp corners. Each bollard shall be installed within 12-inch diameter holes excavated to a sufficient depth to set the bollard such that it extends approximately three feet below grade and four feet above grade. CONTRACTOR shall set each bollard within structural concrete and completely fill its interior such that it has a rounded top.
9. CONTRACTOR shall paint the monument and each bollard with yellow reflecting paint and affix a band of reflecting tape completely around the circumference bollard, two inches from the top of the bollard.

END OF SECTION

SECTION 13. AT GRADE VAULT WELL HEAD COMPLETION

13.1 GENERAL

13.1.1 Description

This Section includes the completion of the well head by installing a traffic rated vault at ground level.

13.1.2 Measurement and Payment

Payment of the well completion shall be made at the unit price for Bid Item No.1 0.

13.1.3 Related Work Specified Elsewhere

SECTION 7 WELL CASING AND SCREEN.

13.1.4 Submittals

1. The CONTRACTOR shall submit a schematic drawing of the surface vault assembly and documentation from the manufacture that the grade vault meets the requirements of this Section.
2. Prior to, or at the time of delivery to the site, the CONTRACTOR shall submit to the Engineer a copy of the purchase order placed with the monument manufacturer for the vault to be supplied for the project.
3. Prior to, or at the time of delivery to the site, a Bill of Lading (or invoice) shall be submitted to the Engineer certifying that the monument being delivered to the CONTRACTOR and hence to the well site, is the monument ordered by the CONTRACTOR per the specifications in this Section.

13.2 MATERIALS

13.2.1 Vault

1. The vault and lid shall be Petroleum Equipment Manufacturing Company, Inc. (www.pemcofl.com) locking monitoring well vault model no. 104242424WT or County approved equal. The vault contains a recessed locking device with a bolted cover which is designed to keep out dirt and debris. The vault features a steel frame, diamond plate steel cover, 16 gauge galvanized steel skirt and carries the H-20 load rating. The vault is nominally 24-inches by 24-inches by 24-inches and is water tight.
2. A clean, crushed rock material shall be used for the rock base that will support the vault.

13.3 EXECUTION

13.3.1 Vault Installation

1. Upon completion of well development, the CONTRACTOR shall excavate around the conductor casing to a minimum of six inches below the base of the proposed vault. The CONTRACTOR shall also be excavated a sufficient width to facilitate the installation of the vault.
2. The top of the conductor casing shall be 12 inches below the bottom of the vault lid. The top of the conductor casing shall be smooth and free of burs, sharp edges/corners and protrusions.

3. The CONTRACTOR shall equip each conductor casing with a lockable, fitted J-plug.
4. The CONTRACTOR shall install an approximate 6-inch thick layer of crushed rock base in the bottom area between the well casing and the excavation walls to support the vault. The rock base shall be compacted and leveled to provide a supportive surface.
5. The CONTRACTOR shall install the vault on top of the crushed rock base such that the elevation of the top of the vault is equal to the elevation of the surrounding ground surface. The vault will be oriented with the opening directions of the doors perpendicular to the typical traffic flow.
6. The CONTRACTOR shall attach the vault doors to the vault as specified by the vault door manufacturer instructions. The vault doors shall be bolted to the vault door frame with steel bolts.
7. The CONTRACTOR shall install an additional approximate six-inch thick layer of crushed rock base in the space between the vault and the casing. Therefore the top of the casing will be six-inches above the top of the crushed rock base. The rock base shall be compacted and leveled within the vault to provide a supportive surface free of trip hazards.
8. The CONTRACTOR shall install and compact base material between the vault and the excavation walls, from the top of the rock base to the top of the vault. Alternatively, in lieu of compacted base material, the CONTRACTOR may use concrete to backfill this space.

END OF SECTION

SECTION 14. WELL ABANDONMENT

14.1 GENERAL

14.1.1 Description

To provide proper abandonment of the existing groundwater monitoring well PMW-3 at the Closed Pedley Sanitary Landfill.

The well abandonment shall be performed in accordance with the Department of Water Resources, Bulletin 74-81, Water Well Standards: State of California and Bulletin 74-90 (Supplement to Bulletin 74-81), California Well Standards and Riverside County Ordinance No. 682.3.

14.1.2 Measurement and Payment

Payment of the well abandonment shall be made at the unit price for Bid Item No. 13.

14.1.3 Related Work Specified Elsewhere

None.

14.1.4 Submittals

None.

14.1.5 Materials

1. Grout shall be composed of Type 1 Portland Cement, 3-5 percent bentonite by dry weight and mixed with potable water.
2. The Contractor shall provide clean potable water for mixing the grout.

14.1.6 Execution

1. All downhole equipment must be decontaminated (utilizing a steam cleaner) prior to use. If the downhole equipment is not decontaminated then the DRILLER WILL NOT BE ALLOWED TO START the project until all downhole equipment is decontaminated.
2. The full depth of each well shall be pressure grouted with a tremie. The pressure grouting shall start from the bottom of the well and proceed up to the ground surface.
3. The upper five feet of each well shall be over-drilled and backfilled with grout to an elevation matching the surrounding finish grade.
4. Drill cuttings from the over-drilling shall be placed in a 55-gallon drum and transported offsite to the Pedley Sanitary landfill.

END OF SECTION

SECTION 15. WELL DEVELOPMENT

15.1 GENERAL

15.1.1 Description

This Section specifies the initial development of the well by employing flushing, bailing, airlifting and pumping. The actual well development procedure may vary from well to well dependent upon actual characteristics of the formations encountered during drilling. The following is a typical procedure to be utilized for well development.

15.1.2 Measurement and Payment

1. Payment for well development will be made at the unit price bid per hour for Bid Item No. 12.
2. The time required for well development will be recorded by the hour with 15-minute intervals as the smallest unit of recorded time. The time recorded for payment shall commence when the equipment installed in the well is placed in operation and shall end when development has stopped at the direction of the Engineer.
3. No payment will be made for delays resulting from:
 - a. equipment stuck in the well casing;
 - b. equipment breakdown;
 - c. arranging major drilling, pumping or testing apparatus;
 - d. failure to conduct the operations in a diligent and workmanlike manner by which the desired results could ordinarily be expected;
 - e. additional development that is required as a result of damaged well casing or screen, voids in the gravel envelope, or any construction related defect resulting in additional well development.

15.1.3 Submittals

1. If the Contractor utilizes a holding tank that previously contained other liquids (i.e. a tank that is not new), laboratory test results of the holding tank rinsate shall be provided to the Engineer, prior to the delivery of the subject holding tank to the site. The tank rinsate shall be tested for volatile organic compounds by EPA Test Method 8260B, volatile fuel hydrocarbons by EPA Test Method 8015M and extractable fuel hydrocarbons by EPA Test Method 8015M, by a laboratory certified by the State Water Resources Control Board, Environmental Laboratory Accreditation Program. None of the subject compounds shall be detected above the laboratory method detection limit.
2. Daily well development reports recording time and procedures completed during each shift, as well as total chargeable hours for each day and total gallons generated, shall be submitted to the Engineer on a daily basis.
3. Daily well development records recording flow rates, EC, TDS, nephelometric turbidity units (NTU), pH, airline length, and all other information as required by the Engineer for the period of well development shall be submitted on a daily basis.

15.1.4 Related Work Specified Elsewhere

None.

15.2 MATERIALS

15.2.1 Bailer

A suction bailer shall be provided with the appropriate fittings to allow for the removal of debris, which might accumulate in the bottom of each well casing.

15.2.2 Air Compressor, Airline, and Eductor Pipe

An air compressor with airline, Eductor pipe and appropriate fittings shall be onsite during the initial airlifting phase of the well development. The air compressor shall be of ample size for maximum airlifting capabilities. The air compressor shall have an effective external air-oil separator. Eductor pipe used in the development of the monitoring wells shall be a maximum 4-inch pipe size (i.e., well casing diameter). The size of the airline shall be a maximum 3/4-inch inner diameter to ensure good flow rates through the eductor pipe (i.e., well casing), and shall be fitted with a dump valve capable of discharging "downhole" air to the atmosphere.

Additional materials necessary to complete secondary development shall include a flow meter, pH and EC/TDS meters, and a water level tape. The flow meter shall be capable of measuring a maximum of 20 cfm of air, such as Dwyer Instruments Inc., Series RM Rate-Master Flow meter Model No. RMC-10-inch scale, or approved equal. The flow meter shall be mounted on the airline leading from the air compressor to the well in conjunction with a pressure gauge capable of measuring maximum air pressure on the airline, and fittings for a dump valve to discharge air to the atmosphere.

15.2.3 Submersible Pump

A submersible pump compatible with the well casing size shall be used to pump each well as a final step in the well development process.

15.2.4 Holding Tanks

The CONTRACTOR shall use a drum(s) or tank(s) to store groundwater generated during well development activities. It is anticipated that flow rates shall be five-gallons per minute (gpm) while performing well development. The CONTRACTOR shall anticipate/provide adequate containment volume (e.g., number of drums or tanks) to maintain efficient operations.

The well development water shall be temporarily stored at the Closed Corona, Hemet and Highgrove Sanitary landfills.

15.2.5 Discharge Piping

The CONTRACTOR shall provide the temporary discharge piping required to convey well development water to the appropriate holding tank (s).

15.2.6 Screen Brush

The CONTRACTOR shall provide a nylon brush to remove fine grained materials from the screened interval for each well.

15.2.7 Surge Block

A surge block consists of a rubber plunger specifically fabricated for 2-inch diameter well casing. The surge block shall fit tightly within the well casing to create the necessary vacuum and pressure in the groundwater column for surging procedures.

15.3 EXECUTION

15.3.1 Development Procedures

1. The CONTRACTOR shall commence initial development no sooner than 24 hours after completion of the sanitary seal.
2. The CONTRACTOR will place a tremie down to the bottom of each casing open-ended, flush the well casing with at least two casing volumes of fresh water, at the discretion of the Engineer, and then airlift until clean. Once airlifting is complete the CONTRACTOR shall remove the tremie, unless bailing is necessary, as directed by the Engineer.
3. Each casing shall be bailed of sediment, as required, to clean the casing to the bottom. If the sediment thickness is greater than five feet, then the CONTRACTOR may be asked to utilize eductor pipe to airlift the sediment.
4. Following bailing, the CONTRACTOR shall measure and record the static water level in the casing and prepare for airlifting. The CONTRACTOR will be required to fabricate an airlift discharge head to accommodate return flow and airline. An airline submergence of at least 60 percent and 80 percent maximum is recommended. The CONTRACTOR shall airlift and surge each well casing and record water quality parameters and purging data. Data shall be recorded at 15-minute intervals until development of a well casing is deemed complete and/or as directed by the Engineer. The well casing shall be surged at 15-minute intervals or as directed by the Engineer. During development the CONTRACTOR shall keep development records. This procedure will be repeated for each of the well casings.
5. Should airlifting not be feasible due to the depth to groundwater or low specific capacity, a submersible pump may be used in-lieu of airlifting. The submersible pump inlet shall be set as close to the screened interval as possible.
6. Once all well casings have been developed by airlifting, the CONTRACTOR shall sound the bottom of each well. If the level of sediment is within or above the perforation interval then the CONTRACTOR shall bail the well until the perforations are clear of sediment.
7. Well development shall continue until the turbidity is similar to existing groundwater wells at the site. The following table has the target turbidity for well development at the sites:

Site	Target Turbidity (NTU)
Corona	1.00
Hemet	1.00
Highgrove	1.60

8. The CONTRACTOR shall continue well development activities until the Engineer directs the CONTRACTOR to stop.

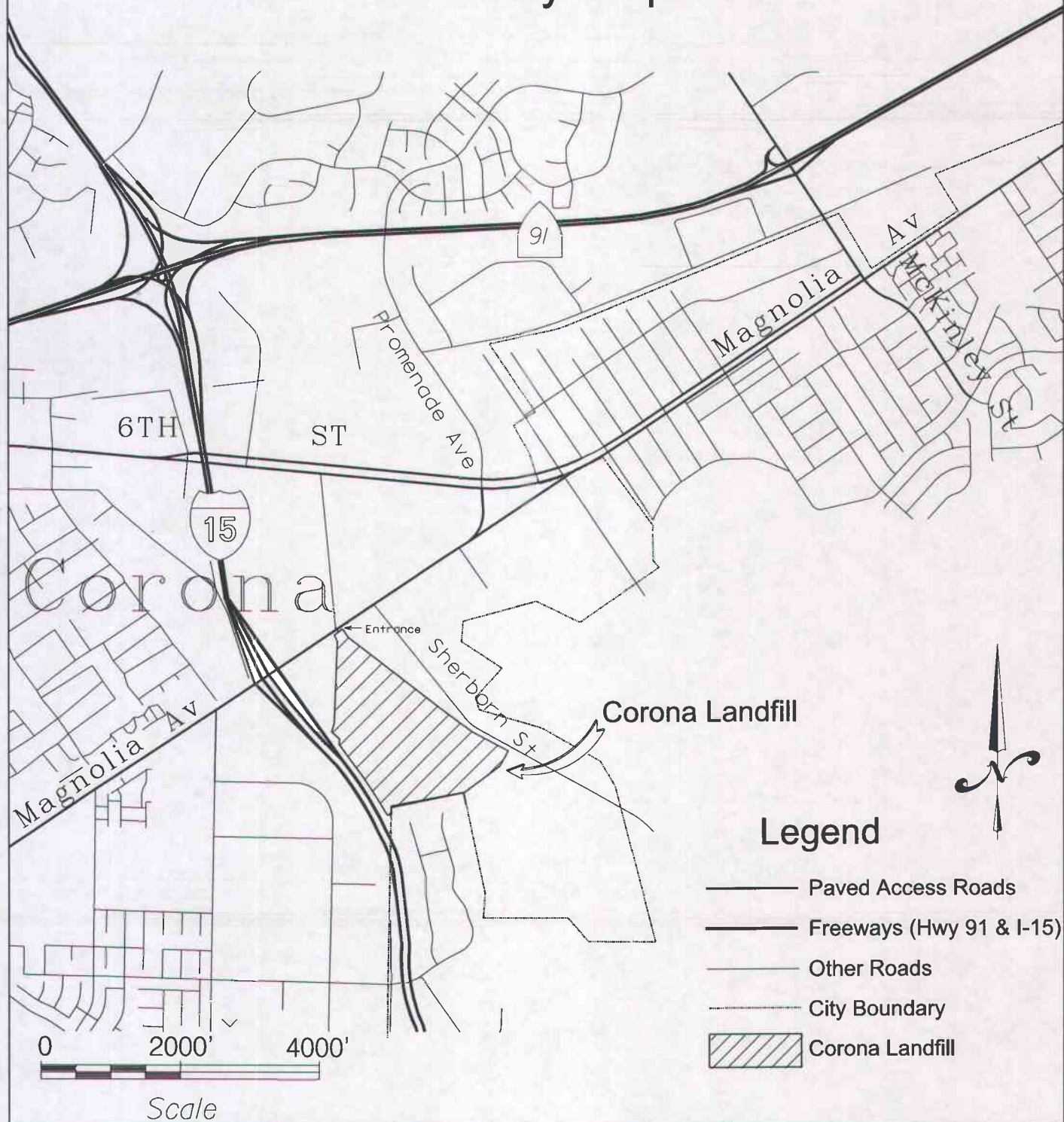
15.3.2 Well Development Water

1. All fluids generated during well development shall be temporarily contained by the CONTRACTOR in holding tank(s) provided by the CONTRACTOR.
2. The County shall be responsible for the final disposal of the development water.
3. If the CONTRACTOR chooses to retrieve the holding tank(s) that were used to temporarily store the development water, the County shall empty the holding tank(s) within 7 working days following completion of well development activities. The County shall dispose of the development water only. The County shall not clean or decontaminate the holding tank(s).

