



*Dedicated to  
Satisfying our Community's  
Water Needs*

**AGENDA  
MESA WATER DISTRICT  
BOARD OF DIRECTORS  
Tuesday, February 19, 2019  
1965 Placentia Avenue, Costa Mesa, CA 92627  
3:30 p.m. Special Board Meeting**

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**ENGINEERING AND OPERATIONS COMMITTEE MEETING  
Tuesday, February 19, 2019 at 3:30 p.m.**

**CALL TO ORDER**

**PLEDGE OF ALLEGIANCE**

**PUBLIC COMMENTS**

**Items Not on the Agenda:** Members of the public are invited to address the Board on items which are not on the agenda. Each speaker is limited to three minutes. The Board will set aside 30 minutes for public comments.

**Items on the Agenda:** Members of the public may comment on agenda items before action is taken, or after the Board has discussed the item. Each speaker is limited to three minutes. The Board will set aside 60 minutes for public comments.

**CONSENT CALENDAR ITEMS:**

*Approve all matters under the Consent Calendar by one motion unless a Board member, staff, or a member of the public requests a separate action.*

1. Developer Project Status Report
2. Mesa Water and Other Agency Projects Status Report
3. Water Quality Call Report
4. Committee Policy & Resolution Review
5. Water Operations Status Report

**ACTION ITEMS:**

None

**PRESENTATION AND DISCUSSION ITEMS:**

*Items recommended for approval at this meeting may be agendized for approval at a future Board meeting.*

None

**REPORTS:**

6. Report of the General Manager



7. Directors' Reports and Comments

**INFORMATION ITEMS:**

8. Chandler & Croddy Wells and Pipeline Project

*In compliance with California law and the Americans with Disabilities Act, if you need disability-related modifications or accommodations, including auxiliary aids or services in order to participate in the meeting, or if you need the agenda provided in an alternative format, please contact the District Secretary at (949) 631-1206. Notification 48 hours prior to the meeting will enable Mesa Water District (Mesa Water) to make reasonable arrangements to accommodate your requests.*

*Members of the public desiring to make verbal comments utilizing a translator to present their comments into English shall be provided reasonable time accommodations that are consistent with California law.*

*Agenda materials that are public records, which have been distributed to a majority of the Mesa Water Board of Directors (Board), will be available for public inspection at the District Boardroom, 1965 Placentia Avenue, Costa Mesa, CA and on Mesa Water's website at [www.MesaWater.org](http://www.MesaWater.org). If materials are distributed to the Board less than 72 hours prior or during the meeting, the materials will be available at the time of the meeting.*

**ADJOURNMENT**

## DEVELOPER PROJECT STATUS REPORT

PROJECT STATUS - DEVELOPER PROJECTS			
FILE NO.	PROJECT ADDRESS	PROJECT DESCRIPTION	PROJECT NOTES/STATUS
MC 2149	1620-1644 Whittier Avenue and 970 16th Street	89 Single Family Homes	Plans received and plan check fees paid 2/2/14. Permit issued on 7/23/15. Pre-con meeting held on 7/27/15. Pipeline installation on 10/21/15. Pressure test and chlorination on 11/5/15. Bac-T testing completed on 11/24/15 and 11/25/15. Waterline tied-in angle-stops locked on 12/14/15. 4-1" meters installed on model homes on 2/25/16. 1-1.5" irrigation meter and 1-1" domestic meter installed and locked on 4/5/16. Inspected rock base on 7/11/16. Installed 7-1" meters on 7/13/16. Flow-thru tested on 8/25/16 and 9/8/16. Rock base and meters installed on 11/3/16. Flow-thru check on 12/1/16. Flow-thru check on 4/5/17. Meters installed on 8/21/17. Meter box placement on 10/5/17. Meters installed on 4/25/18. Meters installed 6/28/18 and again on 8/13/18. (2/13/19)
MC 2204	1672 Placentia	31 Single Family Homes	Plans received and plan check fees paid on 8/26/15. Second plan check submitted on 2/11/16 and returned on 2/26/16. Mylars submitted, fees paid, and permit issued on 5/5/16. Tee cut-ins on 6/22/16. Pressure Test and Bac-T test on 7/7/16. Water main turned on 7/21/16. Services installed and locked off on 9/6/16. Meter installation on 10/28/16. Backflows tested on 11/16/16. Backflow tested on 12/9/16. Rock base on 2/1/17. Service placement on 2/16/17. Meters installed on 3/28/17. Backflows tested on 3/30/17. Meters installed and locked off on 2/20/18. Awaiting call for backflow testing to complete project. (2/13/19)
MC 2233	1560 Placentia	81 Single Family Homes	Plans received and plan check fees paid on 1/20/16. Request for additional information requested on 1/28/16. Requested information submitted on 2/24/16. Plan check picked up on 4/18/16. Second plan check submitted on 5/18/16. Mylar drawings and fee payment received on 7/5/16. Permit issued on 7/11/16. Mainline installed on 8/24/16. Hydrant laterals installed on 8/25/16. Services installed on 9/1/16. Mainline installed on 9/20/16. Pressure and Bac-T test on 9/28/16. Laterals installed on 9/29/16 and 10/5/16. Mainline charged on 10/17/16. Angle stop adjusted on 12/6/16. Meter and meter box placement on 1/5/17. Services adjusted to grade on 3/2/17. Meter installation on 5/3/17. Site coordination meeting on 7/26/17. Service placement on 9/6/17. Meter box placement on 2/9/18. Meters installed and locked off on 5/21/18, 6/28/18, 7/13/18, 8/8/18, and again on 10/10/18. Concrete pads placed on 10/24/18 and 10/25/18. Meters installed on 12/4/18, 1/7/19 and again on 1/29/19. (2/13/19)

## DEVELOPER PROJECT STATUS REPORT

PROJECT STATUS - DEVELOPER PROJECTS			
FILE NO.	PROJECT ADDRESS	PROJECT DESCRIPTION	PROJECT NOTES/STATUS
MC 2235	671 W 17th Street	177 Condos	Plans received and plan check fees paid on 1/21/16. Hydraulic model initiated 2/24/16. Second plan check submitted on 3/24/16 and picked up 4/17/16. Mylar drawings and fee payment received on 7/5/16. Permit issued on 7/11/16. Demolition of existing services on 8/16/16. Mainline installation on 12/6/16. Service laterals installed on 1/9/17. Pressure test on 2/6/17. Bac-t test on 2/15/17. Bedding and service line placement on 4/3/17. Meter box placement on 5/8/17. Follow-up site visit on 5/17/17. Service abandonment on 8/30/17. Valve cans raised on 9/22/17. Meter box placement on 10/19/17. Gravel base on 12/5/17. Meter box placement on 2/14/18. Meters installed and locked off on 6/1/18, 7/17/18, on 8/1/18, and again on 9/7/18. Backflow tested on 9/11/18. Meters installed and locked off on 9/18/18, 9/25/18, and again on 10/5/18. Backflow tested on 10/9/18. Meters installed and locked off on 11/27/18, 12/5/18, 12/18/18, 1/10/19 and again on 2/8/19. (2/13/19)
C003-16-01	788 Center Street	2 Single Family Homes	Plans received and plan check fees paid on 6/28/16. Plans returned on 7/14/16. Fees paid and permit issued on 1/6/17. Pre-con held on 1/16/18. Service installed on 3/8/18. Meters installed and locked on 3/13/18. Awaiting call for backflow testing to complete project. (2/13/19)
C0012-17-02	929 Baker Street	55 Detached Condos	Plans received and plan check fees paid on 9/27/16. Plans picked up on 10/18/16. Plans submitted on 2/22/17. Plans returned on 3/6/17. Fees paid and permit issued on 3/21/17. Precon held on 6/1/17. Services installed on 8/31/17. Mainline turned on 9/14/17. Meters installed and locked on 2/26/18. Awaiting call for backflow testing to complete project. Meters installed and locked on 8/6/18. Backflow tested on 8/24/18. Site check done on 9/25/18, homes are still under construction. Meters installed and locked off on 11/2/18. (2/13/19)
C0014-18-01	1585 MacArthur	Commercial Building	Plans received and plan check fees paid on 3/27/18. Comments returned on 4/5/18. Awaiting resubmittal. Plans approved, final fees paid and permit issued on 8/7/18. Construction inspections are currently in progress with mainlines being excavated on 8/29/18, 9/5/18, 9/6/18. Backflow for fireline installed on 9/12/18. Service abandonments completed on 10/16/18. (2/13/19)



## DEVELOPER PROJECT STATUS REPORT

PROJECT STATUS - DEVELOPER PROJECTS			
FILE NO.	PROJECT ADDRESS	PROJECT DESCRIPTION	PROJECT NOTES/STATUS
C0027-17-01	231 Flower Street	Meter Upgrade	Plans received and plan check fees paid on 3/23/17. Fees paid and permit issued on 4/21/17. Site visit on 10/30/17, and again on 5/30/18; no progress to report. Site visit on 8/20/18 and 9/25/18 with no activity. (2/13/19)
C0029-17-01	127 23rd Street	4 Single Family Homes	Plans received and plan check fees paid on 5/12/17. Fees paid and permit issued on 8/3/17. Awaiting call for initial inspections. Service installed on 2/8/18. Meters installed and locked on 2/15/18. Awaiting call for backflow testing to complete project. Spoke to property owner on 10/10/18, construction will be done by the end of 2018 to test flowthru system. (2/13/19)
C0035-18-01	146 18th Street	2 Single Family Homes	Plans received and plan check fees paid on 8/8/17. Fees paid and permit issued on 9/21/17. Meters installed and locked on 10/20/17. Site visit on 1/9/18; Awaiting call for backflow testing to complete project. (2/13/19)
C0037-18-01	2850 Mesa Verde Drive East	11 Single Family Homes	Plans received and plan check fees paid on 8/17/17. Fees paid and permit issued on 10/18/17. Manifold installation on 12/6/17. Meters installed on 12/29/17. Irrigation meter installed on 3/28/18. Backflow test on 4/18/18. Meters placed and locked on 5/31/18. Site visit done to verify progress on 8/20/18. Meters installed on 9/21/18. (2/13/19)
C0039-18-01	172/174 Costa Mesa Street	2 Single Family Homes	Plans received and plan check fees paid on 8/22/17. Fees paid and permit issued on 8/29/17. Precon meeting held on 2/6/19. Services installed on 2/8/19. (2/13/19)
C0041-18-01	160 & 162 E 18th Street	2 Single Family Homes	Plans received and plan check fees paid on 9/27/17. Fees paid and permit issued on 11/2/17. Meters installed and locked on 3/26/18. Meters installed and locked on 6/28/18. Backflow tested on 10/29/18. (2/13/19)
C0042-18-01	335 & 337 16th Place	2 Single Family Homes	Plans received and plan check fees paid on 10/26/17. Final fees paid on 8/8/18. Site visit on 8/20/18; contractor still grading the area. (2/13/19)
C0044-18-01	276 E 19th Street	Meter Upgrade	Plans received and plan check fees paid on 1/21/18. Awaiting final fee payment. (2/13/19)
C0047-18-01	3505 Cadillac Avenue	Commercial Building	Plans received and plan check fees paid on 1/22/18. Fees paid and permit issued on 4/10/18. Services placed on 5/2/18. Thrustblocks placed on 6/6/18. Pressure test performed on 7/9/18. Construction still in progress. (2/13/19)
C0048-18-01	235 Baker	Commercial Building	Plans received and plan check fees paid on 2/15/18. Fees paid and permit issued on 4/13/18. Site visit on 8/20/18 to verify work status; no construction. (2/13/19)

## DEVELOPER PROJECT STATUS REPORT

PROJECT STATUS - DEVELOPER PROJECTS			
FILE NO.	PROJECT ADDRESS	PROJECT DESCRIPTION	PROJECT NOTES/STATUS
C0049-18-01	428 E 17th Street	Restaurant	Plans received and plan check fees paid on 1/26/18. Fees paid and permit issued on 5/4/18. Pressure test on 5/25/18. Shutdown for tee cut-in on 6/5/18. One fire service is active, the other is stubbed to property. Awaiting call for fireline pressure test and samples. Water service manifold stubbed to property. Pressure test and Bac-T tests done on 9/7/18, 9/11/18 and again on 9/13/18. Pressure test performed on 10/22/18. (2/13/19)
C0051-18-01	1650 Monrovia	Senior Living Complex	Plans received and plan check fees paid on 2/15/18. Comments returned on 3/12/18. Revised submittal received on 4/24/18. Project to undergo hydraulic model analysis. Second plan check complete. Easements recorded on 8/14/18. Final fees paid on 8/23/18. Precon meeting held on 9/26/18. Fireline excavation and thrustblock placement on 11/27/18. Meters installed on 1/10/19. Health samples performed on 1/30/19 and 1/31/19. (2/13/19)
C0052-18-01	302 Cabrillo	2 Single Family Homes	Plans received and plan check fees paid on 2/26/18. Fees paid and permit issued on 5/7/18. Awaiting initial calls for inspections. (2/13/19)
C0053-18-01	1908 Tustin	Single Family Home	Plans received and plan check fees paid on 3/8/18. Fees paid and permit issued on 3/13/18. Awaiting initial calls for inspections. (2/13/19)
C0054-18-01	3505 Cadillac Avenue, Unit O-101	Commercial Building	Plans received and plan check fees paid on 5/7/18. Fees paid and permit issued on 5/22/18. Tapping sleeve, and hot tapping done on 5/2/18. Thrustblock placement inspections on 5/2/18, 6/6/18, and 7/9/18. Pressure test done on 7/9/18. Fireline turned on 9/12/18. (2/13/19)
C0056-18-01	2033 Republic Avenue	Single Family Home Service & Meter Upgrade	Plans received and plan check fees paid on 6/19/18. Comments returned for second plan check review on 7/26/18. Awaiting owners next submittal. (2/13/19)
C0058-18-01	585 & 595 Anton Boulevard	Apartment Complex	Plans received and plan check fees paid on 6/8/18. Currently in plan check. Meeting scheduled with owner on 9/12/18 to go over questions they have. Plans approved to perform demolition for grading only at this time; construction plans are being reviewed. Operations is currently working on practice shutdowns for service connection tie-in. Precon with contractor held on 1/22/19. (2/13/19)

## DEVELOPER PROJECT STATUS REPORT

PROJECT STATUS - DEVELOPER PROJECTS			
FILE NO.	PROJECT ADDRESS	PROJECT DESCRIPTION	PROJECT NOTES/STATUS
C0060-19-01	3505 Cadillac Avenue, Unit F-9	Commercial Building New Fire Line	Plans received and plan check fees paid on 7/23/18. Permit issued for major service line and fire systems infrastructure. Final permit will be reviewed when tenant improvements are submitted. Fireline excavation and thrustblock placement on 12/10/18 and 12/14/18. (2/13/19)
C0061-19-01	3033 Bristol Street, Space 2071	Restaurant Expansion	Plans received and plan check fees paid on 8/16/18. Awaiting final payment of fees. (2/13/19)
C0062-19-01	1591 & 1593 Riverside	Two Single Family Homes	Plans received and plan check fees paid on 12/14/18. Final fees paid on 2/6/19. (2/13/19)
C0063-19-01	1375 Sunflower	Commercial Building	Plans received and plan check fees paid on 12/14/18. Currently in third plan check. (2/13/19)
C0064-19-01	1975, 1977, 1981, 1985 Placentia Avenue	Commercial Building	Plans received and plan check fees paid on 11/6/18. Currently in plan check. Final plan check fees paid on 1/15/19. (2/13/19)
C0065-19-01	245 Knox Rd	Single Family Home	Plans received and plan check fees paid on 11/7/18. Final fees paid on 2/5/19. Precon meeting held on 2/8/19. (2/13/19)
C0065-19-02	1545 Westminster	Single Family Home	Plans received and plan check fees paid on 11/7/18. Final fees paid on 2/5/19. Precon meeting held on 2/8/19. (2/13/19)
C0066-19-01	2062 Pomona	Single Family Home	Plans received and plan check fees paid on 11/29/18. Final fees paid on 1/22/19. Precon held on 2/5/19. Placement of services done on 2/11/19. (2/13/19)
C0067-19-01	3505 Cadillac Avenue, Suite A	Commercial Building New Fire Line	Plans received and plan check fees paid on 12/14/18. Plans picked up on 12/20/18. Second plan check submitted 1/9/19, and picked up again on 1/15/19. Third plan check submitted on 1/25/19. Final permit fees paid on 2/7/19. (2/13/19)
C0069-19-01	767 W 17th Street	Meter Upgrade	Plans received and plan check fees paid on 1/7/19. Currently in second plan check. (2/13/19)
C0070-19-01	3333 Bristol Street Space 3001	Commercial Building	Plans received and plan check fees paid on 1/3/19. Currently in second plan check. (2/13/19)
C0071-19-01	2277 Harbor Boulevard	Commercial Building	Plans received and plan check fees paid on 1/7/19. Currently in second plan check. (2/13/19)
C0072-19-01	168 & 170 Cabrillo	Two Single Family Homes	Plans received and plan check fees paid on 1/14/19. Currently in first plan check. (2/13/19)
C0073-19-01	55 Fair Drive	Vanguard University Student Center	Plans received and plan check fees paid on 1/14/19. Awaiting final payment of fees. (2/13/19)
C0074-19-01	2538 Oxford Lane	Single Family Home	Plans received and plan check fees paid on 11/14/18. Customer picked up redlines on 1/31/19. Second plan check submitted on 2/1/19, and redlines picked up on 2/5/19. (2/13/19)

## DEVELOPER PROJECT STATUS REPORT

PROJECT STATUS - DEVELOPER PROJECTS			
FILE NO.	PROJECT ADDRESS	PROJECT DESCRIPTION	PROJECT NOTES/STATUS
C0075-19-01	2942 Century Place	Commercial Building	Plans received and plan check fees paid on 1/23/19. Awaiting final payment of fees. (2/13/19)
C0076-19-01	2948 Randolph	Commercial Building	Plans received and plan check fees paid on 1/23/19. Currently in second plan check. (2/13/19)
C0077-19-01	1922 Pomona	Commercial Building	Plans received and plan check fees paid on 1/28/19. Customer picked up redlines on 2/1/19. Second plan check submitted on 2/5/19, and redlines picked up again on 2/12/19. (2/13/19)
C0078-19-01	35025 Cadillac Avenue, F-5	Commercial Building New Fire Line	Plans received and plan check fees paid on 1/31/19. Customer picked up redlines on 2/5/19. Currently in second plan check. (2/13/19)
C0079-19-01	1957 Newport Boulevard	Meter Upgrade	Plans received and plan check fees paid on 2/5/19. Currently in first plan check. (2/13/19)
C0080-19-01	246 Tulane Road	Meter Upgrade	Plans received and plan check fees paid on 2/6/19. Customer picked up redlines on 2/12/19. (2/13/19)
C0081-19-01	2060 Maple Avenue	Single Family Home	Plans received and plan check fees paid on 11/22/18. Owner put plans on hold and resubmitted on 2/5/19. Customer picked up redlines on 2/12/19. (2/13/19)
C0058-19-01	585 & 595 Anton Boulevard (P2)	Apartment Complex	Plans received and plan check fees paid on 2/5/19. Currently in first plan check. (2/13/19)

## MESA WATER AND OTHER AGENCY PROJECTS STATUS REPORT

February 2019

**Project Title:** OC-44 Replacement and Rehabilitation Evaluation and Cathodic Protection Study

**File No.:** M 2034

**Description:** Evaluate potential repair and replacement options

**Status:** The Habitat Mitigation and Monitoring Plan (HMMP) has been updated by Michael Baker (former RBF) to reflect the USACE's process and submitted to Mesa Water for review on 1/8/16. Once the HMMP is revised and approved (1/19/16) it will be forwarded to all agencies, including the Coastal Commission. Draft 1602 Streambed Permit obtained on 12/18/15. Final 1602 Streambed Permit pending CDFW will be issued while HMMP is accepted. U.S. Army Corps of Engineers' 404 permit received on 2/10/16. Revised HMMP sent to CCC for review and approval. Project is pending CCC's approval at an upcoming hearing. On 2/29/16, a meeting with Fletcher Jones Motorcars, City of Newport Beach, MBI (former RBF), and City of Huntington Beach was held to discuss issues associated with proposed construction activities. Traffic Plan prepared and submitted to the City of Newport Beach for approval on 6/29/16. Per request of CCC a dewatering plan was prepared and submitted for approval. Mesa Water staff, MBI and CCC met on 10/6/16 and discussed mitigation conditions. Project approved at CCC Public Hearing on 12/7/16. MBI is working on finalizing the HMMP and construction plans and will submit them to CCC. Staff met with MBI on 5/1/17 and discussed comments after reviewing the draft final HMMP. New proposed mitigation criteria received from CCC on 7/5/17 reducing mitigation requirements from 1.6 acres to 0.66 acres. Coastal Development Permit for Construction is anticipated in December, 2017. The project re-start meeting was held on 9/7/17. On 10/30/17 met with City of Newport Beach and City of HB to discuss permit requirements and project access. Met w/Fletcher Jones, Skender Construction, City of HB, MBI to discuss access to the site and scheduling on November 21, 2017. Reviewing the 100% Design Plans & Specs (received on 11/28/17) along with the Pipeline Design Schedule, Construction Monitoring Treatment Plan (CMTP), and proposal for Natural Resources/Regulatory Services during construction activities. Bid solicitation is scheduled for late January 2018. Project sent out to bid on January 30, 2018. Pre-bid meeting held on 2/15/18. Construction bid solicitation was cancelled due to ongoing coordination issues for the final Coastal Development permit. Project was deferred to FY20. On 8/1/18, Orange County Public Works issued a one-year extension to the previously issued Encroachment Permit. The Caltrans Encroachment Permit extension application is under review as of 8/13/18. The CCC extended the permit a year without hearing. MBI moved forward with the amendment to reduce mitigation. The updated information was forwarded by MBI to CCC in the week of August 6, 2018 and November 2, 2018. Staff held a stakeholder coordination meeting on 1/3/2019. Request for Bids sent out to contractors on February 6, 2019. (2/7/19)

**MESA WATER AND OTHER AGENCY PROJECTS STATUS REPORT**  
**February 2019**

**Project Title:** Well Automation and Rehabilitation

**File No.:** MC 2101

**Description:** Rehabilitate all clear water wells and add remote control SCADA capabilities

**Status:** Construction activities began at Well 5 on October 3, 2016 with demolition and well rehabilitation beginning in the first week. Video of Well 5 showed scale on the louvers, and potential failure of an unused sounding tube and a small area of the louvers potentially requiring swage patches. Repair completed on November 29, 2016. Well 5 rehabilitation resumed on December 3, 2016. Well 5 chemical facility pad has been constructed and is awaiting a weather forecast of 8 days with no predicted rain to apply the chemical-resistant coatings to the concrete. Well 5 pumping development began on January 4, 2017, and produced fine sand at pumping rates above 1100 gpm. Repairs were made to Well 5, and test pumping performed in February showed acceptable well production over 2500 gpm with manageable sand. Construction is substantially complete at the Well 5 site. A start up planning meeting was held on March 29, 2017. Well 5 is running as needed and producing good quality water. Well 7 rehabilitation is complete, The Well 7 pump was installed the week of August 28, 2017, and Well 7 is operational and good quality water. Construction of the Well 3 chemical facilities was begun in July 2017. The concrete for the Well 3 chemical facilities is cured and coated, and the chemical tanks and canopy are currently being installed. Well 3 rehabilitation is complete and test pumping achieved over 1600 gpm. Construction at Well 9 began in October with relocation of the backup generator and chemical facilities construction. Coating of the Well 9 chemical facilities was completed in December, and the chemical tanks and canopy are installed. Witness testing for the new pumps for Wells 3 and 9 was completed January 2018, and pumps were installed the week of June 4. Construction at Well 3 and Well 9 is substantially complete. Flushing and chlorination of Well 3 and Well 9 were conducted during in July 2018. Well 3 initial startup was on July 17, 2018. Well 9 initial startup was on July 30, 2018. Well 3 and Well 9 have completed their seven-day tests. Work at Well 1 began on August 13, 2018. Well 1 site demolition is complete. The video of Well 1 showed a biofilm. Well 1 has received brushing and airlifting of fill material, as well as acid and chlorine treatment in October 2018. Pumping redevelopment produced 2,300 gallons per minute. The Well 1 chemical facilities are constructed and the chemical tanks are set. The prefabricated electrical building was delivered and set on December 10, 2018, and the Well pump was installed on December 11, 2018. Construction is continuing through January 2019, and startup of Well 1 is expected on February 20, 2019. (2/7/19)

## MESA WATER AND OTHER AGENCY PROJECTS STATUS REPORT

February 2019

**Project Title:** Pipeline Testing Program

**File No.:** MC 2141

**Description:** Implement Resolution No. 1442 Replacement of Assets to annually perform non-destructive testing of 1% of the distribution system, and destructive testing of segments that are shown to have less than 70% of original wall thickness by non-destructive testing.

**Status:** Extraction of six sections of ACP and two sections of CIP are in process for 2017 destructive testing. ACP samples were sent to WSP Canada for destructive testing. Results were received on August 1, 2017. CIP samples will be sent to McWane Ductile's lab in Ohio for destructive testing. Results were received on June 30, 2017. A Request for Qualifications for consulting services for the Pipeline Integrity Testing Program was released in May 2017. Four Statements of Qualifications were received and a recommendation for contract award to HDR was approved by the E&O Committee on July 20, 2017. ACP test results were received on July 31, 2017. Results have been analyzed, and were presented at the November Committee meeting. Average ACP total useful life is expected to be approximately 142 years. A process for determining when a pipeline has reached the end of its useful life and how much of the pipeline to replace was implemented. One 8" ACP line in Harbor Boulevard from Wilson to 19<sup>th</sup> Street was recommended for replacement. Kickoff meeting for a close interval survey of the 12" Cast Iron Pipe in 19<sup>th</sup> Street was held on December 28, 2017, and the Consultant has completed the field work. The report is expected in April 2018. Operations staff has collected four ACP pipe samples during valve replacement projects, and one during an AC mainline repair. The samples have been sent to a laboratory for remaining wall thickness measurements, and the reports show that while they have lost structural thickness, the remaining useful life is still 35 - 53 years. The mainline break sample showed the smallest remaining useful life and shortest total useful life of any AC sample. Additional AC pipe samples from valve replacements are being collected. Echologics performed three miles of non-destructive wall thickness measurements during the week of February 12, 2018. A report of the results was received in March 2018. All non-destructive and destructive test data were added to GIS in April and May 2018. The mainline break map in GIS is currently being updated. A comprehensive review of cathodic protection test stations was performed in April and May 2018. The report and recommendations was received on June 20, 2018, and recommendations are being reviewed. Five AC pipe samples and nine soil samples collected during valve replacements in 2018 were delivered by the contractor and sent to labs for pipe wall thickness measurements and soil corrosivity analysis. Results show that the expected total useful life of AC pipe is approximately 138 years. Two AC pipe samples were collected during valve replacements in November 2018 and sent to the lab for wall thickness measurements. Results were received on January 10, 2019. One sample is being further analyzed. Three miles of AC pipe constructed in 1956 were selected for non-destructive wall thickness measurement, which occurred during the week of January 14, 2019. The report was received on February 8, 2019. (2/9/19)

## MESA WATER AND OTHER AGENCY PROJECTS STATUS REPORT

February 2019

**Project Title:** Mesa Water Administration Building Improvements & HVAC Replacement/Operation Building Repair Projects

**File No.:** MC 2171

**Description:** Evaluate the existing HVAC system, provide recommendations for improved efficiency and operations of the system, provide design, construction management, and construction.

**Status:** Request for proposals for providing Construction Management during construction was sent out to nine consultants on 8/15/18. Three proposals received on 8/28/18. Held interviews with all three proposers on 9/4/18. Jett Construction Management's (JCM) approach appeared to be the most comprehensive given their proposed project staff and HVAC and roof construction experience. Bid set documents for construction have been finalized and sent out to bid on 9/6/18. Three bids were received on 10/4/18. The lowest responsive bid was approximately \$1M over the Engineer's Estimate. On 10/22/18 Board cancelled the bid and authorized staff to negotiate with lowest bidder. On 10/26/18 RFB for Operations Building Repair Project sent out to bid with the bid opening date 11/5/18. On 11/5/18 staff finalized negotiations with the low bidder (Snyder Langston). On 11/8/18 the Board approved the Administration Building Improvements & HVAC Replacement/Operations Building Repair Projects with Snyder Langston. The contracts with Snyder were signed on 11/13/18 and Notices for Proceed issued on 12/6/18. On 2/11/19 Snyder completed painting, carpeting and concrete floor polishing, installation of interior portion of the HVAC system, ceiling tiles and baseboards, rehabilitation of the upstairs and downstairs restrooms, overall cleaning. Also the furniture in supervisors and water quality office were reassembled. The Administration Staff started moving to the temporary office trailer. The contractor continued working on the roof of the Operations Building on installation of ducts and preparing for the upcoming rain. Project in progress. (2/7/19)

**Project Title:** Chandler & Croddy Wells and Pipeline Project

**File No.:** M18-113

**Description:** Design, documentation, and permitting for two new wells located on Chandler Avenue and Croddy Way in the City of Santa Ana and the distribution pipeline connecting the wells to Mesa Water's supply system.

**Status:** Tetra Tech has been contracted to complete the design, documentation, and permitting for the Chandler and Croddy Wells and Pipeline Project. Initial data request sent to Tetra Tech on September 7, 2017. Met with Division of Drinking Water regarding well locations on September 20, 2017. Preliminary hydrological evaluation received on September 29, 2017. Board approved demolition of existing structures and dedicated well facility with option to evaluate long-term lease potential as market conditions dictate at both sites at November 2017 E&O. Butier Engineering has been contracted to provide Construction Management Services. Preliminary Design Report (PDR) for the distribution pipeline was reviewed and returned on March 6, 2018. Well site layouts were presented to the Board in May. DDW waiver for 50-foot control zone is currently being drafted. The revised PDR for the pipeline and the well sites was



## MESA WATER AND OTHER AGENCY PROJECTS STATUS REPORT

February 2019

received in June 2018. A workshop to discuss review comments was held on August 14, 2018. 50% design for the Croddy Pipeline was received and the design review workshop occurred on November 26, 2018. 50% design for the wells is scheduled for submittal in February 2019. The draft CEQA Mitigated Negative Declaration was received on January 22, 2019.(2/7/19)

**Project Title:** Santa Ana Pressure Reducing Station Refurbishment Project

**File No.:** M17-002A

**Description:** The work will involve replacement of three (3) butterfly valves, one (1) existing pressure relief valve, precast concrete discharge structure, reconfiguring four (4) Cla-Val control valves, general refurbishments to the vault interior, and site work.

**Status:** Mesa Water has contracted with Michael Baker International to perform the design of the project. The design was completed in late January 2018 and the bid package was sent out to bid on February 8, 2018. Pre-bid meetings and site walk were held on 2/20/18 and 3/6/18, respectively. Three bids were received on March 13, 2018. Staff has recommended that the construction contract be awarded to J.R. Filanc, Inc., as the lowest bidder. E&O Committee recommended awarding contract to J.R. Filanc, Inc. on March 20, 2018 and Board approved it on April 12, 2018. The contract was finalized (5/1/18) and signed on 5/3/18. The kick-off meeting was held on May 21, 2018. Electrical work was completed the week of 10/15/18. Concrete work completed in the week of 11/12/18. Pipeline shutdown took place between 11/26/18 and 12/1/18. Final testing and acceptance completed on February 6, 2019. The contractor is working on providing replacement actuators for the existing plug valves and on refurbishment of the 6"bypass cla-valve. Project in progress. (2/7/19)

**Project Title:** Meter Technology Evaluation

**File No.:** MC 2248

**Description:** The lifespan of a water meter is approximately 15 years. As a meter ages, the accuracy drops off due to wear. In preparation for its annual water meter replacement, staff has been reviewing water meter technology determining what water meter and reading solutions would be the best fit for Mesa Water's aging register technology. With today's technology, there are several types of meters and meter reading solutions available. The most common are as follows: Fixed Network, Automatic Meter Reading (AMR) System, Handheld or Touch Technology, and Advanced Metering Analytics - Cellular Endpoint.