END OF SECTION

Map 1 – Corona Sanitary Landfill Vicinity Map

Corona Sanitary Landfill Vicinity Map

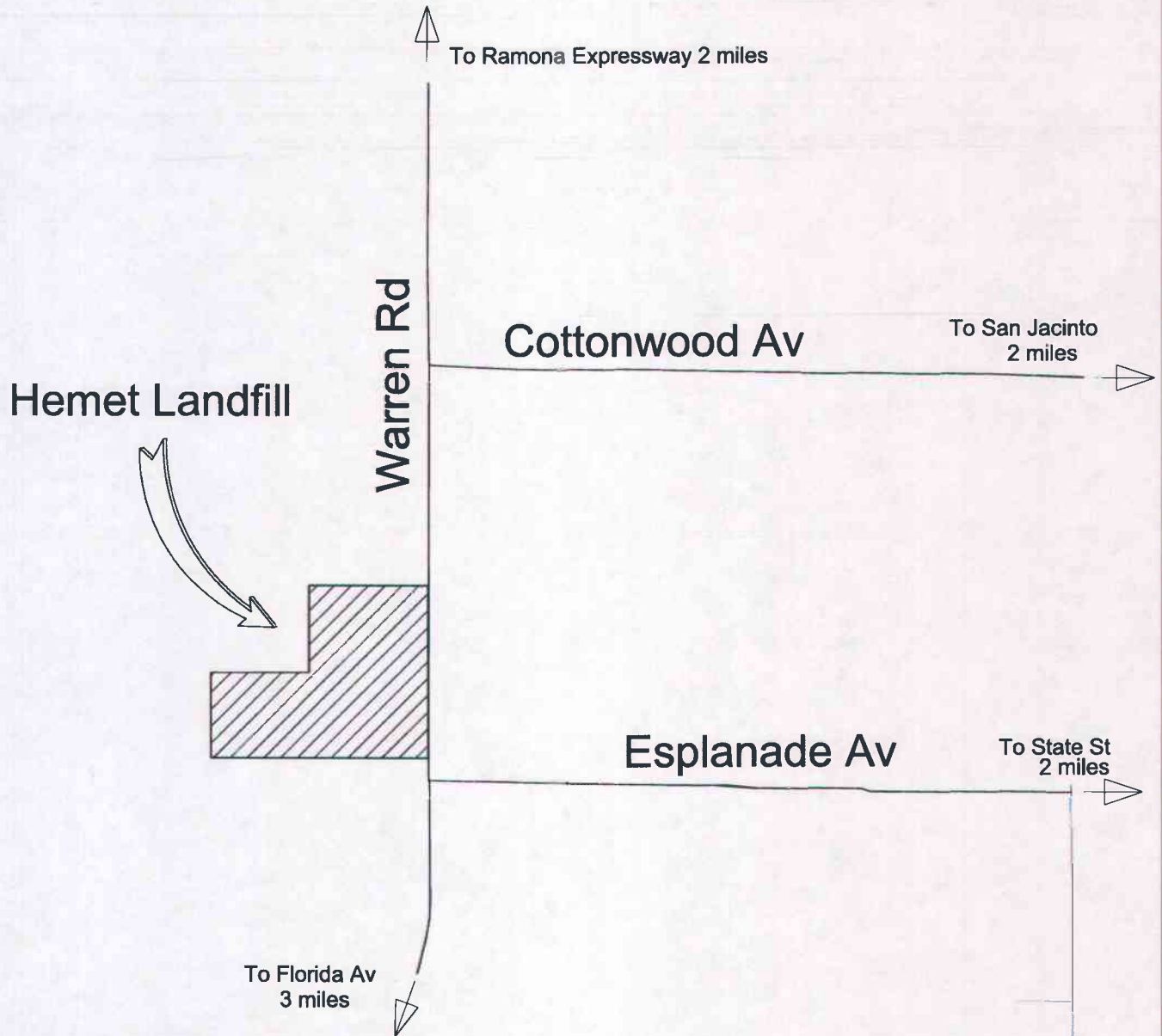


Corona Sanitary Landfill
Vicinity Map Map 1

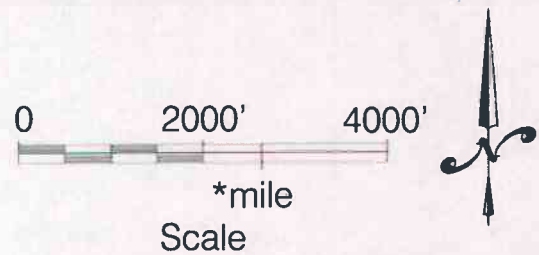
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Date: September 2016 Scale: 1"=2000'

Map 2 – Hemet Sanitary Landfill Vicinity Map

Hemet Sanitary Landfill Vicinity Map



Legend	
Paved Roads	
Hemet Sanitary Landfill	

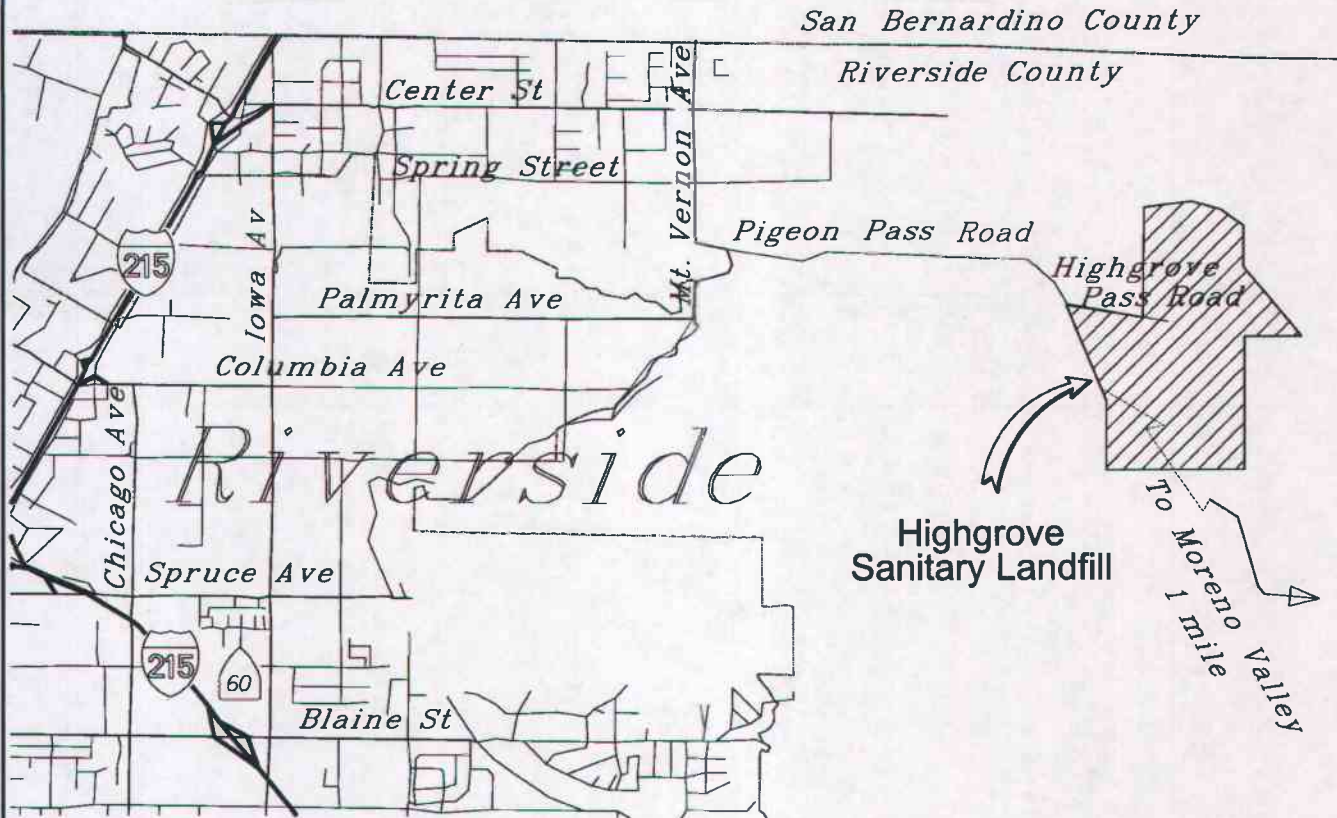


Hemet Sanitary Landfill
Site Vicinity Map
Map 2
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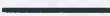




Map 3 – Highgrove Sanitary Landfill Vicinity Map

Highgrove Sanitary Landfill Vicinity Map

Por. Secs. 10, 11 & 15 T2S R4W S.B.B.M.



Legend

-  Paved Access Roads
-  Freeways (I-215, 60)
-  Dirt Road
-  Other Roads
-  City Boundary
-  Sanitary Landfill



Scale in Feet



Highgrove Sanitary Landfill Vicinity Map

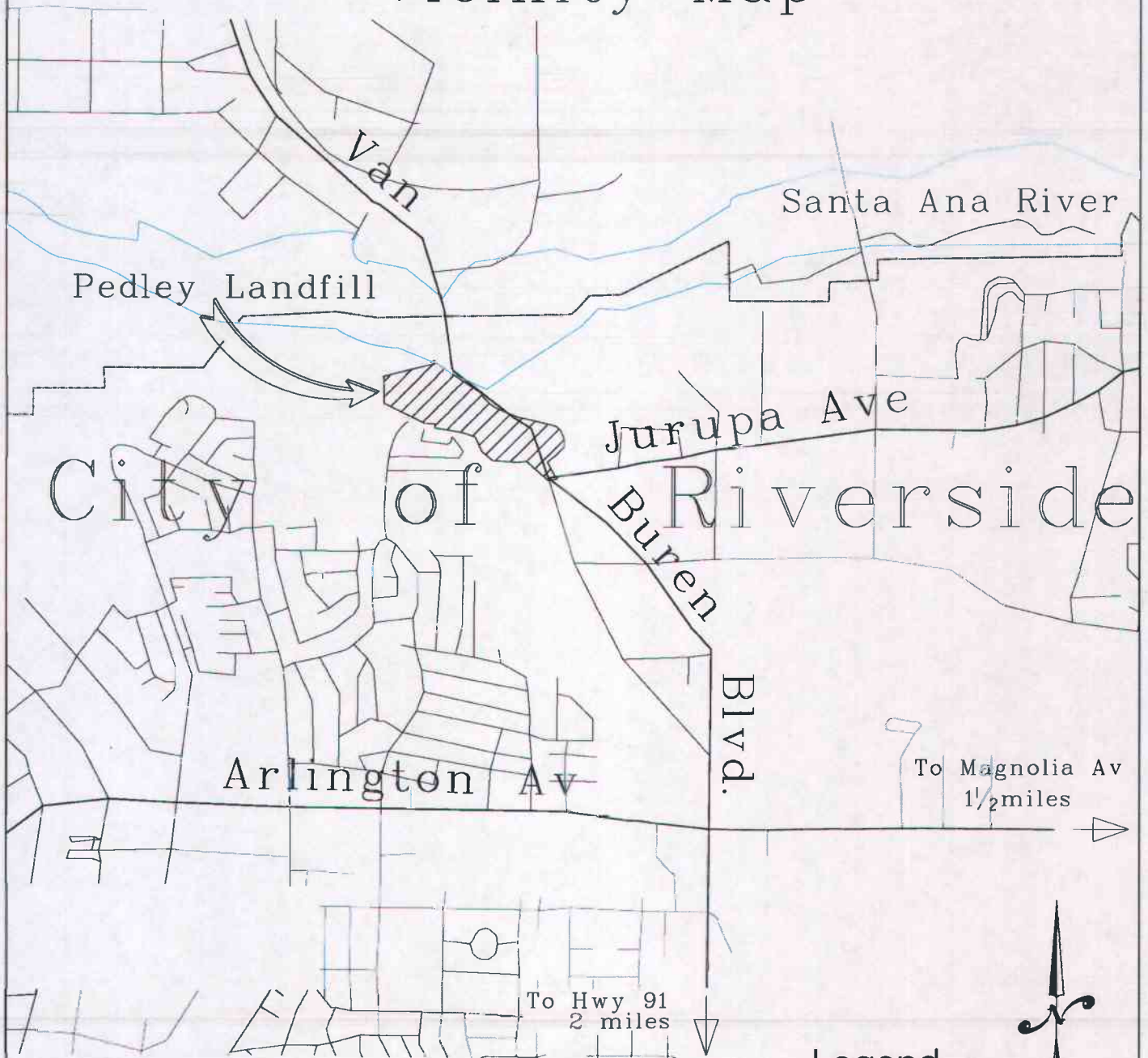
Map 3

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Scale : 1"=3500'

Map 4 – Pedley Sanitary Landfill Vicinity map

Pedley Closed Landfill Vicinity Map



Legend

-  Paved Access Roads
-  Other Roads
-  City Boundary
-  Closed Sanitary Landfill

Pedley (Closed) Sanitary Landfill

Vicinity Map

Map 4



File Directory: /wmifs/usr3/sites/vicinity_maps/pedley.dgn

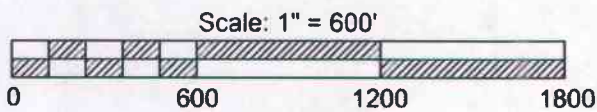
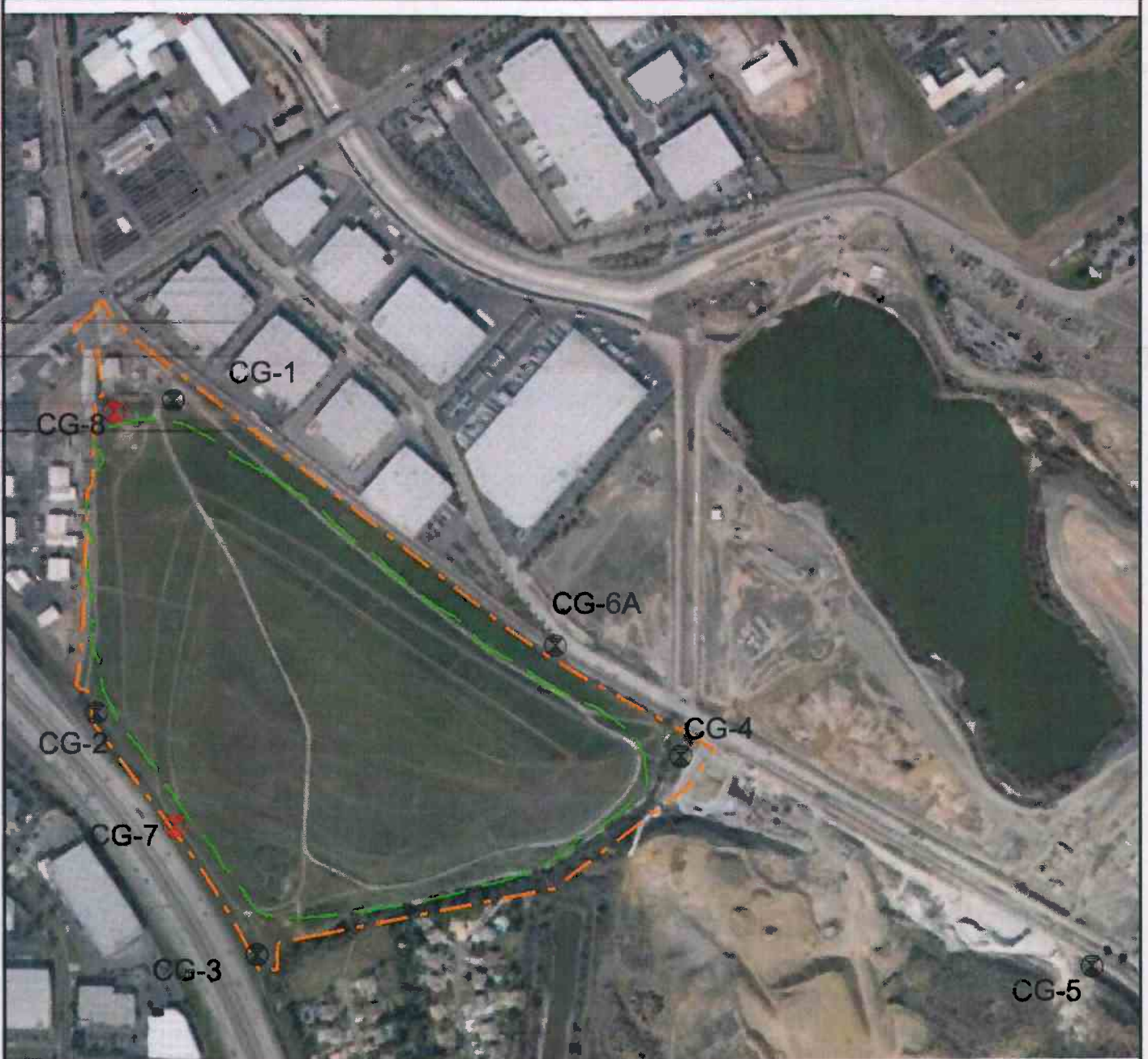
Date: October 30, 1997

Pen Table

Photo Date :

Scale : 1"=2000'

Map 5 – Groundwater Wells CG-7 and CG-8 Location Map



- Existing Groundwater Well Location
- Proposed Groundwater Well Location
- Landfill Footprint
- Property Line



Corona Sanitary Landfill
**Proposed Location of Groundwater
 Monitoring Wells CG-7 and CG-8**

Map 5

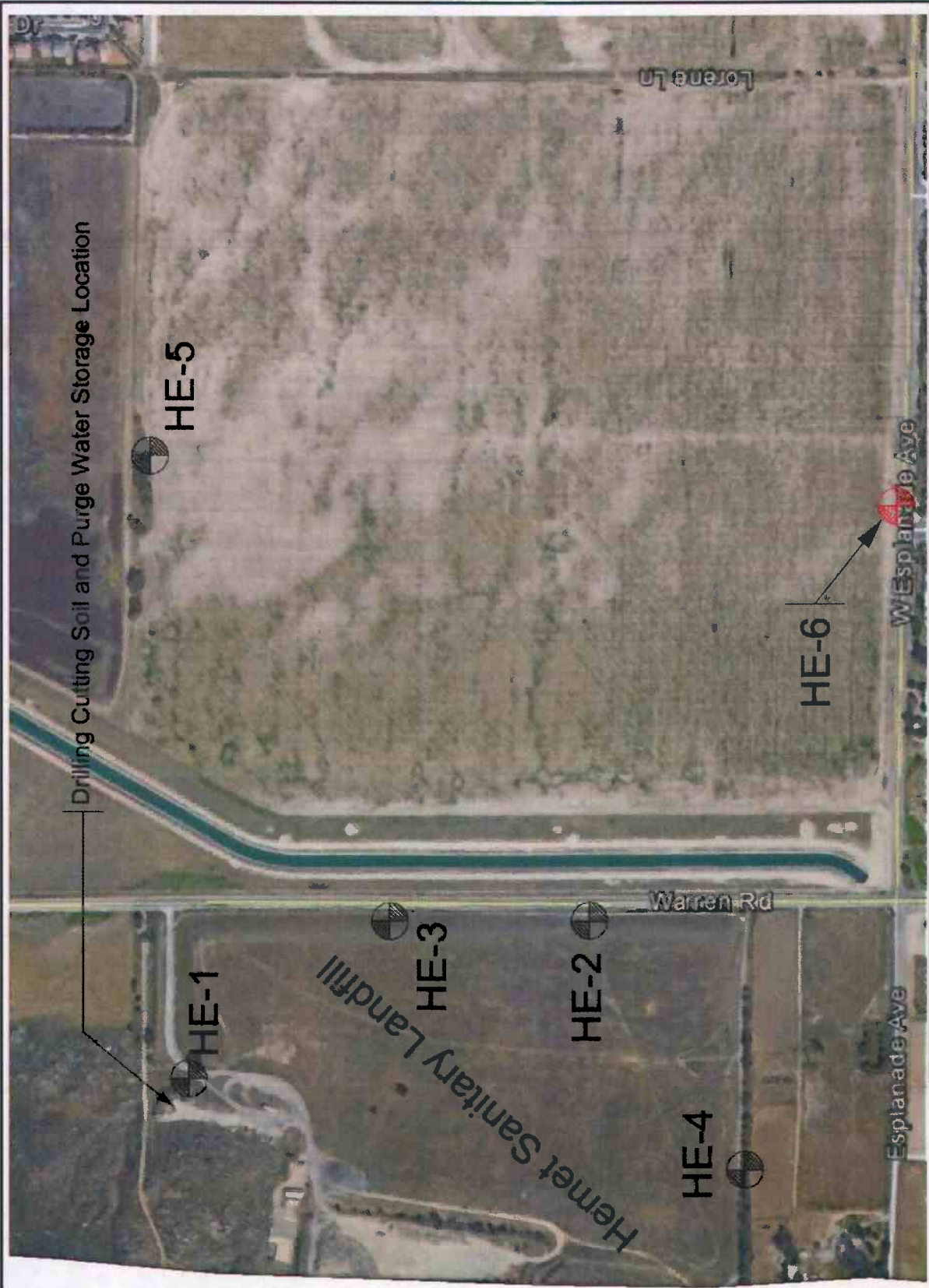
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Date: November 27, 2012

Photo Date: April 2014

Scale: Bar Scale

Map 6 – Groundwater Well HE-6 Location Map



Hemet Sanitary Landfill

Proposed Location of Groundwater Monitoring Well HE-6

Map 6
 File: wastefs-1\env\env\sites\hemet\water\ Map 4 - Groundwater Well HE-6 location
 Date: September 22, 2015



Existing Groundwater Well Location

Proposed Groundwater Well Location

Scale: 1" = 250'

Map 7 – Groundwater Wells HG-33 and HG-34 Location Map



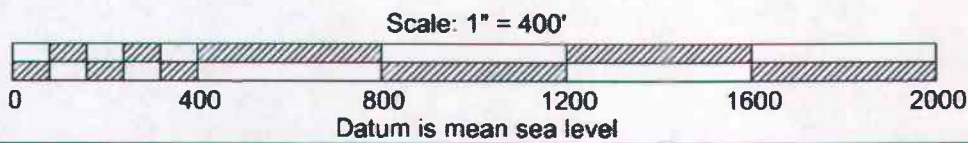
<p>Highgrove Sanitary Landfill Proposed Location of Groundwater Monitoring Wells HG-33 and HG-24 Map 7</p>		<p>File Path: Waste_Venwinn\GIS\HighWater\HG-33 and HG-34\Map 6 - Location Map.dgn Scale: Bar Scale Date: Nov 2016 Photo Date: April 2014</p>
<p>Scale: 1" = 400'</p>  <p>Distances in feet are shown.</p>	<p>  Existing Groundwater Well Location  Proposed Groundwater Well Location  Landfill Footprint  Construction/Demolition Debris  Property Line  Groundwater Extraction Well </p>	

Map 8 – Groundwater Well PMW-3 Location Map



Well I.D.	Coordinate		Wellhead Elevation	Ground Elevation
	Northing	Easting		
PMW-3	2295576.08	6193597.52	688.71	684.89

LEGEND	
	Groundwater Well Location
	Landfill Footprint
	Property Line



Pedley (Closed) Sanitary Landfill
 Abandoned Groundwater Monitoring
 Well Location

Map 8

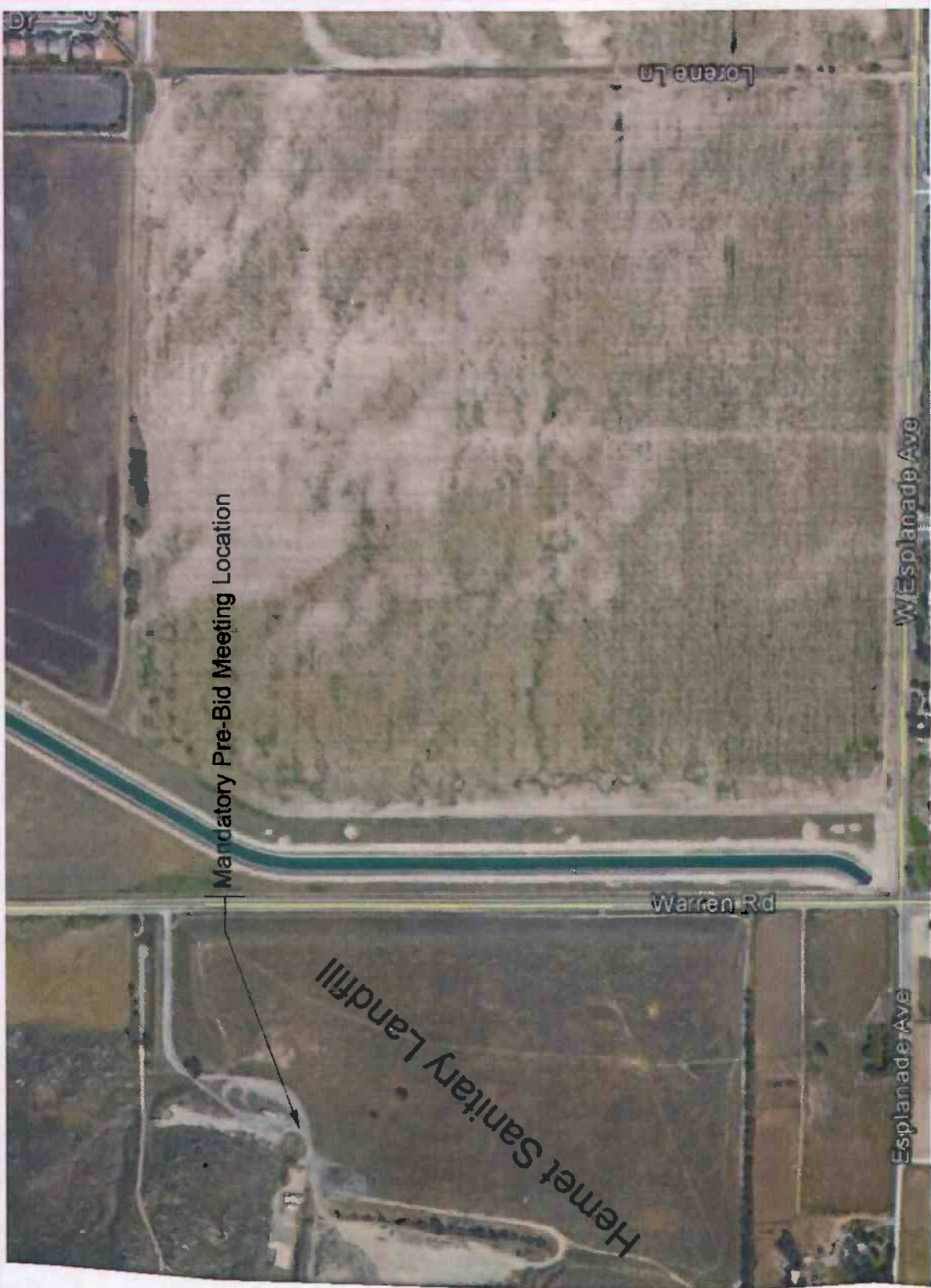
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Photo Date: April 2014

Date: November 4, 2015

Bar Scale

Map 9 – Pre-Bid Meeting Location at the Hemet Sanitary Landfill



Mandatory Pre-Bid Meeting Location

Hemet Sanitary Landfill

Warren Rd

Esplanade Ave

W Esplanade Ave

Lorene Ln



Hemet Sanitary Landfill
1891 Warren Road, Hemet, CA
Mandatory Pre-Bid Meeting Location Map 9

File: waste\efs-1\envrion\sites\hemet\water Map 7 - Mandatory Pre Bid Meeting Location

Date: November 3, 2015

Figure 1 – Groundwater Well Details for CG-7

Install 4 Concrete Filled 4" Dia. x 6' Steel Bollards (safety yellow paint)

Ground Surface Elevation: 725 ft (Approximate)

0 bgs

Locking Well Cover

Cap

12" Min. Water Tight Steel Casing

4' x 4' x 4" Concrete Pad

20'

20' bgs

50'

70' bgs

75' bgs

Transition Sand

80' bgs

85' bgs

135' bgs

20'

155' bgs

160' bgs

160' bgs

Blank Casing - 4" Sch 80 PVC with Flush Threaded Connections

Screened Casing - 4" Sch 80 PVC with Flush Threaded Connections

Min. 8" Borehole

Bottom Cap

LEGEND



Sanitary Seal



Transition Seal



Pellet Seal



Filter Pack

bgs: Below Ground Surface



Corona Sanitary Landfill
Groundwater Details for
CG-7

Figure 1

File Name: Figure 1 - Groundwater Details for CG-7

Date: Nov 2016

File Directory: /environ/sites/Corona/water/CG-7 and CG-8

Scale : NTS

Figure 2 – Groundwater Well Details for CG-8

Install 4 Concrete Filled 4" Dia. x 6' Steel Bollards (safety yellow paint)

Ground Surface Elevation: 668 ft (Approximate)

0 bgs

Locking Well Cover

Cap

12" Min. Water Tight Steel Casing

4' x 4' x 4" Concrete Pad

123' bgs

Blank Casing - 4" Sch 80 PVC with Flush Threaded Connections

13'

13' bgs

5'

18' bgs

5'

23' bgs

5'

28' bgs

Transition Sand

▼

88' bgs

30'

118' bgs

5'

123' bgs

90'

100'

Screened Casing - 4" Sch 80 PVC with Flush Threaded Connections

Min. 8" Borehole

Bottom Cap

LEGEND



Sanitary Seal



Pellet Seal



Filter Pack

bgs: Below Ground Surface



Corona Sanitary Landfill
Groundwater Details for
CG-8

Figure 2

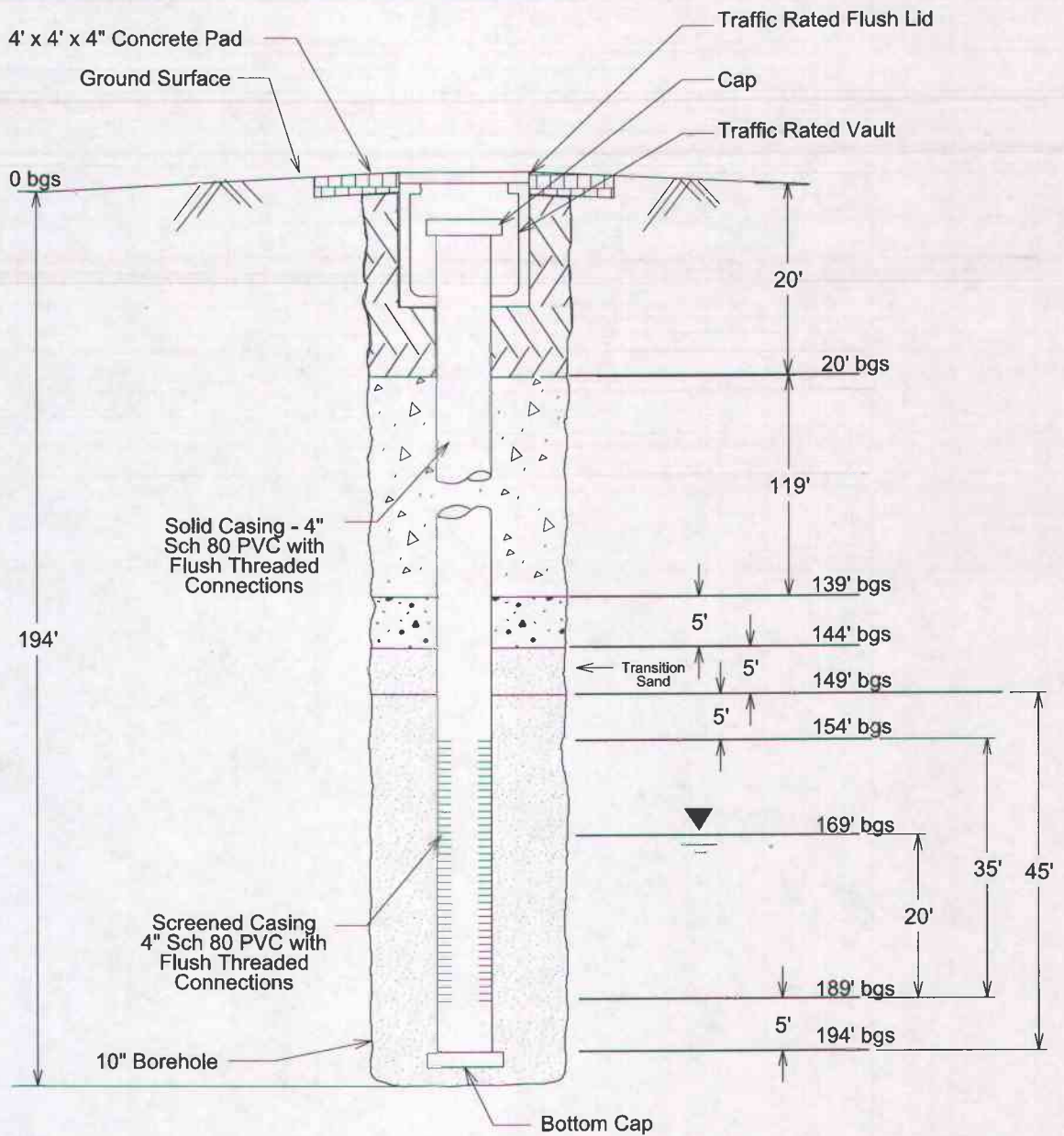
File Name: Figure 2 - Groundwater Details for CG-8