**Status:** Mesa Water is preparing a Technical Memo which would include information of the existing aging metering technology in comparison with proposed new meter reading solutions. Draft technical memo has been completed and is being reviewed by Mesa Water staff. (2/7/19)

**Project Title:** Reservoirs 1 & 2 Chemical Systems Design

**File No.:** M18-117

**Description:** Improve disinfection and mixing in both reservoirs to improve water quality and minimize nitrification.

**MESA WATER AND OTHER AGENCY PROJECTS STATUS REPORT**  
**February 2019**

**Status:** Final Design Contract awarded to Hazen & Sawyer on February 14, 2018. 50% design report received on July 17, 2018. Design review workshop took place in September 2018. A site visit to Laguna Beach County's El Morro reservoirs occurred on November 8, 2018, to evaluate the Vortex mixing system. Staff met with the designer on December 5, 2018, to incorporate design-for-reliability and design-for-maintainability principals into the mixing system design. This work is in progress.  
(2/7/19)

# Water Quality Call Report

## January 2019

**Date:** 1/3/2019  
**Source:** Front counter  
**Address:** 2192 Bayfield  
**Description:** Customer brought in a sample of water softening beads found in his plumbing fixtures  
**Outcome:** Explained to customer that the water softening beads were likely from his water softening system and recommended he have a plumber check his treatment system and flush the lines in his home.

**Date:** 1/11/2019  
**Source:** Phone/Visit  
**Address:** 2015 Irvine  
**Description:** Customer has noticed metal taste and smell in the water since they moved in 2 months ago. His house was totally remodeled.  
**Outcome:** Met with customer and sampled at the hose bib closest to the meter as well as the water from the kitchen faucet. Both water samples were checked by field staff and no unusual odor or metal taste was noticed. Customer may be sensitive and notice metal from the new plumbing. Customer will call back if taste/odor does not go away.

**Date:** 1/21/2019  
**Source:** Email/Visit  
**Address:** 324 Victoria St.  
**Description:** Apartment manager reported two tenants' concern regarding strange taste and odor coming from the shower.  
**Outcome:** Apartment complex is located at the end of service lateral off of Victoria into the complex and low usage may have contributed to taste and odor. The fire hydrant was flushed to draw in fresh water. The manager was satisfied.

**Date:** 1/28/2019

**Source:** Phone/Visit

**Address:** 1026 Damascus

**Description:** Customer has been noticing sewer odor when turning on the water in the morning.

**Outcome:** Customer was not home during site visit but water was checked at the outside hose bib. No odor was detected and chlorine residual, temperature, and pH were within normal range. Called customer and explained that the water entering the home had no odor and discussed the possibility of p-trap off gassing. Customer will call if she has further questions or concerns.



## COMMITTEE POLICY & RESOLUTION REVIEW

### ENGINEERING & OPERATIONS COMMITTEE

#### Policy Assignments for 2019

Policy Name	Resolution No.	Date Adopted	Revision Schedule	Last Reviewed
Replacement of Assets Including Pipeline and Well Rehabilitation	1442	03/15/14	Review and update every 3 – 5 years	03/15/14
Rules and Regulations for Water Service	1514	07/12/18	Review and update as needed	07/12/18
Standard Specifications and Standard Drawings		05/03/18	Review and update as needed	05/03/18
Urban Water Management Plan	1477	06/09/16	Review and update as required every 5 years	06/09/16

Water Operations Status Report  
July 1, 2018 - January 31, 2019

Operations Department Status Report	Wk Unit	Plan Days	Act Days	Plan Qty	Act Qty	Plan Cost	Actual Cost
<b>01 - HYDRANTS</b>							
WD-0101 - HYDRANT MAINTENANCE	HYDRANTS	98	60	1962	1114	\$39,643	\$21,881
WD-0102 - HYDRANT PAINTING	HYDRANTS	8	0	245	0	\$3,275	\$0
WD-0103 - HYDRANT REPAIR	HYDRANTS	31	14	36	12	\$9,965	\$5,118
<b>Program 01 TOTAL</b>		137	74			\$52,883	\$26,999
<b>02 - VALVES</b>							
WD-0201 - DISTRIBUTION VALVE MAINTENANCE	VALVES	70	67	1395	1275	\$28,661	\$25,748
WD-0202 - NIGHT VALVE MAINTENANCE	VALVES	7	0	82	0	\$2,985	\$0
<b>Program 02 TOTAL</b>		77	67			\$31,646	\$25,748
<b>03 - METERS</b>							
WD-0301 - NEW METER INSTALLATION	METERS	14	14	108	147	\$35,309	\$67,658
WD-0302 - RAISE REPLACE METER BOX	BOXES	7	4	33	7	\$5,535	\$1,437
WD-0303 - METER LEAK INVESTIGATION/REPAIR	INV/REP	24	21	182	153	\$6,742	\$9,855
WD-0305 - ANGLE STOP/BALL VALVE REPLACE	REPLACE	42	48	83	95	\$24,565	\$17,929
WD-0306 - LARGE METER TEST/REPAIR - C	TESTS	14	4	68	11	\$5,641	\$1,373
<b>Program 03 TOTAL</b>		101	91			\$77,792	\$98,252
<b>04 - MAIN LINES</b>							
WD-0401 - MAIN LINE REPAIR	REPAIRS	70	19	12	5	\$31,763	\$8,224
WD-0402 - AIR VAC MAINTENANCE/REPAIR	REPAIRS	15	1	92	2	\$5,810	\$218
WD-0403 - UNIDIRECTIONAL FLUSHING	FEET	0	0	215514	0	\$0	\$0
<b>Program 04 TOTAL</b>		85	20			\$37,573	\$8,442
<b>05 - SERVICE LINES</b>							
WD-0501 - SERVICE LINE REPAIR	REPAIRS	33	35	12	20	\$13,278	\$14,057
<b>Program 05 TOTAL</b>		33	35			\$13,278	\$14,057
<b>06 - CAPITAL</b>							
CAP AV - CAPITAL AIR VACUUM REPLACE	AIR VACS	30	0	5	0	\$12,239	\$0
CAP BI - CAPITAL BYPASS & METER INSTALL	REPLACE	12	1	1	1	\$6,388	\$253
CAP FH - CAPITAL HYDRANT UPGRADE	HYDRANTS	79	71	12	11	\$63,581	\$51,064
CAP LM - CAPITAL LARGE METERS	METERS	35	23	83	73	\$96,686	\$41,263
CAP MV - CAPITAL MAINLINE VALVE REPLACE	VALVES	66	65	12	13	\$49,095	\$32,144
CAP SL - CAPITAL SERVICE LINE REPLACE	SERVICES	22	21	6	4	\$10,936	\$8,098
CAP SM - CAPITAL SMALL METERS	METERS	67	81	846	913	\$80,788	\$107,399
CAP SS - CAPITAL SAMPLE STATION REPLACE	STATIONS	5	13	5	5	\$2,108	\$4,548
<b>Program 06 TOTAL</b>		316	275			\$321,821	\$244,769
<b>TOTAL</b>						\$534,993	\$418,267

**REPORTS:**

6. REPORT OF THE GENERAL MANAGER

**REPORTS:**

7. DIRECTORS' REPORTS AND COMMENTS





*Dedicated to  
Satisfying our Community's  
Water Needs*

## MEMORANDUM

TO: Engineering and Operations Committee  
FROM: Phil Lauri, P.E., Assistant General Manager  
DATE: February 19, 2019  
SUBJECT: Chandler & Croddy Wells and Pipeline Project

---

### RECOMMENDATION

This item is presented for information only.

### STRATEGIC PLAN

Goal #1: Provide a safe, abundant, and reliable water supply.

Goal #2: Practice perpetual infrastructure renewal and improvement.

### PRIOR BOARD ACTION/DISCUSSION

At its August 10, 2017 meeting, the Board of Directors (Board) awarded a contract to Tetra Tech, Inc. (TetraTech) for \$920,000 and a 10% contingency for a not to exceed amount of \$1,012,000 to provide professional engineering design and permitting services for the West Chandler Avenue Well, the South Croddy Way Well, and the Pipeline Project.

At its September 19, 2017 meeting, the Engineering and Operations (E&O) Committee received information that a Request for Proposals for Construction Management Services was being solicited.

At its December 14, 2017 meeting, the Board authorized staff to proceed with Layout Scenario No. 3 Well Site Design.

At its February 8, 2018 meeting, the Board awarded a contract with Butier Engineering, Inc. in the amount of \$972,480 and a 10% contingency for a not-to-exceed amount of \$1,069,728, to provide professional Construction Management Services for the Chandler & Croddy Wells and Pipeline Project.

At its October 9, 2018 Board workshop, the Board received a presentation regarding the design of the Chandler & Croddy Wells and Pipeline Project.

At its January 15, 2019 meeting, the E&O Committee received an update on the Chandler & Croddy Wells and Pipeline Project and information on the preparation of the Mitigated Negative Declaration in compliance with the California Environmental Quality Act (CEQA).

### BACKGROUND

As part of the 2014 Master Plan, the Board adopted a policy for Mesa Water District's (Mesa Water®) local water supply reliability to be at least 115% of water demand. This requirement will provide Mesa Water with the additional assurance to meet its demands with local groundwater supplies during peak demand periods and when water production facilities are undergoing routine maintenance.



Mesa Water has purchased a lot at 4011 West Chandler Avenue and an additional property at 3120 South Croddy Way in the City of Santa Ana.

DISCUSSION

Following initial review of the proposed project, it was determined that the Chandler & Croddy Wells and Pipeline Project is subject to the guidelines and regulations of CEQA.

A Mitigated Negative Declaration (MND) was prepared by TetraTech for the project in accordance with CEQA Guidelines Section 15071, including:

- (a) A brief description of the project, including a commonly used name for the project, if any;
- (b) The location of the project, preferably shown on a map, and the name of the project proponent;
- (c) A proposed finding that the project will not have a significant effect on the environment;
- (d) An attached copy of the Initial Study documenting reasons to support the finding; and
- (e) Mitigation measures, if any, included in the project to avoid potentially significant effects.

In the Draft MND, all of the potential impacts were found to be Less than Significant, or Less than Significant with Mitigation Incorporated.

The Draft MND will be made available for public comment by way of distribution to the State Clearinghouse, County Clerk, and through notice to the public consistent with the CEQA Guidelines. Such actions will start the 30-day public review and comment period, during which Mesa Water will receive comments on the Draft MND. Thereafter, Mesa Water will respond to those comments received, with written comments sent to any public agencies submitting comments at least 10 days before Mesa Water takes action on the Project. The Board will thereafter consider approval of the Draft MND, along with all comments and responses; and if so approved, consider the Final MND in conjunction with a decision on whether to approve the Project and make certain other findings required by CEQA.

FINANCIAL IMPACT

In Fiscal Year 2019, \$625,000 is budgeted for the Chandler & Croddy Wells and Pipeline Project Design.

	<u>Project Estimate Amounts</u>	<u>Project Cost Amounts</u>
Initial Project Estimate (FY 2017)	\$ 920,000	
Original Contracts		\$ 920,000
Change orders		\$ 0
Requested funding		<u>\$ 0</u>
Revised Contracts		<u>\$ N/A</u>
Actual spent to date		\$ 522,808
Revised Project Estimate	\$ 920,000	



ATTACHMENTS

Attachment A: Mesa Water District Wells 12 & 14 and Pipeline Project Initial Study/Mitigated  
Negative Declaration

# Mesa Water District Wells No. 12 and No. 14 and Pipeline Project

**DRAFT**

## **Initial Study/Mitigated Negative Declaration**

**Prepared For:**

**Mesa Water District**  
1965 Placentia Avenue  
Costa Mesa, California 92627  
**Contact: Karyn Igar, P.E., Project Manager**  
949.207.5452

**Prepared by:**

**Tetra Tech, Inc.**  
17885 Von Karman Ave. Suite 500  
Irvine, CA 92614-6213  
**Contact: Derrick Coleman, Ph.D.**  
**Environmental Task Manager**  
949.809.5039

**February 2019**

# WELLS NO. 12 AND NO. 14 AND PIPELINE PROJECT

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## PROPOSED MITIGATED NEGATIVE DECLARATION (MND) AND NOTICE OF INTENT TO ADOPT THE PROPOSED MND

This serves as the Mesa Water District's Notice of Intent to adopt a Mitigated Negative Declaration for the Wells No. 12 and No. 14 and Pipeline Project, prepared in accordance with the California Environmental Quality Act (CEQA) and CEQA Guidelines.

**Name of Project:** Wells No. 12 and No. 14 and Pipeline Project

**Project Location:** The proposed Mesa Water District Wells No. 12 and No. 14 and Pipeline Project ("Project") site is located in the City of Santa Ana, in the central portion of Orange County (County), within Section 28 of Township 5 South, Range 10 West, on the Newport Beach, California, U.S. Geological Survey 7.5-minute Quadrangle Map (2015). Well No. 12 is located at 4011 W. Chandler Avenue. Well No. 14 is located at 3120 S. Croddy Way. The proposed pipeline will connect the two wells to the Mesa Water District's distribution system traversing Chandler Avenue to Croddy Way to W. MacArthur Boulevard to Hyland Avenue.

**Lead Agency:** Mesa Water District  
1965 Placentia Avenue  
Costa Mesa, California 92627

**Project  
Description:**

Mesa Water District is proposing to construct two new potable water wells on approximately 0.89 acre of land located in the City of Santa Ana, California. Mesa Water District provides potable water for a population of approximately 110,000 within an 18-square mile service area which includes the City of Costa Mesa, portions of the City of Newport Beach, and portions of unincorporated Orange County. Mesa Water District distributes a combination of imported water and local groundwater and maintains five clear water wells, two tinted water wells which is treated by the Mesa Water Reliability Facility to remove color, and two reservoirs with a combined capacity of 28 million gallons. In 2014, Mesa Water District Board of Directors adopted a policy for local water reliability to be 115 percent of demand. This policy provides Mesa Water District with additional assurance to meet peak water demands with local groundwater supplies when other water production facilities undergo routine maintenance.

In order to provide additional local water reliability, Mesa Water District purchased two properties within the City of Santa Ana to be used as groundwater well sites. Proposed Well No. 12 and associated structures and equipment would be constructed within a 0.43-acre site. Proposed Well No. 14 and associated structures and equipment would be constructed within a 0.46-acre site. Each well site will include a well building, electrical building, SCE transformer, chemical storage area, emergency backup generator, and a well water waste air gap.

Both wells are located outside of Mesa Water District's service area and will require the construction of approximately 4,500 feet of pipeline to connect the proposed wells to Mesa Water District's existing system. Construction is anticipated to begin in the third quarter of 2020 fiscal year and last approximately 20 months. Once

operational, Wells No. 12 and No. 14 can potentially provide an additional 6 to 8 million gallons per day of safe and reliable drinking water.

The Project site is not designated a hazardous waste property, or a hazardous waste disposal site as enumerated under Section 65962.5 of the California Government Code.

**NOTICE IS HEREBY GIVEN THAT** Mesa Water District proposes to adopt a Mitigated Negative Declaration for the above-cited Project. Such Mitigated Negative Declaration is based on the finding that, by implementing the identified mitigation measures, the Project's potential impacts will be maintained at a less than significant level. The reasons to support such a finding are documented by the Initial Study prepared by Mesa Water District. Copies of the Initial Study, the proposed Mitigated Negative Declaration and supporting materials are available for review at Mesa Water District headquarters located at 1965 Placentia Avenue, Costa Mesa, CA 92627.

For questions regarding the Mitigated Negative Declaration, please contact:

<b>NAME:</b>	Karyn Igar, P.E.	<b>PHONE:</b>	949.631.1200
<b>TITLE:</b>	Senior Civil Engineer	<b>EMAIL:</b>	<a href="mailto:karyni@mesawater.org">karyni@mesawater.org</a>
<b>ADDRESS:</b>	Mesa Water District 1965 Placentia Avenue Costa Mesa, CA 92627		

**Public Review Period:** 30 days      **Begins:** February 20, 2019    **Ends:** March 22, 2019

**Public Hearing:** Consideration of adoption of the Mitigated Negative Declaration via public hearing by Mesa Water District is scheduled to take place on April 11, 2019 at 6:00 p.m. at Mesa Water District headquarters located at 1965 Placentia Avenue, Costa Mesa, CA 92627.

In accordance with CEQA Guidelines, any comments concerning the findings of the proposed Initial Study/Mitigated Negative Declaration must be submitted in writing and **received by Mesa Water District no later than 5:00 p.m. on March 22, 2019**, in order to be considered prior to Mesa Water District's final determination on the Project. Please submit your written comments to Karyn Igar, P.E. ([karyni@mesawater.org](mailto:karyni@mesawater.org)), Mesa Water District, 1965 Placentia Avenue, Costa Mesa, CA 92627.

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**Appendices**

Appendix A Air Quality and Greenhouse Gas Technical Report  
Appendix B Cultural Resources



## ABBREVIATIONS AND ACRONYMS

A	ampere
AB	Assembly Bill
APE	area of potential effect
AQMP	Air Quality Management Plan
bgs	below ground surface
BMP	Best Management Practices
CalEEMod	California Emissions Estimator Model®
CEQA	California Environmental Quality Act
City	Santa Ana City
CMU	concrete masonry unit
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO <sub>2</sub> e	carbon dioxide equivalent
County	Orange County
CRHR	California Register of Historical Resources
dBA	A-weighted sound level
EIR	Environmental Impact Report
GHG	greenhouse gas
HVAC	heating, ventilation, and air conditioning
L <sub>eq</sub>	equivalent continuous sound level
LST	localized significance threshold
MLD	Most Likely Descendant
NAHC	Native American Heritage Commission
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O <sub>3</sub>	ozone
OCFA	Orange County Fire Authority
PM	particulate matter
PM <sub>10</sub>	particulate matter 10 micrometers or less in diameter
PM <sub>2.5</sub>	particulate matter 2.5 micrometers or less in diameter
PRC	Public Resources Code
PVC	polyvinyl chloride

ROG	reactive organic compound
SCAB	South Coast Air Basin
SCADA	supervisory control and data acquisition
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SO <sub>2</sub>	sulfur dioxide
VdB	vibration decibel
V	volt

## 1.0 INTRODUCTION

Mesa Water District is proposing to develop and install two new potable water wells and connecting pipeline at 4011 W. Chandler Avenue (Well No. 12) and 3120 S. Croddy Way (Well No. 14) in the City of Santa Ana, California. Mesa Water District Water Wells No. 12 and No. 14 and Pipeline Project (herein referenced as “Project”) is needed to provide additional local water reliability.

Following initial review of the proposed Project, Mesa Water District has determined that it is subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). This Initial Study addresses the environmental effects of the Project, as proposed.

## 1.1 STATUTORY AUTHORITY AND REQUIREMENTS

This Mitigated Negative Declaration has been prepared by Mesa Water District with technical assistance from Tetra Tech, Inc. to evaluate if implementation of the Project would have a significant effect on the environment. Pursuant to Section 15070 of the *Guidelines for Implementation of the California Environmental Quality Act* (14 California Code of Regulations §§ 15070-15075), a public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:

- (a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
- (b) The initial study identifies potentially significant effects, but:
  - (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
  - (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

## 1.2 REQUIRED CONTENT

CEQA Guidelines Section 15071 indicate that a Negative Declaration circulated for public review shall include:

- (a) A brief description of the project, including a commonly used name for the project, if any;
- (b) The location of the project, preferably shown on a map, and the name of the project proponent;
- (c) A proposed finding that the project will not have a significant effect on the environment;
- (d) An attached copy of the Initial Study documenting reasons to support the finding; and
- (e) Mitigation measures, if any, included in the project to avoid potentially significant effects.

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## 2.0 PROJECT INFORMATION

Project title:	Mesa Water District Water Wells No. 12 and No. 14 and Pipeline Project
Lead agency name and address:	<b>Mesa Water District</b> 1965 Placentia Avenue Costa Mesa, California 92627
Contact person and phone number:	Karyn Igar, P.E. (karyni@mesawater.org) 949.631.1200
Project location:	The Project site is located in the City of Santa Ana, in the central portion of Orange County, within Section 28 of Township 5 South, Range 10 West, on the Newport Beach, California, U.S. Geological Survey 7.5-minute Quadrangle Map (2015). Well No. 12 is located at 4011 W. Chandler Avenue (Assessor's Parcel Number 415-014-03). Well No. 14 is located at 3120 S. Croddy Way (Assessor's Parcel Number 415-024-17). The proposed pipeline will connect the two wells to Mesa Water District's distribution system traversing Chandler Avenue to Croddy Way to W. MacArthur Boulevard to Hyland Avenue. See Figure 2-1, Project Location Map.
Project sponsor's name and address:	<b>Mesa Water District</b> 1965 Placentia Avenue Costa Mesa, CA 92627
General Plan Designation:	IND 0.45 (Industrial)
Zoning Designation:	M1 (Light Industrial)
Surrounding land uses:	Surrounding land uses consist of light industrial uses. The Santa Ana river trail is located approximately 440 feet to the west. Nearby major cross streets are S. Harbor Boulevard to the east and W. MacArthur Boulevard to the south.

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## **2.1 ENVIRONMENTAL SETTING**

### **2.1.1 Regional**

The City of Santa Ana (City) encompass 27.3 square miles in the west-central section northern Orange County (City of Santa Ana 1998). The City is located in the central block of the Tustin Plain in the Orange County Coastal Basin (Centec Engineering 2017a). The Santa Ana River is the major drainage channel flowing through the City which diagonally traverses the western portions of the City running southwest-northeast.

The City is surrounded by the incorporated cities of Garden Grove, Anaheim, Orange, Tustin, Irvine, Newport Beach, Costa Mesa, and Fountain Valley. Regional access to the City is provided by Interstate 5, which diagonally traverses the northeastern portions of the City running southeast-northwest, State Route 22, which generally forms the City's northern boundary; State Route 55, which generally forms the City's eastern boundary; Interstate 405, which runs southeast-northwest south of the City's southern boundary; and State Route 57, which travels north-south from the north side of the City. The City is also accessible from adjacent communities via major arterial surface streets.

Land uses in Santa Ana are characterized as a diverse collection of residential, commercial, light industrial, and public uses, including parks. As the seat for Orange County, the Civic Center area of Santa Ana contains Federal, State, and local governmental facilities including the courts, criminal justice facilities, administrative offices, and service centers. (City of Santa Ana 1998)

### **2.1.2 Project Area**

The Project's well sites and new pipeline are located within a commercial/light industrial area of the City of Santa Ana, the area bounded by the Santa Ana River on the west, Warner Ave. on the north, Harbor Boulevard on the east, and MacArthur Boulevard on the south, see Figure 2-2, Project Layout. This area adjoins the City of Costa Mesa, which is south of MacArthur Boulevard.

The Well No. 12 site consists of a rectangular-shaped parcel of land approximately 0.426 acres in size. The site is currently improved with one, two-story office building along the south perimeter which is attached to a larger light-industrial/warehouse building that totals approximately 8,450 square feet of building improvements, asphalt-paved driveway surface along the east perimeter, drainage features, and associated landscaping. (Centec Engineering 2017b)

The Well No. 14 site consists of a rectangular-shaped parcel of approximately 0.468 acres in size. The site is currently developed with a concrete tilt-up light-industrial building of approximately 6,944 square feet with associated drive and parking areas. (Centec Engineering 2017a)

## **2.2 PROJECT DESCRIPTION**

### **2.2.1 General Description**

Mesa Water District is proposing to construct two new potable water wells on approximately 0.89 acre of land located in the City of Santa Ana, California. Well No. 12 is located at 4011 W. Chandler Avenue. Well No. 14 is located at 3120 S. Croddy Way. The Project includes drilling, constructing, developing, testing, and equipping of Wells No. 12 and No. 14, plus construction of facilities at the sites for operation of the wells. In addition, approximately 4,500 feet of pipeline

will connect the two wells to Mesa Water District's distribution system traversing Chandler Avenue to Croddy Way to W. MacArthur Boulevard to Hyland Avenue.

The long-range plan for the Project is to provide enough space to construct a second generation, separate water well at each well site when the original well has reached its end of life. The second well at each location would be used in succession over the intended life of the Project, providing two generations of well production. Thus, only one well would be in use at each well site at any given time. The project sequence would be that the first well at each site will be drilled, equipped, and operated until it no longer produces a sufficient amount of water. Replacement of the previous generation well will only occur when the original production rate of that well is significantly reduced and cannot be recovered by rehabilitation. At that point, the second well will be drilled and placed into service, so the initial well can be properly abandoned. It is unknown at this time how long the first well will last, but based on the existing wells in the area, the service period for the initial well could potentially be between 30 and 50 years. Hence, the Project description details in this section are focused on what is known to be required for construction and operation of the first well for each well site, but some information regarding the subsequent wells is also provided in Section 2.2.7 Future Subsequent Wells.

Mesa Water District provides potable water for a population of approximately 110,000 within an 18-square mile service area which includes the City of Costa Mesa, portions of the City of Newport Beach, and portions of unincorporated Orange County. Mesa Water District distributes a combination of imported water and local groundwater and maintains five clear water wells, two tinted water wells (providing water which is treated by the Mesa Water Reliability Facility to remove color), and two reservoirs with a combined capacity of 28 million gallons. In 2014, Mesa Water District Board of Directors adopted a policy for local water reliability to be 115 percent of demand. This policy provides Mesa Water District with additional assurance to meet peak water demands with local groundwater supplies when other water production facilities undergo routine maintenance.

In order to provide additional local water reliability, Mesa Water District purchased two properties within the City of Santa Ana to be used as groundwater well sites. Proposed Wells No. 12 and associated structures and equipment would be constructed within a 0.43-acre site. Proposed No. 14 and associated structures and equipment would be constructed within a 0.46-acre site. Each well site will include a well building, electrical building, Southern California Edison (SCE) transformer, chemical storage area, emergency backup generator, and a well water waste air gap.

Both wells are located outside of Mesa Water District's service area and will require the construction of approximately 4,500 feet of pipeline to connect the proposed wells to Mesa Water District's existing system.

### **2.2.2 Demolition of Existing Structures**

The existing office and storage building at 4011 West Chandler Avenue will be demolished and three trees located in the front of the property also removed in order to provide work area to drill Well No. 12.

The existing office building and storage at 3120 South Croddy Way shall be demolished and seven trees located throughout the property removed in order to provide work area to drill Well No. 14.

### **2.2.3 Project Components and Ancillary Facilities**

At this time, the Project includes drilling the initial water wells at each site, installing equipment to operate the new wells, and constructing the associated housing, and perimeter fence and



block walls. It also involves constructing approximately 4,500 linear feet of pipeline to connect the proposed wells to Mesa Water District's existing system.

### **2.2.3.1 Well No. 12**

The Well No. 12 site is bounded by West Chandler Avenue to the south, industrial uses and South Shannon Street to the west and north, and industrial uses and South Croddy Way to the east.

Well No. 12 and associated structures and equipment will consist of a well building, electrical building, SCE transformer, emergency backup generator, covered chemical storage area, and a well water waste air gap structure, see Figure 2-3, Well No. 12 Site Plan.

**Water Well:** Based on production data for surrounding existing wells, as discussed in the Preliminary Design Well Report, the optimal depth for the well to be drilled is approximately 1,030 feet below ground surface (bgs). The final design of the well will depend on the actual geology and water quality determined by zone isolation testing during drilling. The pump for Well No. 12 will be a vertical turbine pump with above ground electrical motor. The well building will be located in the center of the site, west of the chemical storage building, and will be approximately 693 square feet in size and 18 feet in height with a 3-foot parapet.

**Chemical System:** Well No. 12 will include chloramination to disinfect the groundwater prior to distribution. Chloramine is formed when chlorine reacts with ammonia. The well will be equipped with a dedicated chemical storage, dosing and containment area for sodium hypochlorite and aqueous ammonia.

Sodium hypochlorite is injected directly into a static mixer at the discharge of each wellhead. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate. The total chlorine will be monitored downstream of chemical dosing.

Downstream of the sodium hypochlorite injection, aqueous ammonia is injected directly into a static mixer. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate. Monochloramine will be monitored downstream of chemical dosing.

The covered chemical storage area for the sodium hypochlorite and ammonia will be located in the center of the site, east of the well. This area will occupy approximately 769 square feet with a canopy (roof) about 9.5 feet in height.

**Electric Power Transmission:** Electricity will be supplied by SCE through an SCE connection and transformer to power all the electrical equipment including the 600 horsepower variable frequency drive electrical motor, pump control, supervisory control and data acquisition (SCADA) system, gate motor, lights, alarm systems, ventilation fans, air conditioning units and miscellaneous instrumentation. The electrical building will be located on the south end of the site and will be approximately 351 square feet in size and 18 feet in height with a 5-foot parapet.

SCE will provide electrical services through a three-phase pad mounted transformer. The Well site will have a 480 volt (V), 1000 amperes (A), 3-phase main switchboard with a kilowatt hour meter and a main circuit breaker. This main switchboard will be in an isolated room outside the electrical room, with roof to protect from weather, per local code. Access to this switchboard will be through a double door to allow the three-foot clearance per electrical code.

The distribution switchboard will be installed inside the electrical room. This switchboard will include all the necessary circuit breakers, a 480 to 208/120V step down transformer, and a 208/120V panelboard. The variable frequency drive will be standalone, and will be housed in a National Electrical Manufacturers Association type 1 enclosure located inside the electrical room. The design also has an automatic transfer switch and emergency diesel generator with enclosure located on the exterior of the electrical building.

**Structure Designs:** As described above, Well No. 12 will include three structures consisting of a well building, electrical building and a chemical storage area. The well and electrical buildings will have steel roof framing, corrugated steel roof deck, expanded polystyrene rigid insulation and single ply polyvinyl chloride (PVC) roofing. The PVC roofing is durable, flexible and energy efficient (due to the white color of the roofing). Both buildings will have interior ladders with ladder-up and roof hatches to allow access to the roof mounted exhaust fan or air conditioning unit and roof drains. The walls of both buildings will be 8-inch thick, solid-grouted concrete block.

In order to have the well and electrical buildings visually blend in with the surrounding buildings, a flat stucco finish is proposed over the exterior of the concrete block. Access to the wellhead will be provided by a 10 foot-8 inches by 12 foot removable steel roof panel and removable steel wall panels at the northwest corner of the building at Well No. 12. Both buildings will have concrete slabs-on-grade. Steel doors with heavy duty hardware will be provided for secured access to both buildings.

The chemical area will have a steel framed canopy with factory coated steel roofing panels. A substantial mat foundation will provide support for chemical tanks and canopy. The tanks will be surrounded by a 3.5-foot minimum high reinforced concrete walls, as secondary containment. The tanks will be anchored to the foundation with cast-in-place anchor bolts.

**Perimeter Fencing:** For security, 10-foot-high block walls will be installed around the majority of the well site, except where 10-foot-high screened metal fences and rolling metal gates will be provided for access. The proposed wall adjacent to West Chandler Avenue will be a minimum 10-foot offset north of existing right-of-way, consistent with the City Ordinance for the existing building.

**Site Access:** The existing 27-foot-wide driveway connecting the project site to Chandler Avenue is located on the eastern half of the project site between the existing building located to the west and the surface parking on the eastern boundary. The driveway will be relocated to the eastern boundary of the property with a 25-foot-wide driveway to allow access for delivery and fire trucks. An additional 13-foot-wide driveway will be constructed on the west side of the property to allow for maintenance vehicle access adjacent to the well.

**Parking:** No public parking will be provided. Parking for maintenance vehicles will be provided within the Well Site perimeter fencing.

**Landscaping:** The Project site frontage will be landscaped per City of Santa Ana Landscape guidelines.

**Lighting:** The Project will include access lighting for the building doorways and entrance gate and security lighting for the site.

**Storm Drain:** A new 18-inch storm drain will convey site storm water and pump waste discharge from Well No. 12 to an existing City of Santa Ana stormwater catch basin on the north side of West Chandler Avenue. The existing catch basin is approximately 3.9 feet deep per existing record drawings and is connected to an existing 18-inch storm drain pipe. The eventual discharge of the existing storm drain is the Santa Ana River.

### **2.2.3.2 Well No. 14**

The Well No. 14 site is bounded by South Croddy Way to the east, industrial uses and West MacArthur Boulevard to the south, industrial uses and South Shannon Street to the west, and industrial uses and West Garry Avenue to the north.

Well No. 14 and associated structures and equipment will consist of a well building, electrical building, SCE transformer, emergency backup generator, covered chemical storage area, and a well water waste air gap structure, see Figure 2-4, Well No. 14 Site Plan.

**Water Well:** Based on production data for surrounding existing wells, as discussed in the Preliminary Design Well Report, the optimal depth for the well to be drilled at the Well No. 14 site is approximately 990 feet bgs. The final design of the well will depend on the actual geology and water quality determined by zone isolation testing during drilling. The pump for Well No. 14 will be a vertical turbine pump with above ground electrical motor. The well building will be located in the east side of the site and will be approximately 693 square feet in size and 18 feet in height with a 3-foot parapet.