Date: Nov 2016





File Directory: /environ/sites/Corona/water/CG-7 and CG-8

Scale: NTS

Figure 3 – Groundwater Well Details for HE-6



LEGEND

-  Sanitary Seal
-  Transition Seal
-  Pellet Seal
-  Filter Pack

bgs: Below Ground Surface



Hemet Sanitary Landfill
**Groundwater Details for
 HE-6**

Figure 3

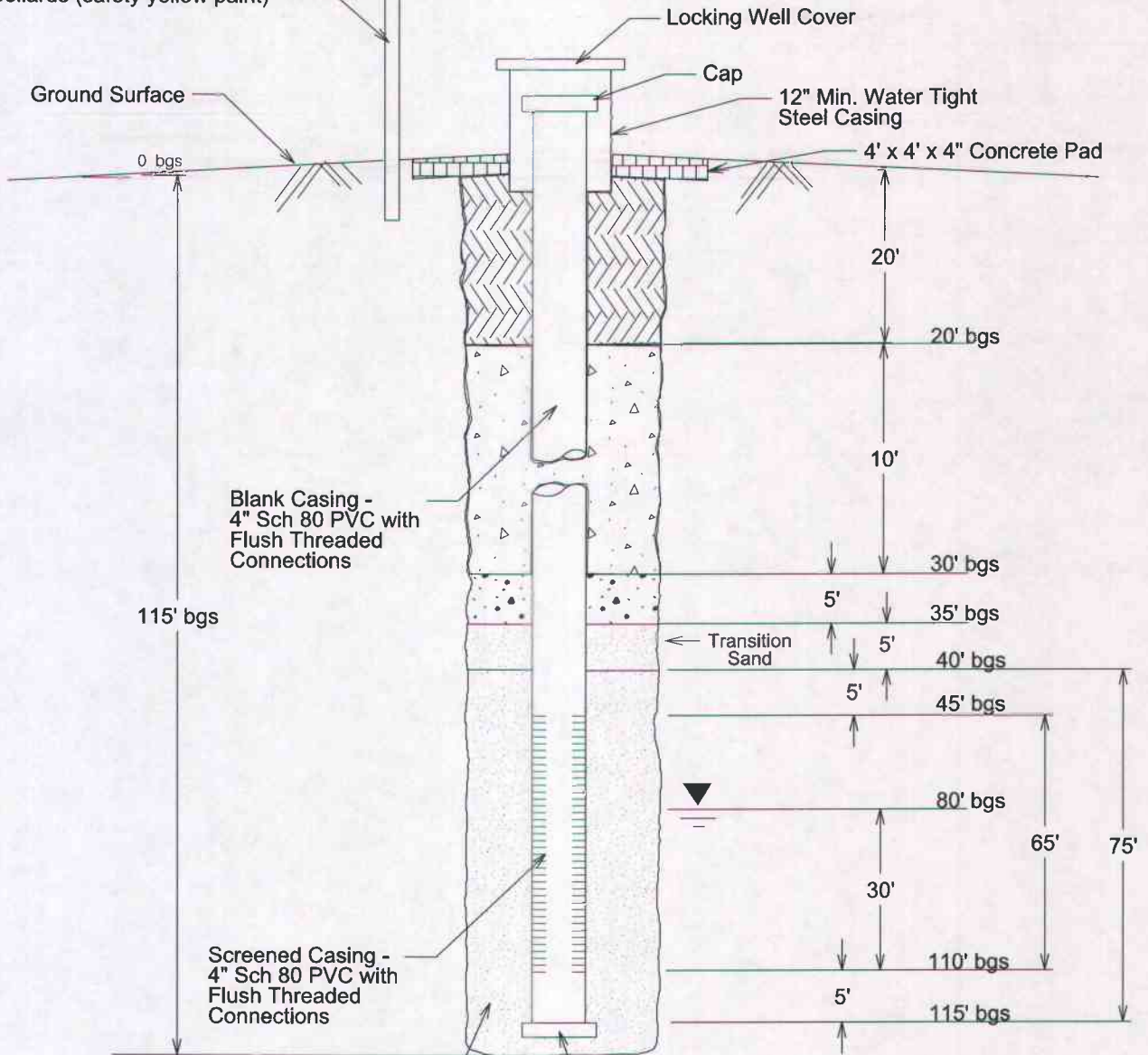
File Directory: /envron/sites/Hemet/water/HE-6/Figure 3 - Groundwater Well Detail for HE-6.dgn

Date: September 2015

Scale: NTS

Figure 4 – Groundwater Well Details for HG-33

Install 4 Concrete Filled 4" Dia. x 6' Steel Bollards (safety yellow paint)



LEGEND

-  Sanitary Seal
-  Transition Seal
-  Pellet Seal
-  Filter Pack

bgs: Below Ground Surface

Min. 8" Borehole

Bottom Cap



Highgrove Sanitary Landfill
**Groundwater Details for
 HG-33**

Figure 4

File Name: Figure 4 - Groundwater Details for HG-33

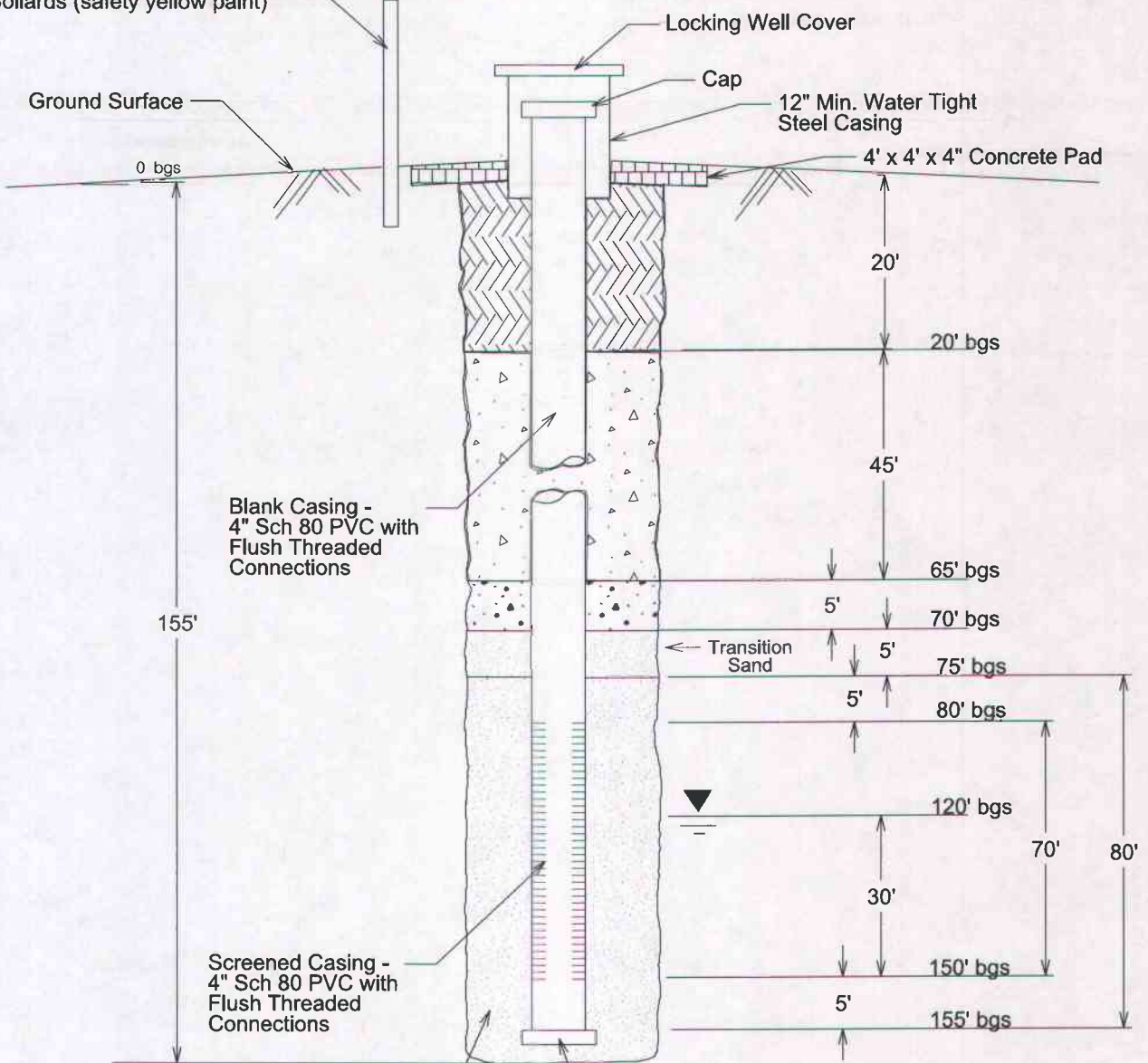
Date: Sept 2016

File Directory: /environ/sites/Highgrove/water/HG-33 and HG-34

Scale : NTS

Figure 5 – Groundwater Well Details for HG-34

Install 4 Concrete Filled 4" Dia. x 6' Steel Bollards (safety yellow paint)



Blank Casing -
4" Sch 80 PVC with
Flush Threaded
Connections

Screened Casing -
4" Sch 80 PVC with
Flush Threaded
Connections

LEGEND

-  Sanitary Seal
-  Transition Seal
-  Pellet Seal
-  Filter Pack

bgs: Below Ground Surface

Min. 8" Borehole

Bottom Cap



Highgrove Sanitary Landfill
**Groundwater Details for
HG-34**

Figure 5

File Name: Figure 5 - Groundwater Details for HG-34

Date: Sept 2016

File Directory: /environ/sites/Highgrove/water/HG-33 and HG-34

Scale : NTS

Figure 6 – Groundwater Well Details for PMW-3

4 Concrete Filled 4" Dia. x 6' Steel Bollards

Ground Surface

0 bgs

Locking Well Cover

Cap

12" Min. Water Tight Steel Casing

4' x 4' x 4" Concrete Pad

20.5' bgs

Blank Casing -
4" Sch 80 PVC with
Flush Threaded
Connections

2.5' bgs

2'
4' bgs

5'
5' bgs

14.89' bgs

15.5'

Screened Casing -
4" Sch 80 PVC with
Flush Threaded
Connections

20.5' bgs

10" Borehole

Bottom Cap

LEGEND

 Concrete

 Bentonite

 Filter Pack

bgs: Below Ground Surface



Pedley (Closed) Sanitary Landfill Groundwater Details for PMW-3

Figure 6

File Directory: /environ/sites/pedley/water/PMW-3 well details.dgn

Date: March 2017

Scale: NTS

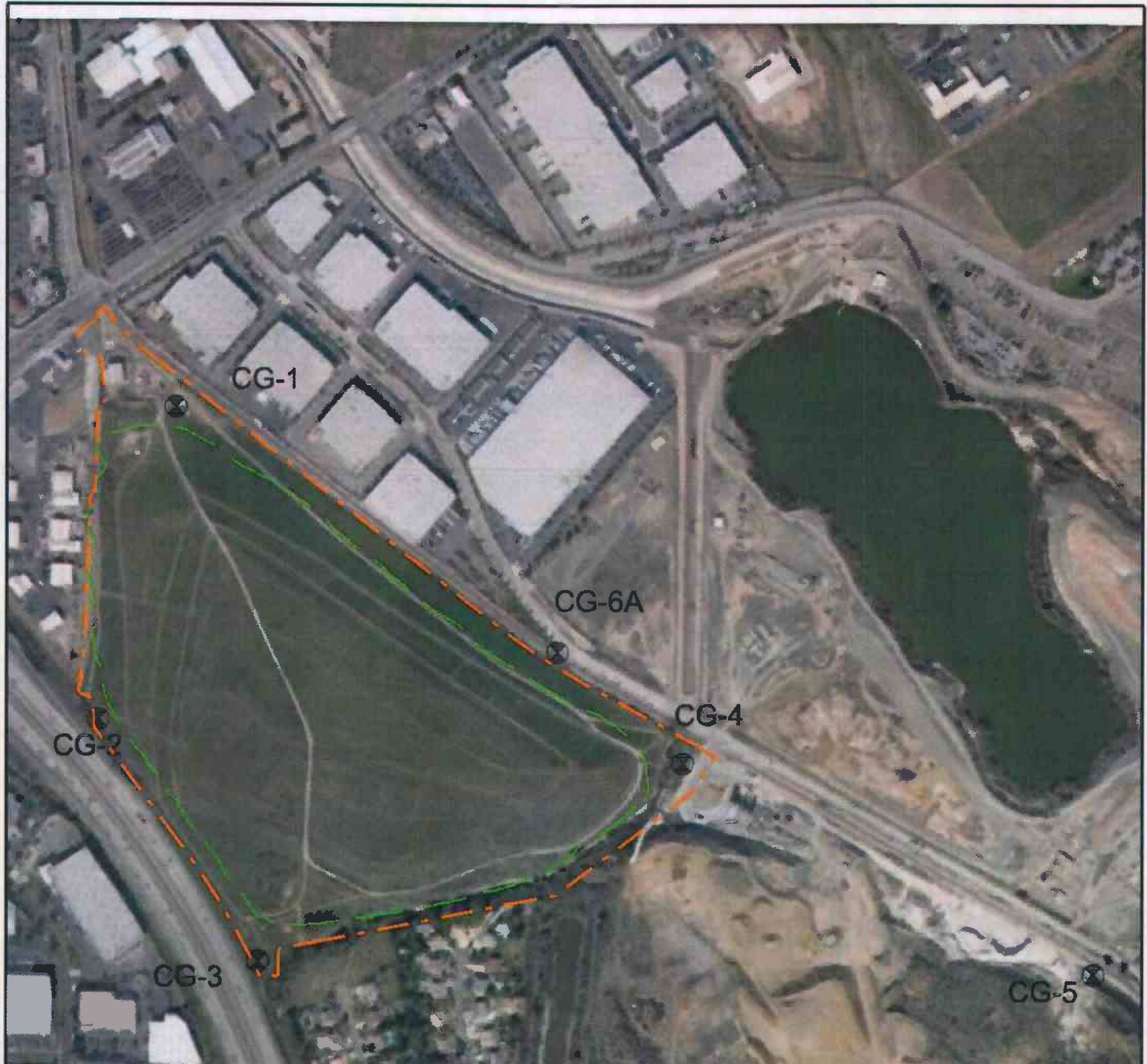
**Appendix A – Pedley Sanitary Landfill Groundwater Boring Log for
PMW-3**

BORING LOG

DATE 6-12-90 HOLE No. PMW-3 SHEET 1 OF 1
 PROJECT Riverside County SWAT - Pedley Landfill PROJECT No. 215.0034
 DRILLING Co. Datum Exploration TYPE OF RIG Hollow Stem Auger
 HOLE DIAMETER 10" DRIVE WEIGHT 140 LB. DROP 30 IN.
 ELEVATION TOP OF HOLE 685.2' REF. OR DATUM Ground Surface

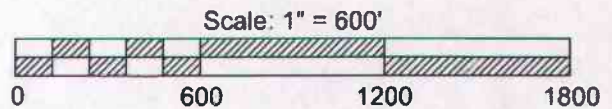
DEPTH FEET	TIME	GRAPHIC LOG	TUBE SAMPLE No.	BLOWS PER 6"	SOIL CLASS. (U.S.C.S.)	DESCRIPTION AND NOTES
						LOGGED BY <u>DS</u> LOCATION <u>Next to Brine Pond</u>
	9:44					Redish Brown slightly gravelly silty SAND, very fine to coarse grained, poorly sorted, moist
5	9:55			8/8/15		Burned Refuge layer Dark Gray Clayey silty SAND, fine grained, moist
	10:03			9/13/17		Greenish Gray silty SAND, very fine grained, very moist
	10:12			5/8/9		
10	10:30					Gray SAND, coarse grained, well sorted, saturated Water Table at about 10.5'
15						
20	10:38					Terminated drilling at 21' Well Construction: +3' to 5' PVC Blank Casing, 4" dia. 5' to 20' PVC Screen, 4" dia., 0.020" Slot 20' to 20.5' Bottom Cap 4' to 21' Gravel Pack, No. 3 Lonestar, (7 Sacks) 4' to 2.5' Bentonite Pellets (1 bucket) 2.5 to Surface Concrete

Appendix B – Corona Sanitary Landfill Groundwater Boring Logs



LEGEND	
	Groundwater Monitoring Well
	Landfill Footprint
	Property Line

Well I.D.	Coordinate		Wellhead Elevation	Ground Elevation
	Northing	Easting		
CG-1	2261417.102	6170781.462	654.89	651.91
CG-2	2260168.372	6170472.840	684.86	681.10
CG-3	2259205.617	6171113.008	735.52	730.88
CG-4	2259997.984	6172812.904	667.91	683.72
CG-5	2259152.650	6174459.101	679.49	675.76
CG-6A	2260446.320	6172314.190	658.18	658.18



Corona Sanitary (closed) Landfill - Third Quarter 2016
Groundwater Monitoring Well Locations



FIELD LOG OF BORING NO. CG-1

SHEET NO. 1 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 8/21/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN./HOURS
 DRILLING CO. Datum Exploration TIME 0730 0930 1535
 DRILLING METHOD & DIAM. Speedstar 10" bit w/ casing hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BULK SAMPLE NO. AND RANGE	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	hNu		REMARKS
							E/O ₂	H ₂ S	
0									10" tri-cone bit Water injected to keep dust down.
2					0 to 8', fill, foil, cellulose fiber.				
4									
6	CG1-5'				@ 8' sand and gravel w/ cobbles.				
8									
10	CG1-10'				Sand and gravel.				
12									
14									
16	CG1-15'				Sand and gravel				
18									
20	CG1-20'				Sand, gravel & cobbles. @ 20', large cobble or boulder.				
22									
24									
26	CG1-25'				Sand and gravel, fine to crs. grain. w/ silt, gry. grn.				
28									
30	CG1-30'				Sand & gravel, cbls.		0	0/21.9/0	-background, in logging area.
32									
34	CG1-35'				@ 34', red brn., silty clay, or clayey silt, w/ sand & gravel				
36	CG1-37'				Sand, red brn., silt/clay, some grav.				
38					@ 37', probably interbedded, sand & red brn., silt, some clay.		0	0/22/0	- in top of casing.
40									



FIELD LOG OF BORING NO. CG-1

SHEET NO. 2 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 8/21/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. 10" Tricone w/ casing hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	REMARKS
40				Sand, w/ pbls., silty brn.		
42						
44						
46		Damp	Brn.	Sand, silty w/ pbls., brn.		
48				@ 47', silt/clay, yel. brn., damp.		@ 1330 WL about 48'.
50		Wet	Brn.	Sand, silty, med. grain., w/ some pbls. Sand/ gravel (occ. pbls.)		
52						
54		Wet	Brn.	Sand, med. to crs. grain, silty.		air, oil filter on line.
56						
58						hole making water.
60		Wet	Gry. Blk.	Sand, med. to crs. grained, med. to crs. gravel.		
62				@ 62' cbls.		
64						
66		Wet	Brn.	Sand, med. grained, silty. TD = 65'.		
68						
70						
72						
74						
76						
78						
80						



WELL COMPLETION LOG OF BORING NO. CG-1

SHEET NO. 1 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 8/24 & 25/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL 45' 1534 hrs. AFTER (8/25/87) MIN./HOURS _____
 DRILLING CO. Datum Exploration TIME 1520 1530 1600 - 8/25/87
 DRILLING METHOD & DIAM. SS 16 Casing hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	W. VALUE (S.P.T.)	SAMPLE NO. BULK AND RANGE CORE	DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND FINES	REMARKS
0											
2											
4											
6											
8											
10											
12											
14											
16											
18											
20											
22											
24											
26											
28											
30											
32											
34											
36											
38											
40											

Completion Log CG-1



WELL COMPLETION LOG OF BORING NO. CG-1

SHEET NO. 2 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 8/24 & 25/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Corona REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS

DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____

DRILLING METHOD & DIAM. SS-16 Casing hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BLOW PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT		REMARKS
							GRAV.	SAND FINES	
40									
42									
44									
46									
48									
50					4" Sch. 80 .02 slot PVC				
52									
54									
56									
58									
60									
62									
64					10" Steel temp. casing, pulled during gravel placement and volclay grouting.				
66									
68					Total 14 sacks Lonestar #2.				
70					Total 1 sack volplug (dry) on top of gravel.				
72					Total 9 sacks volclay grout..				
74									
76									
78									
80									



FIELD LOG OF BORING NO. CG-2

SHEET NO. 1 of 3

PROJECT NO. 86-41-416-01-04 DATE(S) 9-15-87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Corona REFERENCE _____

FIELD ENGINEER John Rossi/Scott Heule LOCATION Southwest Portion of Site @ 15 Freeway

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____

DRILLING CO. Datum Exploration, Driller-Rick TIME 8:00 a.m. 9:06 a.m.

DRILLING METHOD & DIAM. Air Rotary; 10-1/2" Bit DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND/FINES	REMARKS
0	Dry		Brn	Silty sand with gravel - brn., dry, loose to med. dense (estimate), fine to med. sand w/ mod. silt content, abundant subangular to angular gravel, scattered cobbles, appears to be artificial fill	SM		hNu - 0.0 ppm Gastec - CH ₄ ; H ₂ S; O ₂ 0.0ppm, 0.0 ppm 22%
2							Artificial fill.
4							Sample @ 5'
6				Moist from added H ₂ O.			
8							
10				Moist from added H ₂ O.			Sample @ 10'
12							
14				Moist from added H ₂ O.			Sample @ 15'
16							
18							
20	Moist		Brn	Silty sand w/ gravel - brn., moist, loose to med. dense, fine to med. sand w/ mod. silt content, subangular to angular gravel, scattered cobbles & coarse sand, artificial fill.	SM		hNu - 0.0 ppm Gastec - CH ₄ , H ₂ S, O ₂ 0.0%, 0.0ppm, 22.2%
22							Adding H ₂ O.
24							Sample @ 20'
26			Gry-Brn	Sandy gravel - grey to brownish grey subrounded to rounded, well graded gravel, cobbles and small boulders (?) moderate coarse sand content. @ 26', bit plugged.			@23' alluvium w/ boulders, sample @ 25' boulder chips.
28							Not getting circulation: bit plugged, casing stopped cutting casing @ 26', coming out of hole.
30				Numerous angular bit chips dark blue granodiorite & gabbro, driller thinks boulders.			sample @ 30'.
32							
34							
36			Brn.	Sand, gravel and silt or clay.			
38							
40							



FIELD LOG OF BORING NO. CG-2

SHEET NO. 2 of 3

PROJECT NO. B6-41-416-01-04 DATE(S) 9/16/87 & 9/17/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. SS-16 10" casing hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BLOW PER FOOT	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND/FINES	REMARKS
40				Tan-Brn	Sand and gravel w/ clay stringers	GM		
42								
44								
46					Sand, silty, crs. to very crs. w/ pebbles and occ. cobbles.	SM		
48								
50				Tan-Brn	Sand and silt, crs. to very crs., silty, some clay, occ. cobbles.	SM		
52								
54								
56								
58				Tan-Brn	Sand, gravel (rounded) in silty clay matrix, med. to very coarse grained.	GM		
60								
62								
64				Tan-Brn	Sand and gravel, silty, clayey, all pebbles rounded.	GM		
66								
68								
70				Tan-Brn	As above.	GM		
72								
74								
76				Tan-Brn	As above.	GM		
78								
80								

Stop driving pipe.



FIELD LOG OF BORING NO. CG-2

SHEET NO. 3 of 3

PROJECT NO. 86-41-416-01-04 DATE(S) 9/17/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN./HOURS
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. _____ DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BLOW PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND/FINES	REMARKS
80				Tan	Sand and small gravel, silty, clayey, rounded.	GM		
82								
84								
86				Tan	Sand, very coarse and gravel rounded, silty, clayey.	GM		
88								
90				Tan	Sand, very coarse and small gravel silty, clasts well rounded.	GM		
92								
94								
96				Tan	Sand and gravel, very coarse, pebbles rounded to 1/2" diameter max.	GM		
98								
100				Tan	Sand very coarse w/ pea gravel, silty some clay, clasts well rounded. TD = 100'	GM		Checked hole depth after drilling to 100', had 5' caving, hole is making water & is caving. WL inside drill pipe = 80'.
102								
104								
106								-1355 checked, hole caved to 91-1/2"
108								WL checked at 75'
110								1418 WL = 74'+.
112								
114								
116								
118								
120								



WELL COMPLETION LOG OF BORING NO. CG-2

SHEET NO. 1 of 1

PROJECT NO. <u>86-41-416-01-04</u>	DATE(S) <u>9-17 & 18-87</u>	ELEVATION _____
PROJECT NAME <u>Riverside County SWAT - Corona Landfill</u>	REFERENCE _____	
FIELD ENGINEER <u>Scott Heule</u>	LOCATION _____	
ASSISTANT _____	WATER LEVEL _____	AFTER _____ MIN./HOURS
DRILLING CO. <u>Datum Exploration</u>	TIME _____	SETUP _____ START _____ STOP _____
DRILLING METHOD & DIAM _____	DRIVING WEIGHT _____	AVERAGE DROP _____

DEPTH	S.P.T. VALUE (S.P.T.)	SAMPLE NO. BULK AND RANGE	CORE	BLOWS PER LENGTH IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND/FINES	REMARKS
0											
5								Vo clay Grout			
10											
15											
20								10" borehole			
25											
30								PVC Centralizer			
35											
40											
45								4" Sch. 80 PVC blank casing			
50											
55											
60											
65								64' (Added 50#'s Dry bentonite)			
70								Lonestar #2/12 sand			
75											
80								4" Sch. 80 PVC .02 slotted casing			
85											
90								90'			
95											
100								Caving after drilling to 100' T.D.			



FIELD LOG OF BORING NO. CG-3

SHEET NO. 1 of 4

PROJECT NO. 86-41-416-01-04 DATE(S) 9-9-87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule/John Rossi LOCATION South Side Adjacent to 15 Freeway
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN./HOURS
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. 10" Air Rotary w/ Casing Driver DRIVING WEIGHT _____ AVERAGE DROP _____
Speedstar 16.

DEPTH	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT		REMARKS
						GRAY	SAND FINES	
0								
2	Dry		Lt. Brn.	Silty sand, lt. brn., well graded sand w/ moderate to high silt content scattered gravel & cobbles, trace clay, artificial fill.				hNu - 0.0 Gastec - 0.0 Fast drilling.
4								Adding H ₂ O.
6	Moist		Lt. Brn.	Silty sand, lt. brown, fine to med. sand, moderate silt content, scattered coarse sand, w/ gravel, trace clay, artificial fill.	SM			Sample @ 5'. Fast drilling.
8								
10					SM			Sample @ 10'. Artificial fill. Natural soil.
12								
14	Moist		Dk. Brn.	Silty sand, well sorted (poorly graded) fine sand, medium to dk. brn., moderate silt content, moist, trace clay.				Sample @ 15'. Casing set @ 17-1/2', drilling open hole.
16								
18			Dk. Brn.	Silty sand w/ gravel, well sorted, fine sand w/ angular gravel fragments, Brn. to Dk. Brn.	SW			Sample @ 20'. hNu - 0.0 ppm Gastec - 0.0 ppm C ₄ H ₂ - 0.0 H ₂ S ₂ - 0.0; O ₂ - 22%
20	Moist		Dk. Brn.	Silty sand w/ gravel, well sorted, fine sand w/ angular fine gravel fragments, moderate silt content, moist dk. brn., reddish brown.	SM			Sample at 25'. Slow drilling. Riq shaking.
22								
24								
26								
28	Moist		Lt. Brn.	Gravel w/ cobbles, rounded pebbles, subangular coarse gravel and cobbles coarse sand, some silt, lt. brn. to brown.	SW			Sample @ 30'. Adding H ₂ O as drilling.
30								
32								
34								
36	Moist		Brn.	Silty sand w/ gravel - well graded sand w/ moderate silt content, some fine gravel, brn., occ. cobble.	SM			Sample @ 35'. Sample @ 40'.
38								
40								



FIELD LOG OF BORING NO. CG-3

SHEET NO. 2 of 4

PROJECT NO. 86-41-416-01-04 DATE(S) 9-9-87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER John Rossi/Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____
 DRILLING CO. Datum Exploration - Long Beach TIME SETUP START STOP _____
 DRILLING METHOD & DIAM _____ DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAV. SAND FINES	REMARKS
40	Moist		Brn.	Silty sand w/ gravel, well graded sand w/ moderate silt content, scattered gravel, brn to lt. brn.	SM		Sample @ 40'. smooth drilling no gases detected.
42	Moist		Lt.				
44	Wet		Brn.	Sandy gravel - well graded, subrounded to rounded gravel, pebbles, crs. sand, trace fine to med. sand.	GM		Silty sand Gravel.
46							Sample @ 45'. Moisture from added H ₂ O.
48							
50							Pea gravel @ 50'.
52							
54							
56							Gravel Sample @ 55'.
58							
60	Wet		Lt. Brn.	Sandy gravel - well graded, subround. to rounded, pebbles, crs. sand w/ traces of fine to med. sand. lt. brn. tan	GM		Pea gravel, Sample @ 60'. No gases detec. Moisture from H ₂ O added.
62							
64							
66	Wet		Gry. Buff	Gravelly sand - poorly graded, rounded to fine to med. quartz sand w/ mod. round. to subrounded gravel content, some micaceous silt trace clay (sticky), lt. gry. to dirty white.	SP		Gravel Gravelly sand.
68							
70							Sample @ 70'.
72							
74							
76	Wet		Gry. Buff	Sand, poorly graded fine quartz sand w/ scattered rounded gravel, trace silt & clay, lt. gry. to dirty white.	SP		Gravelly sand - sand. Sample @ 75.
78							Blow out check - No H ₂ O
80				Rounded to subrounded, gravel in sand.			Sand w/ gravel.



FIELD LOG OF BORING NO. CG-3

SHEET NO. 3 of 4

PROJECT NO. 86-41-416-01-04 DATE(S) 9/9/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER John Rossi/Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM Air Rotary DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	N-VALUE (S.P.T.) BULK AND RANGE CONE	SAMPLE NO. AND RANGE	DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAV. SAND-FINES	REMARKS
80											
82							Gry to Buff	Sand w/ gravel, poorly graded, fine to med. quartz sand w/ scattered round gravel, trace silt & clay, gry. to dirty white.	SP		Sample @ 80'. Sand w/ gravel, No gases detect. Smooth drill, fast, adding H ₂ O. @ 84' - gravel layer. Sand/Gravel. Sample @ 85' Gravelly sand.
84											
86							Gry. to Brn.	Sandy gravel, fine subrounded to rounded gravel w/ mod. crs. sand content, trace fines, brownish gry to brn.	GM		
88											
90											Sample @ 90'. Gravel, sand, rounded, pea gravel.
92											
94											
96											Sample @ 95'. Sandy Gravel.
98											
100							Tan	Pull out of hole, check for H ₂ O; start drill 9-10-87. Sand & gravel, rnded. pbls., silty clayey, interbedded w/ sand & gravel.	SW		injecting wtr. = 5-6gpm while drilling. drilling open hole.
102											
104								Sand & gravel as above.	SW		
106											
108											
110							Tan	Sand & gravel all well to mod. well rounded, silty.	SW		stop injection water @ 110'.
112											
114							Tan	Fine to med. gravel w/ sand, minor silt.	GW		Injection water @ 115'.
116											
118											
120											



FIELD LOG OF BORING NO. CG-3

SHEET NO. 4 of 4

PROJECT NO. 86-41-416-01-04 DATE(S) 9/10/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. SS-16 DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	W. VALUE (S.P.T.)	BULK SAMPLE NO. AND RANGE	CORE	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAV. SAND FINES	REMARKS
120							Tan	Gravel, rounded	GW		Start drilling w/o water, rock cave-in on top of bit then started injection pump.
122											
124											
126							Tan	Gravel rounded, poorly graded, to 1/2" dia. w/ some sand and silt.	GP/ GW		
128											
130							Tan	Gravel, w/ some sand and minor silt.	GP/ GW		
132											
134											
136							Tan	Gravel w/ some sand and very minor silt, all well rounded.	GP/ GW		
138											@ 1356 ckd. W.L. inside drill pipe, 124' below G.S. Injecting water.
140											
142											
144											
146							Tan	Gravel, sandy w/ some silt, well rounded to 1/2".	GP/ GW		
148											
150							Tan	Gravel, some interbedded sandy silt, well rounded, to 1/2"	GW/ GM		@ 1435, checked well - recovering towards 124' below G.S. Will stop drilling.
152								TD = 150'			
154											
156											
158											
160											



WELL COMPLETION LOG OF BORING NO. CG-3

SHEET NO. 1 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 9/10 & 11/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Corona REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL 114' @ 1830 AFTER 9/10/87 MIN/HOURS

DRILLING CO. Datum Exploration TIME 1720 1834

DRILLING METHOD & DIAM SS-16 DRIVING WEIGHT _____ AVERAGE DROP _____

122' @ 0920 9/11/87

SETUP START STOP

DEPTH	TH VALUE (S.P.)	SAMPLE NO. BULK AND RANGE	CORE	BLOWS PER LENGTH IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT		REMARKS
										GRAV.	SAND FINES	
0												
5												
10												
15												
20												
25												
30												
35												
40												
45												
50												
55												
60												
65												
70												
75												
80												
85												
90												
95												
100												