**Chemical System:** Well No. 14 will include chloramination for disinfection of groundwater prior to its distribution. Chloramine is formed when chlorine reacts with ammonia. The well will be equipped with a dedicated chemical storage, dosing and containment area for sodium hypochlorite and aqueous ammonia.

Sodium hypochlorite is injected directly into a static mixer at the discharge of each wellhead. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate. The total chlorine will be monitored downstream of chemical dosing.

Downstream of the sodium hypochlorite injection, aqueous ammonia is injected directly into a static mixer. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate. Monochloramine will be monitored downstream of chemical dosing.

The covered chemical storage area for the sodium hypochlorite and ammonia, will be located in the north-central area of the site, will occupy approximately 769 square feet, and will measure about 9.5 feet in height.

**Electric Power Transmission:** Electricity will be supplied by SCE through an SCE connection and transformer to power all of the electrical equipment including the 600 horsepower variable frequency drive electrical motor, pump control, variable frequency drive, SCADA system, gate motor, lights, alarm systems, ventilation fans, air conditioning units and miscellaneous instrumentation. The electrical building will be located in the south-central area of the site and will be approximately 351 square feet in size and 18 feet in height with a 5-foot parapet.

SCE will provide electrical services through a three-phase pad mounted transformer. The Well site will have a 480V, 1000A, 3-phase main switchboard with a kilowatt hour meter and a main circuit breaker. This main switchboard will be located in an isolated room outside the electrical room, with roof to protect from weather, per local code. Access to this switchboard will be through a double door to allow the 3-foot clearance per electrical code.

The distribution switchboard will be installed inside the electrical room. This switchboard will include all the necessary circuit breakers, a 480 to 208/120V step down transformer, and a 208/120V panelboard. The variable frequency drive will be standalone housed in National Electrical Manufacturers Association type 1 enclosure located inside the electrical room. The design also has an automatic transfer switch and emergency diesel generator with enclosure located adjacent to the electrical building.

**Structure Designs:** As describe above, Well No. 14 will include three structures consisting of a well building, electrical building and a chemical storage area. The well and electrical buildings will have steel roof framing, corrugated steel roof deck, expanded polystyrene rigid insulation and single ply PVC roofing. The PVC roofing is durable, flexible and energy efficient (due to the white color of the roofing). Both buildings will have interior ladders with ladder-up and roof hatches to allow access to the roof mounted exhaust fan or air conditioning unit and roof drains. The walls of both buildings will be 8-inch thick, solid-grouted concrete block.

In order to have the well and electrical buildings visually blend in with the surrounding buildings, a flat stucco finish is proposed over the exterior of the concrete block. Access to the wellhead will be provided by a 10 foot-8 inches by 12 foot removable steel roof panel and removable steel wall panels at the northeast corner of the building at Well No. 14. Both buildings will have

concrete slabs-on-grade. Steel doors with heavy duty hardware will be provided to allow access to both buildings.

The chemical area will have a steel framed canopy with factory coated steel roofing panels. A substantial mat foundation will provide support chemical tanks and canopy. The tanks will be surrounded by a 3.5-foot minimum high reinforced concrete walls, as secondary containment. The tanks will be anchored to the foundation with cast-in-place anchor bolts.

**Perimeter Fencing:** For security, 10-foot-high block walls will be installed around the majority of the well site, except where 10-foot-high screened metal fences and rolling metal gates will be provided for access. The proposed wall adjacent to South Croddy Way will be a minimum 35-foot offset west of existing right-of-way, consistent with the offset for the existing buildings on South Croddy Way..

**Site Access:** The existing 24-foot-wide driveway will be protected in place to allow access for delivery and fire trucks and an additional 13-foot-wide driveway will be constructed in the middle of the site to allow for maintenance vehicle access adjacent to the well.

**Parking:** No public parking will be provided. Parking for maintenance vehicles will be provided within the Well Site perimeter fencing.

**Landscaping:** The Project site frontage will be landscaped per City of Santa Ana Landscape guidelines.

**Lighting:** The Project will include access lighting for the building doorways and entrance gate and security lighting for the site.

**Storm Drain:** Approximately 535 linear feet of 18-inch storm drain is proposed to convey site stormwater and pump waste discharge from Well No. 14 to an existing City of Santa Ana stormwater catch basin on the west side of Croddy Way approximately 500 feet to the south of the Well No. 14 site. The existing storm drain catch basin is approximately 6.9 feet deep per existing record drawings and is connected to an existing 27-inch storm drain pipe. The eventual discharge of the existing storm drain is the Santa Ana River.

#### 2.2.4 Project Pipeline

As discussed above, both wells are located outside of Mesa Water District's service area and will require the construction of approximately 4,500 linear feet of pipeline to connect the proposed wells to Mesa Water District's existing system, see Figure 2-5, Pipeline Route.

A proposed pipeline of approximately 2,200 linear feet of 16-inch diameter ductile iron pipeline will convey water from Well No. 12 and continue east along West Chandler Avenue then bear south onto South Croddy Way to allow a connection to Well No. 14. At the connection point with Well No. 14 the pipeline will increase in diameter to 30-inches. The 2,300 linear feet of 30-inch diameter ductile iron or cement mortar lined and coated steel pipeline will continue south along South Croddy Way and bear west onto MacArthur Boulevard. At Hyland Avenue the pipeline will turn south and connect to the existing 18-inch and two 12-inch asbestos-cement pipes.

#### 2.2.5 Construction Details

Construction is anticipated to begin in the third quarter of 2020 fiscal year and last approximately 20 months.

Construction Best Management Practices (BMPs) for stormwater, erosion/sediment control, and spill prevention will be used.

### **2.2.5.1 Well No. 12**

Well No. 12 construction sequencing will occur as follows:

1. Demolition of existing building, piping, and site features
2. Well Drilling
3. Well Development
4. Well Equipping
5. On-site Pipeline Construction
6. Testing
7. Final Site Improvements

All staging and stockpiling will occur on-site for well drilling, developing, and equipping only, within the work zones. A 24-foot-high sound wall will be provided to enclose the well area during drilling. The pipeline contractor will be responsible for obtaining temporary storage area. The entire Site will be graded. Waste and excess debris will be hauled away for disposal. Equipment and material will be hauled from the Site traveling east on Chandler Avenue, south on Croddy Way, east on Segerstrom Avenue, and then south on Harbor Boulevard to the entrance of the 405 Freeway ramp.

Water for the drilling project will be provided by the existing fire hydrant located adjacent to the Project site on West Chandler Avenue. Groundwater generated during well drilling and testing will be discharged to baker tanks, that will be located onsite or within a designated area of the public right-of-way and will later be disposed of as discharge to the storm drain. Construction of the well and facilities will include approximately 420 working days of construction during normal working days and hours (Monday through Friday, except District holidays). This will include three phases of construction that must be conducted 24 hours per day as follows: 7 days of 24 hours per day drilling, 4 days of 24 hours per day testing, and 7 days of 24 hours per day mechanical development. Construction will require between two to eight construction workers.

### **2.2.5.2 Well No. 14**

Well No. 14 construction sequencing will occur as follows:

1. Demolition of existing building, piping, and site features
2. Construct new fire hydrant and storm drain piping on South Croddy Way and catch basin on-site
3. Well Drilling
4. Well Development
5. Well Equipping
6. On-site Pipeline Construction
7. Testing
8. Final Site Improvements

All staging and stockpiling will occur on-site for well drilling, developing, and equipping only, within the work zones. A 24-foot-high sound wall will be provided to enclose the well areas during drilling. The entire Site will be graded. Waste and excess debris will be hauled away for disposal. Equipment and material will be hauled from the Site traveling south on Croddy Way, east on MacArthur Boulevard, and then south on Harbor Boulevard to the entrance of the 405 Freeway ramp.



Water for the drilling project will be provided by a new fire hydrant to be located on South Croddy Way that will be installed as a part of the storm drain construction. Groundwater generated during well drilling and testing will be discharged to baker tanks, that will be located onsite and will later be disposed of as discharge to the storm drain.

Construction of the well and facilities will include approximately 350 working days of construction during normal working days and hours (Monday through Friday, except District holidays). This will include three phases of construction that must be conducted 24 hours per day as follows: 7 days of 24 hours per day drilling, 4 days of 24 hours per day testing, and 7 days of 24 hours per day mechanical development. Construction will require between two to eight construction workers.

### **2.2.5.3 Project Pipeline**

The pipeline contractor will be responsible for obtaining temporary storage areas. The construction work area along the proposed pipeline will be approximately 24 feet wide. A traffic control plan will be prepared to accommodate this work area width along the pipeline route. A single 20 feet wide travel lane can be provided for construction on Chandler Avenue and Croddy Way resulting in a work area of 24 feet wide. Traffic in the opposite direction shall be detoured to one of the adjacent arterial streets, or flaggers can be provided to keep one lane open for traffic in both directions. Refer to Figures 2-6 through 2-8 for conceptual traffic detour plans. MacArthur Boulevard is an 86-foot-wide major arterial street. The northern half (westbound lanes) of the street is within the City of Santa Ana, and the southern half (eastbound lanes) is within the City of Costa Mesa. One westbound lane and three eastbound lanes can be maintained from Croddy Way to Hyland Avenue resulting in a work area of 24 feet wide. At the intersection of Hyland Avenue and MacArthur Boulevard, one westbound and one eastbound can be maintained. Hyland Avenue southbound lanes will be closed to traffic and northbound left and through will be closed.

It is anticipated that the construction duration of the proposed water pipeline and Well No. 14 storm drain will be completed in 196 calendar days from notice to proceed. The Well No. 14 storm drain connection will be needed to convey water generated during well development to the City storm drain. Therefore, Well No. 14 storm drain and construction of a new fire hydrant for Well No. 14 will be completed prior to drilling of Well No. 14.

All the work for this phase will be during normal working days and hours (Monday through Friday, except District holidays, working hours will be as noted on the City encroachment permit. This phase will require up to seven construction workers.

### **2.2.6 Operations**

Once operational, Wells No. 12 and No. 14 can potentially provide an additional 6 to 8 million gallons per day of safe and reliable drinking water. During normal operation, the well is expected to operate 24 hours per day, 7 days a week. The estimated well production could be up to 4,000 gallons per minute.

The normal operation of the well will require one vehicle trip weekly for one worker to monitor the operation of the well facilities. Maintenance and tank filling will require one bi-weekly vehicle trip. Periodic maintenance activities will include replacement of the sodium hypochlorite or ammonia tanks, and testing and maintaining equipment. During filling of the tanks, Mesa Water District personnel will be present to guard against spillage. Strict procedures will be in place and adhered to at all times. Wash down/containment facilities will also be in place in the event of a spill. The well facility will be highly automated to ensure protection of the public health, safety, and general welfare, and to monitor maintenance requirements and operations.

The well would be shut down and restarted approximately two to three times per month for maintenance and testing.

No solid waste will be generated at the Site.

Well operations will require electrical power to be provided by SCE (for the electric systems and motor). Diesel generators will supply back-up power to the electric motor for emergencies and when electricity is not available. Mesa Water District will monitor operation of the plant through Mesa Water District's SCADA system.

### **2.2.7 Future Subsequent Wells**

Replacement of the initial well installed at each well site location would occur when the original production rate of the current well is significantly reduced and cannot be recovered by rehabilitation.

**Second Generation Well No. 12:** The first generation well and facilities will be located on the front half of the project site. The remaining space towards the back of the property can accommodate a second generation well to be drilled. A 20-foot-wide fire lane will be required the length of the property per Orange County Fire Authority (OCFA) requirements.

**Second Generation Well No. 14:** The first generation well and facilities will be located on the front half of the project site. The remaining space toward the back of the property can accommodate a second generation well to be drilled. A 20-foot-wide fire lane will be required the length of the property per OCFA requirements.

### **2.3 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED**

Other public agencies whose approval is expected to be required in the form of permits, financing approval, or participation agreements are as follows:

- Santa Ana Regional Water Quality Control Board – Variance for 50-foot control zone horizontal separation
- State Water Resources Control Board, Division of Drinking Water - Water Quality
- Orange County Flood Control District – Discharge Permit
- City of Santa Ana, Department of Public Works – Encroachment Permit and Storm Drain Connection
- Orange County Fire Authority – Planning and Development Fire Service Permit and Hazardous Materials & Process
- Orange County Health Care Agency – Risk Management Plan
- South Coast Air Quality Management District – Backup generators; Air Quality
- City of Costa Mesa – Encroachment Permit

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### 3.0 ENVIRONMENTAL CHECKLIST

#### 3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked would be potentially affected by this Project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Aesthetics                         | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality               |
| <input type="checkbox"/> Biological Resources               | <input type="checkbox"/> Cultural Resources                 | <input type="checkbox"/> Geology/Soils             |
| <input type="checkbox"/> Greenhouse Gas Emissions           | <input type="checkbox"/> Hazards & Hazardous Materials      | <input type="checkbox"/> Hydrology/Water Quality   |
| <input type="checkbox"/> Land Use/Planning                  | <input type="checkbox"/> Mineral Resources                  | <input type="checkbox"/> Noise                     |
| <input type="checkbox"/> Population/Housing                 | <input type="checkbox"/> Public Services                    | <input type="checkbox"/> Recreation                |
| <input type="checkbox"/> Transportation/Traffic             | <input type="checkbox"/> Tribal Cultural Resources          | <input type="checkbox"/> Utilities/Service Systems |
| <input type="checkbox"/> Mandatory Findings of Significance |   |  |

#### 3.2 DETERMINATION: (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT (EIR) is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name



### 3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

- (1) A brief explanation is required for all answers except “no impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “no impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “no impact” answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- (2) All answers must take account of the whole action involved, including off site as well as on site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- (3) Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially significant impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “potentially significant impact” entries when the determination is made, an EIR is required.
- (4) “Negative declaration: less than significant with mitigation incorporated” applies when the incorporation of mitigation measures has reduced an effect from a “potentially significant impact” to a “less than significant impact.” The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.
- (5) Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063[c][3][D]). In this case, a brief discussion should identify the following:
  - a. Earlier analysis used. Identify and state where earlier analyses are available for review.
  - b. Impacts adequately addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c. Mitigation measures. For effects that are “less than significant with mitigation incorporated,” describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- (6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
- (7) Supporting information sources. A source list should be attached and other sources used or individuals contacted should be cited in the discussion.
- (8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.

(9) The explanation of each issue should identify:

- a. The significance criteria or threshold, if any, used to evaluate each question, and
- b. The mitigation measure identified, if any, to reduce the impact to a less than significant level.

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**3.4 ENVIRONMENTAL IMPACT ANALYSIS**

**3.4.1 Aesthetics**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Have a substantial adverse effect on a scenic vista?				X
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?				X
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?			X	

**Existing Conditions:**

The Project site is located in an urban setting characterized by views of light industrial buildings. None of the scenic corridors identified in the City of Santa Ana’s General Plan Scenic Corridors Element are near or within the viewshed of the project site. The closest identified scenic corridor is the Sana Ana River, which is within approximately 440 feet of the site (City of Santa Ana 1982a). However, due to intervening buildings, the viewshed of the project site does not include the river.

According to the Caltrans Map of Designated Scenic Routes (Caltrans 2018), there are no official State-designated routes in the Project vicinity. State Route 1, an eligible State Scenic Highway, is located approximately 5.5 miles to the west. The Project site is not visible from State Route 1 due to distance and intervening structures and topography.

Both well sites are developed with light-industrial buildings, asphalt-paved drive ways and parking areas, and landscaping with ornamental vegetation. Views of the both sites are limited to the surrounding light-industrial uses and adjacent roadways.

**Discussion:**

**a. Would the project have a substantial adverse effect on a scenic vista?**

**No Impact.**

The Project site does not contain a scenic vista. As discussed above, direct views of the Project site are from surrounding light-industrial uses and adjacent roadways.

The proposed Project will involve enclosing the Project site with a 10-foot tall block wall. Implementation of the proposed Project would not block any scenic views. In addition, views of the proposed Project will be predominately screened from public view. As the Project site does not contain any scenic vistas, and because the proposed Project will not block existing views of any scenic vista and will be predominately screened from viewpoints from the adjacent



neighborhood part, implementation of the proposed Project would not impact views of any scenic vista. No impact will be experienced.

**Mitigation Measures:** No mitigation is required.

**b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

**No Impact.** The Project site is not in the viewshed of any designated or eligible State scenic highway. No impact to a scenic highway will occur.

**Mitigation Measures:** No mitigation is required.

**c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?**

**Less Than Significant Impact.** The proposed Project would involve both temporary and permanent changes to the visual character of the site. Temporary changes are associated with construction activities, including construction equipment, staging, and Site construction. These visual impacts would be short-term in nature and are not considered to be significant.

Implementation of the proposed Project would result in long-term/permanent changes to the visual character of the site due to the replacement of light-industrial buildings with a water well, associated housing, and perimeter walls. The Project site will be enclosed by a 10-foot tall block wall. In order to have the well and electrical buildings visually blend in with the surrounding buildings, a stucco finish is proposed over the exterior of the concrete block. From most viewpoints, only views of the upper portion of the well housing structure would be available. While the proposed Project would result in a change to the existing visual character of the site, it would not result in the removal or degradation of any significant visual resources and would be consistent in appearance to the existing and adjacent light-industrial land uses. For this reason, impacts are considered to be less than significant.

**Mitigation Measures:** No mitigation is required.

**d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

**Less Than Significant Impact.** There are two primary sources of light: light emanating from building interiors that pass through windows, and light from exterior sources (e.g., street lighting, parking lot lighting, building illumination, security lighting, and landscape lighting). Light introduction can be a nuisance to adjacent uses and diminish the view of the clear night sky. Currently, light and glare in the Project vicinity is produced by vehicle headlights, street lighting, and lighting from the onsite and light-industrial adjacent uses.

The Project would include access lighting for the building doorways and entrance gate. However, the amount of light produced at the Site would be the minimum required for safety and security purposes. The lights on the Site would be designed to direct the light toward the Site to reduce spillage into the surrounding streets and residences. The Project would not introduce a substantial amount of additional night lighting or glare compared to the existing lighting around the Project site. Furthermore, since the structures, roofs, and wall would not include shiny finishes, the Project is not expected to create any daytime glare. Therefore, a less than significant impact from the standpoint of light and glare would occur.

**Mitigation Measures:** No mitigation is required.

**3.4.2 Agriculture and Forest Resources**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?				X
c.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)) or timberland (as defined in PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d.	Result in the loss of forest land or conversion of forest land to non-forest use?				X
e.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				X

**Existing Conditions:**

The City of Santa Ana is predominately built-out with limited vacant land. On the Farmland Mapping and Monitoring Program Map for California (California Department of Conservation 2018), the Project site and the surrounding area is designated as Urban and Built-Up Land, which is generally described as land occupied by structures that has a variety of uses including residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

**Discussion:**

- a. **Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

**No Impact.** According to the Farmland Mapping and Monitoring Program Map for California, the Project site is an area designated as Urban and Built-Up Land. No Prime or Unique Farmland,



or Farmland of Statewide importance exists within the Project site or vicinity; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

**b. Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?**

**No Impact.** The Project site is designated in the Santa Ana General Plan Land Use Plan as IND 0.45 (Industrial), and there are no agricultural zoning designations or agricultural uses within the Project limits or adjacent areas (City of Santa Ana 1998). The Project would not convert farmland or conflict with any land zoned for agriculture. No Williamson Act contracts apply to the Project site. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

**c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)) or timberland (as defined in PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?**

**No Impact.** The Project site is zoned as M1 (Light Industrial). It is surrounded by land zoned as M1. The proposed Project would not conflict with existing zoning, or cause rezoning of forest land or timberland resources. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

**d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?**

**No Impact.** There is no forest land in the vicinity of the Project site. Therefore, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur.

**Mitigation Measures:** No mitigation is required.

**e. Would the project involve other changes in the existing environment that, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

**No Impact.** There is no farmland or forest land located within or near the Project site. Therefore, the Project would not involve any changes that could result in the loss or conversion of farmland or forest land to other uses. No impact would occur.

**Mitigation Measures:** No mitigation is required.



**3.4.3 Air Quality**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Conflict with or obstruct implementation of the applicable air quality plan?				X
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
d.	Expose sensitive receptors to substantial pollutant concentrations?			X	
e.	Create objectionable odors affecting a substantial number of people?			X	

An Air Quality and Greenhouse Gas Technical Report was prepared by Tetra Tech and is provided under Appendix A. The following summarizes the air quality analysis results and conclusions.

**Existing Conditions:**

The Project site is located within the South Coast Air Basin (SCAB) and is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAB region is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Basin-wide air pollution levels are administered by the SCAQMD through the most current Air Quality Management Plan (AQMP; 2017). The AQMP provides a program for obtaining attainment status for key monitored air pollution standards, based on existing and future air pollution emissions.

Air pollutants are typically classified as primary or secondary pollutants. Carbon monoxide (CO), nitrogen dioxide, particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), and lead are considered primary pollutants because they are emitted directly into the atmosphere. Ozone (O<sub>3</sub>), a secondary pollutant, is formed through a photochemical reaction in the atmosphere with reactive organic compounds (ROGs) and nitrogen oxides (NO<sub>x</sub>) in the presence of sunlight.

Both the federal and State governments have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health (see Table 1 of Appendix A). The national and State ambient air quality standards have been set at levels whose concentrations could be generally harmful to human health and welfare and to protect the most sensitive persons from illness or discomfort with a margin of safety. While ambient air quality standards have been developed specifically for O<sub>3</sub> and NO<sub>x</sub>, there is no State or federal ambient air quality standard for ROGs. ROGs include many compounds of carbon, excluding

CO, carbon dioxide (CO<sub>2</sub>), carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane, among others. While the State and federal entities have not established ambient attainment levels for ROGs, they have for O<sub>3</sub>. Because ROGs react with NO<sub>x</sub> through photochemical reactions to form O<sub>3</sub>, air districts, including SCAQMD, have provided ROG significance thresholds for project-level analysis in order to further limit the levels of ROGs available in the atmosphere that can be converted to O<sub>3</sub>.

Areas are classified under the Federal Clean Air Act as either “attainment” or “nonattainment” areas for each criteria pollutant, based on whether the National Ambient Air Quality Standards have been achieved or not. Attainment relative to the State standards is determined by California Air Resources Board. The SCAB has been designated by the U.S. Environmental Protection Agency as a nonattainment area for O<sub>3</sub>, particulate matter 10 micrometers or less in diameter (PM<sub>10</sub>), and particulate matter 2.5 micrometers or less in diameter (PM<sub>2.5</sub>). The SCAB is also designated as being in extreme nonattainment for the 8-hour average O<sub>3</sub> standard. Currently, the SCAB is in attainment with the ambient air quality standards for CO, lead, SO<sub>2</sub>, and nitrogen dioxide.

#### **Discussion:**

##### **a. Would the project conflict with or obstruct implementation of the applicable air quality plans?**

**No impact.** The SCAQMD is required, pursuant to the Clean Air Act, to reduce emissions of certain pollutants for which the Basin is in non-attainment (i.e., O<sub>3</sub> and PM<sub>10</sub>). The project would be subject to the SCAQMD’s AQMP. The AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections.

The determination of AQMP consistency is primarily concerned with the long-term influence of the project on air quality in the Basin. Neither the development of the project nor its operation would result in short-term and long-term regional impacts. The project would comply with SCAQMD Rule 403 and would implement all feasible mitigation measures for control of PM<sub>10</sub> and PM<sub>2.5</sub>; the project would be consistent with the goals and policies of the AQMP for control of fugitive dust. The proposed project is not expected in conflict with the AQMP and no impact would occur.

**Mitigation Measures:** No mitigation is required.

##### **b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

**Less Than Significant Impact.**

**Construction Impacts.** Construction emissions are expected from the following equipment and processes:

- On-site Fugitive Dust Associated with Site Construction Activities;
- On-site Construction Equipment (dump trucks, backhoes, graders, etc.);
- On-site and Off-site Vehicle Emissions, including Delivery Trucks and Worker Vehicles.

The California Emissions Estimator Model® (CalEEMod) model divides the construction processes into phases, including demolition, site preparation, grading, building construction, paving, etc. These model settings can be modified to fit applicable features of a specific project. Each construction phase could generate the following emissions:

- (1) Fugitive dust emissions resulting from soil disturbance activity.

Construction activities at the site include grading, trenching, and truck filling/dumping. These activities generate dust emissions. Vehicles and trucks traveling on paved and unpaved roads are also a source of fugitive emissions during the construction period.

During construction, the proposed project would be subject to SCAQMD Rules 403 (Fugitive Dust). The purpose of Rule 403 is to reduce man-made fugitive dust. Rule 403 requires implementing control measures to prevent, reduce, or mitigate fugitive dust emissions and includes a performance standard that prohibits visible emissions from crossing any property line (SCAQMD Rule 403). Dust control measures, such as water application on dry soil and reduced vehicles travelling on unpaved roads, are standard mitigation techniques. Project construction will be required to comply with Rule 403. Implementing the dust suppression techniques specified in Rule 403 can reduce the fugitive dust generation (and thus the PM<sub>10</sub> component) by 50 percent or more. Therefore, the estimation of fugitive dust emissions during project construction assumes Rule 403 compliance.

(2) Emissions of air pollutants from fuel combustion in construction equipment

On-site construction equipment will be a source of combustion emissions. Construction equipment is expected to include excavator, tractor, loader, scraper, crane, water truck, paver, and compactor. See Table 3 of Appendix A for the typical construction equipment mix used at each site.

(3) Emissions of air pollutants from fuel combustion in vehicles and trucks

Vehicles used for worker commute and delivery trucks for material delivery to the site, and haul trucks used for construction debris disposal will be a source of combustion emissions. Primary emissions generated will include combustion emissions from engines during idling and while operating. Emissions are based on the estimated number of trips per day and the round trip travel distances. See Table 4 of Appendix A provides the worker commute and haul truck information.

Data presented above was input into the CalEEMod model. Construction activities result in emissions of CO, ROGs, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and greenhouse gas (GHGs). The CalEEMod model output files are provided in Appendix A.

Construction emissions are summarized in Tables 1, 2 and 3. Table 4 compares the project element emissions with the SCAQMD's regional and localized construction significance threshold levels. As Table 4 shows, construction-related daily (short-term) emissions would not exceed SCAQMD regional significance thresholds for ROGs, NO<sub>x</sub>, CO, SO<sub>2</sub>, and PM. Thus, project construction emissions would result in a less than significant regional impact.

**Table 1. Construction Emissions Summary - Well No. 12 Construction Phase**

Construction Phases	CO (lbs/day)	NO <sub>x</sub> (lbs/day)	ROG (lbs/day)	SO <sub>2</sub> (lbs/day)	PM <sub>10</sub> Total (lbs/day)	PM <sub>2.5</sub> Total (lbs/day)	CO <sub>2</sub> e (ton/yr)
Demolition	11.62	18.1	1.85	0.02	2.02	1.072	8.77
Demolition (Hauling)	0.99	2.34	0.12	0.06	1.326	0.178	2.93
Well (drilling)	44.5	66.2	6.42	0.184	2.3	2.19	223.7
Well (developing)	26.7	28.9	2.83	0.066	1.31	1.24	115.5
Well (Hauling)	0.70	0.50	0.083	0.002	0.425	0.076	3.26
Well Equipping	13.4	13.7	1.55	0.020	0.794	0.735	102.2



**Table 2. Construction Emissions Summary - Well No. 14 Construction Phase**

Construction Phases	CO (lbs/day)	NO <sub>x</sub> (lbs/day)	ROG (lbs/day)	SO <sub>2</sub> (lbs/day)	PM <sub>10</sub> Total (lbs/day)	PM <sub>2.5</sub> Total (lbs/day)	CO <sub>2e</sub> (ton/yr)
Demolition	11.62	18.14	1.85	0.020	2.02	1.07	8.77
Demolition (Hauling)	0.76	2.32	0.096	0.006	1.26	0.16	2.629
Well (drilling)	44.5	66.2	6.42	0.184	2.30	2.19	223.7
Well (developing)	26.69	28.88	2.83	0.066	1.31	1.235	115.5
Well (Hauling)	0.688	0.548	0.083	0.002	0.193	0.052	3.26
Well Equipping	14.46	14.48	1.65	0.022	0.887	0.783	112.2

**Table 3. Construction Emissions Summary - Well Nos. 12 and 14, Storm Drain and Pipeline Construction Phase**

Construction Phases	CO (lbs/day)	NO <sub>x</sub> (lbs/day)	ROG (lbs/day)	SO <sub>2</sub> (lbs/day)	PM <sub>10</sub> Total (lbs/day)	PM <sub>2.5</sub> Total (lbs/day)	CO <sub>2e</sub> (ton/yr)
Storm Drain	13.32	14.30	1.733	0.025	0.772	0.731	16.29
Well Drilling	0.605	0.055	0.072	0.001	0.177	0.048	1.186
Storm Drain Paving	8.520	8.160	0.892	0.012	0.480	0.452	2.834
Pipeline	5.322	12.98	1.603	0.025	0.669	0.646	385.5
Pipeline Hauling	0.194	0.018	0.023	0.001	0.057	0.015	9.01
Pipeline Paving	8.244	7.289	0.791	0.013	0.411	0.387	4.94

**Table 4. Construction Emissions vs. SCAQMD Regional and Localized Emissions Thresholds**

Air Pollutants	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	GHG
Emissions Unit	lbs/day						MT/yr
Max. Overlapping Emissions	6.4	66.2	44.5	0.2	2.3	2.19	544
Regional Construction Emissions Threshold	75	100	550	150	150	55	10,000
Over (Under)	(68.6)	(33.8)	(505.5)	(149.8)	(147.7)	(52.8)	(9,456)
Exceed Threshold (Yes/No)	No	No	No	No	No	No	No
Localized Construction Emissions Thresholds		81	485		4	3	
Over (Under)		(14.8)	(440.5)		(1.7)	(0.81)	
Exceed Threshold (Yes/No)	No	No	No	No	No	No	No

**Operation Impacts.** During operation, the two wells will include chloramination to disinfect the groundwater prior to distribution. Chloramine is formed when chlorine reacts with ammonia. The well will be equipped with a dedicated chemical storage, dosing and containment area for sodium hypochlorite and aqueous ammonia.

Sodium hypochlorite is injected directly into a static mixer at the discharge of each wellhead. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate.

The total chlorine will be monitored downstream of chemical dosing. Downstream of the sodium hypochlorite injection, aqueous ammonia is injected directly into a static mixer. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate. Monochloramine will be monitored downstream of chemical dosing. The chemical storage area for the sodium hypochlorite and ammonia tanks at each well will be covered with a canopy roof.

The normal operation of the well will require one vehicle trip per week for one worker to monitor the operation of the well facilities. Maintenance and tank filling will require one bi-weekly vehicle trip. Periodic maintenance activities will include replacement of the sodium hypochlorite or aqueous ammonia tanks and testing and maintaining equipment, including an emergency generator. During filling of the tanks, Mesa Water District personnel will be present to guard against spillage. Strict procedures will be in place and adhered to at all times. Wash down/containment facilities will also be in place in the event of a spill. The well facility will be highly automated to ensure protection of the public health, safety, and general welfare, and to monitor maintenance requirements and operations.

For the air quality impact analyses of the operation phase, the CalEEMod model was run to quantify emissions from a conservative worker daily trip (though one trip per week is expected) and bi-weekly trip and monthly testing of the emergency generator. Appendix A provides the CalEEMod output files.

Table 5 shows the CalEEMod results for operational emission. Table 6 shows the comparison of the operational emission vs the SCAQMD Regional and Localized Thresholds. As shown in Table 6, the project is less than significant impact.

**Table 5. Operation Emissions Summary**

Location	Operation	CO (lb/day)	NOX (lb/day)	ROG (lb/day)	SO <sub>2</sub> (lb/day)	PM <sub>10</sub> Total (lb/day)	PM <sub>2.5</sub> Total (lb/day)	CO <sub>2e</sub> (ton/day)
Well No. 12	Maintenance	0.072	0.007	0.004	1.1 x 10 <sup>-4</sup>	0.012	0.003	2.04
	Emergency Generator Testing	0.287	0.314	0.112	5.48 x10 <sup>-4</sup>	0.017	0.017	9.55
Well No. 14	Maintenance	0.079	0.007	0.005	1.1x10 <sup>-4</sup>	0.013	0.004	2.22
	Emergency Generator Testing	0.041	0.037	0.011	5.48x10 <sup>-5</sup>	0.002	0.002	0.96

**Table 6. Operation Emissions vs. SCAQMD Regional and Localized Emissions Thresholds**

	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	GHG
Emissions Unit	lbs/day						MT/yr
Total Emissions	0.13	0.36	0.5	0.001	0.04	0.03	14.0
Regional Operation Emissions Threshold	55	55	550	150	150	55	10,000
Over (Under)	(54.9)	(54.6)	(549.5)	(150)	(150)	(150)	(9,986)
Exceed Threshold (Yes/No)	No	No	No	No	No	No	No
Localized Emissions Thresholds		81	485		4	3	
Over (Under)		(80.6)	(484.5)		(3.96)	(2.97)	
Exceed Threshold (Yes/No)		No	No		No	No	

**Mitigation Measures:** No mitigation is required.

**d. Would the project expose sensitive receptors to substantial pollutant concentrations?**

**Less Than Significant Impact.** In addition to the SCAQMD's regional significance threshold, the SCAQMD has also developed localized significance thresholds (LSTs) that identify daily emissions levels at a project construction site that could cause or contribute to adverse localized air quality impacts to the nearest sensitive receptors.