WELL COMPLETION LOG OF BORING NO. CG-3

SHEET NO. 2 of 2

PROJECT NO. <u>86-41-416-01-04</u>	DATE(S) <u>9/10 & 11/87</u>	ELEVATION _____
PROJECT NAME <u>Riverside County SWAT - Corona</u>	REFERENCE _____	
FIELD ENGINEER <u>Scott Heule</u>	LOCATION _____	
ASSISTANT _____	WATER LEVEL _____	AFTER _____ MIN/HOURS
DRILLING CO. <u>Datum Exploration</u>	TIME _____	STOP _____
DRILLING METHOD & DIAM. <u>SS-16</u>	SETUP _____	START _____
	DRIVING WEIGHT _____	AVERAGE DROP _____

DEPTH	SPT VALUE (5-10) SAMPLE NO. BULK AND RANGE CORE	BLOWS PER LENGTH IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAV. SAND FINES	REMARKS
100									
105									
115									
120						4" Sch. 80 .02" slot PVC casing			
125									
130						130'			
135									
140						Lonestar #2/12 sand			
145									
150						150'			
155									
160									
165									
170									
175									
180									
185									
190									
195									
200									



FIELD LOG OF BORING NO. CG-4

SHEET NO. 1 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 8/26 & 27/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION S.E. Corner of L.F.
 ASSISTANT _____ WATER LEVEL 62' 0930 8/28/87 AFTER _____ MIN./HOURS _____
 DRILLING CO. Datum Exploration TIME 1230 1400 _____
 DRILLING METHOD & DIAM. SS16 Casing hammer (10") DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BLOW PER LENGTH IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	hNu		REMARKS
							E/O ₂	H ₂ S	
0									(air oil filter installed)
2									
4									
6			Dry	Gry.	Gravel & cbls., w/ sand, clasts very fine grained meta(?), also large cbl. or bldr. @ 4-1/2' @ 7' silt, tan w/ some clay.	GW/GP			
8									
10			Moist	Gry. Grn.	Silt/Clay, w/ Fe stains.	CL			
12									
14			Moist	Gry. Grn.	Clay, w/ Fe stains, punky, may be diatomaceous, (hillside cut west of site has this exposed at its base. Is tan to cream color, fissil and low specific gravity, Fe stained.	CL			
16							0		8/26/87
18							0/22.2/0		8/27/87
20					@ 20', as above.	CL			water added to remove cuttings.
22									
24									
26									
28									
30				Gry. Grn.	Clay, silty, w/ Fe stains.	CL/MC			
32									
34									
36					Occ. Fe concretions to 3/8" dia.				
38									@ 38' begin drilling open hole.
40									



FIELD LOG OF BORING NO. CG-4

SHEET NO. 2 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 8/27/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. SS-16 DRIVING WEIGHT _____ AVERAGE DROP _____

INCH VALUE (S.P.T.)	SAMPLE NO. BULK AND RANGE CORE	DEPTH	BLOWS PER LENGTH, IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND FINES	REMARKS
40										
42										
44							Drk. @ 43', color change, slight sandier Gry. clay/silt. to SHALE	CL/ ML		
46	CG4-45'						Black Grn.			
48										
50	CG4-50'						Drk. Clay/Shale Black Grn.	CL/ ML		
52										
54										
56	CG4-55'						Black Sandy shale or claystone to very Drk. Grn.	CL/ ML		
58										
60	CG4-60'						Drk. Shale, micaceous w/ very fine Gry. sand, clayey to Black	ML		
62										
64										
66	CG4-65'						Drk. Shale, micaceous w/ very fine Gry. grained sand, occ. pebbles, clayey to Black	CL/ ML		
68										
70										
72							@ 70' = TD			Blew hole dry, let set 40 min. blew some water out. Fm. making very little water.
74										
76										
78										
80										



WELL COMPLETION LOG OF BORING NO. CG-4

SHEET NO. 1 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 8/28/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Corona REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL 62' @ 0930, 8/28 AFTER _____ MIN./HOURS _____

DRILLING CO. Datum Exploration TIME 1100 START _____ STOP _____

DRILLING METHOD & DIAM _____ DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	N° VALUE (S.P. 1)	SAMPLE NO. BULK AND RANGE CORE	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAV. SAND FINES	REMARKS
0										
2										
4										
6										
8										
10										
12										
14										
16										
18										
20										
22										
24										
26										
28										
30										
32										
34										
36										
38										
40										

← 10" borehole

4" Sch.80
blank PVC
casing

← Volclay
Grout



WELL COMPLETION LOG OF BORING NO. CG-4

SHEET NO. 2 of 2

PROJECT NO. <u>86-41-416-01-04</u>	DATE(S) <u>8/28/87</u>	ELEVATION _____
PROJECT NAME <u>Riverside County SWAT - Corona</u>	REFERENCE _____	
FIELD ENGINEER <u>Scott Heule</u>	LOCATION _____	
ASSISTANT _____	WATER LEVEL _____ AFTER _____	MIN./HOUR: _____
DRILLING CO. <u>Datum Exploration</u>	TIME _____	SETUP _____ START _____ STOP _____
DRILLING METHOD & DIAM. _____	DRIVING WEIGHT _____	AVERAGE DROP _____

DEPTH	IN. VALUE (SPT) BULK AND RANGE	SAMPLE NO. CORE	BLOWS PER LENGTH, IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND/FINES	REMARKS
40										
42							Volclay grout			
44							Volplus 1 sack (Dry)			
46							4" Blank Sch. 80 PVC			
48							.02 slot Sch. 80 PVC - 4"			
50							Lonestar #2 sand			
52							PVC Centralizer			
54										
56										
58										
60										
62										
64										
66										
68										
70										
72										
74										
76										
78										
80										

Filled borehole w/ H₂O twice and blew it out. 1st water was very muddy. 2nd time was much cleaner. Hole made less than 1/2 gpm. Then hung casing.



FIELD LOG OF BORING NO. CG-5

SHEET NO. 1 OF 2

PROJECT NO. 86-41-416-01-04 DATE(S) 9/3/87 ELEVATION _____
 PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
 FIELD ENGINEER Scott Heule LOCATION _____
 ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS
 DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. SS-16 10" Casing Hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	IN. VALUE (5, 10, 15) BULK AND RANGE CORE	SAMPLE NO.	BLOWS PER LENGTH IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	h ₁₀₀		REMARKS
									E/O ₂	H ₂ S	
0											
2											Added water for cuttings removal.
4											
6							Brn. Sand, med. to crs. grained w/ gravel.				
8											
10							Brn. Sand, gravel, med. to crs. grained, gravel occ. to 3/8" dia.				
12							@ 12.5' cbis. & gravel				
14							to 14.5'				
16							Brn. Sand w/ gravel, fine to med. grained.				
18							@ 17.5' cbis. & gravel.		0	0/21.7/0	
20							Brn. Gravel, cobbles and sand.				
22											
24							Cobbles w/ gravel, slow drilling.				Stopped @ 1252 to trip out of hole.
26							Start drill 0923 9/4/87 (26.5').				All teeth on bottom of cones worn off.
28											@ 1330 stopped for day.
30							Cbis., blgrs., & gravel				Stopped driving casing.
32							@ 31' some gry. clay in matrix, otherwise, still cbis., gravel.				Open Hole.
34							@ 33' fewer cbis./gravel, more sand, easier drilling, grades to sandy gry. silt/clay w/ some Fe staining.				
36							Sand/silt, with gravel.				
38							Lt. Grn.				
40							Gry. Sandy clay/clayey sand.				



FIELD LOG OF BORING NO. CG-5

SHEET NO. 2 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 9/4/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Corona REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____

DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____

DRILLING METHOD & DIAM. SS-16 10" w/ button bit (tricone) DRIVING WEIGHT _____ AVERAGE DROP _____

IN" VALUE (S.P.T.) BULK AND RANGE CORE	SAMPLE NO CORE	DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	REMARKS
40	CG5-40						Lt. Sand clay/clayey sand, as in CG-4 Grn. Some gravel/cbbs. @ 41'. Gry.		
42									
44	CG5-45'						Gravel/cbbs. in clayey matrix.		
46									
48									
50	CG5-50'						Lt. Gravel/cbbs. with silty, sandy clay Grn. matrix. Gry.		
52									
54	CG5-55'						Lt. @ 53' Crs. sand w/ clay matrix. Grn. Gry.		
56							Lt. Sand, crs. grained w/ silt & clay Grn. matrix, some pbbs. Gry.		
58									
60	CG5-60'						Lt. Sand & gravel in sand, silty clay Grn. matrix. Gry.		
62									
64	CG5-65'						Lt. Sand & gravel w/ silty clay matrix. Grn. Gry.		
66									
68									
70	CG5-70'						Lt. Sand/clay, med. to crs. grained Grn. w/ pebbles. Gry.		
72									
74									
76	CG5-75'						Lt. Sand/clay, med. to crs. grained Grn. w/ pebbles & gravel. Gry.		
78									
80	CG5-80'						Lt. Sand/clay, med. to crs. grained Grn. w/ pebbles & gravel. Gry.		

TD = 80' 1208 hrs.
CG-5



WELL COMPLETION LOG OF BORING NO. CG-5

SHEET NO. 1 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 9/4/87 & 9/8/87 ELEVATION _____
PROJECT NAME Riverside County SWAT - Corona REFERENCE _____
FIELD ENGINEER Scott Heule LOCATION _____
ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN./HOURS _____
DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____
DRILLING METHOD & DIAM. _____ DRIVING WEIGHT _____ AVERAGE DROP _____

IN. VALUE (5 FT.)	BULK SAMPLE NO. CORE AND RANGE	DEPTH	BLOBS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND FINES	REMARKS
0										
2										
4										
6										
8										
10										
12										
14										
16										
18										
20										
22										
24										
26										
28										
30										
32										
34										
36										
38										
40										



WELL COMPLETION LOG OF BORING NO. CG-5

SHEET NO. 2 of 2

PROJECT NO. 86-41-416-01-04 DATE(S) 9/4/87 & 9/8/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Corona REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS

DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____

DRILLING METHOD & DIAM _____ DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BLOWS PER FOOT - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY-SAND FINES	REMARKS
40								
42					Volclay grout			
44								
46								
48					1 50# sack Volplug (Dry)			Stop for day, Finish grouting Tues., Sept. 8.
50								
52								
54								
56								
58								
60								
62								
64								@ 1500 hang casing. @1535 Start gravel pack.
66								
68					10" borehole			@ 1600 finish gravel (2x12 Lonestar) 2 - 100# sacks.
70								
72								
74								
76								
78								
80								

PROJECT: GMMW CG-6

Groundwater Monitoring Well CG-6

Page 1 OF 2

LOCATION: Corona Landfill

BORING DATE: 11/28/00

DATUM: GROUND SURFACE

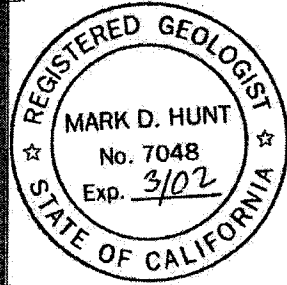
DIP: Level

LOGGED: Mark Hunt

DEPTH SCALE		BORING METHOD	SOIL PROFILE		Samples				Concentration					West Hazmat: Driller Tick		
METRES	FEET		DESCRIPTION	STRATA PLOT	DEPTH B.G.S. (ft)	Color	Moisture	Consistency	Split Spoon	LEL	Moisture Content					
										0	20	40	60	80	100	
0	0		Ground Surface													
			medium to v. coarse sand and gravel w/ cobbles (GW) - Hand dug 1-3'		0	lgry	dry	loos	No							
	2		gabbro boulder at 3'		1	lbwn	dry	loos	No							
1	4		alluvial sands, medium to v. coarse, gravelly, sand sub angular (GW)		3	lbwn	dry	loos	no							
2	6		gravel and cobbles, granodiorite and gabbro Split spoon sample at 10'		5	lbrw	dry	loos	yes							
3	10				10											
4	12	West Hazmat - Air Rotary 10" Tri. Core	gravelly sand, sub angular gravel slightly moist at 15'. At 18' gravelly sand (GP) and dry			lbrw	smt	loos	no							
5	16															
	18		6" layer of fine-med sand (GP) moist		18	lbrw	mois		no							
6	20		fine to med sand. Split spoon sample at 20' slightly moist		18.6	lbrw	mois		yes							
	22		becoming less gravelly. Slightly moist to dry at 23'		20	lbrw	md	loos	no							
7	24		becoming more silty		24	lbrw	dry	loos	no							
8	26				26											
	28		gravelly sand w/ igneous cobbles, sub angular (GP) Light gray to light brown Split spoon sample at 30'			lbrw	dry	loos	yes							
9	30				30											
	32		Silty sand (SM) grading to > % sil. Moist			brw	mois		no							

FLUSH MOUNT CASING

OROUT 0.001 TO 36.001



Continued on next page

DRAWN: Panda Workman

Riverside County Waste Management Department

CHECKED: Mark Hunt

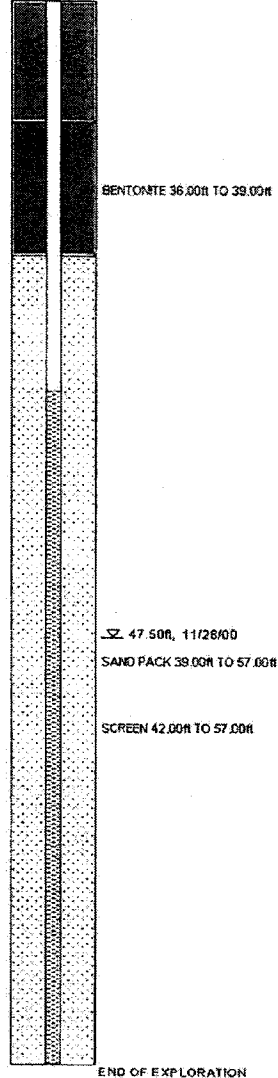
PROJECT: GWMW CG-6
 LOCATION: Corolla Landfill
 BORING DATE: 11/28/00

Groundwater Monitoring Well CG-6

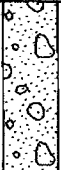

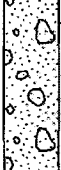




DATUM: GROUND SURFACE
 DIP: Level

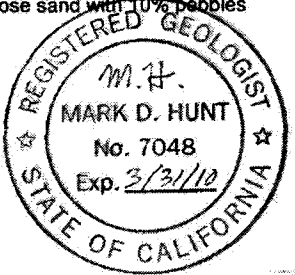
LOGGED: Mark Hunt

DEPTH SCALE		BORING METHOD	SOIL PROFILE		Samples				Concentration					West Hazmat: Driller Mick
METRES	FEET		DESCRIPTION	STRATA PLOT	DEPTH B.G.S. (ft)	Color	Moisture	Consistency	Split Spoon	LEL	Moisture Content			
										◆	◆	◆	◆	
	34	West Hazmat - Air Rotary 10" Tri-Cone	Silty sand (SM) grading to > % silt Moist	[Pattern]		brw	mois		no					
11	36		Clayey Silt (ML) ~36', Silty Clay (CL) ~ 39'; Some gravel, angular @ 40'; Redish Brown Color, Very Moist (can make ball when squeezed), Split spoon sample & Soil sample at 40', Casing to 40'	[Pattern]	36	Rbrw	very	clay	yes					
	40		Saturated Clayey Silt - open hole drilling at 40'	[Pattern]	40	Rbrw	very		no					
12	44		Silty Clay layer	[Pattern]	43									
13	45		Silty Clay with some angular gravel to V. coarse angular sand DTW 47' DTB 57'	[Pattern]	45		brw	very		no	◆			
14	50													
15	52													
16	54													
17	56													
18	58													
19	60													
20	62													
	64													
	66													
			END OF EXPLORATION @ 57.00ft		57.00									



CLIENT COUNTY OF RIVERSIDE PROJECT NAME CG - 6A WELL DETAILS
 PROJECT NUMBER _____ PROJECT LOCATION CORONA, CALIFORNIA
 DATE STARTED 10/27/07 COMPLETED 10/27/07 GROUND ELEVATION 607 ft HOLE SIZE 10"
 DRILLING CONTRACTOR DUAL WALL AIR PERCUSSION GROUND WATER LEVELS:
 DRILLING METHOD 10" CASING 8" TRI-CONE BUTTON BIT ∇ AT TIME OF DRILLING 52.00 ft / Elev 555.00 ft
 LOGGED BY PW (RCWMD) CHECKED BY M. HUNT (RCWMD) AT END OF DRILLING --
 NOTES CLOUDY, SMOKE IN THE AIR FROM FIRE, SOME ASH AFTER DRILLING --

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0				
5	1		Gravelly Sand (SP), medium to coarse, light gray, slightly moist, loose, 5 - 10% sub rounded gravel	602.0
10	2		Gravelly Sand (SP), medium-coarse, light gray to light brown, slightly moist with some cobbles sand, gravell & cobbles sub rounded, dark grained igneous rocks 10/15%	597.0
15	3		Gravelly Sand (SP), medium to coarse, light brown, moist, loose sand with 10% pebbles	588.0
20	4		Sandy Gravel (GP), fine-grained, light brown, loose, dry gravelly sand 30% sub angular gravel	587.0
25	5		Sandy Gravel (GP), fine-grained, light brown, loose, clay gravelly sand 30% sub angular gravel	582.0
30	6		Gravelly Sand (SP), fine-grained, light gray, dark grained gebbrior gravel 10% smaller poorly sorted gravel	577.0
35	7		Sand (SP), fine-grained, light gray, dry, well sorted	572.0



GENERAL SH / TP / WELL - GINT STD US GDT - 5/9/08 11:13 - C:\PROGRAM FILES\GINT\PROJECTS\CORONA.GPJ

(Continued Next Page)

CLIENT COUNTY OF RIVERSIDE

PROJECT NAME CG - 6A WELL DETAILS

PROJECT NUMBER _____

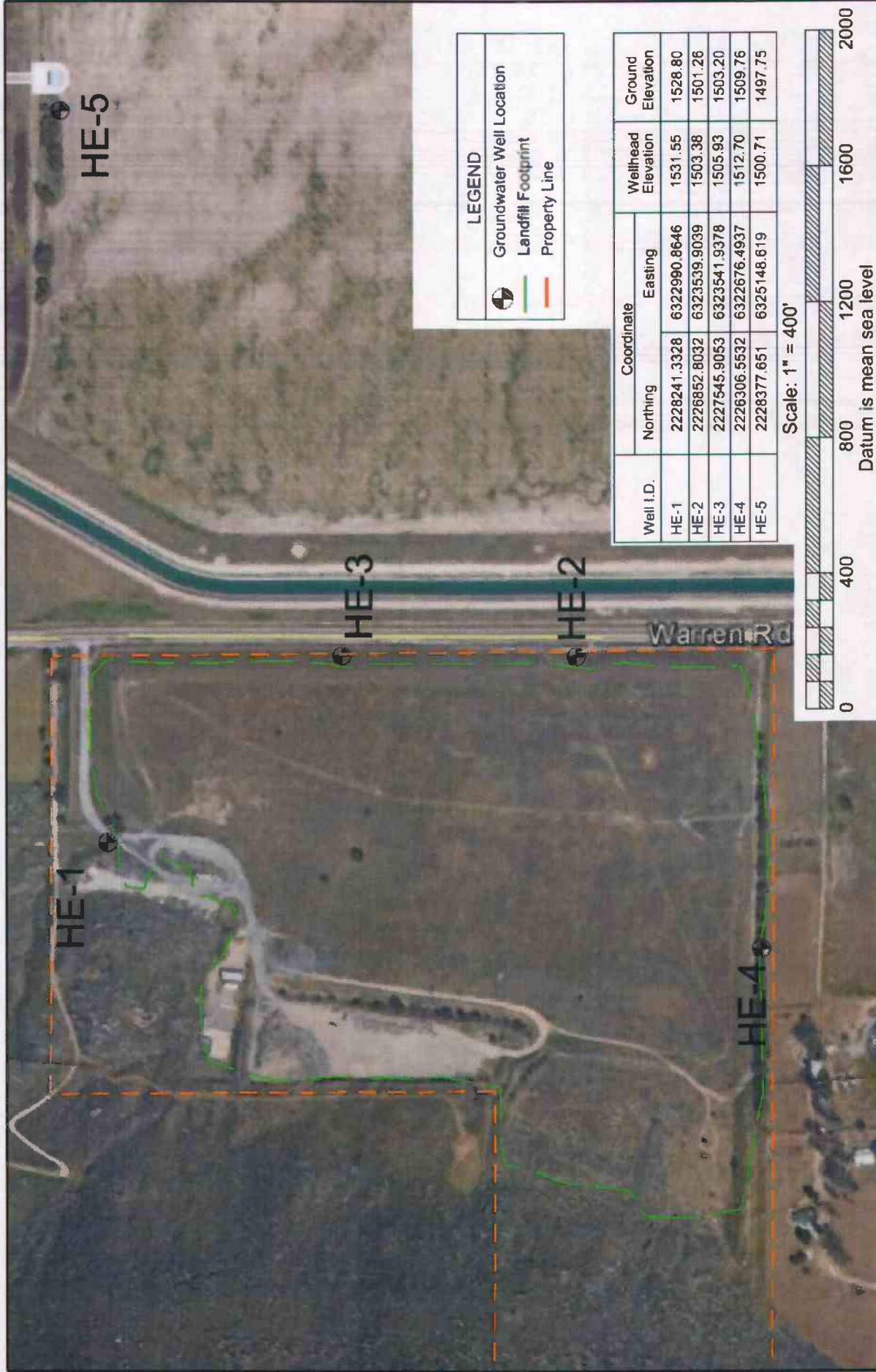
PROJECT LOCATION CORONA, CALIFORNIA

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
35			
35	8		Gravelly Sand (SP), fine-grained, dark gray, dry, gravel 30% of malax almost entered, sub rounded & fine gravel gabboir material
40			567.0
40	9		Clay (CH), brownish red, moist
42.0			565.0
42.0	10		Gravelly Sand (SP), fine-grained, light brown, dry
45			562.0
45	11		Gravelly Sand (SP), fine-grained, dark brown, slightly moist, gravel 5 - 10%
50			557.0
50	12		Gravelly Sand (SP), fine-grained, dark brown, slightly moist, gravel 5 - 10%, occasional rounded cobble
55			552.0
55	13		Gravelly Sandy Clay (CL), brown, moist, gravel 10% sand, 20 - 30% clay
60			547.0

Bottom of borehole at 60.0 feet.

GENERAL BH / TP / WELL - GINT STD US.GDT - 5/9/08 11:13 - C:\PROGRAM FILES\GINT\PROJECTS\CORONA.GPJ

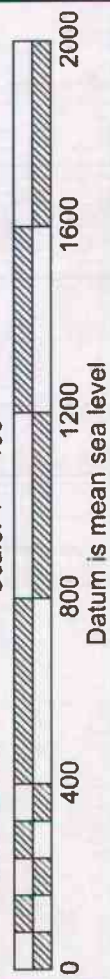
Appendix C – Hemet Sanitary Landfill Groundwater Boring Logs



LEGEND	
	Groundwater Well Location
	Landfill Footprint
	Property Line

Well I.D.	Coordinate		Wellhead Elevation	Ground Elevation
	Northing	Easting		
HE-1	2228241.3328	6322990.8646	1531.55	1528.80
HE-2	2226852.8032	6323539.9039	1503.38	1501.26
HE-3	2227545.9053	6323541.9378	1505.93	1503.20
HE-4	2226306.5532	6322676.4937	1512.70	1509.76
HE-5	2228377.651	6325148.619	1500.71	1497.75

Scale: 1" = 400'



Hemet Sanitary Landfill - Third Quarter 2016
Groundwater Monitoring Well Locations Map

File Directory <file:///c:/Users/1/environ/ites/hemet/water/wrpts/hemet1608/wrpt> Date September 28, 2016
 Groundwater Elevations August 2016 Photo Date April 2014 Scale Bar Scale



Brown and Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-1 Sheet 1 of 2

Boring Location: Northwest side of landfill		Elevation and Datum: 1630.0	
Drilling Contractor: DaTuM Exploration	Driller: J. Kiethly	Date Started: 2/3/89	Date Finished: 5/16/89
Drilling Equipment: Speedstar 16	Borehole Diameter: 10"	Completed Depth: (feet) 52.5	Water Depth: (feet) 32.5
Sampling Method: California Modified <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input type="checkbox"/>		WELL CONSTRUCTION	
Drilling Fluid: none		Type and Diameter of Well Casing: 4in. SCH80 PVC	
Backfill Material: Sand, Bentonite, and Volclay grout		Slot Size: 0.02in.	Filter Material: #2/16 Mont. sand
Logged By: S. Brooks	Checked By: Marc Egli	Development Method: Bail and Surge	

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/FID Readings PPM	Remarks
					Sample	Lithology	Well		
0-5	SM	<u>Alluvium (0-20ft.)</u> Silty sand, light brown, moist, very fine - grained sand, trace mica.							
5-6		medium dense, trace pebble sized gravel.	6 7 6	1				0	
6-10		Becoming dark brown, increase in pebbles.	6 7 6	2				0	
10-15	SW	Sand, brown, moist, fine to - coarse - grained, dense, trace fine - pebbles.							
15-17				3				0	Hit weathered bedrock at 17 feet, drilling extremely hard.
17-20		<u>LAKEVIEW MOUNTAIN TONALITE (20-52.5 ft.)</u> Weathered, abundant plagioclase and quartz, moderate amounts of hornblende and biotite.							Refusal on weathered bedrock at 20 feet with HSA drill rig.
20-30									Began drilling with air rotary on 5/16/89.
30-32.5									Encountered groundwater



Brown and Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-2 Sheet 1 of 4

Boring Location: Southeast of landfill		Elevation and Datum: 1550.0	
Drilling Contractor: DaTuM Exploration	Driller: J. Kiethly	Date Started: 2/7/89	Date Finished: 6/21/89
Drilling Equipment: Speedstar 16	Borehole Diameter: 10"	Completed Depth: (feet) 155.0	Water Depth: (feet) 135.0
Sampling Method: California Modified <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input type="checkbox"/>		WELL CONSTRUCTION	
Drilling Fluid: none		Type and Diameter of Well Casing: 4in. SCH80 PVC	
Backfill Material: Sand, Bentonite, and Volclay grout		Slot Size: 0.02in.	Filter Material: #2/16 Mont. sand
Logged By: S. Brooks	Checked By: Marc Egli	Development Method: Bail and Surge	

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/PID Readings PPM	Remarks
					Sample	Lithology	Uc 11		
0	ML	<u>Alluvium (0-135 ft.)</u> Clayey silt, dark brown, moist.							
5		Clayey silt, light brown, moist, very stiff, minor caliche.	9 7 9	1	█			0	
10		Becoming harder, massive amounts of caliche in pebble form.	5 13 18	2	█			0	
15	SM	Silty sand, brown, moist, medium dense, slightly micaceous.	14 13 14	3	█			0	
20		Becoming dark brown in streaks, trace pebbles < 1/8 in.	8 18 10	4	█			0	
30	ML	Clayey silt, brown, moist, very stiff, trace coarse-grained sand, trace pebbles < 1/8 in.		5	█			0	



Brown and Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-2 Sheet 2 of 4

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/FID Readings OVA PPM	Remarks
					Sample	Lithology	Well		
35									
40	SM	Silty sand, brown, moist, dense, trace clay, trace pebbles < 1/8 in.	14 15 19	6	█			40	
45									
50		Slight increase in clay.	9 17 21	7	█			8	
55									
60		Trace coarser pebbles < 1/4 in.	18 18 21	8	█			200	
65									
70		Silty sand, brown, moist, dense, trace pebbles < 1/2 in.	5 61 26	9	█			650	



Brown and
Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-2 Sheet 3 of 4

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/FID OVA PPM	Remarks
					Sample	Lithology	Well		
80		Becoming very dense.	25 26 30	10	█			150	
90			6 27 38	11	█			200	
100		Becoming very micaceous.		12	█			150	
110	SP	Sand, brown, dry, medium to coarse grained, very dense, trace gravels up to 1/2 in.	18 28 25	13	█			1000	



Brown and
Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-2 Sheet 4 of 4

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/FID OVA PPM	Remarks
					Sample	Lithology	Well		
20			16 24 38	14				20	
30		Trace coarse gravels, approx. 1 in.		15				150	Drilling easier at 127 feet, possibly due to weathered bedrock.
35		LAKEVIEW MOUNTAIN TONALITE (135-155 ft.)							Encountered groundwater at 132 feet.
40									Refusal on bedrock with HSA drill rig. Began drilling with air rotary on 6/21/89.
55		Bottom of boring at 155 feet. Groundwater encountered at 135 feet.							Terminated drilling at 155 feet.



Brown and Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-3 Sheet 1 of 4

Boring Location: Southeast of landfill		Elevation and Datum: 1550.0	
Drilling Contractor: DaTuM Exploration	Driller: J. Klethly	Date Started: 2/8/89	Date Finished: 6/19/89
Drilling Equipment: Speedstar 16	Borehole Diameter: 10"	Completed Depth: (feet) 160.0	Water Depth: (feet) 139.5
Sampling Method: California Modified <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input type="checkbox"/>		WELL CONSTRUCTION	
Drilling Fluid: none		Type and Diameter of Well Casing: 4in. SCH80 PVC	
Backfill Material: Sand, Bentonite, and Volclay grout		Slot Size: 0.02in.	Filter Material: #2/16 Mont. sand
Logged By: S. Brooks	Checked By: Marc Egli	Development Method: Bail and Surge	

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/PID Readings PPM	Remarks
					Sample	Lithology	Well		
0-135 ft.	ML	Alluvium (0-135 ft.) Clayey silt, dark brown, moist.							
5		Silt, brown, moist, very stiff, micaceous.	7 14 19	1	█			0	
10	SM	Silty sand, brown, moist, medium dense, slightly micaceous, trace fine gravels.	8 10 13	2	█			0	
15		Increase in size of gravels to coarse, approx. 2 in.	10 13 14	3	█			0	
20		Becoming more dense.	10 15 18	4	█			0	
30	SW	Sand becoming reddish in color, coarse gravel layer 2 in. thick.	9 21 34	5	█			0	



Brown and Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-3 Sheet 2 of 4

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/FID Readings OVA PPM	Remarks
					Sample	Lithology	Well		
35									
40		Trace fine gravels < 1/4 in.	12 24 27	6	█			100	
45									
50		Becoming very dense.	12 46 48	7	█			150	
55									
60		Becoming less dense, slightly micaceous.	19 20 25	8	█			300	
65									
70			18 19 25	9	█			350	



Brown and Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-3 Sheet 3 of 4

Depth (feet)	USC Soil Type	Description	Blow Counts	Graphic Log			PID/FID OVA PPM	Remarks
				Sample No.	Sample	Lithology		
80			7 10 24	10	█		200	
85								
90			20 60 55	11	█		250	
95								
100			41 44 49	12	█		900	
105								Drilling extremely hard from 103 to 110 feet. Weathered Bedrock
110								
10	SP	Sand, brown, dry, medium to coarse grained, very dense, trace gravels up to 1/2 in.	28 46 41	13	█		600	
15			20 26 29	14	█		200	



Brown and
Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-3 Sheet 4 of 4

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PI10/FID OVA PPM	Remarks
					Sample	Lithology	Well		
20			20	15					
25			28				700		
			29					Bentonite seal: 123-125 feet.	
30			20	16					
			28				150	Screened interval: 130-160 feet.	
			29						
35		LAKEVIEW MOUNTAIN TONALITE (135-160 ft.)	30	17					
			26				1000	Refusal on bedrock with HSA drill rig. Began drilling with air rotary on 6/19/89.	
			28						
40								Encountered groundwater	
45									
50									
55									
		bottom of boring at 160 feet. Groundwater encountered at 139.5 feet.						Terminated drilling at 160 feet.	