For projects with a daily construction footprint larger than five acres, SCAQMD recommends that the localized air quality impact analysis be performed using an appropriate air dispersion model. For projects with a daily construction footprint of five acres or less, the SCAQMD has developed the LST methodology to determine localized impacts. This LST Methodology consists of mass emission rate look-up tables. If the calculated emissions for the construction activity are below the emission level found in the LST lookup tables, the construction activity is not considered significant. The screening tables were developed using conservative assumptions, including the worst meteorological conditions. If localized emissions exceed the values in the lookup tables, dispersion modeling, which is more precise, may be performed.

Since the maximum daily construction footprint for each site would be less than five acres, the LST Methodology would be applicable. LSTs apply only to the following criteria pollutants: NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>, and apply only to emissions generated on site. LSTs represent the maximum on-site emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standards and are developed based on the ambient concentrations of that pollutant in that area.

Table 4 summarizes the localized impacts from the construction activities for each site, together with the SCAQMD's daily construction LST significance threshold levels.

As Table 4 shows, construction-related daily (short-term) emissions would not exceed SCAQMD LSTs for NO<sub>x</sub>, CO, and PM. Thus, project construction emissions would result in a less than significant localized impact.

**Mitigation Measures:** No mitigation is required.

**e. Would the project create objectionable odors affecting a substantial number of people?**

**Less Than Significant Impact.** Potential sources that may emit odors during construction activities include the use of coating and solvents, and diesel-powered equipment. Due to relatively small footprint of the construction sites, limited use of odorous solvent and coating, and few pieces of diesel-powered equipment operating simultaneously, odor impacts would be less than significant. During operation, all odorous chemicals will be properly stored and handled, odor impact would be less than significant.

**Mitigation Measures:** No mitigation is required.



**3.4.4 Biological Resources**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				X
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?				X

**Existing Conditions:**

**Regional and Local Plans**

The Project site is not located within or near a Habitat Conservation Plan area or a Natural Community Conservation Plan area (County of Orange 2012).

According to the City of Santa Ana General Plan Conservation Element, is a built-up, urban community with limited natural habitat and wildlife resources (City of Santa Ana 1982b).

The Project area is highly urbanized and is an area that has been heavily modified by humans, including roadways, existing buildings, and landscaping with ornamental vegetation. Because of the high degree of disturbance in these areas, they generally have low habitat value for wildlife; wildlife found here are adapted to living in heavily urbanized areas.

### **City Tree Ordinance**

Article VII (Regulation of the Planting, Maintenance, and Removal of Trees), establishes policies, regulations and standards necessary to ensure that the city will continue to realize the benefits provided by its urban forest. Section 33-188 of Article VII, states that:

“Site plan review shall require the planting of street trees to coincide with the development, redevelopment, renovating of any tract or parcel. The site plan for development or improvement of any tract or parcel of land shall be evaluated and approved by the city's transportation and development services division and street maintenance division for the placement of street trees by the developer in accordance with Santa Ana Municipal Code sections 33-47 through 33-53 and section 34-81. The approved site plan, in addition to the usual requirements of the zoning code, contained in chapter 41 of this Code, shall show the approximate location, size, and species of all existing trees to be maintained, trees to be removed and trees required for approval of the project.”

### **Wetlands/Riparian Habitat**

The U.S. Fish and Wildlife Service National Wetlands Inventory (USFWS 2018) was reviewed for potential wetlands and riparian habitat in the vicinity of the Project site. No wetlands or riparian areas are mapped in or near the Project site. The closest resource is the Santa Ana river, located approximately 440 feet to the west of the Project site.

### **Project Site**

The Project site is developed with and surrounded by light-industrial land uses. Several large mature trees are located on both well sites and along the adjacent streets. No wetlands or riparian habitat occur on or in the vicinity of the Project site.

### **Discussion:**

- a. **Would the project have a substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

**No Impact.** The Project site is developed with and surrounded by light-industrial land uses. The Project site does not contain any sensitive habitat or wildlife resources. Therefore, the Project will result in no impact to biological resources.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

**No Impact.** There are no riparian habitats or sensitive natural communities present on or near the Project site. No impacts would occur to riparian habitats or sensitive natural communities.

**Mitigation Measures:** No mitigation is required.



- c. **Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?**

**No Impact.** There are no wetlands, marshes, or vernal pools within or in the vicinity of the Project Site. Therefore, no impact would occur to any federally protected wetlands under the Clean Water Act.

**Mitigation Measures:** No mitigation is required.

- d. **Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?**

**Less Than Significant With Mitigation Incorporated.** With no native habitat, and no wildlife corridors that traverse the project site, implementation of the proposed project is not anticipated to interfere with the movement of native animals of any kind, or to impede the use of any native wildlife nursery sites. The Santa Ana River is located approximately 440 feet west of the project site and is separated from the site by urban development.

The project site supports trees that could potentially provide cover, forage, and nesting habitats for bird species that have adapted to urban areas, such as rock pigeons (*Columba livia*) or mourning doves (*Zenaida macroura*). Mourning doves are protected by the Migratory Bird Treaty Act and certain Fish and Game Codes. The statutes make it unlawful to take native breeding birds, and their nests, eggs, and young. The Project will involve the removal of the trees on site. If these trees are removed during breeding bird nesting season (typically from February 15 through September 15), implementation of mitigation measure BIO-1, provided in the event that any nesting birds are found at the project site location, will reduce impacts to less than significant.

**Mitigation Measures:** *Mitigation Measure BIO-1:* Project activities that will remove or disturb Project site trees will be scheduled outside the breeding bird season. The breeding bird nesting season is typically from February 15 through September 15.

If project activities cannot be avoided during February 15 through September 15, a qualified biologist will conduct a pre-construction breeding bird survey for breeding birds and active nests or potential nesting sites within the limits of project disturbance. The survey will be conducted at least seven days prior to the onset of scheduled activities, such as mobilization and staging. It will end no more than three days prior to vegetation, substrate, and structure removal and/or disturbance.

If no breeding birds or active nests are observed during the pre-construction survey or they are observed and will not be impacted, project activities may begin and no further mitigation will be required.

If a breeding bird territory or an active bird nest is located during the pre-construction survey and will potentially be impacted, the site will be mapped on engineering drawings and a no-activity buffer zone will be marked (fencing, stakes, flagging, orange snow fencing, etc.) a minimum of 100 feet in all directions or 500 feet in all directions for listed bird species and all raptors. The biologist will determine the appropriate buffer size based on the type of activities planned near the nest and the type of bird that created the nest. Some bird species are more tolerant than others of noise and activities occurring near their nest. This no-activity buffer zone will not be disturbed until a qualified biologist has determined that the nest is inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, or the young will no longer be impacted by project activities. Periodic monitoring by a biologist will

be performed to determine when nesting is complete. Once the nesting cycle has finished, project activities may begin within the buffer zone.

If listed bird species are observed within the project site during the pre-construction survey, the biologist will immediately map the area and notify the appropriate resource agency to determine suitable protection measures and/or mitigation measures and to determine if additional surveys or focused protocol surveys are necessary. Project activities may begin within the area only when concurrence is received from the appropriate resource agency.

Birds or their active nests will not be disturbed, captured, handled or moved. Active nests cannot be removed or disturbed; however, nests can be removed or disturbed if determined inactive by a qualified biologist.

**e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

**Less than Significant Impact.** The proposed Project would require the removal of ten trees. Trees in the public right-of-way in the City of Santa Ana are protected under Article VII (Regulation of the Planting, Maintenance, and Removal of Trees).

Nine of the trees that will be removed as part of the proposed project are on private property and not subject to the City ordinance. One tree on the Well No. 12 site is within the City's right of way and will be subject to the City ordinance. With compliance with the City ordinance, the proposed Project would not conflict with any local policies protecting biological resources and no impact would occur.

**Mitigation Measures:** No mitigation is required.

**f. Would the project conflict with the provisions of an adopted habitat conservation plan, natural communities conservation plan, or any other approved local, regional, or state habitat conservation plan?**

**No Impact.** The Project site is not located within a Habitat Conservation Plan area, a Natural Community Conservation Plan area, or in any other local, regional, or State habitat conservation plan areas. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

**3.4.5 Cultural Resources**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?				X
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
d.	Disturb any human remains, including those interred outside of formal cemeteries?			X	

**Existing Conditions:**

Section 15064.5(a) of the CEQA Guidelines generally defines a historical resource as a resource that is listed in, or eligible for listing in, the California Register of Historical Resources (CRHR), listed in a local register of historical resources, identified as significant in a historical resource survey (meeting the requirements of Section 5024.1(g) of the Public Resources Code), or determined to be a historical resource by a project's lead agency. Historic, cultural, and paleontological resources include historic buildings, structures, artifacts, sites, and districts of historic, architectural, archaeological, or paleontological significance.

According to the City of Santa Ana General Plan Conservation Element (City of Santa Ana 1982b), Santa Ana was founded in 1869 by William Spurgeon. The original town, laid out by Mr. Spurgeon, consisted of 24 blocks. The town served as a shopping center and post office for surrounding agricultural areas. In 1878 the Southern Pacific Railroad arrived and the Santa Fe Railroad followed in 1886. This encouraged development of the City. In 1889 the Orange County seat was located in Santa Ana and this further stimulated the development of businesses, stores, financial institutions and hotels serving the metropolitan population. Citrus and walnut farms were still plentiful and buying and selling land became the number one enterprise. Many of the structures in downtown and the surrounding bungalow homes were built in the early 1900's and 1920's. Today the City is developed with urban uses and limited vacant land.

According to the County of Orange General Plan (County of Orange 2012), sub-surface resources such as archaeological and paleontological sites are abundant in South Orange County, along the coast and in creek areas. Based on the County of Orange General Plan, the Project Site is not located in areas mapped for archaeological and paleontological sensitivity or historical areas.

Focusing the discussion of existing conditions for cultural resources in specific reference to the Project Site, the Site and surrounding area is developed land that has been permanently altered due to the construction of below and aboveground improvements including streets, sidewalks, buildings, and utilities.



The Well No. 12 site is currently improved with one, two-story office building which was built in 1977. (Centec Engineering 2017b)

The Well No. 14 site is currently developed with a concrete tilt-up light-industrial building which was built in 1979. (Centec Engineering 2017a)

### **Record Search Results**

A records search was conducted of the Project's Area of Potential Effect (APE) and surrounding areas via the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System on September 13, 2018 (SCCIC File No.: 19378.5313). For the records search, the study area included a half mile buffer centered on the APE. As part of this records search, the SCCIC database of survey reports and overviews was consulted, as well as documented cultural resources, cultural landscapes, and ethnic resources. Additionally, the search included a review of the following publications and lists: California Office of Historic Preservation Historic Properties Directory, National Register of Historic Places (NRHP), California Office of Historic Preservation Archaeological Determinations of Eligibility, California Inventory of Historical Resources/CRHR, California Points of Historical Interest, California Historical Landmarks, and local historic resource inventories. See Appendix B for record search results.

One previously conducted cultural resource survey (VN-00299<sup>1</sup>) and no previously recorded cultural resources were identified within the APE. VN-00299 consisted of an overview for archaeological, architectural, and paleontological resources and was conducted in 1975. An additional 16 previous studies have been conducted within a half mile of the APE between 1975 and 2007. These cultural resource investigations are comprised of archaeological and architectural surveys, and literature searches.

Based on the SCCIC record search results, no CRHR or NRHP listed or eligible sites were identified within the APE. One previously recorded historic building (P-30-176943: Ana Mesa Inn) was identified within a half mile of the APE. This building appears unevaluated for the CRHR/NRHP.

### **Review of Historic Aerial Photographs**

Review of historic aerial photographs provides information regarding potential unrecorded historic features or sites within the APE. Based on the map review<sup>2</sup>, the APE was undeveloped agricultural land from 1953 to 1972. By 1995, the APE appears as a paved north to south trending road with building adjacent east and west, similar as it appears today.

### **Native American Heritage Commission Sacred Lands Files Search**

Tetra Tech, Inc. contacted the California Native American Heritage Commission (NAHC) on August 24, 2018 and requested that the NAHC review its Sacred Lands Files. The NAHC replied on August 27, 2018 that results were negative for Native American Native tribal resources within the APE and provided a list of local Native American contacts with knowledge of the Project area. The NAHC recommends conducting outreach to the listed tribes or individuals as they may have knowledge of cultural resources within or near the Project area. Native American consultation is part of the lead CEQA agency's responsibilities under Assembly Bill (AB) 52, and CEQA as discussed under Section 3.4.17, Tribal Cultural Resources.

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<sup>1</sup> Archaeological Associates 1975. *Compilation of Historical, Archaeological, and Paleontological Data for Costa Mesa*. On file at the SCCIC.

<sup>2</sup> Historic Aerials by Netronline 2018. Electronic database located at <https://www.historicaerials.com/viewer> accessed 9/23/2018.

**Discussion:**

**a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines §15064.5?**

**No Impact.** Section 15064.5 of the CEQA Guidelines specifically defines a “historical resource” as a resource that meets one or more of the following criteria:

- Listed in, or determined eligible for listing in, the CRHR; or
- A resource listed in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code (PRC); or
- Identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC; or
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California that may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC, § 5024.1, Title 14 California Code of Regulations, Section 4852) including the following:

- An association with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
- An association with the lives of persons important to local, California, or national history.
- An embodiment of the distinctive characteristics of a type, period, region, or method of construction, or a representation of the work of a master, or possesses high artistic values.
- A resource that has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

The buildings on the well sites proposed for demolition were both constructed post 1977 and are under 45 years of age. As of the date of this document, the buildings are not considered historic resources under CEQA. The proposed Project would not cause a substantial adverse change in the significance of a historical resource defined in Section 15064.5 of the CEQA guidelines. The Project Site and immediate vicinity do not contain any known historic resources. Therefore, the proposed Project would not cause a substantial adverse change in the significance of an historical resource and no Project impact would result.

**Mitigation Measures:** No mitigation is required.

**b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines §15064.5?**

**Less Than Significant with Mitigation Incorporated.** The Project Site is not located in an area of archaeological resources sensitivity (County of Orange 2012). Although the Project area is relatively densely developed, very few previous archaeological studies have been conducted throughout the region. The surficial deposits within the APE have been subjected to previous ground disturbance. The depth of ground surface disturbance is unknown. The Project area is

within the southern end of the broad Coastal Plain of Orange County, specifically the Tustin Plain. Sediments within the APE consist of Holocene (recent to 10,000 years old, 10 to 20 feet in depth) and Pleistocene (10,000 to 2 million years old, 20 feet -plus in depth) alluvium deposits derived from the erosion of bedrock out of the Santa Ana Mountain and the San Joaquin Hills. Late Pleistocene and Holocene deposits are generally considered more likely to contain prehistoric deposits. If construction ground disturbance depths range within native soils (approximately 1 to 2 feet in depth and beyond), there would be a potential to impact previously unrecorded subsurface cultural resources. With incorporation of Mitigation Measure CUL-1 and CUL-2 listed below, these effects on archaeological resources as a result of Project construction would be reduced to less than significant.

**Mitigation Measures:**

**CUL-1: *Environmental Training*** – prior to construction of the Project, a qualified archaeologist will provide a cultural resource briefing that includes all applicable laws and penalties pertaining to disturbing cultural resources, a brief discussion of the prehistoric and historic regional context and archaeological sensitivity of the area, types of cultural resources found in the area, instruction that Project workers will halt construction if a cultural resource is inadvertently discovered during construction, and procedures to follow in the event an inadvertent discovery (Inadvertent Discovery Plan) is encountered, including appropriate treatment and respectful behavior of a discovery (e.g., no posting to social media or photographs). If requested, a local tribal representative(s) shall be invited to participate in the environmental training to discuss or provide text from a tribal cultural perspective regarding the cultural resources within the region.

**CUL 2: *Inadvertent Discovery of Archaeological Resources During Construction*** – A qualified archaeologist shall prepare an Inadvertent Discovery Plan for the Project. During Project-level construction, should subsurface archaeological resources be discovered, all activity in the vicinity of the find shall stop and a qualified archaeologist shall be contacted to assess the significance of the find according to CEQA Guidelines Section 15064.5. If any find is determined to be significant, the archaeologist shall determine, in consultation with the implementing agency and any local Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation. Per CEQA Guidelines Section 15126.4(b)(3), preservation in place shall be the preferred means to avoid impacts to archaeological resources qualifying as historical resources. Methods of avoidance may include, but shall not be limited to, Project re-route or re-design, Project cancellation, or identification of protection measures such as capping or fencing. Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures, such as data recovery or other appropriate measures, in consultation with the implementing agency and any local Native American representatives expressing interest in prehistoric or tribal resources. If an archaeological site does not qualify as an historical resource but meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site shall be treated in accordance with the provisions of Section 21083.2.

**c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

**Less Than Significant with Mitigation Incorporated.** The Project Site is not located in an area of paleontological sensitivity (County of Orange 2012). Given the highly disturbed condition of the Project Site and surroundings, the likelihood that paleontological resources or unique geologic features exist on-site is considered low. Nevertheless, ground-disturbing activities, such as grading or excavation, could unearth undocumented paleontological resources or unique geologic features by disturbing native soils that may contain cultural resources. The proposed Project could potentially cause a substantial adverse change in significance to a



paleontological resource, but incorporation of the following Mitigation Measure CUL-3 would reduce the potential impact on paleontological resources to less than significant.

**Mitigation Measures:**

**CUL-3: Inadvertent Discoveries of Paleontological Resources**—If the construction staff or others observe previously unidentified paleontological resources during ground disturbing activities, they will halt work within a 200-foot radius of the find(s), delineate the area of the find with flagging tape or rope (may also include dirt spoils from the find area), and immediately notify a qualified Paleontologist. Construction will halt within the flagged or roped-off area. The Paleontologist will assess the resource as soon as possible and determine appropriate next steps in coordination with Mesa Water District. Such finds will be formally recorded and evaluated. The resource will be protected from further disturbance or looting pending evaluation.

**d. Disturb any human remains, including those interred outside of formal cemeteries?**

**Less than Significant Impact.** Ground disturbance within native soils may potentially contain unanticipated cultural material. Existing regulations require that if human remains and/or cultural items defined by the Health and Safety Code, Section 7050.5, are inadvertently discovered, all work in the vicinity of the find would cease and the Orange County Coroner would be contacted immediately. If the remains are found to be Native American as defined by Health and Safety Code, Section 7050.5, the coroner will contact the NAHC by telephone within 24 hours. The NAHC shall immediately notify the person it believes to be the Most Likely Descendant (MLD) as stipulated by California PRC, Section 5097.98. The MLD(s), with the permission of the landowner and/or authorized representative, shall inspect the site of the discovered remains and recommend treatment regarding the remains and any associated grave goods. The MLD shall complete their inspection and make their recommendations within 48 hours of notification by the NAHC. Any discovery of human remains would be treated in accordance with Section 5097.98 of the PRC and Section 7050.5 of the Health and Safety Code. Therefore, with compliance with existing regulations, Project impact would be less than significant.

**Mitigation Measures:** No mitigation is required. Compliance with existing regulations will ensure that any Project impact on human remains would be less than significant.

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**3.4.6 Geology and Soils**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i.) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
	ii.) Strong seismic ground shaking?			X	
	iii.) Seismic-related ground failure, including liquefaction?			X	
	iv.) Landslides?				X
b.	Result in substantial soil erosion or the loss of topsoil?			X	
c.	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?			X	
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?				X

**Existing Conditions:**

The Project is located within the Tustin Plain of the Orange County Coastal Basin. According to the Department of Water Resources, the Tustin Plain is a relatively flat physiographic expression of alluvial fans and flood plains. The Orange County Coastal Basin is a large alluvial basin extending from the Pacific Ocean in the west to the foothills of the Santa Ana Mountains in the east and from the Los Angeles-Orange County line in the north to the San Joaquin Hills in the south. (Centec Engineering 2017a)

The stratigraphic sequence underlying the Tustin Plain consists of a basement complex of Mesozoic and older igneous and metamorphic rocks, Tertiary semi-consolidated sediments, Pleistocene alluvium, and Recent alluvium. The thickness of the alluvium beneath the site is

reportedly several hundred feet, with the upper 50 feet consisting of silty sands, medium-grained sands, silty clays, and sandy clays. (Centec Engineering 2017a)

The well sites and pipeline alignment are not located within an Alquist-Priolo Earthquake Fault Zone (Leighton 2018).

Subsurface soils that underlie the pavement sections of the Project site, consisted of 2 to 5 feet of artificial fill overlying Quaternary-aged young alluvial fan deposits to the maximum explored depth of 26.5 feet. The fill materials generally consisted of silty sand, clayey sand, and sandy clay with some gravel; and the alluvial deposits generally consisted of medium stiff to stiff sandy clay and lean clay, and loose sand and silty sand. (Leighton 2018)

The Well Site No. 12 site is located at an elevation of approximately 40 feet above sea level. The natural ground surface slopes gently to the southwest, parallel to the river gradient. Depth to groundwater has historically ranged from approximately 9 to 14 feet bgs. (Centec Engineering 2017b)

The Well Site No. 14 site is located at an elevation of approximately 35 feet above sea level. Below the site, perched and unusable groundwater zones may be expected at depths from 20-25 feet bgs, and would be expected to flow in a southerly direction. (Centec Engineering 2017a)

#### **Discussion:**

- a. **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**
  - i.) **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**

#### **No Impact.**

The well sites and pipeline alignment are not located within an Alquist-Priolo Earthquake Fault Zone (Leighton 2018). No active faults are known to cross the well sites or pipeline route (City of Santa Ana 1982c). The probability of damage because of surface ground rupture is low due to the lack of known active faults crossing the Project area. The proposed water well and supporting facilities have been designed in accordance with applicable seismic safety standards. The operation of the proposed Project, therefore, is not anticipated to expose people or structures to potential substantial adverse effects, including risk of loss, injury, or death from the rupture of a known earthquake fault. No impact is anticipated.

**Mitigation Measures:** No mitigation is required.

- ii.) **Strong seismic ground shaking?**

**Less than Significant Impact.** The Project is located within the seismically active Southern California region and is likely to experience strong ground shaking from seismic events generated on regionally active faults. The project has been designed in accordance with applicable seismic safety standards. The operation of the proposed Project, therefore, is not anticipated to expose people or structures to potential substantial adverse effects from strong seismic ground-shaking. The impact is anticipated to be less than significant.

**Mitigation Measures:** No mitigation is required.

- iii.) **Seismic-related ground failure, including liquefaction?**

**Less than Significant Impact.** The Project is within a liquefaction hazard zone (JCP-LGS 2017). Construction projects within a liquefaction hazard zone require geotechnical reports to

address and mitigate the potential vulnerability of structural integrity during earthquakes. Construction of the well and associated Project facilities will comply with applicable measures of the California Building Code regarding construction in a liquefaction zone and other seismic safety measures. Operation of the proposed Project would not expose people or structures to substantial impacts involving seismic-related ground failure from liquefaction; therefore, a less than significant impact would occur.

**Mitigation Measures:** No mitigation is required.

**iv.) Landslides?**

**No Impact.** The Project Site is not located in a landslide area. The land within and in the vicinity of the Project Site is relatively flat; thus, no impact from landslides is anticipated.

**Mitigation Measures:** No mitigation is required.

**b. Would the project result in substantial soil erosion or the loss of topsoil?**

**Less than Significant Impact.** Construction of the Project would include ground-disturbing activities, such as excavation, drilling, and grading in order to build the structure and install the associated pipelines that would connect the Project elements. Excess soil from the excavation of the infiltration basin will be placed as fill on the other portions of the site. Since the project impact area would be below one acre, the proposed project would not be subject to the requirements of the Construction General Permit under the National Pollutant Discharge Elimination System (NPDES) program administered by the State Water Resources Control Board. However, construction of the proposed project would be required to ensure that current industry-standardized best management practices (BMPs) are implemented. This would include the implementation of BMPs to minimize the potential for water quality impacts during construction. The Project site will be paved or landscaped so that no exposed soil would remain. The Project will have a less than significant impact related to erosion and loss of topsoil in the construction and operational phases.

**Mitigation Measures:** No mitigation is required.

**c. Is the project located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse?**

**Less than Significant Impact.** Based on the analysis provided in Response 3.4.6(a)(iv) above, no impact would be experienced related to on-site or off-site landslides. Since the Project Site is located within a liquefaction hazard zone, the potential for liquefaction to occur during intense ground shaking does exist. The Project Site is also located in a subsidence hazard zone (City of Santa Ana 1982c). As with the potential for liquefaction, construction projects within a subsidence hazard zone require geotechnical reports to address and mitigate the potential vulnerability of structural integrity during earthquakes. Construction of the well and associated Project facilities will comply with applicable measures of the California Building Code regarding construction in a liquefaction hazard zone, subsidence hazard zone, and other seismic safety measures. Operation of the proposed Project would not expose people or structures to substantial impacts involving seismic-related ground failure from liquefaction; therefore, a less than significant impact would occur.

**Mitigation Measures:** No mitigation is required.

**d. Is the project located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

**Less than Significant Impact.** Expansiveness refers to the potential to swell and shrink with repeated cycles of wetting and drying and is a common feature of fine-grained clayey soils. This

wetting and drying causes damage due to differential settlement within buildings and other improvements. The City of Santa Ana General Plan does not identify areas of expansive soils; however, the design and construction of the Project will be in compliance with applicable regulations and standard specifications to prevent potential risk of damage from expansive soils. The project would be required to comply with building code requirements in order to minimize the potential for hazards due to expansive soils. Therefore, regulatory compliance will ensure that impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- e. Would the project have soils that are incapable of supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

**No Impact.** No septic tanks or alternative wastewater systems will be constructed as part of the project, and no impacts will occur.

**Mitigation Measures:** No mitigation is required.

**3.4.7 Greenhouse Gas Emissions**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b.	Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?				X

An Air Quality and Greenhouse Gas Technical Report was prepared by Tetra Tech and is provided under Appendix A. The following summarizes the air quality analysis results and conclusions.

**Existing Conditions:**

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however, data indicate that current global conditions differ from past climate changes in rate and magnitude. According to the Intergovernmental Panel on Climate Change, the increase in atmospheric GHGs is largely the result of human activities, namely fossil fuel combustion, land use changes and agriculture (IPCC 2007). GHGs are those compounds in the Earth's atmosphere that play a critical role in determining the Earth's surface temperature. Specifically, these gases allow high-frequency solar radiation to enter the Earth's atmosphere, but retain the low frequency energy which is radiated back from the Earth towards space, resulting in a warming of the atmosphere. Increased concentrations of GHGs in the Earth's atmosphere have been linked to global climate change and such conditions as rising surface temperatures, melting icebergs and snowpack, rising sea levels, and the increased frequency and magnitude of severe weather conditions.

GHGs include CO<sub>2</sub>, methane, O<sub>3</sub>, water vapor, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Carbon dioxide is the most abundant GHG in the atmosphere. GHGs are the result of both natural and anthropogenic activities. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions.

In September 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act of 2006, also known as AB 32, into law. AB 32 commits the State to achieving the following:

- 2000 GHG emission levels by 2010 (which represents an approximately 11 percent reduction from business as usual)
- 1990 levels by 2020 (approximately 25 percent below business as usual)

To achieve these goals, AB 32 mandates that California Air Resources Board establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce



Statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved

The CEQA Guidelines, Section 15064.7, define a threshold of significance as an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. CEQA gives wide latitude to lead agencies in determining what impacts are significant and does not prescribe thresholds of significance, analytical methodologies, or specific mitigation measures (OPR 2007). CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects.

The SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. In December 2008, SCAQMD adopted interim CEQA GHG significance thresholds for use only when SCAQMD is the lead agency on projects. These thresholds apply to industrial projects only, and include a 10,000 metric ton carbon dioxide equivalent (CO<sub>2</sub>e) screening level. For purposes of this analysis, the 10,000-metric ton CO<sub>2</sub>e threshold for industrial projects is applied to this project.

While it is difficult to predict the specific impact of one project's incremental contribution to the global effects of GHG emissions due to a variety of factors, including the complex and long-term nature of such effects and the global scale of climate change, it is possible to determine whether a project is implementing design strategies consistent with the guidance that is available. Thus, if a project implements design strategies consistent with the goals of AB 32, the project will not be considered to have a significant impact with respect to global climate change, either on a project-specific basis or with respect to its contribution to a cumulative impact on global climate change.

**Discussion:**

- a. **Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**Less than Significant Impact.** GHG emissions from this proposed project are from two major sources: Fuel combustion in construction equipment and truck hauling. The CalEEMod model was run to determine the GHG emissions. Table 7 shows the total GHG emissions together with the SCAQMD's significance thresholds. As shown in Table 7, GHG emissions are below SCAQMD significance thresholds of 10,000 metric tons per year and no significant impact will occur.

**Table 7. GHG Emissions**

Phases	CO <sub>2</sub> e (Metric Tons/yr)	SCAQMD Significance Threshold	Exceed Threshold (Yes/No)
Construction	544	10,000	No
Operation	14	10,000	No

**Mitigation Measures:** No mitigation is required.

**b. Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?**

**No Impact.** The proposed project would not conflict with the AQMP or the City's policies to reduce GHG emissions, as the project would not increase population. Furthermore, the project would not generate substantial vehicle trips and would not increase roadway capacity. Therefore, the implementation of the proposed project would not affect any plans, policies, or regulations adopted for the purpose of reducing GHG emissions and impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

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**3.4.8 Hazards and Hazardous Materials**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?				X
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?				X
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?				X
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

### **Existing Conditions:**

The Project area is urbanized with light industrial land uses. Phase I Environmental Site Assessments conducted for the well sites revealed no evidence of current or historical Recognized Environmental Conditions associated with the sites. A review of adjacent properties indicated little to no concerns to well sites. Due to the pre-1980 construction of the buildings at both sites, some asbestos-containing materials and/or lead-based paint may be present in the existing building materials. Neither well site is included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. (Centec Engineering 2017a, 2017b)

The Project site is also not located within 2 miles of a public airport or public use airport. The nearest airport is John Wayne Airport located approximately 3.5 miles to the southeast. The Project site is within an Orange County Airport Land Use Plan Area for John Wayne Airport but is not within the John Wayne Airport Safety Zone (ALUC 2005).

The OCFA provides emergency response to fires and hazardous materials incidents in the City of Santa Ana. The City of Santa Ana maintains an Emergency Services Plan which provides direction and guidance for officials and citizens in the event of emergency; including emergencies related to major fires and/or explosions, industrial accidents, traffic control, and hazardous materials spills (City of Santa Ana 1982d).

### **Discussion:**

#### **a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

**Less than Significant Impact.** The short-term construction process for the proposed Project would not involve any routine transport, use, or disposal of hazardous materials. Some examples of hazardous materials include fuels, lubricating fluids such as paints and adhesives, and solvents. Fuels and solvents for construction would be stored and utilized pursuant to existing regulatory requirements. Therefore, short-term construction impacts would be less than significant.

Operation of the well would require limited transport, storage, use, and disposal of hazardous materials. The project would involve the use of sodium hypochlorite and aqueous ammonia for disinfection, and diesel fuel for the emergency diesel generator. The chemical storage area will be fully contained and covered for protection from the elements. The emergency diesel generator will be located within an enclosure located on the exterior of the electrical building.

All chemical storage and usage would comply with existing federal, State, and local requirements (including chemical hygiene requirements administered by the California Division of Occupational Safety and Health). During filling of storage tanks, Mesa Water District personnel will be present to guard against spillage. Wash down/containment facilities will also be available in the event of a spill. The well facility will be highly automated to ensure protection of the public health, safety, and general welfare, and to monitor maintenance requirements and operations.

Strict safety procedures and best management practices will be implemented for fuel transport and during tank refueling. No disposal of hazardous materials would occur on-site. With the aforementioned procedures and BMPs implemented as part of the Project, impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

#### **b. Would the project create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?**

**Less than Significant Impact.** Due to the pre-1980 construction of the buildings at both sites, some asbestos-containing materials and/or lead-based paint may be present in the existing building materials. Any activity that involves cutting, grinding, or drilling during building renovation or demolition, or that involves relocation of underground utilities, could release friable asbestos fibers unless proper precautions are taken. The federal Clean Air Act regulates asbestos as a hazardous air pollutant, which subjects it to regulation by SCAQMD under its Rule 1403. The federal Occupational Safety and Health Administration also regulates asbestos as a potential worker safety hazard. Prior to demolition or renovation of any of the well sites' existing buildings, any asbestos-containing materials and/or lead-based paint must be identified and abated. With removal of these hazardous materials prior to demolition, as required, and in accordance with all applicable laws, no significant impacts are expected.

During construction, there is a potential for accidental release of hazardous substances such as petroleum-based fuels or hydraulic fluid used by construction equipment. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials utilized during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and federal law. As with the discussion for 3.4.8(a) above, all chemical and fuel storage and usage would comply with existing federal, State, and local requirements (including chemical hygiene requirements administered by the California Division of Occupational Safety and Health). In addition, Mesa District will implement a risk management plan for each well facility. During filling of storage tanks for sodium hypochlorite and aqueous ammonia, personnel will be present to guard against spillage. Wash down/containment facilities will also be available in the event of a spill. The well facility will be highly automated to ensure protection of the public health, safety, and general welfare, and to monitor maintenance requirements and operations. With the aforementioned measures implemented as part of the proposed Project, impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- c. Would the project emit hazardous emissions or handle hazardous materials or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?**

**No Impact.** There are no schools within 0.25 mile. The closest school, Mamie L. Northcutt Elementary School, is located approximately 0.7 mile to the northwest of the Project site. No impact would occur.

**Mitigation Measures:** No mitigation is required.

- d. Is the project located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

**No Impact.** Since neither well site is on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, there would be no hazard to the public or environment and therefore, no impact would be experienced.

**Mitigation Measures:** No mitigation is required.

- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

**No Impact.** The Project site is also not located within 2 miles of a public airport or public use airport. The nearest airport is John Wayne Airport located approximately 3.5 miles to the southeast. The Project site is within an Orange County Airport Land Use Plan Area for John Wayne Airport but is not within the John Wayne Airport Safety Zone (ALUC 2005). In addition, the project is an infill project, consistent with the City's General Plan and zoning designations, see Response 3.4.10(b); and therefore, is consistent with the Orange County Airport Land Use Plan. The Project would not result in a safety hazard for people residing or working in the project area and no impact would occur.

**Mitigation Measures:** No mitigation is required.

**f. For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?**

**No Impact.** The Project Site is not located in the vicinity of a private airstrip or heliport; therefore, the Project would not result in a safety hazard for people residing or working in the project area and no impact would occur.

**Mitigation Measures:** No mitigation is required.

**g. Would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?**

**Less Than Significant Impact.** For construction of the proposed Project, traffic control will be needed to temporarily reduce available lanes during the construction of the pipeline, storm drain, utility services and street resurfacing. Full road closures are not anticipated, however. In addition, a traffic control plan will be prepared to accommodate this work area width along the pipeline route. Refer to Figures 2-6 through 2-8 for conceptual traffic detour plans. These impacts would be short term and temporary and would have a less than significant impact to roadways utilized for emergency purposes. The Project would not require full time employees at the site and thus would not increase the burden on existing emergency response plans. Only one weekly trip to the Site would be required during operation and thus would not generate traffic congestion, obstruct traffic flow, or emergency operations. During Project operation, emergency access would be maintained to all residences and public facilities since the existing adjacent roads would not be altered. Therefore, the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

**h. Would the project expose people or structures to the risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

**No Impact.** The Project site is located in an urbanized and fully developed area and is not located within or near any wildland areas (County of Orange 2012). Also, the proposed landscaping would not create hazardous conditions due to wildland fires. Therefore, the Project would not pose a fire hazard due to wildland fires and no impact would occur.

**Mitigation Measures:** No mitigation is required.

**3.4.9 Hydrology and Water Quality**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Violate any water quality standards or waste discharge requirements?			X	
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?				X
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?			X	
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?			X	
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f.	Otherwise substantially degrade water quality?				X
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map or other flood hazard delineation map?				X
h.	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?				X
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j.	Contribute to inundation by seiche, tsunami, or mudflow?				X

## **Existing Conditions:**

### **Surface Water**

Both well sites are currently developed with small areas of ornamental vegetation. The surrounding area is developed with light industrial land uses. Stormwater flows across the site to storm drains located in the surrounding streets.

The Project and the surrounding areas are in a Federal Emergency Management Agency flood Zone X, where the probability of flooding inundation has been evaluated to be 0.2 percent (i.e. a 500-year event, FEMA 2009).

The Project is within the Prado Dam Inundation Area and the Santiago Reservation Inundation Area (City of Santa Ana 1982d).

The Project site is not located in a tsunami run-up area (California Emergency Management Agency 2009).

The Santa Ana River is the major drainage channel flowing through the City and many of the major storm drains in the City, are (directly or indirectly) connected to it. The reach through Santa Ana consists mostly of a trapezoidal, concrete lined channel with a bottom width of 180 feet. Santiago Creek is the main tributary to the Santa Ana River. The creek joins the Santa Ana River just south of Garden Grove Boulevard. (City of Santa Ana 1998)

The City of Santa Ana is served by two primary flood control and drainage systems: City-operated and maintained storm drain system, including catch basins and storm drain pipes; and flood control facilities operated and maintained by the Orange County Flood Control District, including the large flood control channels in the City (City of Santa Ana 2015). The NPDES Stormwater Permit issued to the County of Orange and its co-permittees requires development projects to incorporate appropriate best management practices to minimize pollutant levels in runoff (County of Orange 2017).

### **Groundwater**

The Project site is located within the Tustin Plain of the Orange County Coastal Basin. The Well Site No. 12 is located approximately 1,600 feet east of the engineered channel of the Santa Ana River. The site is located at an elevation of approximately 40 feet above sea level. The natural ground surface slopes gently to the southwest, parallel to the river gradient. Depth to groundwater has historically ranged from approximately 9 to 14 feet bgs. (Centec Engineering 2017b)

The Well Site No. 14 is located approximately 400 feet east of the engineered channel of the Santa Ana River. The site is located at an elevation of approximately 35 feet above sea level. Below the site, perched and unusable groundwater zones may be expected at depths from 20-25 feet bgs, and would be expected to flow in a southerly direction. (Centec Engineering 2017a)

### **Discussion:**

- a. **Would the project violate any water quality standards or waste discharge requirements?**



## Less than Significant Impact.

### Short-term Impacts

The proposed Project could potentially result in water quality impacts during the short-term construction process. The grading and excavation required for Project implementation would result in exposed soils that may be subject to wind and water erosion. Since the project impact area would be below one acre, the proposed project would not be subject to the requirements of the Construction General Permit under the NPDES program administered by the State Water Resources Control Board. However, construction of the proposed project would be required to ensure that current industry-standardized best management practices (BMPs) are implemented.

This would include the implementation of BMPs to minimize the potential for water quality impacts during construction.

For Well No. 12, an 18-inch storm drain will convey site storm water and pump waste discharge from Well No. 12 to an existing City of Santa Ana 18-inch storm drain catch basin on the north side of West Chandler Avenue.

For Well No. 14, approximately 535 linear feet of 18-inch storm drain will be constructed to convey site stormwater and pump waste discharge from Well No. 14 to an existing City of Santa Ana 27-inch storm drain catch basin on the west side of Croddy Way approximately 500 feet to the south of the Well No. 14 site.

The storm drains will be constructed based on Regional Water Quality Control Board Non-Stormwater discharge requirements. Upon adherence to these existing requirements, short term impacts to water quality standards and waste discharge requirements would be less than significant.

### Long-Term Operational Impacts

The proposed Project would not affect hydrology or water quality in the Project area upon completion of construction. Development of the Well Site would not increase the amount of impervious area as compared to existing conditions. The Project is not expected to alter the drainage conditions in the Project area. Impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?**

**No Impact.** Mesa Water District's water system currently meets its potable water demand through utilization of groundwater wells supplemented with imported water. In 2014, Mesa Water District Board of Directors adopted a policy for local water reliability to be 115 percent of demand. This policy provides Mesa Water District with additional assurance to meet peak water demands with local groundwater supplies when other water production facilities undergo routine maintenance. The proposed Project would enable the use of Wells No. 12 and No. 14 to provide additional local water reliability.

Implementation of the wells would not result in any exceedance of Mesa Water District's existing water entitlements. Rather, it would improve reliability and efficiency of the supply system. Thus, the Project would not deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level. Therefore, impacts to groundwater supply would be less than significant.

**Mitigation Measures:** No mitigation is required.

- c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?**

**Less than Significant Impact.** Refer to Response 3.4.9(a) above. Development of the Project is not expected to alter drainage conditions in the Project area. As noted above, the proposed Project will construct storm drains based on Regional Water Quality Control Board Non-Stormwater discharge requirements. Thus, impacts in this regard would be less than significant.

**Mitigation Measures:** No mitigation is required.

- d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site?**

**Less than Significant Impact.** Refer to Responses 3.4.9(a) and 3.4.9(c) above. The proposed Project is not expected to alter off-site runoff in comparison to existing conditions. Impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- e. Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

**Less than Significant Impact.** Refer to Responses 3.4.9(a) and 3.4.9(c) above. The Project is not expected to alter off-site runoff in comparison to existing conditions. Therefore, impacts to stormwater drainage systems would be less than significant.

**Mitigation Measures:** No mitigation is required.

- f. Would the project otherwise substantially degrade water quality?**

**No Impact.** Refer to Responses 3.4.9(a) and 3.4.9(c) above. The proposed Project would be subject to the Orange County Flood Control District NPDES permit conditions for discharges into the storm drain system. Impacts to water quality are expected to be less than significant.

**Mitigation Measures:** No mitigation is required.

- g. Would the project place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map or other flood hazard delineation map?**

**No Impact.** The Project site is not located within a 100-year floodplain (FEMA 2009) and does not include construction of housing or remapping of a floodplain; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- h. Would the project place within a 100-year floodplain structures that would impede or redirect flood flows?**

**No Impact.** The Project site is not located within a 100-year flood plain and therefore would not impede or redirect flood flows. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.



**i. Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?**

**Less than Significant Impact.** The Project is within the Prado Dam Inundation Area and the Santiago Reservation Inundation Area (City of Santa Ana 1982d), so in the event of a dam breach the area could be flooded. However, flood depths would be less than 1 foot in the event of a dam failure and are not considered a significant risk. In addition, the Project and the surrounding areas are in Federal Emergency Management Agency Flood Zone X, the 500-year floodplain, where the probability of flood inundation is only 0.2 percent. As a result, potential impacts to structures would be less than significant, and these facilities will not require active and on-site operations personnel so no injury or death from flooding is anticipated.

**Mitigation Measures:** No mitigation is required.

**j. Would the project contribute to inundation by seiche, tsunami, or mudflow?**

**No Impact.** The Project site is not located near any or areas at risk for seiche, tsunami or mudflows; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

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**3.4.10 Land Use and Planning**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Physically divide an established community?				X
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

**Existing Conditions:**

The Project is located within a light industrial area of the City of Santa Ana. Both well sites are currently developed with light industrial land uses.

Land use in the City of Santa Ana is directed by the City of Santa Ana General Plan (City of Santa Ana 1998). According to the Santa Ana General Plan Land Use Map, the land use designation for the Project site and adjacent areas is IND 0.45 (Industrial). The Project site and surrounding areas are zoned as M1 (Light Industrial).

The City of Santa Ana’s General Plan defines the IND 0.45 (Industrial) designation as “...those areas developed with manufacturing and industrial uses. The designation applies to areas which are predominantly industrial in character, and includes those industrial districts in the southwestern, south central and southeastern sections of the City.... The maximum floor area ratio for this designation is 0.45.” Typical land uses found under these designations include light and heavy product manufacturing and assembly and commercial uses ancillary to industrial uses.

The City of Santa Ana Municipal Code Section 41-472 states that permitted uses in the M1 zoning district include public utility structures (City of Santa Ana 2018).

The California legislature granted water districts the power to exempt water district property from county and city zoning requirements, provided the water district complies with the terms of Government Code Section 53091.<sup>3</sup>

<sup>3</sup> Government Code Section 53091.

(d) Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency.

(e) Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water...

(Amended by Stats. 2002, Ch. 267, Sec. 1. Effective January 1, 2003.).



The Project site is not located within any habitat conservation plan areas or natural community conservation plan areas.

**Discussion:**

**a. Would the project physically divide an established community?**

**No Impact.** The Project area is urbanized with light industrial land uses. The Project well sites are small in size and development of the water well facilities would not hinder pedestrians or travelers on the adjacent streets or sidewalks from accessing other areas in the surrounding community. Therefore, the proposed Project would not divide an established community and no impact would occur.

**Mitigation Measures:** No mitigation is required.

**b. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

**No Impact.** Land uses permitted under the Santa Ana General Plan Land Use Map for the Project site include light and heavy product manufacturing and assembly and commercial uses ancillary to industrial uses. The permitted uses for the Project site M1 zoning district includes public utility structures. Since the proposed Project is considered an allowed use in this zoning district, the proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. In addition, the Project would be exempt from local jurisdiction zoning regulations.; therefore, no impacts would occur.

**Mitigation Measures:** No mitigation is required.

**c. Would the project conflict with any applicable habitat conservation plan or natural communities conservation plan?**

**No Impact.** The Project site is not located within any habitat conservation plan areas or natural community conservation plan areas; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

**3.4.11 Mineral Resources**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				X

**Existing Conditions:**

Mineral Resource Zones are commercially viable mineral or aggregate deposits, such as sand, gravel, and other construction aggregate. The mineral resources in Orange County consist of deposits of regionally significant aggregate resources identified by the California Department of Conservation, Divisions of Mines and Geology (County of Orange 2012). These significant sand and gravel resources for the Orange County region are located in portions of the Santa Ana River, Santiago Creek, San Juan Creek, Arroyo Trabuco and other areas. Orange County's petroleum resources are in the form of oil and natural gas deposits. The primary petroleum resource areas of the Orange County are Huntington Beach, Newport Beach, Seal Beach and the Brea/La Habra foothill regions. The Project site is not located near any of these areas.

**Discussion:**

- a. **Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

**No Impact.** No mineral recovery activities currently occur in the Project area, and the Project site is not underlain by any known mineral resources of value to the region and residents of the State. Thus, no impacts would occur.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

**No Impact.** As stated above, the Project site is not located within a Mineral Resource Zone or an area of oil and gas resources. Thus, no impacts would occur.

**Mitigation Measures:** No mitigation is required.



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**3.4.12 Noise**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:					
a.	Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance, or applicable standards of other agencies?			X	
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

**Existing Environment:**

The existing noise environment in the vicinity of the proposed Well No. 12 consists of vehicle noise from Chandler Avenue, Croddy Way, and Segerstrom Avenue. For Well No. 14 the existing noise environment consists of vehicle noise from Croddy Way and MacArthur Boulevard. Adjacent land uses to both well locations are industrial zoned. The Courtyard by Marriott hotel is located along Harbor Boulevard approximately 1,000 feet from Well No. 12 and 800 feet from Well No. 14. The nearest residential receptors are located approximately 0.35 mile south of Well No. 12 and approximately 0.85 miles to the east of Well No. 14. There are no residential land uses located in the direct vicinity of the well sites and pipeline route. No ambient noise monitoring data have been identified for the project vicinity, but existing land uses and street patterns as well as the existing noise contours published in the City of Santa Ana’s Noise Element indicate that the existing ambient noise levels at the proposed project site should be at or below 65 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL).

**Discussion:**

- a. **Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?**

**Less than Significant.** The City of Santa Ana's Noise Element to the General Plan identifies the land use compatibility standard for noise-sensitive land uses as a CNEL of 65 dBA. No ambient noise monitoring data have been identified for the project vicinity, but existing land uses and street patterns indicate within the City of Santa Ana's Noise Element that the existing ambient noise levels should be at or below the CNEL standard of 65 dBA at the project site and adjacent properties. The construction of the proposed well sites and pipeline would have only a minimal impact on daily traffic volumes in the project vicinity, and thus would have minimal impact on traffic noise conditions.

The City of Santa Ana's Municipal Code Chapter 18 Article VI limits noise propagation to residential land uses from stationary equipment during the daytime period (7:00 am to 10:00 pm) to 55 dBA equivalent continuous sound level ( $L_{eq}$ ) and during the nighttime period (10:00 pm to 7:00 am) to 50 dBA  $L_{eq}$ . Both well sites are proposing a pump building, a chemical storage area, an electrical building, an emergency backup generator, a single ground level heating, ventilation, and air conditioning (HVAC) unit, and a transformer. The pump structure contains an electric motor pump that generates a noise emission level not to exceed 90 dBA at 5 feet. The pump is also enclosed within a steel framed concrete masonry unit (CMU) building. The electrical building incorporates a ground level HVAC unit with a sound power level of 83 dBA and an emergency backup generator with a sound power level of 73 dBA. A transformer is also located on the southern portion of Well No. 12 and the eastern portion of Well No. 14. Each transformer will have a sound power level of 79 dBA. Given that high noise producing equipment is located with steel framed CMU buildings and assuming all equipment will operate simultaneously the noise levels from the project operations would be less than 20 dBA  $L_{eq}$  at the nearest residential land use located 0.35 miles south of Well No. 12. At the nearest sensitive receptor (Courtyard by Marriott hotel) the noise levels will be less than 30 dBA  $L_{eq}$ . Noise levels at the property lines of both well sites will be 50 dBA  $L_{eq}$  or less and are, therefore, considered to be a less than significant impact.

The City Santa Ana's Municipal Code Chapter 18 Section 18.314 exempts construction equipment operating between the daytime hours of 7:00 a.m. to 8:00 p.m. on weekdays, including Saturday. The majority of the construction of the proposed project would be conducted during weekdays between the hours of 7:00 a.m. to 8:00 p.m. However, the well drilling, pump testing, and mechanical development will require 24-hour operation occurring over a total of 18-day period for each well site. Noise levels from the drilling operations will exceed the City of Santa Ana's nighttime threshold level of 50 dBA  $L_{eq}$ .

To reduce the noise levels below the below the 50 dBA  $L_{eq}$ , Project construction will include provision of 24-foot-high sound wall to enclose the well areas during drilling. Project construction will also incorporate construction BMPs including use of the best available noise control techniques for equipment and vehicles.

With the incorporation of the sound wall and construction BMPs, noise impacts generated by the construction of the project will be less than significant.

**Mitigation Measures:** No mitigation is required.

- b. **Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

**Less than Significant Impact.** Operation of the pump facility would not generate vibration; however, construction of the structures and site grading would require the use of equipment that could generate vibration. Possible sources of vibration may include a drill rig, jackhammer,



dump trucks, backhoes, rollers, and other construction equipment that produces vibration. No blasting will be required at the project site.

Project construction activities would occur within approximately 50 feet from the nearest structure. According to the Federal Transit Administration guidelines, a vibration level of 65 vibration decibel (VdB) is the threshold of perceptibility for humans. For a significant impact to occur, vibration levels must exceed 80 VdB during infrequent events (Federal Transit Administration 2006). Based on the levels published by the Federal Transit Administration (Federal Transit Administration 2006) and the type of equipment proposed for use at the Proposed Project, coupled with the distance to the existing identified receptors as well as adjacent structures, analysis shows that all identified sensitive receptors and adjacent structures will be below the maximum vibration guideline criteria of 80 VdB. This vibration level is considered acceptable for short term infrequent impacts at residential homes as well as other nearby buildings and is, therefore, considered to be a less than significant impact.

**Mitigation Measures:** No mitigation is required.

**c. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

**Less Than Significant Impact.** The dominant noise sources in the vicinity of the Well No. 12 consists of vehicle noise from Chandler Avenue, Croddy Way, and Segerstrom Avenue. For Well No. 14 the existing noise environment consists of vehicle noise from Croddy Way and MacArthur Boulevard. Based on existing traffic volumes noise levels at the Courtyard by Marriott hotel and the nearest residence located approximately 0.35 miles from Well No. 12 range from 60 dBA CNEL to 65 dBA CNEL. Both well sites are proposing a pump building, a chemical storage area, an electrical building, an emergency backup generator, a single ground level HVAC unit, and a transformer. The pump building encloses the pump within a steel framed CMU building. The electrical building incorporates a ground level HVAC unit. A transformer is also located on the southern portion of Well No. 12 and the eastern portion of Well No. 14. The noise levels from the project operations would be less than 20 dBA  $L_{eq}$  at the nearest residential land use located 0.35 miles south of Well No. 12. At the nearest sensitive receptor (Courtyard by Marriott hotel) the noise levels will be less than 30 dBA  $L_{eq}$ . Based on the existing noise levels generated by the vehicle traffic, the noise impacts from the project related equipment at both well sites would result in an increase of less than one dBA to the ambient noise levels at the nearest residential property lines and at the nearest sensitive receptor (hotel). Since the Proposed Project is shown to only increase the overall ambient community noise level by less than one dBA, it is considered to be a less than significant impact.

**Mitigation Measures:** No mitigation is required.

**d. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

**Less than Significant.** Construction of the Well No. 12, Well No. 14, and the pipeline is planned to start in January of 2020 and last approximately 20 months. The project construction activities are anticipated to occur in phases and include the installation of the pipeline, drilling and equipping at Wells No. 12 and No. 14. These construction activities would require a variety of equipment. Typical construction equipment would not be expected to generate noise levels above 90 dBA at 50 feet, and most equipment types would typically generate noise levels of less than 85 dBA at 50 feet.

The highest noise levels during construction are normally generated during the use of earth moving equipment or drilling. Drilling equipment would be the loudest equipment used at the well sites. This equipment is expected to generate a maximum instantaneous noise level of up to 50-55 dBA at the nearest sensitive receptor located at a distance of 850 feet. The pipeline

construction would result in noise levels ranging from 56 to 73 dBA maximum instantaneous noise level at a distance of 350 feet to the nearest sensitive receptor. The noise levels from the construction would be loud enough to temporarily interfere with speech communication outdoors and indoors with the windows open. Majority of the project construction would occur between the hours of 7:00 a.m. and 8:00 p.m., Monday through Friday as well as implement standard noise reduction measures. However, the well drilling, pump testing, and mechanical development will require 24-hour operation occurring over a total of 18-day period for each well site. The drilling operations will incorporate sound barrier mitigation and construction BMPs. Due to the infrequent nature of loud construction activities at the site, the limited hours of construction, and the implementation of standard noise mitigation measures, the temporary increase in noise due to construction is considered to be a less than significant impact.

**Mitigation Measures:** No mitigation is required.

- e. **For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

**No Impact.** There is no public airport or public use airport located within two miles of the proposed Project site. The Project would not result in exposing people residing or working in the project area to excessive noise levels associated with a public airport and no impact would occur.

**Mitigation Measures:** No mitigation is required.

- f. **For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

**No Impact.** There are no private airstrips located in the Project vicinity. The Project would not result in exposing people residing or working in the project area to excessive noise levels associated with a private airstrip and no impact would occur.

**Mitigation Measures:** No mitigation is required.

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### 3.4.13 Population and Housing

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?				X
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?				X
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?				X

#### Existing Conditions:

According to the City of Santa Ana’s 2014-2021 Housing Element (City of Santa Ana 2014), population growth in the City of Santa Ana during the 1990s was significantly slower than surrounding communities and the county as a whole. Between 2000 and 2010 the City’s population decreased by about 4 percent. In 2010, the City of Santa Ana’s estimated population of 324,528 represented approximately 11 percent of the county’s total population, ranking Santa Ana as the second most populated city in the county behind Anaheim. Estimates from the California Department of Finance show the City of Santa Ana’s 2018 population to be 338,247, a 0.1 percent increase from 2017 (California Department of Finance 2018). The City has an estimated 78,052 housing units.

#### Discussion:

- a. **Would the project induce substantial population growth in an area, either directly (e.g., by proposing new homes and business) or indirectly (e.g., through extension of roads or other infrastructure)?**

**No Impact.** Mesa Water District provides potable water for a population of approximately 110,000 within an 18-square mile service area which includes the City of Costa Mesa, portions of the City of Newport Beach, and portions of unincorporated Orange County. Mesa Water District’s water system currently meets its potable water demand through a combination of imported water, local groundwater, and five clear water wells and two tinted water wells. In 2014, Mesa Water District Board of Directors adopted a policy for local water reliability to be 115 percent of demand. This policy provides Mesa Water District with additional assurance to meet peak water demands with local groundwater supplies when other water production facilities undergo routine maintenance.

The proposed Project would provide additional local groundwater water reliability. Implementation of the Project would not result in any exceedance of Mesa Water District’s existing water entitlements. Rather, it would improve reliability and efficiency of the water supply system. The proposed Project would not involve the construction of any homes, businesses, or

other uses that would result in direct population growth. Therefore, no impacts in regard to growth-inducement would be expected.

**Mitigation Measures:** No mitigation is required.

**b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**

**No Impact.** The Project site is developed with light industrial uses and is not currently used for housing. Construction of the Project would not require the removal or obstruction of existing housing. Therefore, no impacts to existing housing would occur.

**Mitigation Measures:** No mitigation is required.

**c. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

**No Impact.** The Project site is not used for housing. Construction of the Project would not require the removal or obstruction of existing housing and thus would not require the displacement of people or the construction of replacement housing elsewhere. Therefore, no impacts would occur.

**Mitigation Measures:** No mitigation is required.

### 3.4.14 Public Services

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
	i.) Fire protection?			X	
	ii.) Police protection?			X	
	iii.) Schools?				X
	iv.) Parks?				X
	v.) Other public facilities?				X

#### Existing Conditions:

Public services include critical facilities such as police stations, fire stations, hospitals, shelters, and other facilities that provide important services to the community. Other public services include schools and parks and libraries that serve the communities.

Fire protection and other related services in Santa Ana are provided by the OCFA. The closest OCFA station to the Project site is Station No. 77, located at 2317 S. Greenville Street, Santa Ana, approximately 1.16 miles east of the Project site (OCFA 2018).

Police protection services for the City of Santa Ana are provided by the City of Santa Ana Police Department at the Santa Ana Civic Center located at 60 Civic Center Plaza, approximately 3.7 miles northeast of the Project site (SAPD 2018).

The City of Santa Ana is served by four school districts: Santa Ana Unified, Garden Grove Unified, Tustin Unified and Orange Unified (City of Santa Ana 1988). The City owns and operates approximately 35 parks, comprising about 400 acres (City of Santa Ana 1982f). The City library system consists of a central library in Civic Center' Plaza and two branch libraries in the western portion of Santa Ana: the McFadden and Newhope Branches (City of Santa Ana 1982e).

**Discussion:**

- a. **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:**

**i.) Fire Protection**

**Less Than Significant Impact.** The proposed Project would not substantially increase the need for fire protection services as no residential uses are proposed and the Project is not expected to result in an increase in the City of Santa Ana's population. The water well would not cause the development of uses that would result in a substantial increase in the likelihood of a fire or other hazard. Moreover, by increasing Mesa Water District's water supply reliability for its service area, the Project is expected to result in beneficial impacts related to fire flow and protection. Therefore, impacts to fire protection services or facilities would be less than significant.

**Mitigation Measures:** No mitigation is required.

**ii.) Police Protection**

**Less Than Significant Impact.** The proposed Project would not substantially increase the need for additional police protection services. The proposed Project would not introduce residential, commercial, or other uses, that would require an increase in demand for police protection beyond what is currently provided and therefore, would not require police facilities to be altered. The buildings on-site would be equipped with an alarm system for security purposes, and the proposed perimeter block walls around the site would limit unauthorized access. Therefore, impacts to police protection services or facilities would be less than significant.

**Mitigation Measures:** No mitigation is required.

**iii.) Schools**

**No Impact.** Implementation of the proposed Project would not result in the need for the construction of additional school facilities, as the Project would not result in an increase in population nor would it result in a removal of a school, a reduction of school capacity, or displacement of students from existing schools. Therefore, no impact to school services or facilities would occur.

**Mitigation Measures:** No mitigation is required.

**iv.) Parks**

**No Impact.** Implementation of the proposed Project would not result in the need for the construction of additional park facilities, as the Project would not result in an increase in population nor would it result in a removal of a park. Therefore, no impact to park facilities would occur.

**Mitigation Measures:** No mitigation is required.

**v.) Other Public Facilities**

**No Impact.** The proposed Project would not alter any of the government facilities in the area or produce a need for additional or new government services; therefore, no impacts to other public facilities would occur.

**Mitigation Measures:** No mitigation is required.

**3.4.15 Recreation**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X

**Existing Conditions:**

The City owns and operates approximately 35 parks, comprising about 400 acres (City of Santa Ana 2010).

**Discussion:**

- a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

**No Impact.** The construction or operation of the proposed Project would not involve temporary access to, or use of, any park. The proposed Project would not add additional residences or business in the neighborhood and thus would not cause additional use of any park or other recreational facilities in the area. Therefore, no impact to existing neighborhood and regional parks or other recreational facilities would occur.

- b. Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?**

**No Impact.** The proposed Project does not include recreational facilities or expansion of existing recreational facilities; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.



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### 3.4.16 Transportation/Traffic

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b.	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d.	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e.	Result in inadequate emergency access?				X
f.	Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

#### Existing Conditions:

Well No. 12 is located at 4011 W. Chandler Avenue. Well No. 14 is located at 3120 S. Croddy Way. The Project includes drilling, constructing, developing, testing, and equipping of Wells No. 12 and No. 14, plus construction of facilities at the sites for operation of the wells. In addition, approximately 4,500 feet of pipeline will connect the two wells to Mesa Water District's distribution system traversing Chandler Avenue to Croddy Way to W. MacArthur Boulevard to Hyland Avenue. The nearest airport is John Wayne Airport located approximately 3.5 miles to the southeast.

#### Discussion:

- a. **Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, including**

**mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**

**Less than Significant Impact.** The proposed Project would not conflict with any transit plan or ordinance. Traffic control will be needed to temporarily reduce available lanes during construction of the pipeline, storm drain, utility services and street resurfacing, but full road closures are not anticipated during construction. Construction equipment and staging for the wells would be contained within the Project site. These impacts would be short term and temporary, and would have a less than significant impact on circulation surrounding the site.

The normal operation of the well would generate one trip weekly for a worker to monitor the operation of the well facilities and perform maintenance as necessary. Periodic maintenance activities such as replacement of tanks, and testing and maintaining equipment will require a weekly trip to the Site. This is considered an insignificant change in the trips in the vicinity of the Project Site. Therefore, long-term impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- b. Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?**

**Less than Significant Impact.** As discussed in Response 3.4.16(a), the Project would have less than significant impacts to traffic and circulation.

**Mitigation Measures:** No mitigation is required.

- c. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

**No impact.** The proposed Project involves the development of water wells and supporting facilities. The proposed Project would not result in a change in air traffic patterns, either an increase in traffic levels or a change in location that results in substantial safety risk. Therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- d. Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**Less Than Significant Impact.** The proposed Project would include for the Well No. 12 site: relocation of the existing driveway to the eastern boundary of the property with a 25-foot-wide driveway to allow access for delivery and fire trucks. An additional 13-foot-wide driveway will be constructed on the west side of the property to allow for maintenance vehicle access adjacent to the well. For the Well No. 14 site: the existing 24-foot-wide driveway will be protected in place to allow access for delivery and fire trucks and an additional 13-foot-wide driveway will be constructed in the middle of the site to allow for maintenance vehicle access adjacent to the well. Changes to adjacent roads will include pavement replacement over the pipeline trenches. These changes are not expected to result in any design features that would increase hazards, and impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- e. Would the project result in inadequate emergency access?**

**No Impact.** The proposed Project would not result in inadequate emergency access. The Project is the development of water wells and supporting facilities, and will maintain adequate emergency access; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

**f. Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

**No Impact.** The proposed Project would not involve or interfere with any public transit, bicycle, or pedestrian facilities; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

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**3.4.17 Tribal Cultural Resources**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
a.	Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				X
b.	A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				X

Public Resources Code section 21074 defines tribal resources as follows:

- (a) "Tribal cultural resources" are either of the following:
  - (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
    - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
  - (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- (b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

**Existing Conditions:**

As specified in the Public Resources Code Section 21080.31,<sup>4</sup> as amended by AB 52, Gatto, lead agencies must provide notice inviting consultation to California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if the Tribe has submitted a request in writing to be notified of proposed projects. Mesa Water District was contacted by the Juaneno Band of Mission Indians/Acjachemen Nation in August of 2015 through AB 52 to be notified of Mesa Water District's proposed projects.