Brown and Caldwell

BORING LOG

Project Name: Hemet SWAT Project Number: 4344-06
 Soil Boring Monitoring Well Boring/Well Number: HE-4 Sheet 1 of 3

Boring Location: Southwest of landfill		Elevation and Datum: 1600.0	
Drilling Contractor: DaTuM Exploration	Driller: J. Kiethly	Date Started: 2/13/89	Date Finished: 6/24/89
Drilling Equipment: Speedstar 16	Borehole Diameter: 10"	Completed Depth: (feet) 78.5	Water Depth: (feet) 58.0
Sampling Method: California Modified <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input type="checkbox"/>			
Drilling Fluid: none		Type and Diameter of Well Casing: 4in. SCH80 PVC	
Backfill Material: Sand, Bentonite, and Volclay grout		Slot Size: 0.02in.	Filter Material: #2/16 Mont. sand
Logged By: S. Brooks	Checked By: Marc Egli	Development Method: Bail and Surge	

Depth (feet)	USC Soil Type	Description	Blow Counts	Sample No.	Graphic Log			PID/P10 Readings PPM	Remarks
					Sample	Lithology	Well		
0	SM	<u>Alluvium (0-30 ft.)</u> Silty sand, light brown, dry.							
5		Becoming very fine grained, very dense.	14 17 40	1				0	
10		Trace gravels < 1/4 in.	22 31 38	2				0	
15	CL	Silty clay, light brown, moist, hard, reddish streaks.	38 50 /2	3				0	
20	SM	Silty sand, light brown, dry, very dense.	22 28 37	4				0	
25				5				0	
30			25 50 /3	6				0	Refusal using hollow stem auger. Began drilling with air rotary on 6/23/89

PROJECT: Permr 22538

HE-5

Page 2 of 5

LOCATION: Hemet SLF

BORING DATE: 1/11/89

DATUM: GROUND SURFACE

DIP:

LOGGED: PWSK

DEPTH SCALE		BORING METHOD	SOIL PROFILE		Samples			Concentration										
METRES	FEET		STRATA PLOT	DEPTH B.G.S. (ft)	ID	Type	Ring Ret.	CH4	Oxygen	H2S	0	20	40	60	80	100		
50	16	IR T3Y4R Rotary/40 lb. Driving Wt./Average Drop 30"		50	5	Core	1st	■	●									
52	54																	
54	56			Sand, very fine to fine, slight clay, carbonate, micaceous Light Olive Moist Medium Dense														
56	58																	
58	60																	
60	62																	
62	64			Sand, very fine, silty, slight clay, micaceous Olive, Moist, Medium Dense Tip of sample was wet.						■	●							
64	66																	
66	68																	
68	70			Sand, fine to medium, very slight silt Light Olive Slight Moist Medium Dense														
70	72																	
72	74																	
74	76	Sand, very fine to fine, clayey, carbonate lenses Olive, Moist, Medium Dense Moisture on tip of sampler.						■	●									
76	78																	
78	80																	
80	82																	
82	84	Sand, fine to coarse, slight silt, slight gravel, micaceous Brown 7.5YR 5/3 Slight Moisture Dense						■	●									
84	86																	
86	88																	
88	90																	
90	92	Sand, very fine to fine, silty, clayey, micaceous Olive Moist Dense						■	●									
92	94																	
94	96																	
96	98	Sand, very fine to medium, slight silt Light Brown Moist Dense																
98	100																	
100																		

West Hazmat Driller: Alberto Start: 11:30am 1/11/89



CEMENT GROUT 0.000 TO 171.500

Continued on next page

DRAWN: acm

CHECKED: awk

PROJECT: Permit 22938

HE-5

Page 3 of 5

LOCATION: Hemet SLF

BORING DATE: 1/11/99

DATUM: GROUND SURFACE

DIP:

LOGGED: PWSK

DEPTH SCALE		BORING METHOD	SOIL PROFILE	STRATA PLOT	DEPTH B.G.S. (ft)	Samples			Concentration					West Hazmat Driller: Alberto Start 11:30am 1/11/99							
METRES	FEET					ID	Type	Ring Ret.	CH4	Oxygen	H2S	0	20		40	60	80	100			
	100	IR T3W-Air Rotary/40 lb. Driving Wt./Average Drop 30"	Sand, very fine to fine, clayey, silty, micaceous Olive, Moist, Medium Dense Moisture in tip of sampler.	[Pattern]	110	10	Core	1st	■	●											
31	102																				
	104																				
32	106																				
	108																				
33	110																				
	112																				
34	114						Sand, very fine to coarse, silty, slight clay, micaceous, very slight gravel Olive Moist Medium Dense	[Pattern]	110	11	Core	1st	■	●							
	116																				
35	118																				
36	120																				
	122																				
37	124						Sand, very fine, silty, slight clay, micaceous Olive Moist Medium Dense	[Pattern]	120	12	Core	1st	■	●							
	126																				
38	128																				
	130																				
39	132																				
	134		Sand, very fine, silty, slight clay, carbonate lenses Olive Slight Moisture Medium Dense	[Pattern]	130	13	Core	1st	■	●											
40	136																				
	138																				
41	140																				
	142																				
42	144		Sand, fine to coarse, silty, carbonate lenses, possible decomposed granite Brown, Slight Moisture, Dense Stopped drilling @ 5:00 pm 1/11/99 at 140 ft. Restarted @ 9:00 am 1/12/99	[Pattern]	140	14	Core	1st	■	●											
	146																				
43	148																				
	150																				

Continued on next page

DRAWN: scm

Riverside County Waste Management Department

CHECKED: swk

DEPTH SCALE		BORING METHOD	SOIL PROFILE		Samples			Concentration					West Hazmat Driller: Alberto Start: 11:30am 1/11/99				
METRES	FEET		STRATA PLOT	DEPTH B.G.S. (ft)	ID	Type	Ring Ref.	CH4	Oxygen	H2S	0	20		40	60	80	100
46	150	IR 13W-Air Rotary/140 lb. Drilling Wt./Averages Drop 30"	[Dotted pattern]	160	15	Core 2nd		◆	◆	■							
47	152										Sand, fine to coarse, silty, carbonate lenses, possible decomposed granite Brown, Slight Moisture, Dense Stopped drilling @ 5:00 pm 1/11/99 at 140 ft. Restarted @ 9:00 am 1/12/99						
48	154																
49	156																
50	162	IR 13W-Air Rotary/140 lb. Drilling Wt./Averages Drop 30"	[Dotted pattern]	170				◆	◆	■							
51	164										Sand, very fine to fine, clayey, slight silt, micaceous Brown, Moist, Dense Water at 162.7' @ 2:10 pm 1/12/99 Water at 165.8' @ 3:45 pm 1/12/99						
52	166																
53	168										Increase in clay content of cuttings						
54	174	IR 13W-Air Rotary/140 lb. Drilling Wt./Averages Drop 30"	[Dotted pattern]	180	16	Core 2nd		◆	◆	■							
55	176										Sand, fine to medium, slight silt, very micaceous Brown Moist Dense						
56	178																
57	180										Increase in clay content of cuttings						
58	186	IR 13W-Air Rotary/140 lb. Drilling Wt./Averages Drop 30"	[Dotted pattern]	190				◆	◆	■							
59	182																
60	184																
61	186																



▽ 161.50ft, 1/13/99
▽ 162.70ft, 1/12/99

BENTONITE SF@ 171.50ft TO 177.00ft

FILTER PACK 177.00ft TO 196.00ft
SCREEN 180.00ft TO 195.00ft

FILTER PACK 195.00ft TO 200.00ft

Continued on next page

PROJECT: Permit 22538

HE-5

LOCATION: Hemet SLF

BORING DATE: 1/11/89

DATUM: GROUND SURFACE

DIP:

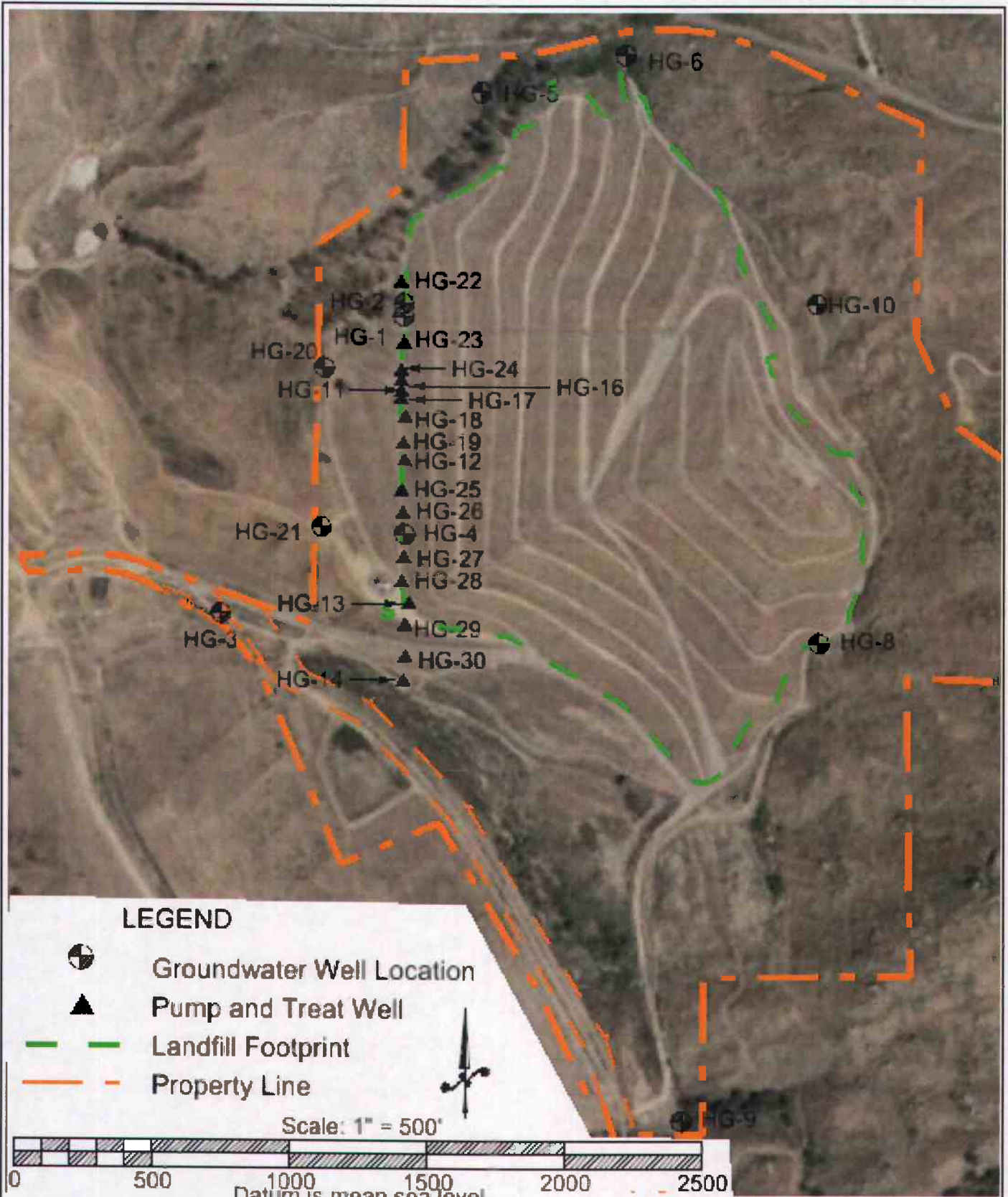
LOGGED: PW/SK

DEPTH SCALE		BORING METHOD	SOIL PROFILE		Samples			Concentration										
METRES	FEET		STRATA PLOT	DEPTH B.G.S. (ft)	ID	Type	Ring Ref.	CH4	Oxygen	H2S								
61	200	IR T3W-Air Rotary/140 lb. Drilling Wt./Average Drop 30"		200.00				◆	●	■	0	20	40	60	80	100	<p>West Hazmat Driller: Alberto Start: 11:30am 1/11/89</p> <p>END OF EXPLORATION</p>	
62	202																	
63	204																	
64	206																	
65	208																	
66	210																	
67	212																	
68	214																	
69	216																	
70	218																	
71	220																	
72	222																	
73	224																	
74	226																	
75	228																	
76	230																	
	232																	
	234																	
	236																	
	238																	
	240																	
	242																	
	244																	
	246																	
	248																	
	250																	

DRAWN: acm

CHECKED: swk

Appendix D – Highgrove Sanitary Landfill Groundwater Boring Logs



Highgrove Sanitary Landfill
Groundwater Monitoring Well Locations Map

Scale - Bar Scale



FIELD LOG OF BORING NO. HG-1

SHEET NO. 1 of 5

PROJECT NO. 86-41-418-01-04 DATE(S) 9/22/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Highgrove REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____

DRILLING CO Datum Exploration TIME 0845 1915

DRILLING METHOD & DIAM SS-16 w/10" Casing hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BLOW PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND-FINES	REMARKS
0								
2								Adding water to air injection
4								
6				Brn.	Sand, silty w/ some landfill debris.	SM		
8								Oaf
10				Gry. Grn.	Sand, silty, fine to v. crs. grained decomposed granitics			Decomposed Granitics
12								
14				Gry. Grn.	Decomposed granitics, micaceous			
16								
18								
20				Gry. Grn.	Decomposed granitics, med. to fine grained, micaceous.			Begin drill open hole @ 20'.
22								
24								
26								
28								
30				Gry. Grn.	Decomposed granitics, fine to med. grained, micaceous.			
32								
34					@ 34', becomes denser, less weathered cuttings begin to be mostly lithic fragments.			
36								
38								
40								



FIELD LOG OF BORING NO. HG-1

SHEET NO. 2 of 5

PROJECT NO. 86-41-418-01-04 DATE(S) 9/22/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Highgrove REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS _____

DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____

DRILLING METHOD & DIAM SS-16, 10" to 55', 55' to TD 6" DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	INCH VALUE (S.P.T.) BULK AND FLANGE CORE	SAMPLE NO.	BLOWS PER LENGTH IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND FINES	REMARKS	
40							Blk., Wht., Org.				Weathered bedrock, granitics, dense
42											
44											V. Dense
46											Bedrock, granitics, poorly to un- weathered.
48											
50											@ 49' easier drilling
52							Blk. & Wht.				granitics Harder drilling
54											Easier drilling
56											@ 55' harder, end 10" hole. Start 6" hole, 6" casing driven to 56'
58											
60							Blk. & Wht.				Granitics, v. occ. Fe stained, med. grained.
62											
64											
66											
68											
70											
72											
74											
76											
78											
80											No apparent frags. this joint.



FIELD LOG OF BORING NO. HG-1

SHEET NO. 3 of 5

PROJECT NO. 86-41-418-01-04 DATE(S) 9/24/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Highgrove REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN./HOURS _____

DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____

DRILLING METHOD & DIAM. SS-16, downhole hammer 6" DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	BLOWNS PER LENGTH - 10'	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND/FINES	REMARKS
80								
82								
84								
86								
88								
90					Blk. & Wht. Granitics, v. minor Fe stains			6" hold dry to at least 60', 10" hole SWL = 21.5' 9/24/87 0815 hrs. hole dry @ 0842.
92								
94								
96								
98					@ 97.5-99' may have been slightly fractured.			
100					Blk. & Wht. Granitics, some Fe stained fragments.			Start of this rod, hole was not making water.
102								
104								
106								
108								
110					Blk. & Wht., Org. Granitics, some fractures above this depth, Fe stained fragments.			
112								
114								
116								
118					@ 117.5' small fracture.			
120					Blk./Wht. & Vel./Org. @ 119' small fracture, granitics w/ Fe stained fragments.			



WELL COMPLETION LOG OF BORING NO. HG-1

SHEET NO. 4 OF 5

PROJECT NO 86-41-418-01-04 DATE(S) 9/24/87 ELEVATION _____

PROJECT NAME Riverside County SWAT - Highgrove REFERENCE _____

FIELD ENGINEER Scott Heule LOCATION _____

ASSISTANT _____ WATER LEVEL _____ AFTER _____ MIN/HOURS

DRILLING CO. Datum Exploration TIME _____ SETUP _____ START _____ STOP _____

DRILLING METHOD & DIAM SS-16 6" down hole hammer DRIVING WEIGHT _____ AVERAGE DROP _____

DEPTH	SAMPLE NO. BULK AND RANGE	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND-FINES	REMARKS
120								Hole not making measurable water.
122								
124								
126					Fractured, fragments, Fe stained.			
128								
130	HG-1 130'			Blk., Wht., Org.	Granitics, fractured, fragments Fe stained.			
132								
134								
136								
138								
140	HG-1 140'			Blk., Wht., Org.	Granitics, fractured, Fe stained.			
142								
144								
146								
148								
150	HG-1 150'			Blk., Wht., Org.	Granitics, broken, fractured, Fe stained.			
152								
154								
156								
158	HG-1 160'			Blk., Wht., Org.	Granitics, broken, fractured Fe stained.			
160								



WELL COMPLETION LOG OF BORING NO. HG-1

SHEET NO. 1 OF 1

PROJECT NO <u>86-41-418-01-04</u>	DATE(S) <u>9/25/87</u>	ELEVATION _____
PROJECT NAME <u>Riverside County SWAT - Highgrove</u>	REFERENCE _____	
FIELD ENGINEER <u>Scott Heule</u>	LOCATION _____	
ASSISTANT _____	WATER LEVEL _____	AFTER _____ MIN/HOURS
DRILLING CO <u>Datum Exploration</u>	TIME _____	
DRILLING METHOD & DIAM <u>SS-16, 10" Tricone & 6" downhole hammer</u>	SETUP _____	START _____ STOP _____
	DRIVING WEIGHT _____	AVERAGE DROP _____

IN" VALUE (S.P.) BULK AND RANGE	CORE	DEPTH	BLOWS PER LENGTH, IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAY SAND-FINES	REMARKS
		0								
		5								
		10								
		15								
		20					Volclay Grout			
		25								
		30					6" x 0.25" Steel Casing			
		35								
		40								
		45								
		50					10" borehole to 55'			
		55					6" steel casing to 56'			
		60								
		65					6" Open Hole in Rock			
		70								
		75								
		80								
		165								
		170								
		175								
		180					TD = 178'			