**Discussion:**

- a. **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?**

**No Impact.** The project is located in a highly urbanized area of the City. As discussed in Section 3.4.5, Cultural Resources, above, the Project Site is currently developed with industrial uses and does not contain any historic resource either listed or eligible for listing in the California Register or in a local register of historical resources. The potential for discovery of unknown archaeological cultural resources beneath the ground surface was also evaluated above in Section 3.4.5, Cultural Resources. With implementation of Mitigation Measure Cul-1, impacts to unknown archaeological cultural resources would be reduced to less than significant.

As specified in AB 52, Mesa Water District provided written notification on December 5, 2018 to the Juaneno Band of Mission Indians/Acjachemen Nation representatives regarding the Proposed Project. The Juaneno Band of Mission Indians/Acjachemen Nation must respond in writing within 30 days of Mesa Water District's notice of the Proposed Project. Should the Juaneno Band of Mission Indians/Acjachemen Nation request consultation regarding the project site, in accordance with AB 52, Mesa Water District as Lead Agency would facilitate such consultation. The Juaneno Band of Mission Indians/Acjachemen Nation did not respond in writing within 30 days of Mesa Water District's notice of the Proposed Project.

On January 15, 2019, Joyce Stanfield Perry, President of the Juaneno Band of Mission Indians/Acjachemen Nation requested continued consultation regarding the Project and the results of the record searches. On January 31, 2019, Mesa Water District provided the Juaneno Band of Mission Indians/Acjachemen Nation with the results of the record searches (Appendix B).

Mesa Water District has completed the requirements for AB52. No impacts are expected.

- b. **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

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<sup>4</sup> Public Resources Code, Division 13, Chapter 2.6, Section 21.080.3.1.

**No Impact.** As specified in AB 52, Mesa Water District provided written notification on December 5, 2018 to the Juaneno Band of Mission Indians/Acjachemen Nation representatives regarding the Proposed Project. The Juaneno Band of Mission Indians/Acjachemen Nation must respond in writing within 30 days of Mesa Water District's notice of the Proposed Project. Should the Juaneno Band of Mission Indians/Acjachemen Nation request consultation regarding the project site, in accordance with AB 52, Mesa Water District as Lead Agency would facilitate such consultation. The Juaneno Band of Mission Indians/Acjachemen Nation did not respond in writing within 30 days of Mesa Water District's notice of the Proposed Project.

On January 15, 2019, Joyce Stanfield Perry, President of the Juaneno Band of Mission Indians/Acjachemen Nation requested continued consultation regarding the Project and the results of the record searches. On January 31, 2019, Mesa Water District provided the Juaneno Band of Mission Indians/Acjachemen Nation with the results of the record searches (Appendix B).

Mesa Water District has completed the requirements for AB52. No impacts are expected.



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**3.4.18 Utilities and Service Systems**

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:					
a.	Exceed wastewater treatment requirements of the applicable regional water quality control board?				X
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?				X
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g.	Comply with federal, state, and local statutes and regulations related to solid waste?				X

**Existing Conditions:**

The City of Santa Ana's sewer collection system consists of approximately 450 miles of sewer mains, including approximately 60 miles of Orange County Sanitation District trunk sewers within the City (City of Santa Ana 2016).

The City of Santa Ana is served by two primary flood control and drainage systems: City-operated and -maintained storm drain system, including catch basins and storm drain pipes; and flood control facilities operated and maintained by the Orange County Flood Control District, including the large flood control channels in the City (City of Santa Ana 2015). The NPDES Stormwater Permit issued to the County of Orange and its co-permittees requires development projects to incorporate appropriate best management practices to minimize pollutant levels in runoff (County of Orange 2017).

Mesa Water District provides potable water for a population of approximately 110,000 within an 18-square mile service area which includes the City of Costa Mesa, portions of the City of

Newport Beach, and portions of unincorporated Orange County. Mesa Water District distributes a combination of imported water and local groundwater and maintains five clear water wells, two tinted water wells (the water from which is treated by the Mesa Water Reliability Facility to remove color), and two reservoirs with a combined capacity of 28 million gallons.

The City of Santa Ana Public Works Agency coordinates the collection and recycling of solid waste. In 2016, nearly 90 percent of the solid waste landfilled from the City of Santa Ana was disposed of at the Frank Bowerman Landfill (Calrecycle 2017).

**Discussion:**

**a. Would the project exceed wastewater treatment requirements of the applicable regional water quality control board?**

**No Impact.** The proposed Project is the construction and operation of a potable water well. It would not require wastewater treatment and therefore no impact would occur.

**Mitigation Measures:** No mitigation is required.

**b. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

**Less than Significant Impact.** The proposed Project is the construction and operation of two water wells. Construction of the wells also includes establishment of the associated housing structure, ancillary facilities, and perimeter wall. Construction of the well facilities would result in temporary and minor impacts to air, noise, and traffic during construction activities, but these have been reduced through mitigation, where necessary, to maintain impacts at a less than significant level. All impacts from well operations are less than significant or no impact. Overall, impacts from construction and operation of the wells would be less than significant.

**Mitigation Measures:** No mitigation is required.

**c. Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

**Less than Significant Impact.** For Well No. 12, an 18-inch storm drain will convey site storm water and pump waste discharge from Well No. 12 to an existing City of Santa Ana 18-inch storm drain catch basin on the north side of West Chandler Avenue.

For Well No. 14, approximately 535 linear feet of 18-inch storm drain will be constructed to convey site stormwater and pump waste discharge from Well No. 14 to an existing City of Santa Ana 27-inch storm drain catch basin on the west side of Croddy Way approximately 500 feet to the south of the Well No. 14 site.

The storm drains will be constructed based on Regional Water Quality Control Board Non-Stormwater discharge requirements. Upon adherence to these existing requirements, short term impacts to water quality standards and waste discharge requirements would be less than significant.

**Mitigation Measures:** No mitigation is required.

**d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

**No Impact.** Mesa Water District's water system currently meets its potable water demand through utilization of groundwater supplemented with imported water. In 2014, Mesa Water District Board of Directors adopted a policy for local water reliability to be 115 percent of demand. This policy provides Mesa Water District with additional assurance to meet peak water

demands with local groundwater supplies when other water production facilities undergo routine maintenance. The proposed Project would enable the use of Wells No. 12 and No. 14 to provide additional local water reliability.

Implementation of the wells would not result in any exceedance of Mesa Water District's existing water entitlements. Rather, it would improve reliability and efficiency of the supply system. As such, no impacts would occur.

**Mitigation Measures:** No mitigation is required.

- e. Has the wastewater treatment provider that serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

**No Impact.** The proposed Project is the construction and operation of a potable water well. It would not require wastewater treatment and therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

- f. Is the project served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

**Less than Significant Impact.** The Project would not include any habitable structures and would not have the capability to produce solid waste during long-term operations. Although the Project may require the disposal of construction/demolition debris during the construction process (soil, asphalt, demolished materials, etc.), the generation of these materials would be short-term in nature and would not have the capability to substantially affect the capacity of regional landfills; therefore, impacts would be less than significant.

**Mitigation Measures:** No mitigation is required.

- g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?**

**No Impact.** The proposed Project would comply with all federal, State, and local statutes and regulations related to solid waste, including the California Integrated Waste Management Act and City requirements for solid waste generated during the construction process; therefore, no impact would occur.

**Mitigation Measures:** No mitigation is required.

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### 3.4.19 Mandatory Findings of Significance

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>Mandatory Findings of Significance</b>					
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?		X		
b.	Does the project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X	
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?			X	

#### Discussion:

- a. **Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?**

**Less than Significant Impact with Mitigation Incorporated.** As discussed in Section 3.4.4, Biological Resources, the Project is located in an urban area and does not provide biological habitat for species of concern or for federally listed species. The Project will involve the removal of the trees on site. If these trees are removed during breeding bird nesting season (typically from February 15 through September 15), implementation of mitigation measure BIO-1, provided in the event that any nesting birds are found at the project site location, will reduce impacts to less than significant.

In addition, as discussed in Section 3.4.5, Cultural Resources, the Project Site and surrounding area has been completely disturbed by development and has been subject to extensive ground disturbance in the past. As such, any historical, archaeological, and paleontological resources which may have existed in the Project site would have likely been disturbed. However, adherence to Mitigation Measures **CUL-1** and **CUL-2** would be required in the event

unexpected resources are uncovered during the grading and excavation process. With implementation of recommended mitigation, the proposed Project is not expected to eliminate important examples of the major periods of California history or prehistory, and impacts would be less than significant.

**Mitigation Measures:** Implement Mitigation Measures **BIO-1, CUL-1 and CUL-2.**

- b. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)**

**Less than Significant Impact.** Since the Project would supplement existing well production, the Project would serve to enhance the efficiency and reliability of the Mesa Water District water supply system. The Project would not result in substantial population growth within the area, either directly or indirectly. Although the Project may incrementally affect other resources at a less than significant level, the Project’s contribution to these effects is not considered “cumulatively considerable”, in consideration of the relatively nominal impacts of the Project and the mitigation measures provided to lessen impacts. Therefore, cumulative impacts would be considered less than significant.

**Mitigation Measures:** No mitigation required.

- c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?**

**Less than Significant Impact.** Previous sections of this Initial Study/Mitigated Negative Declaration reviewed the proposed Project’s potential impacts related to aesthetics, air quality, geology and soils, greenhouse gases, hydrology/water quality, noise, hazards and hazardous materials, traffic, and other issues. As concluded in these previous discussions, the proposed Project would result in less than significant environmental impacts; therefore, the proposed Project would not result in environmental impacts that would cause substantial adverse effects on human beings and impacts would be less than significant.

**Mitigation Measures:** No mitigation required..

## **4.0 LIST OF PREPARERS**

### **Mesa Water District (Lead Agency)**

Karyn Igar, P.E., Project Manager

### **Tetra Tech, Inc. (Technical Assistance)**

Derrick Coleman, Ph.D., Environmental Task Manager

Paula Fell, Senior Environmental Planner

Kevin Fowler, INCE, Senior Acoustical Engineer

Weyman Kam P.E., Engineer V

DeeAnna Garcia, Word Processor/Editor

Daniel Keady, Mapping/Graphics



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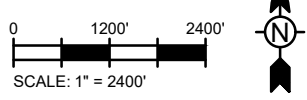
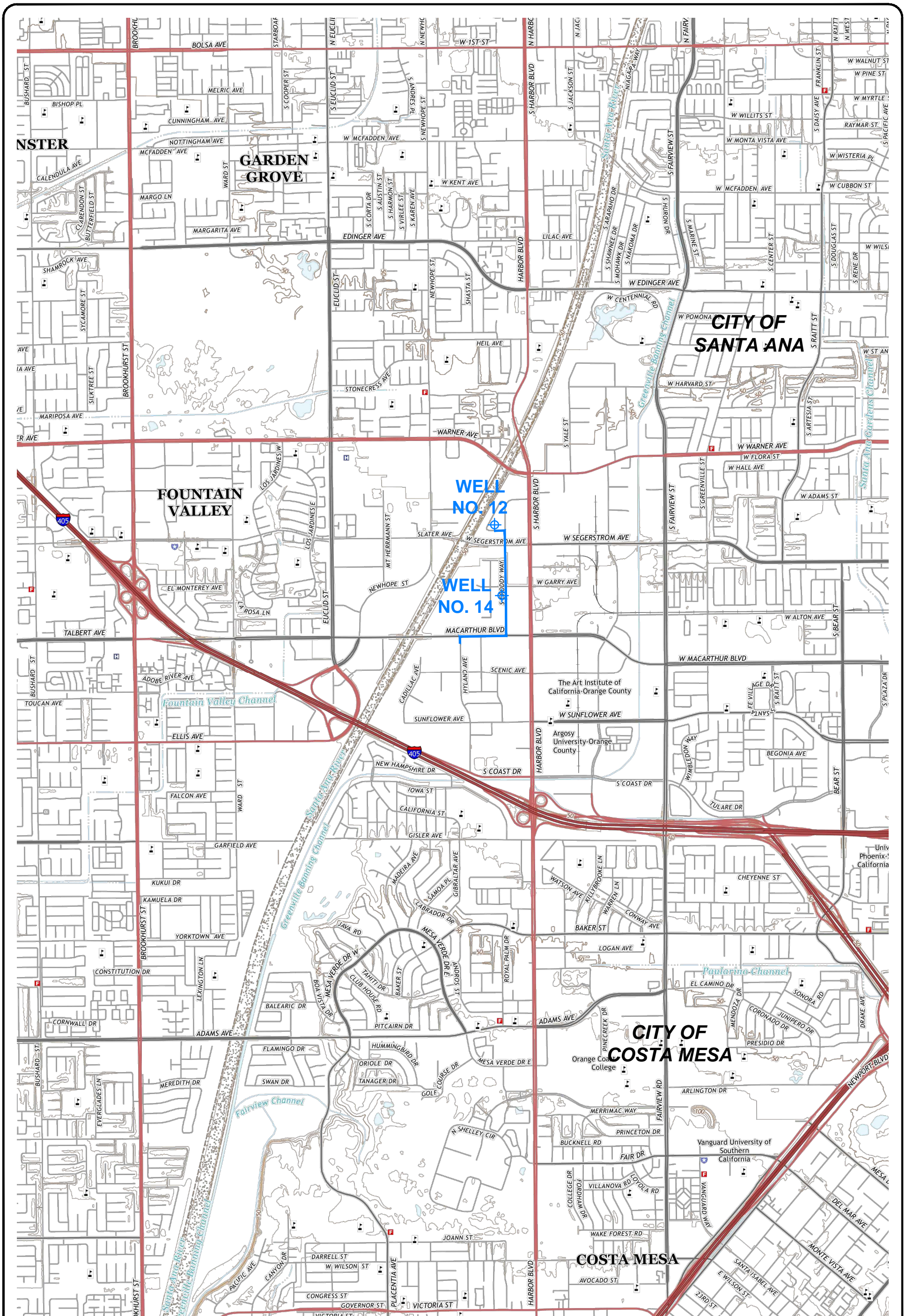
2015 Newport Beach, California, U.S. Geological Survey 7.5-minute Quadrangle Map

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## FIGURES

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SOURCE: USGS, NEWPORT BEACH, CA QUADRANGLE, 2015.  
 WELL NO. 12 AND WELL NO. 14 LOCATED IN S28 T5S R10W.  
 PORTION OF PIPELINE ALONG HYLAND AVENUE, SOUTH OF  
 MACARTHUR BOULEVARD LOCATED IN S33 T5S R10W.



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Mesa Water District  
 WELL NO. 12, WELL NO. 14 AND PIPELINE

REGIONAL MAP

Project No.: 200-09377-17001

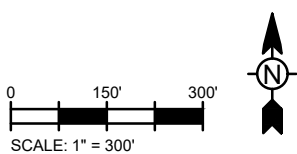
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Figure  
 2-1

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VICINITY MAP
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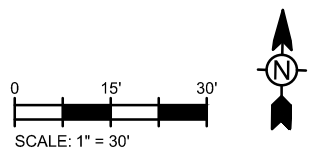
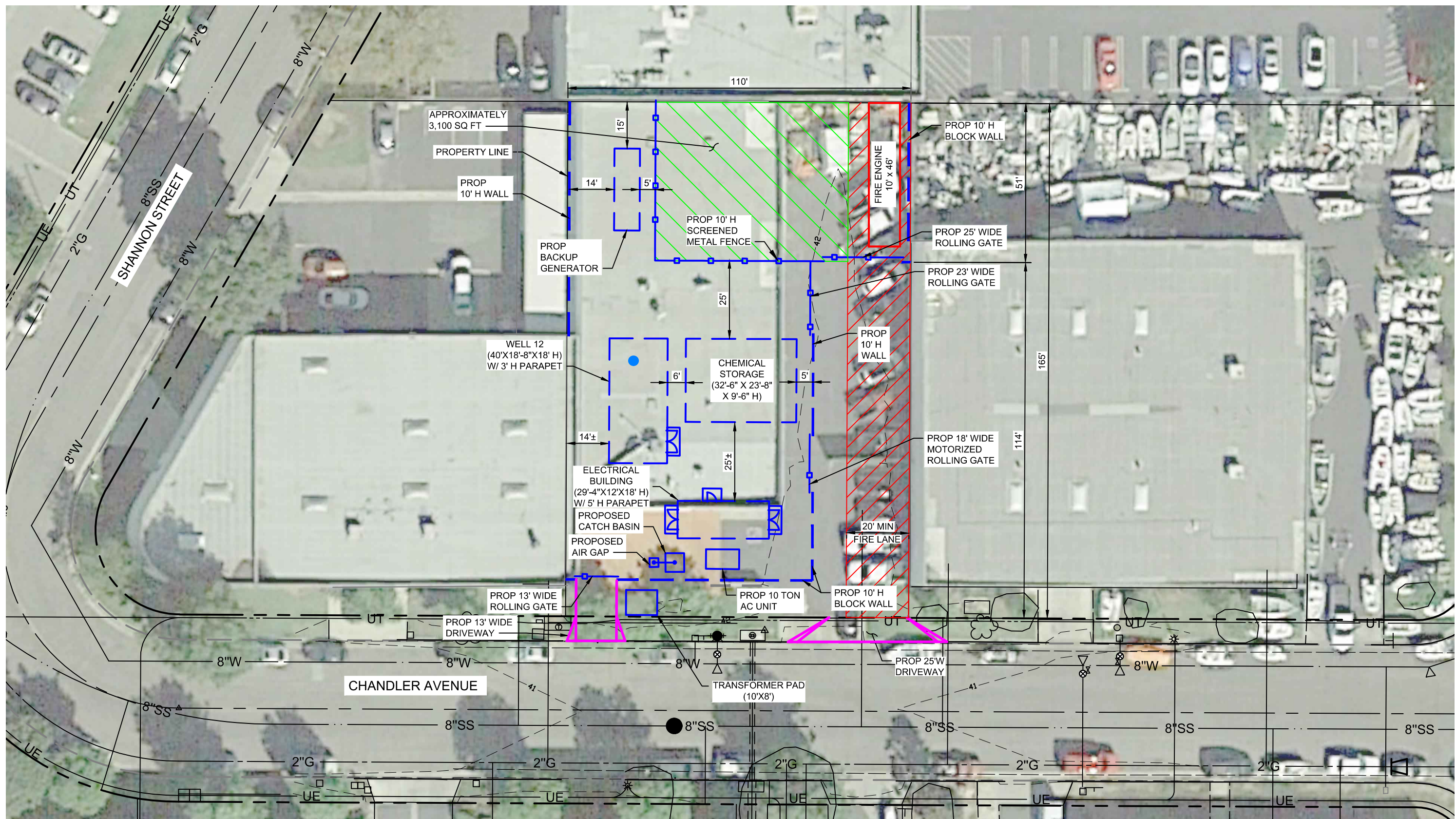
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**WELL NO. 12  
 SITE PLAN**

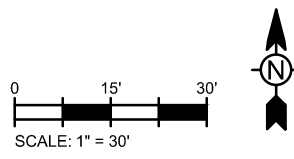
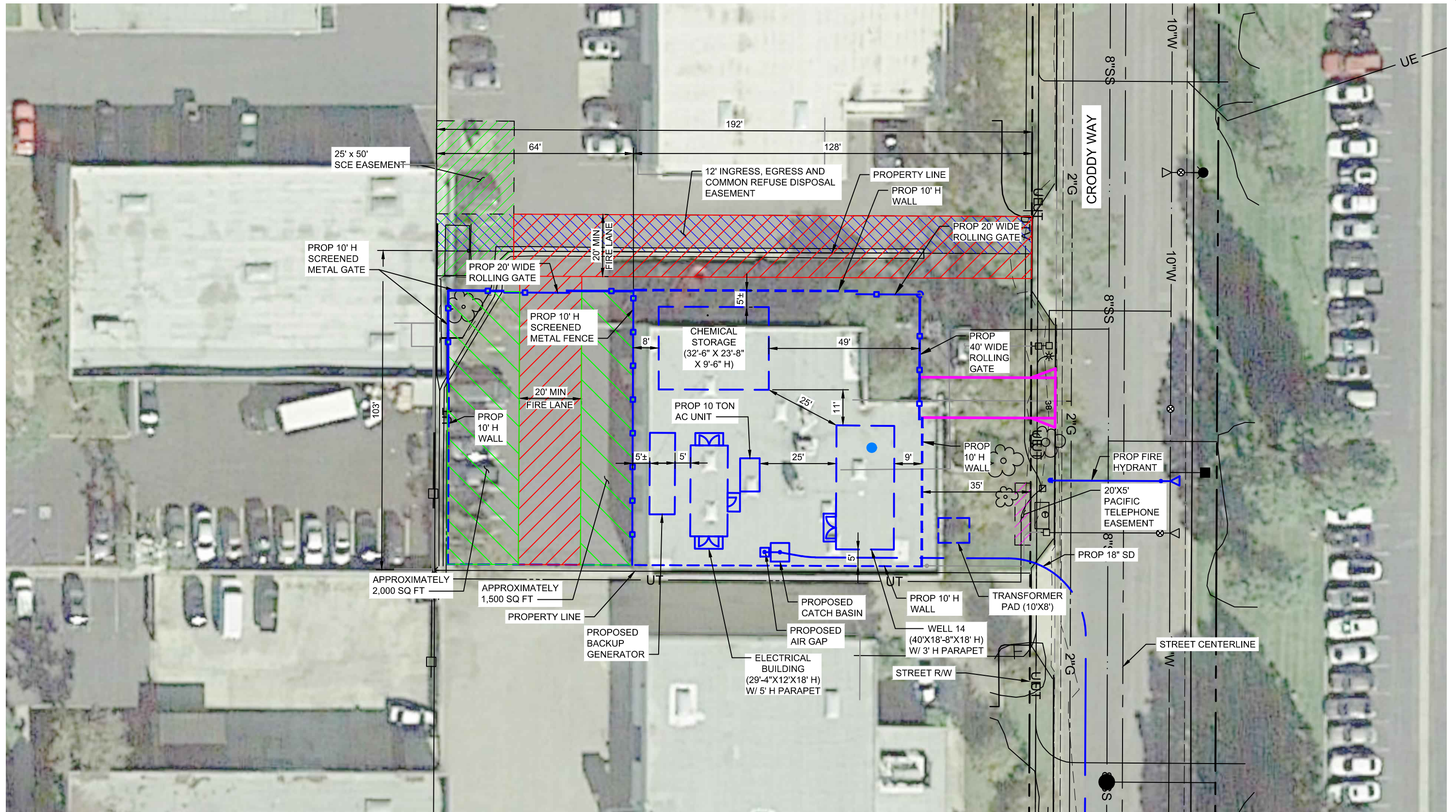
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Date:	FEBRUARY 2019
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Bar Measures 1 inch

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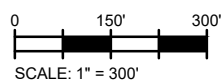
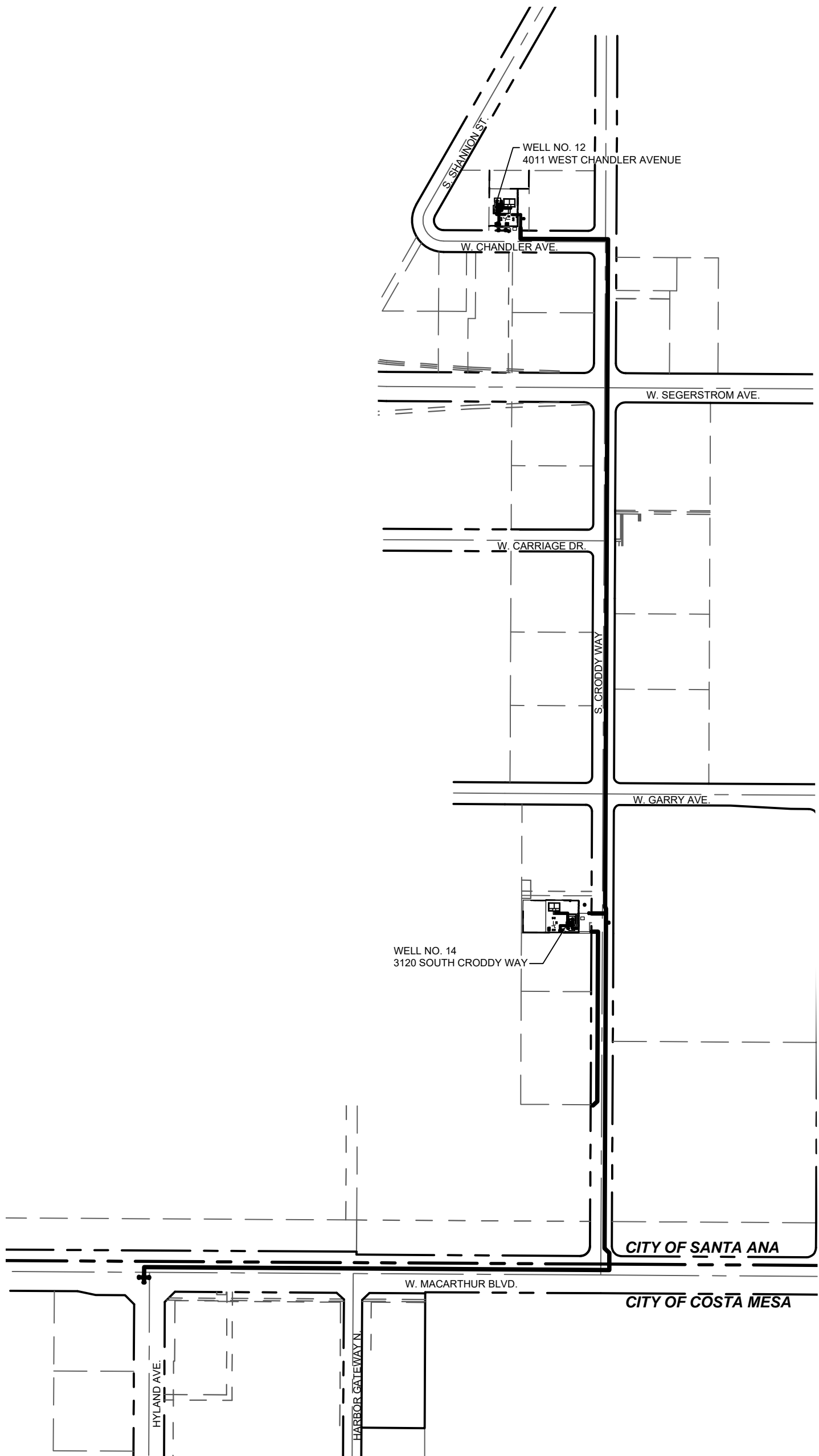
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**WELL NO. 14  
SITE PLAN**

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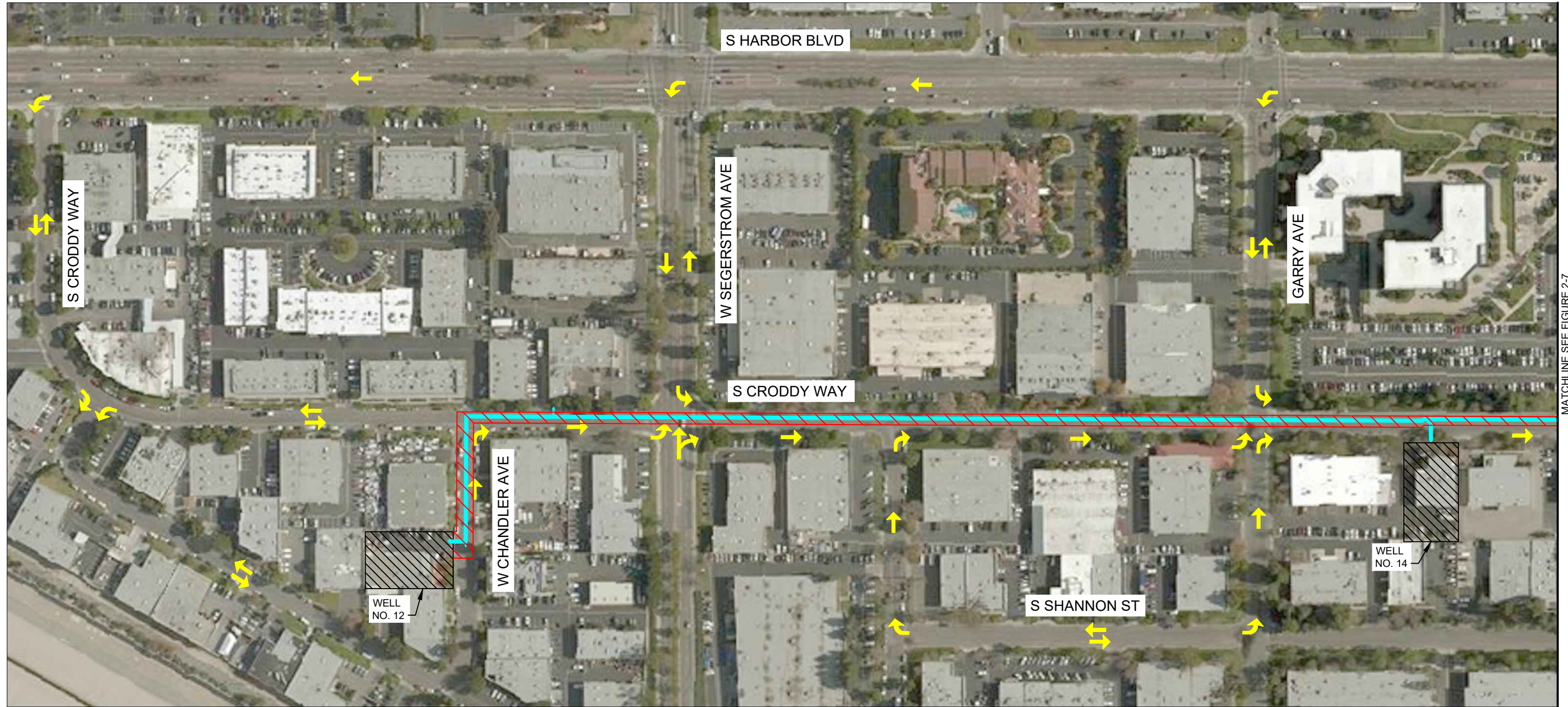
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Project No.: 200-09377-17001  
 Date: AUGUST 2018  
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**2-5**

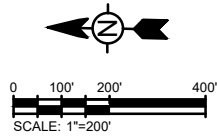
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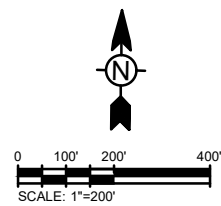
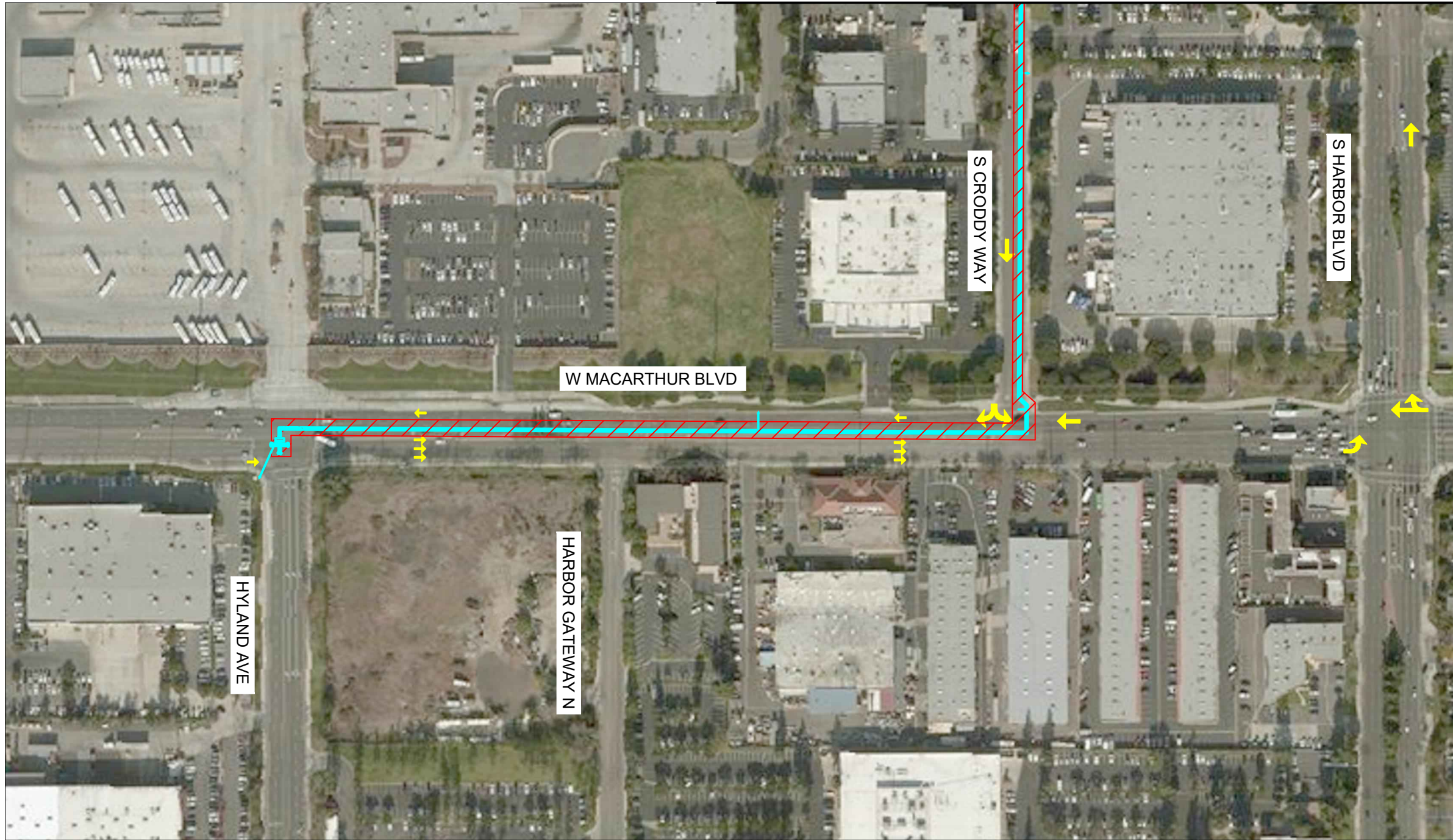
 <b>TETRA TECH</b> www.tetrattech.com 17885 Von Karman Avenue, Suite 500 Irvine, CA 92614 Phone: (949) 809-5000 Fax: (949) 809-5010	Mesa Water District	Project No.: 200-09377-17001
	WELL NO. 12, WELL NO. 14 AND PIPELINE	Date: AUGUST 2018
<b>WATER PIPELINE CONSTRUCTION</b> <b>TRAFFIC DETOUR ROUTES</b> <b>WELL NO. 12 TO WELL NO. 14</b>	Designed By: DVK	Figure <b>2-6</b>
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**WATER PIPELINE CONSTRUCTION  
 TRAFFIC DETOUR ROUTES  
 WELL NO. 14 TO HYLAND AVENUE**

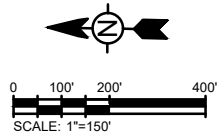
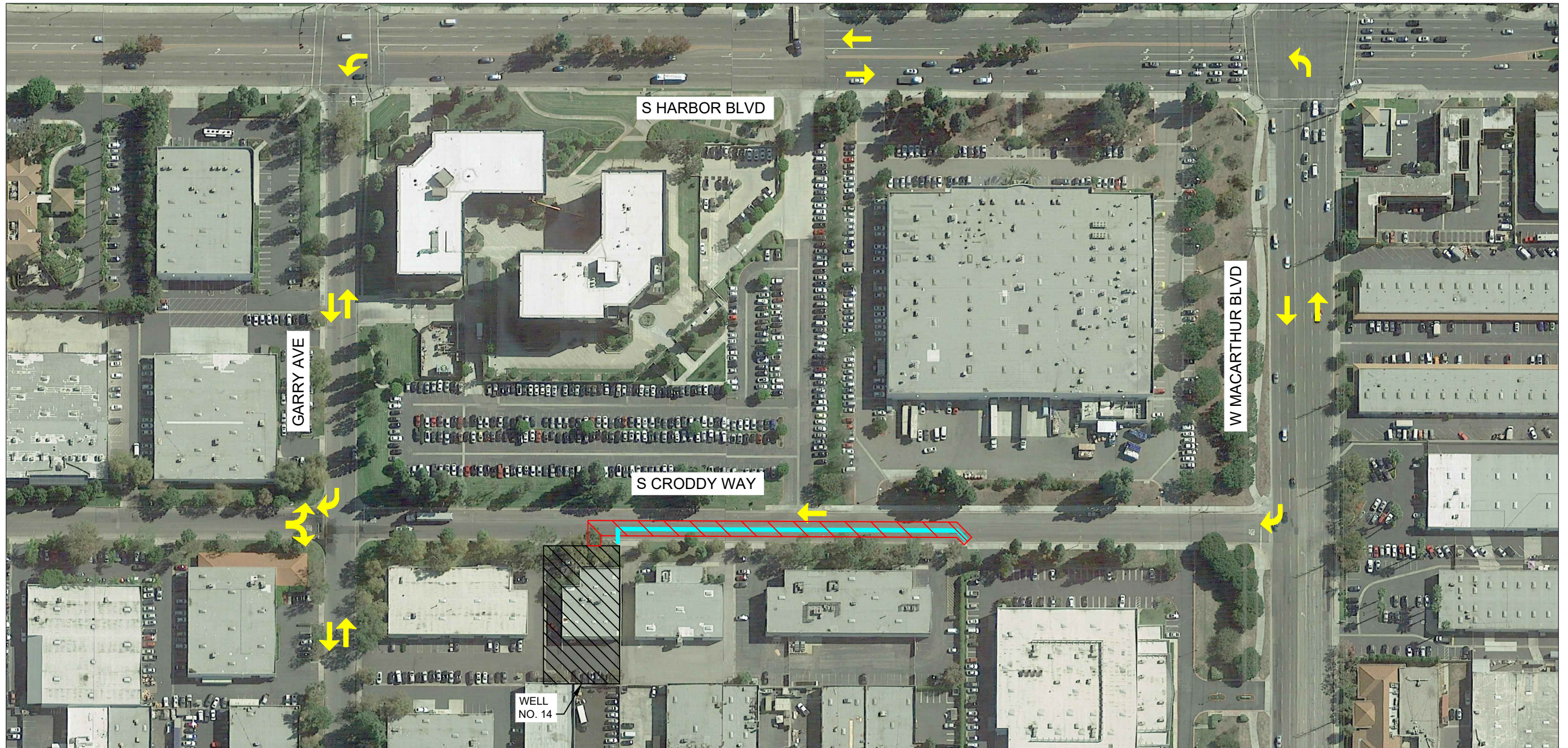
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Figure	2-7

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**STORM DRAIN CONSTRUCTION  
 TRAFFIC DETOUR ROUTES**

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Figure	2-8

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**APPENDIX A**

**AIR QUALITY AND GREENHOUSE GAS TECHNICAL REPORT**



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**MESA WATER DISTRICT  
WELLS NOS. 12 AND 14 AND PIPELINE PROJECT**

**Air Quality and Greenhouse Gas  
Technical Report**

**Prepared for**

**Mesa Water District  
1965 Placentia Avenue  
Costa Mesa, CA 92627**

**Prepared by**



**Tetra Tech, Inc.  
17885 Von Karman Ave. Suite 500  
Irvine, CA**

**January 2019**

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**Appendices**

## A. CALEEDMOD OUTPUT FILES

**ABBREVIATIONS**

AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards (CAAQS)
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CO <sub>2e</sub>	Carbon dioxide equivalent
DPM	Diesel Particulate Matter
EPA	Environmental Protection Agency
GHG	Greenhouse Gases
HRA	Health Risk Assessment
H <sub>2</sub> S	Hydrogen sulfide
LST	Localized Significance Thresholds
MMP	mitigation monitoring plan
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Protection Act
NO <sub>2</sub>	Nitrogen dioxide
O <sub>3</sub>	Ozone
Pb	Lead
PM <sub>10</sub>	fine particulate matter equal to or less than 10 microns
PM <sub>2.5</sub>	fine particulate matter equal to or less than 2.5 microns
ROG	Reactive organic gases
RUNEX	Running Exhaust
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SO <sub>2</sub>	Sulfur dioxide
TACs	Toxic Air Contaminants
TSP	Total suspended particulate

## SECTION 1

### EXECUTIVE SUMMARY

This Air Quality/Greenhouse Gas Technical Report provides an analysis of the potential environmental impacts associated with the Mesa Water District's proposed installation and operation of two new potable water wells on approximately 0.89 acre of land located in the City of Santa Ana, California

The air quality impacts are analyzed with the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA). All analyses have been conducted based on the methodologies recommended by the South Coast Air Quality Management District (SCAQMD) for air quality assessments in support of CEQA and NEPA. The findings of the analyses are as follows:

- Project construction would not cause an exceedance of daily regional emission thresholds, and would not expose off-site receptors to significant levels of toxic air contaminants.
- Project operations would not cause an exceedance of daily regional or local emission thresholds set forth by the SCAQMD.
- Project operations would not expose off-site receptors to significant levels of toxic air contaminants.
- Project operations would result in a minimal increase in Statewide greenhouse gas (GHG) emissions; this would not contribute significantly to global climate change.
- The project would not result in cumulatively significant impacts during construction or operation.

## SECTION 2

### DESCRIPTION OF PROJECT

#### 2.1 Purpose

This Air Quality/Greenhouse Gas Technical Report provides an analysis of the potential environmental impacts associated with the Mesa Water District's proposed installation and operation of two potable water wells in the City of Santa Ana, California.

#### 2.2 Site Location

The proposed project is located in the City of Santa Ana, Orange County, California. Figure 1 shows the proposed project location. The Project's well sites and new pipeline are located within a commercial/light industrial area of the City of Santa Ana, the area bounded by the Santa Ana River on the west, Warner Ave. on the north, Harbor Blvd. on the east, and MacArthur Blvd. on the south. This area adjoins the City of Costa Mesa, which is south of MacArthur Blvd.

The Well No. 12 site is located at 4011 W. Chandler Avenue, Santa Ana, California. It consists of a rectangular-shaped parcel of land approximately 0.426 acres in size. Figure 2 shows the site plan. The site is currently improved with one, two-story office building along the south perimeter which is attached to a larger light-industrial/warehouse building that totals approximately 8,450 square feet of building improvements, asphalt-paved driveway surface along the east perimeter, drainage features, and associated landscaping (Centec Engineering 2017a).

The Well No. 14 site is located at 3120 S. Croddy Way, Santa Ana, California. It consists of a rectangular-shaped parcel of approximately 0.468 acres in size. Figure 3 shows the site plan. The site is currently developed with a concrete tilt-up light-industrial building of approximately 6,944 square feet with associated drive and parking areas.

#### 2.3 Project Description

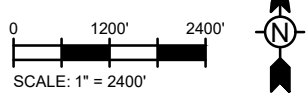
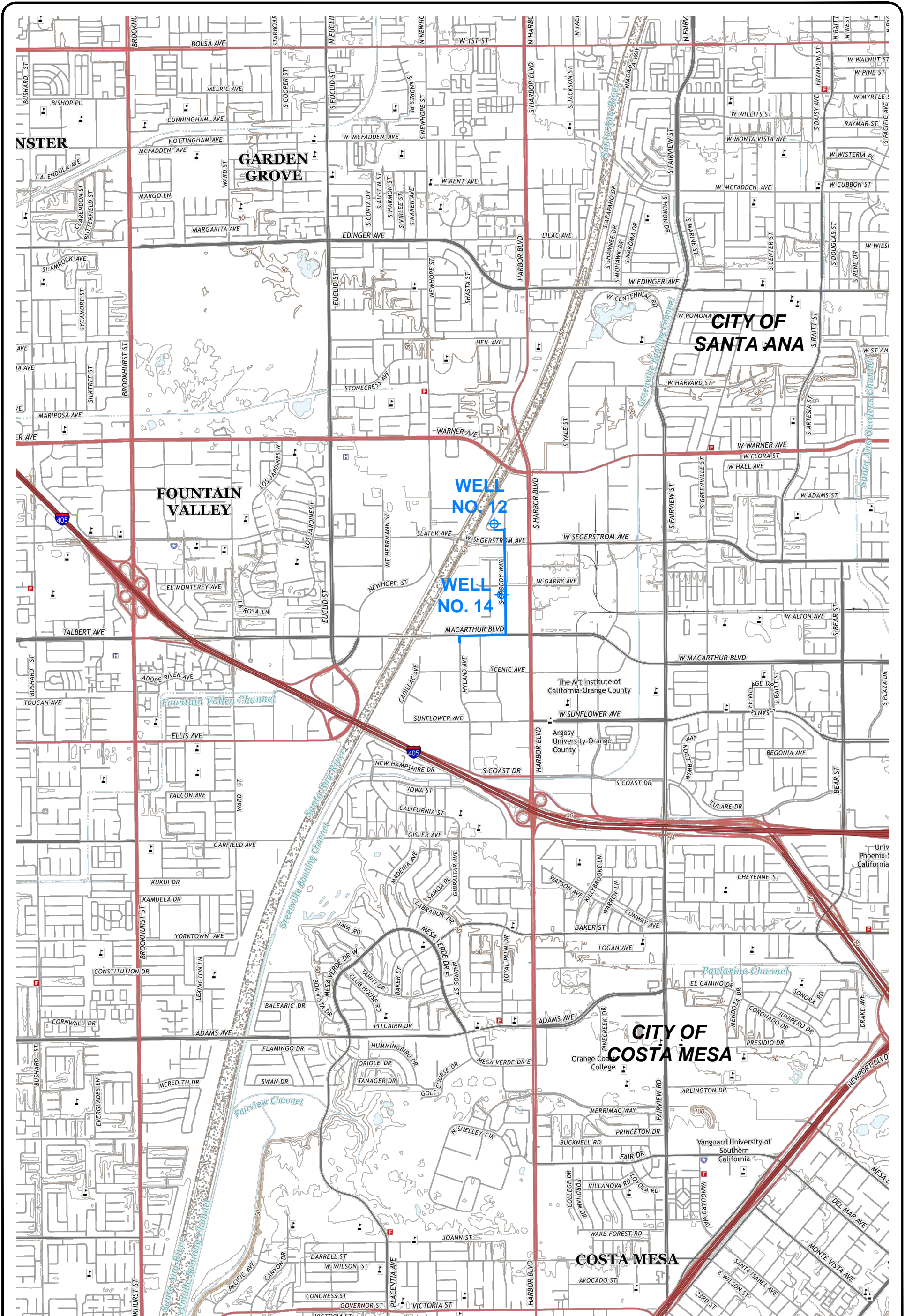
The Mesa Water District is proposing to construct two new potable water wells on approximately 0.89 acre of land located in the City of Santa Ana, California. Mesa Water District provides potable water for a population of approximately 110,000 within an 18-square mile service area which includes the City of Costa Mesa, portions of the City of Newport Beach, and portions of unincorporated Orange County. Mesa Water distributes a combination of imported water and local groundwater and maintains five clear water wells, two tinted water wells which is treated by the Mesa Water Reliability Facility to remove color, and two reservoirs with a combined capacity of 28 million gallons. In 2014, the Mesa Water Board of Directors adopted a policy for local water reliability to be 115 percent of demand. This policy provides Mesa Water with additional assurance to meet peak water demands with local groundwater supplies when other water production facilities undergo routine maintenance.

In order to provide additional local water reliability, Mesa Water purchased two properties within the City of Santa Ana to be used as groundwater well sites. Proposed Well No. 12 and associated structures and equipment would be constructed within a 0.43-acre site. Proposed Well No. 14 and associated structures and equipment would be constructed within a 0.46-acre site. Each well site will include a well building, electrical building, SCE transformer, chemical storage area, and a well water waste air gap.

Both wells are located outside of Mesa Water's service area and will require the construction of approximately 4,500 feet of pipeline to connect the proposed wells to Mesa Water District's existing system. Construction is anticipated to begin in the first quarter of 2020 and last approximately 24 months to the fourth quarter of 2021. Once operational, Well Nos. 12 and 14 can potentially provide an additional 6 to 8 million gallons per day of safe and reliable drinking water.

The Project includes drilling, constructing, developing, testing, and equipping of Well No. 12 and Well No. 14, plus construction of facilities at the sites for operation of the wells. In addition, approximately 4,500 feet of pipeline will connect the two wells to the Mesa Water distribution system traversing Chandler Avenue to Croddy Way to W. MacArthur Boulevard to Hyland Avenue. Figure 3 shows the pipeline route.





SOURCE: USGS, NEWPORT BEACH, CA QUADRANGLE, 2015.  
 WELL NO. 12 AND WELL NO. 14 LOCATED IN S28 T5S R10W.  
 PORTION OF PIPELINE ALONG HYLAND AVENUE, SOUTH OF  
 MACARTHUR BOULEVARD LOCATED IN S33 T5S R10W.



www.tetrattech.com

17885 Von Karman Avenue, Suite 500  
 Irvine, CA 92614  
 PHONE: (949) 809-5000 FAX: (949) 809-5010

Mesa Water District  
 WELL NO. 12, WELL NO. 14 AND PIPELINE

Project Location

Project No.: 200-09377-17001

Date: AUGUST 2018

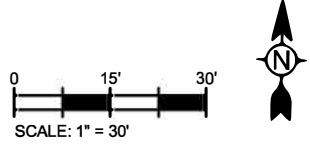
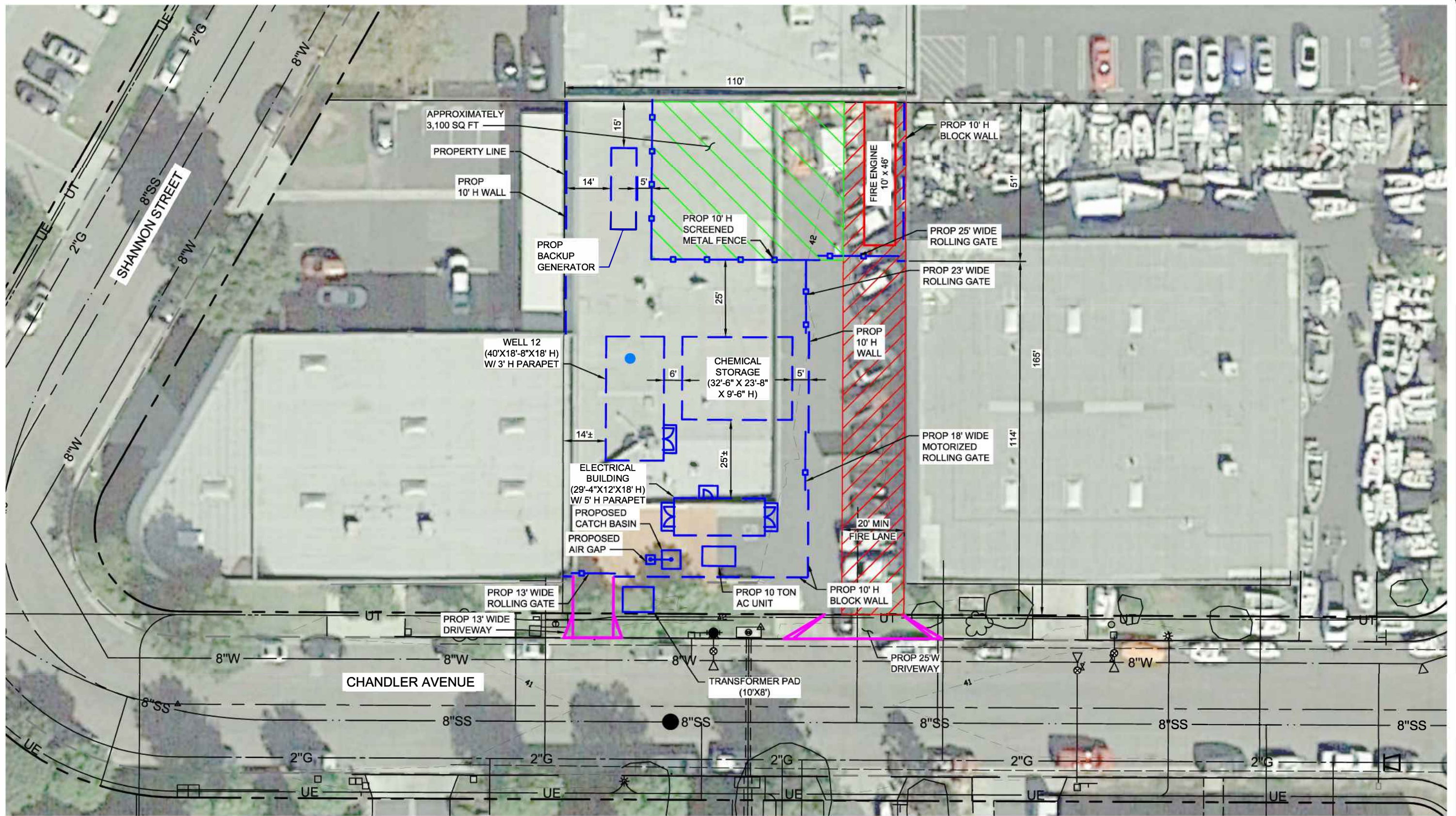
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Figure  
**1**

Bar Measures 1 inch



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 Irvine, CA 92614  
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Mesa Water District  
 WELL 12, WELL 14, AND PIPELINE

**WELL 12  
 BUILDING LAYOUT**

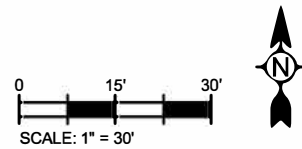
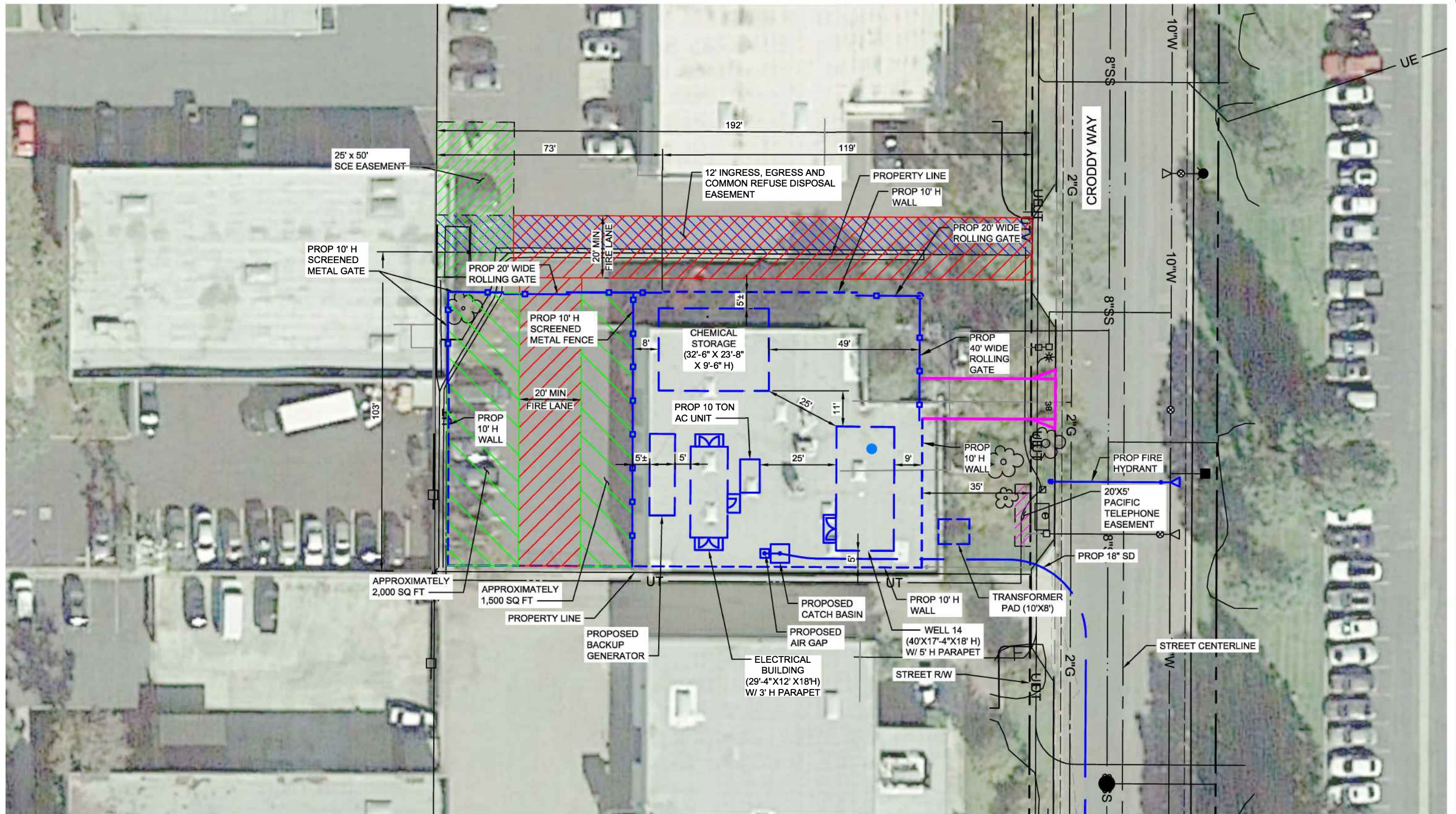
Project No.:	200-09377-17001
Date:	FEBRUARY 2019
Designed By:	EAC
Figure	2

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Bar Measures 1 inch



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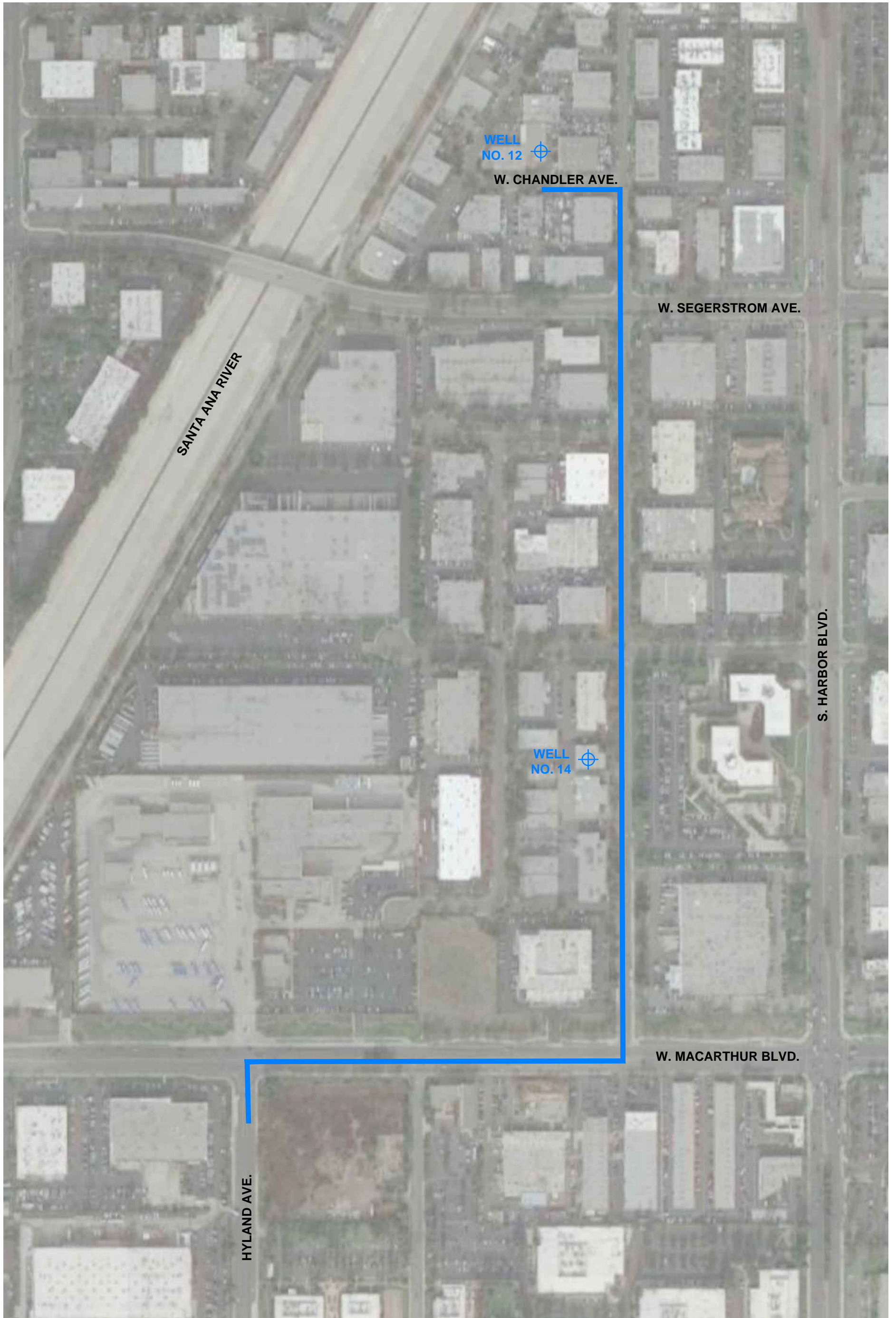
Mesa Water District  
 WELL 12, WELL 14, AND PIPELINE  
**WELL 14  
 BUILDING LAYOUT**

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 Figure  
**3**

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WELL NO. 12

W. CHANDLER AVE.

W. SEGERSTROM AVE.

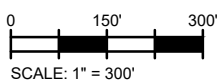
SANTA ANA RIVER

S. HARBOR BLVD.

WELL NO. 14

W. MACARTHUR BLVD.

HYLAND AVE.



SOURCE: GOOGLE EARTH PRO, SANTA ANA, CA, 2017



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Mesa Water District

WELL NO. 12, WELL NO. 14 AND PIPELINE

Pipeline Route

Project No.: 200-09377-17001

Date: AUGUST 2018

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Figure

4

Bar Measures 1 inch

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## 2.4 Existing Air Quality

### 2.4.1 Air Pollutants

Air pollutant emissions within the South Coast Air Basin (SCAB) are generated from stationary, mobile, and natural sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at an identified location and are usually associated with manufacturing and industry. Examples are boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and produce many small emissions. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products such as barbecue lighter fluid and hair spray. Construction activities that create fugitive dust such as excavation and grading also contribute to area source emissions. Mobile sources refer to emissions from on- and off-road motor vehicles, including tailpipe and evaporative emissions. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, trains, and construction equipment. Mobile sources account for the majority of the air pollutant emissions within the air basin. Air pollutants can also be generated by the natural environment such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

To protect the public health and welfare, the federal and State governments have identified five criteria air pollutants and a host of air toxics, and have established ambient air quality standards through the Federal Clean Air Act and the California Clean Air Act. The air pollutants for which federal and State standards have been promulgated and which are most relevant to air quality planning and regulation in the air basins include ozone, carbon monoxide, suspended particulate matter, sulfur dioxide, and lead.

Air pollutants are typically classified as primary or secondary pollutants. Carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM), Sulfur Dioxide (SO<sub>2</sub>), and Lead (Pb) are considered primary pollutants because they are emitted directly into the atmosphere. Ozone (O<sub>3</sub>), a secondary pollutant, is formed through a photochemical reaction in the atmosphere with reactive organic compounds (ROGs) and nitrogen oxides (NO<sub>x</sub>) in the presence of sunlight.

Both the federal and State governments have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health, as shown in Table 1. The national and State ambient air quality standards have been set at levels whose concentrations could be generally harmful to human health and welfare and to protect the most sensitive persons from illness or discomfort with a margin of safety. While ambient air quality standards have been developed specifically for O<sub>3</sub> and NO<sub>x</sub>, there is no State or federal ambient air quality standard for ROGs. ROGs include many compounds of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and methane, among others. While the State and federal entities have not established ambient attainment levels for ROGs, they have for O<sub>3</sub>. Because ROGs react with NO<sub>x</sub> through photochemical reactions to form ozone, air districts, including SCAQMD, have provided ROG significance thresholds for project-level analysis in order to further limit the levels of ROGs available in the atmosphere that can be converted to ozone.

Table 1. State and Federal Air Quality Standards

Pollutant	Averaging Time	California Standards <sup>a</sup>		Federal Standards <sup>b</sup>		
		Concentration <sup>c</sup>	Method <sup>d</sup>	Primary <sup>ce</sup>	Secondary <sup>cf</sup>	Method <sup>g</sup>
Ozone (O <sub>3</sub> )	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )		
Respirable Particulate Matter (PM <sub>10</sub> )	24 Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		—		
Fine Particulate Matter (PM <sub>2.5</sub> )	24 Hour	No Separate State Standard		35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12 µg/m <sup>3</sup>		
Carbon Monoxide (CO)	8 Hour	9 ppm (10mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—	—	—
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	0.03 ppm (56 µg/m <sup>3</sup> )	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemi- luminescence
	1 Hour	0.18 ppm (339 µg/m <sup>3</sup> )		0.10 ppm	None	
Sulfur Dioxide (SO <sub>2</sub> )	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )	Ultraviolet Fluorescence	0.14 ppm (365 µg/m <sup>3</sup> )	—	Ultraviolet Fluorescence; Spectrophoto- metry (Pararosaniline Method) <sup>9</sup>
	3 Hour	—		—	0.5 ppm (1300 µg/m <sup>3</sup> )	
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )		0.075 ppm (196 µg/m <sup>3</sup> )	—	
Lead (Pb) <sup>h</sup>	30 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m <sup>3</sup>	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3- Month Average	—		0.15 µg/m <sup>3</sup>		

Pollutant	Averaging Time	California Standards <sup>a</sup>		Federal Standards <sup>b</sup>		
		Concentration <sup>c</sup>	Method <sup>d</sup>	Primary <sup>c,e</sup>	Secondary <sup>c,f</sup>	Method <sup>g</sup>
<b>Visibility Reducing Particles</b>	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		<b>No Federal Standards</b>		
<b>Sulfates (SO<sub>4</sub>)</b>	24 Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
<b>Hydrogen Sulfide</b>	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
<b>Vinyl Chloride<sup>h</sup></b>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			
<p><sup>a</sup> California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter (PM<sub>10</sub>, and PM<sub>2.5</sub>) and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.</p> <p><sup>b</sup> National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.</p> <p><sup>c</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.</p> <p><sup>d</sup> Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board (CARB) to give equivalent results at or near the level of the air quality standard may be used.</p> <p><sup>e</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.</p> <p><sup>f</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p><sup>g</sup> Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.</p> <p><sup>h</sup> CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.</p> <p>Source: CARB 2018</p>						

## 2.4.2 Air Pollutant Constituents and Attainment Status

A state or region is given the status of "attainment" or "unclassified" if ambient air quality standards have not been exceeded. A status of "nonattainment" for particular criteria pollutants is assigned if the ambient air quality standard for that pollutant has been exceeded. Once designated as nonattainment, attainment status may be achieved after three years of data showing non-exceedance of the standard. When an area is reclassified from nonattainment to attainment, it is designated as a maintenance area, indicating the requirement to establish and enforce a plan to maintain attainment with the standard. Following is a short description of the regulated air pollutants and their effect on human health.

## Ozone

Ozone (O<sub>3</sub>) is a colorless toxic gas that irritates the lungs and damages materials and vegetation. During the summer's long daylight hours, plentiful sunshine provides the energy needed to fuel photochemical reactions between NO<sub>2</sub> and ROG<sub>s</sub> which result in the formation of O<sub>3</sub>. Conditions that lead to high levels of O<sub>3</sub> are adequate sunshine, early morning stagnation in source areas, high surface temperatures, strong and low morning inversions, greatly restricted vertical mixing during the day, and daytime subsidence that strengthens the inversion layer (all of which are characteristic of Southern California). Short-term exposures (lasting for a few hours) to ozone at levels typically observed in Southern California can result in changes in breathing patterns, reductions in lung capacity, and increased susceptibility to respiratory illnesses. O<sub>3</sub> is a problematic air contaminant in the SCAB. Maximum ozone concentrations in the SCAB usually are recorded during summer months.

## Nitrogen Dioxides

The forms of nitrogen oxide that are important in air pollution are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). NO is a colorless, odorless gas formed by a combination of nitrogen and oxygen when combustion takes place under high temperatures and pressures. NO<sub>2</sub> is a reddish-brown gas formed by the combination of NO with oxygen. Combustion in motor vehicle engines, power plants, refineries and other industrial operations, as well as ships, railroads and aircraft, are the primary sources of NO. NO<sub>2</sub> at atmospheric concentrations is a potential irritant and can cause coughing in healthy persons, due to increased resistance to air flow and airway contraction. Larger decreases in lung functions are observed in individuals with preexisting respiratory illness. Long-term exposure to NO<sub>2</sub> can potentially lead to increased levels of respiratory illness in children. NO<sub>x</sub> is one of the main ingredients involved in the formation of ground-level ozone, which can trigger serious respiratory problems.

## Carbon Monoxide

Carbon monoxide (CO) is a product of inefficient combustion, principally from automobiles and other mobile sources of pollution. In many areas of California, CO emissions from sources such as wood-burning stoves and fireplaces also can be measurable contributors during cold-weather months. Industrial sources of pollution generally contribute less than 10 percent of ambient CO levels. Peak CO levels occur typically during winter months because of a combination of seasonal contributions from home heating devices and stagnant weather conditions. CO reduces the oxygen-carrying capacity of the blood and in high concentrations can cause death. At lower concentrations, people exposed experience dizziness and headaches.

## Sulfur Dioxide

Sulfur dioxide (SO<sub>2</sub>) is produced when any sulfur-containing fuel is burned. Chemical plants that treat or refine sulfur or sulfur-containing chemicals also emit SO<sub>2</sub>. Because of the complexity of the chemical reactions that convert SO<sub>2</sub> to other compounds (such as sulfates), peak concentrations of SO<sub>2</sub> occur at different times of the year in different parts of the State, depending on local fuel characteristics, weather, and topography. SO<sub>2</sub> can cause bronchia constriction and may aggravate



respiratory diseases. In moist environments, SO<sub>2</sub> may combine with water to form sulfuric acid, a component of acid deposition.

### **Fine Particulates (PM<sub>10</sub>, PM<sub>2.5</sub>)**

Particulate matter in the air is composed of windblown fugitive dust; particles emitted from combustion sources (usually carbon particles); and organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxides, and oxides of nitrogen. In 1984, the California Air Resources Board (CARB) adopted standards for fine particulate (PM<sub>10</sub> - particulate matter of less than 10 microns), and phased out the total suspended particulate (TSP) standards used up to that time. PM<sub>10</sub> standards were substituted for TSP standards because PM<sub>10</sub> corresponds to the size range of inhalable particulate related to human health. In 1987, EPA also replaced national TSP standards with PM<sub>10</sub> standards. In July 1997, the Environmental Protection Agency (EPA) adopted new standards for fine particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>).

Particulates are a public health and welfare concern for several reasons. Particulates may be intrinsically toxic because of their inherent chemical and/or physical characteristics. Particulate matter may interfere with one or more of the mechanisms that normally clear the respiratory tract. Finally, fine particulates, which are easily carried deep into the lungs, may act as carriers of absorbed toxic substances. Thus, elevated particulate concentrations may exacerbate pre-existing respiratory diseases such as bronchitis. Particulate matter, especially fine particulate, also interferes with visibility.

The SCAB currently exceeds both the federal and State PM<sub>2.5</sub> standards. It is classified as attainment for the federal PM<sub>10</sub> standard and non-attainment for the State PM<sub>10</sub> standard.

### **Lead**

Lead is found in old paints and coatings, plumbing, and various other materials. Once in the blood stream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead.

### **Toxic Air Contaminants**

Toxic Air Contaminants (TACs) are a diverse group of air pollutants that can affect human health, but have not had ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. CARB has designated nearly 200 compounds as TACs. Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel-fueled engines. Inhaling TACs may increase the chances of experiencing various health problems, such as cancer, respiratory tract irritation, birth defects, etc. .

## 2.5 Existing Regional Air Quality Emissions

Measurements of ambient concentrations of criteria pollutants are used by the United States EPA and the ARB to assess and classify the air quality of each air basin, county, or, in some cases, a specific developed area. The classification is determined by comparing monitoring data with national and California air quality standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in “attainment.” If the pollutant exceeds the standard, the area is in marginal, moderate, serious, severe, or extreme “nonattainment,” depending on the magnitude of the air quality standard exceedance. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated “unclassified.”

### South Coast Air Basin

The SCAB is surrounded by mountains trapping the air and its pollutants in the valleys or basins below. This area, also known as the Basin, includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. Bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, the SCAB is an area of high air pollution potential. The regional climate within the Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. Air quality within the Basin is influenced by a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry.

The annual average temperature varies throughout the Basin. Annual temperature in Orange County ranges from the low 50°F to over 110°F during the summer. The hottest months are July and August, and the coldest months are December and January.

The majority of annual rainfall in the Basin occurs between December and March. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions. The annual average total of rainfall in the SCAB area of the Los Angeles County is 15 inches. The Basin experiences a persistent temperature inversion, which is characterized by increasing temperature with increasing altitude. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. Aside from a persistent temperature inversion, the vertical dispersion of air contaminants in the Basin is also affected by wind conditions. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. Conversely, on days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in the Basin are transported eastward, predominantly into Riverside and San Bernardino Counties. Santa Ana winds, which are strong and dry north or northeasterly winds that occur during the fall and winter months, disperse air contaminants differently through the Basin, generally resulting in

worse air conditions in the western parts of the Basin. Santa Ana conditions tend to last for several days at a time.

SCAB has very low average wind speeds; the dominant daily wind pattern is an onshore 8 to 12 mph during the day and offshore 3 to 5 mph winds during the night. These wind patterns are disrupted occasionally by winter storms or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Table 2 lists criteria air pollutants and their attainment status in the SCAB.

**Table 2. Criteria Pollutants Attainment Status in the South Coast Air Basin**

<b>Air Pollutants</b>	<b>State</b>	<b>Federal</b>
Ozone (1-Hour)	Nonattainment	-
Ozone (8-Hour)	Nonattainment	Nonattainment
PM <sub>2.5</sub>	Nonattainment/Unclassified	Nonattainment
PM <sub>10</sub>	Nonattainment	Nonattainment
NO <sub>2</sub>	Attainment	Unclassified/Attainment
CO	Attainment	Unclassified/Attainment
SO <sub>2</sub>	Attainment	Attainment
Lead	Attainment	Unclassified/Attainment (Orange County) Nonattainment (portion of Los Angeles County)
Sulfates	Attainment	-
Hydrogen Sulfide	Unclassified	-
Visibility Reducing Particles	Unclassified	-

Source: CARB 2018

## SECTION 3

### AIR QUALITY THRESHOLDS OF SIGNIFICANCE

This section discusses the applicable significance thresholds for air quality assessment. The air quality guidance recommended by the SCAQMD is used to assess air quality impacts from the proposed project.

#### 3.1. Criteria Pollutants

SCAQMD has published thresholds of significance for air quality. A project has a significant air quality impact if it does one of the following:

- Generates total emissions that exceed the thresholds shown in Table 3; and/or
- Maximum daily localized emissions are greater than the Localized Significance Thresholds (LST), resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for CO and NO<sub>2</sub>; and/or
- Maximum localized PM<sub>10</sub> or PM<sub>2.5</sub> emissions during construction are greater than the applicable LSTs, resulting in predicted ambient concentrations in the vicinity of the site to exceed 50 µg/m<sup>3</sup> over five hours (SCAQMD Rule 403 control requirement); and/or
- The project would not be compatible with SCAQMD and Southern California Association of Governments (SCAG) air quality policies. The project is not compatible with SCAQMD and SCAG air quality policies if it:
  - Causes an increase in the frequency or severity of existing air quality violations;
  - Causes or contributes to new air quality violations;
  - Delays timely attainment of air quality standards or the interim emission reductions specified in the SCAQMD's Air Quality Management Plan (AQMP); or
  - Exceeds the assumptions utilized in the SCAQMD's AQMP.

**Table 3. . Significant Emission Thresholds**

<b>Mass Daily Thresholds<sup>(a)</sup></b>		
Pollutant	Construction <sup>(b)</sup>	Operation <sup>(c)</sup>
Nitrogen Oxide (NO <sub>x</sub> )	100 lbs/day	55 lbs/day
Reactive Organic Gas (ROG)	75 lbs/day	55 lbs/day
Particle Pollution (PM <sub>10</sub> )	150 lbs/day	150 lbs/day
Particle Pollution (PM <sub>2.5</sub> )	55 lbs/day	55 lbs/day
Sulfur Oxides (SO <sub>x</sub> )	150 lbs/day	150 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
<b>Toxic Air Contaminants (TACs), Odor, and Greenhouse Gas (GHG) Thresholds</b>		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk > 10 in 1 million Chronic and Acute Hazard Index > 1.0 (project increment) Cancer Burden > 0.5 excess cancer cases (in areas > 1 in 1 million)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr Carbon Dioxide (CO <sub>2</sub> ) eq for industrial facilities	
<b>Ambient Air Quality for Criteria Pollutants<sup>(d)</sup></b>		
<b>NO<sub>x</sub></b> 1-hour average Annual average	In attainment; significant if project causes or contributes to an exceedance of any standards. 0.18 ppm (State) 0.03 ppm (State) and 0.0534 ppm (federal)	
<b>PM<sub>10</sub></b> 24-hour average Annual average	10.4 µg/m <sup>3</sup> (construction) and 2.5 µg/m <sup>3</sup> (operation) 1.0 g/m <sup>3</sup>	
<b>PM<sub>2.5</sub></b> 24-hour average	10.4 µg/m <sup>3</sup> (construction) and 2.5 µg/m <sup>3</sup> (operation)	
<b>SO<sub>2</sub></b> 1-hour average 24-hour average	0.255 ppm (State) and 0.075 ppm federal - 99 <sup>th</sup> percentile 0.04 ppm (State)	
<b>Sulfate</b> 24-hour average	25 µg/m <sup>3</sup> (State)	
<b>CO</b> 1-hour average 8-hour average	In attainment; significant if project causes or contributes to an exceedance of any standard: 20 ppm (State) and 35 ppm (federal) 9.0 ppm (State/federal)	
<b>Lead</b> 30-day average Rolling 3-month average	1.5 µg/m <sup>3</sup> (State) 0.15 µg/m <sup>3</sup> (federal)	

a) Source: SCAQMD CEQA Handbook

b) Construction thresholds apply to both the South Coast Air Basin (SCAB) and Coachella Valley (Salton Sea and Mojave Desert Air Basin).

c) For Coachella Valley; the mass daily thresholds for operation are the same as the construction thresholds.

d) SCAQMD Rule 1303 Table A-2 unless otherwise stated.

KEY: ppm = parts per million; µg/m<sup>3</sup> = microgram per cubic meter; lbs/day = pounds per day; MT/yr CO<sub>2eq</sub> = metric tons per year of CO<sub>2</sub> equivalents.

### 3.2 Greenhouse Gases and State Standards

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however, data indicate that current global conditions differ from past climate changes in rate and magnitude. According to the Intergovernmental Panel on Climate Change (IPCC), the increase in atmospheric GHGs is largely the result of human activities, namely fossil fuel combustion, land use changes and agriculture (IPCC 2007). GHGs are those compounds in the Earth's atmosphere that play a critical role in determining the Earth's surface temperature. Specifically, these gases allow high-frequency solar radiation to enter the Earth's atmosphere, but retain the low frequency energy which is radiated back from the Earth towards space, resulting in a warming of the atmosphere. Increased concentrations of GHGs in the Earth's atmosphere have been linked to global climate change and such conditions as rising surface temperatures, melting icebergs and snowpack, rising sea levels, and the increased frequency and magnitude of severe weather conditions.

GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), ozone (O<sub>3</sub>), water vapor, nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Carbon dioxide is the most abundant GHG in the atmosphere. GHGs are the result of both natural and anthropogenic activities. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions.

In September 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act of 2006, also known as AB 32, into law. AB 32 commits the State to achieving the following:

- 2000 GHG emission levels by 2010 (which represents an approximately 11 percent reduction from business as usual)
- 1990 levels by 2020 (approximately 25 percent below business as usual)

To achieve these goals, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce Statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved

The CEQA Guidelines, Section 15064.7, define a threshold of significance as an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. CEQA gives wide latitude to lead agencies in determining what impacts are significant and does not prescribe thresholds of significance, analytical methodologies, or specific mitigation measures



(OPR 2007). CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects.

The SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. In December 2008, SCAQMD adopted interim CEQA GHG significance thresholds for use only when SCAQMD is the lead agency on projects. These thresholds apply to industrial projects only, and include a 10,000 metric ton CO<sub>2</sub>e screening level. For purposes of this analysis, the 10,000 metric ton CO<sub>2</sub>e threshold for industrial projects is applied to this project.

While it is difficult to predict the specific impact of one project's incremental contribution to the global effects of GHG emissions due to a variety of factors, including the complex and long term nature of such effects and the global scale of climate change, it is possible to determine whether a project is implementing design strategies consistent with the guidance that is available. Thus, if a project implements design strategies consistent with the goals of AB 32, the project will not be considered to have a significant impact with respect to global climate change, either on a project-specific basis or with respect to its contribution to a cumulative impact on global climate change.

## SECTION 4

### AIR QUALITY IMPACT ASSESSMENT

#### 4.1 Overview of the Analysis Methodology

##### California Environmental Quality Act (CEQA)

To determine whether or not air quality impacts from the proposed project are significant, impacts will be evaluated and compared to the significance criteria in Table 3. If impacts equal or exceed any of the criteria in Table 3, they will be considered significant. Significance determinations for construction impacts are based on the maximum or peak daily emissions during the construction period, which provides a “worst-case” analysis of the construction emissions. Similarly, significance determinations for operational emissions are based on the maximum or peak daily allowable emissions during the operational phase.

Regional and localized emissions were calculated using the SCAQMD-approved California Emissions Estimator Model (CalEEMod). The model was developed by the SCAQMD in collaboration with other air districts in California to estimate criteria air pollutant and greenhouse gas emissions from a variety of land use development projects (SCAQMD). It can be used in air quality analysis to estimate impacts for compliance with regulations, such as CEQA, NEPA and local air quality rules and regulations.

In addition to the CalEEMod model, the SCAQMD’s localized significance threshold (LST) methodology is used to analyze localized construction emissions (SCAQMD LST Methodology). The LST methodology uses look-up thresholds for projects which disturb five acres or less per day. Since each site will disturb approximately one acre or less per day, the look-up thresholds were used.

##### NEPA

To determine whether or not air quality impacts from the proposed project are significant for NEPA, the Environmental Protection Agency (EPA) establishes a threshold for screening purpose. If a proposed project results in any criteria air pollutant emissions of 10 tons per year or less, then the project is deemed insignificant.

#### 4.2 Air Quality Impacts from Construction

Following construction activities are planned at the sites:

1. Demolition of existing building, piping, and site features
2. Construction of a new fire hydrant and storm drain piping on South Croddy Way and catch basin on-site (Well 14 only).
3. Well Drilling

4. Well Development
5. Well Equipping
6. Pipeline Construction
7. Testing
8. Final Site Improvements

#### 4.2.1 Regional Impacts

Impacts on regional air quality from project construction activities are evaluated in this section. Construction emissions are expected from the following equipment and processes:

- On-site Fugitive Dust Associated with Site Construction Activities;
- On-site Construction Equipment (dump trucks, backhoes, graders, etc.);
- On-site and Off-site Vehicle Emissions, including Delivery Trucks and Worker Vehicles.

The CalEEMod model divides the construction processes into phases, including demolition, site preparation, grading, building construction, paving, etc. These model settings can be modified to fit applicable features of a specific project. Each construction phase could generate the following emissions:

- (1) Fugitive dust emissions resulting from soil disturbance activity.

Construction activities at the site include grading, trenching, and truck filling/dumping. These activities generate dust emissions. Vehicles and trucks traveling on paved and unpaved roads are also a source of fugitive emissions during the construction period.

During construction, the proposed project would be subject to SCAQMD Rules 403 (Fugitive Dust). The purpose of Rule 403 is to reduce man-made fugitive dust. Rule 403 requires implementing control measures to prevent, reduce, or mitigate fugitive dust emissions and includes a performance standard that prohibits visible emissions from crossing any property line (SCAQMD Rule 403). Dust control measures, such as water application on dry soil and reduced vehicles travelling on unpaved roads, are standard mitigation techniques. Project construction will be required to comply with Rule 403. Implementing the dust suppression techniques specified in Rule 403 can reduce the fugitive dust generation (and thus the PM<sub>10</sub> component) by 50 percent or more. Therefore, the estimation of fugitive dust emissions during project construction assumes Rule 403 compliance.

- (2) Emissions of air pollutants from fuel combustion in construction equipment

On-site construction equipment will be a source of combustion emissions. Construction equipment is expected to include excavator, tractor, loader, scraper, crane, water truck, paver, and compactor. Table 4 shows the typical construction equipment mix used at each site.

- (3) Emissions of air pollutants from fuel combustion in vehicles and trucks

Vehicles used for worker commute and delivery trucks for material delivery to the site, and haul trucks used for construction debris disposal will be a source of combustion emissions. Primary emissions generated will include combustion emissions from engines during idling and while operating. Emissions are based on the estimated number of trips per day and the round trip travel distances. Table 4 provides the worker commute and haul truck information.

Data presented in Table 4 were input into the CalEEMod model. Construction activities result in emissions of CO, ROG, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and GHGs. Appendix A provides the CalEEMod model output files.

Construction emissions are summarized in Table 5. Table 6 compares the project element emissions with the SCAQMD's regional and localized construction significance threshold levels. As Table 6 shows, construction-related daily (short-term) emissions would not exceed SCAQMD regional significance thresholds for ROG, NO<sub>x</sub>, CO, SO<sub>2</sub>, and PM. Thus, project construction emissions would result in a less than significant regional impact.

#### **4.2.2 Localized Impacts**

In addition to the SCAQMD's regional significance threshold, the SCAQMD has also developed localized significance thresholds (LSTs) that identify daily emissions levels at a project construction site that could cause or contribute to adverse localized air quality impacts to the nearest sensitive receptors.

For projects with a daily construction footprint larger than five acres, SCAQMD recommends that the localized air quality impact analysis be performed using an appropriate air dispersion model. For projects with a daily construction footprint of five acres or less, the SCAQMD has developed the LST methodology to determine localized impacts. This LST Methodology consists of mass emission rate look-up tables. If the calculated emissions for the construction activity are below the emission level found in the LST lookup tables, the construction activity is not considered significant. The screening tables were developed using conservative assumptions, including the worst meteorological conditions. If localized emissions exceed the values in the lookup tables, dispersion modeling, which is more precise, may be performed.

Since the maximum daily construction footprint for each site would be less than five acres, the LST Methodology would be applicable. LSTs apply only to the following criteria pollutants: NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>, and apply only to emissions generated on site. LSTs represent the maximum on-site emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standards and are developed based on the ambient concentrations of that pollutant in that area.

Table 6 summarizes the localized impacts from the construction activities for each site, together with the SCAQMD's daily construction LST significance threshold levels.

As Table 6 shows, construction-related daily (short-term) emissions would not exceed SCAQMD localized significance thresholds for NO<sub>x</sub>, CO, and PM. Thus, project construction emissions would result in a less than significant localized impact.

**Table 4. Construction Equipment Mix and Offsite Haul Truck Data****Well 12**

<b>Off-road Equipment Type</b>	<b>Quantity</b>	<b>Usage Hours</b>	<b>Horse Power</b>	<b>Load Factor</b>
Bore/Drill Rigs	1	24	600	0.5
Cement and Mortar Mixers	4	6	10	0.56
Concrete/Industrial Saws	1	8	81	0.73
Cranes	1	18	275	0.29
Excavators	2	8	168	0.38
Forklifts	2	6	45	0.2
Generator Sets	1	10	200	0.74
Other General Industrial Equipment	1	8	238	0.34
Pavers	1	7	100	0.42
Pumps	1	24	500	0.5
Rollers	1	7	95	0.38
Rubber Tired Dozers	1	8	247	0.4
Tractors/Loaders/Backhoes	2	12	108	0.37

**Truck Trips**

Truck Trips per Day	10
Roundtrip Length (mi)	5
Daily Vehicle Mile Travelled (VMT)	50
Total Trips	<b>250</b>

**Well 14**

<b>Off-road Equipment Type</b>	<b>Quantity</b>	<b>Usage Hours</b>	<b>Horse Power</b>	<b>Load Factor</b>
Bore/Drill Rigs	1	24	600	0.5
Cement and Mortar Mixers	4	6	10	0.56
Concrete/Industrial Saws	1	8	81	0.73
Cranes	1	18	275	0.29
Excavators	2	8	168	0.38
Forklifts	2	6	45	0.2
Generator Sets	1	10	200	0.74
Other General Industrial Equipment	1	8	238	0.34
Pavers	1	7	100	0.42
Pumps	1	24	500	0.5
Rollers	1	7	95	0.38
Rubber Tired Dozers	1	8	247	0.4
Tractors/Loaders/Backhoes	2	12	108	0.37

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**Truck Trips**


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Truck Trips per Day	10
Roundtrip Length (mi)	<b>5</b>
Daily Vehicle Mile Travelled (VMT)	50
Total Trips	<b>250</b>

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**Well Pipeline**


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Off-road Equipment Type	Quantity	Usage Hours	Horse Power	Load Factor
Concrete/Industrial Saws	1	8	81	0.73
Crushing/Proc. Equipment	1	6	85	0.5
Pavers	1	7	130	0.42
Plate Compactors	1	8	8	0.43
Rollers	1	7	80	0.38
Sweepers/Scrubbers	1	8	250	0.35
Tractors/Loaders/Backhoes	2	6	108	0.37
Welders	1	8	46	0.45

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**Truck Trips**


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Truck Trips per Day	50
Roundtrip Length (mi)	<b>5</b>
Daily Vehicle Mile Travelled (VMT)	250
Total Trips	<b>750</b>



**Table 5. Construction Emissions Summary**

## Well No. 12 Construction Phase

Construction Phases	CO (lbs/day)	NOx (lbs/day)	ROG (lbs/day)	SO <sub>2</sub> (lbs/day)	PM <sub>10</sub> Total (lbs/day)	PM <sub>2.5</sub> Total (lbs/day)	CO <sub>2</sub> e (ton/yr)
Demolition	11.62	18.1	1.85	0.02	2.02	1.072	8.77
Demolition (Hauling)	0.99	2.34	0.12	0.06	1.326	0.178	2.93
Well (drilling)	44.5	66.2	6.42	0.184	2.3	2.19	223.7
Well (developing)	26.7	28.9	2.83	0.066	1.31	1.24	115.5
Well (Hauling)	0.70	0.50	0.083	0.002	0.425	0.076	3.26
Well Equipping	13.4	13.7	1.55	0.020	0.794	0.735	102.2

## Well No. 14 Construction Phase

Construction Phases	CO (lbs/day)	NOx (lbs/day)	ROG (lbs/day)	SO <sub>2</sub> (lbs/day)	PM <sub>10</sub> Total (lbs/day)	PM <sub>2.5</sub> Total (lbs/day)	CO <sub>2</sub> e (ton/yr)
Demolition	11.62	18.14	1.85	0.020	2.02	1.07	8.77
Demolition (Hauling)	0.76	2.32	0.096	0.006	1.26	0.16	2.629
Well (drilling)	44.5	66.2	6.42	0.184	2.30	2.19	223.7
Well (developing)	26.69	28.88	2.83	0.066	1.31	1.235	115.5
Well (Hauling)	0.688	0.548	0.083	0.002	0.193	0.052	3.26
Well Equipping	14.46	14.48	1.65	0.022	0.887	0.783	112.2

**Table 5. Construction Emissions Summary (Cont.)**

Well Nos. 12, 14, Storm Drain and Pipeline Construction Phase

Construction Phases	CO (lbs/day)	NOx (lbs/day)	ROG (lbs/day)	SO <sub>2</sub> (lbs/day)	PM <sub>10</sub> Total (lbs/day)	PM <sub>2.5</sub> Total (lbs/day)	CO <sub>2</sub> e (ton/yr)
Storm Drain	13.32	14.30	1.733	0.025	0.772	0.731	16.29
Well Drilling	0.605	0.055	0.072	0.001	0.177	0.048	1.186
Storm Drain Paving	8.520	8.160	0.892	0.012	0.480	0.452	2.834
Pipeline	5.322	12.98	1.603	0.025	0.669	0.646	385.5
Pipeline Hauling	0.194	0.018	0.023	0.001	0.057	0.015	9.01
Pipeline Paving	8.244	7.289	0.791	0.013	0.411	0.387	4.94

**Table 6. Construction Emissions vs. SCAQMD Regional and Localized Emissions Thresholds**

<b>Air Pollutants</b>	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>GHG</b>
Emissions Unit	lbs/day						MT/yr
Max. Overlapping Emissions	6.4	66.2	44.5	0.2	2.3	2.19	544
Regional Construction Emissions Threshold	75	100	550	150	150	55	10,000
Over (Under)	(68.6)	(33.8)	(505.5)	(149.8)	(147.7)	(52.8)	(9,456)
Exceed Threshold (Yes/No)	No	No	No	No	No	No	No
Localized Construction Emissions Thresholds		81	485		4	3	
Over (Under)		(14.8)	(440.5)		(1.7)	(0.81)	
Exceed Threshold (Yes/No)	No	No	No	No	No	No	No

### 4.2.3 Federal Air Quality Impacts

Table 7 summarizes the air quality impacts from construction activities together with the NEPA significance thresholds. As shown, the proposed construction-related annual emissions would not exceed NEPA significance thresholds. Thus, project construction emissions would result in a less than significant impact.

**Table 7. Construction Emissions and NEPA Thresholds**

<b>Air Pollutants/Year</b>	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Max. Overlapping Emissions, tons/year (2020)	1.24	4.18	3.43	0.010	0.22	0.18
Max. Overlapping Emissions, tons/year (2021)	3.22	3.08	3.26	0.372	0.19	0.16
NEPA Emissions Threshold, tons/yr	10	10	10	10	10	10
Exceed Threshold (Yes/No)	No	No	No	No	No	No

### 4.3 Air Quality Impacts from Operation

During operation, the two wells will include chloramination to disinfect the groundwater prior to distribution. Chloramine is formed when chlorine reacts with ammonia. The well will be equipped with a dedicated chemical storage, dosing and containment area for sodium hypochlorite and aqueous ammonia.

Sodium hypochlorite is injected directly into a static mixer at the discharge of each wellhead. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate. The total chlorine will be monitored downstream of chemical dosing. Downstream of the sodium hypochlorite injection, aqueous ammonia is injected directly into a static mixer. The chemical metering pumps will be flow-paced to maintain an operator adjustable dosing rate. Monochloramine will be monitored downstream of chemical dosing. The chemical storage area for the sodium hypochlorite and ammonia tanks at each well will be covered with a canopy roof.

The normal operation of the well will require one vehicle trip daily for one worker to monitor the operation of the well facilities. Maintenance and tank filling will require one bi-weekly vehicle trip. Periodic maintenance activities will include replacement of the sodium hypochlorite or aqueous ammonia tanks and testing and maintaining equipment, including an emergency generator. During filling of the tanks, District personnel will be present to guard against spillage. Strict procedures will be in place and adhered to at all times. Wash down/containment facilities will also be in place in the event of a spill. Frequent inspections will be made by the District to ensure protection of the public health, safety, and general welfare.

For the air quality impact analyses of the operation phase, the CalEEMod model is run to quantify emissions from the worker daily trip and bi-weekly trip and monthly testing of the emergency generator. Appendix A provides the CalEEMod output files.

Table 8 shows the CalEEMod results for operational emission. Table 9 shows the comparison of the operational emission vs the SCAQMD Regional and Localized Thresholds. As shown in Table 9, the project is less than significant impact.

#### **4.4 Greenhouse Gas Emissions**

GHG emissions from this proposed project are from two major sources: Fuel combustion in construction equipment and truck hauling. The CalEEMod model was run to determine the GHG emissions. Table 10 shows the total GHG emissions together with the SCAQMD's significance thresholds. As shown in Table 10, GHG emissions are below SCAQMD significance thresholds of 10,000 Metric tons per year.

**Table 8. Operation Emissions Summary**

Location	Operation	CO (lb/day)	NOx (lb/day)	ROG (lb/day)	SO <sub>2</sub> (lb/day)	PM <sub>10</sub> Total (lb/day)	PM <sub>2.5</sub> Total (lb/day)	CO <sub>2</sub> e (ton/day)
Well 12	Maintenance	0.072	0.007	0.004	1.1 x 10 <sup>-4</sup>	0.012	0.003	2.04
	Emergency Generator Testing	0.287	0.314	0.112	5.48 x 10 <sup>-4</sup>	0.017	0.017	9.55
Well 14	Maintenance	0.079	0.007	0.005	1.1x10 <sup>-4</sup>	0.013	0.004	2.22
	Emergency Generator Testing	0.041	0.037	0.011	5.48x10 <sup>-5</sup>	0.002	0.002	0.96

**Table 9. Operation Emissions vs. SCAQMD Regional and Localized Emissions Thresholds**

	ROG	NOx	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	GHG
Emissions Unit	lbs/day						MT/yr
Total Emissions	0.13	0.36	0.5	0.001	0.04	0.03	14.0
Regional Operation Emissions Threshold	55	55	550	150	150	55	10,000
Over (Under)	(54.9)	(54.6)	(549.5)	(150)	(150)	(150)	(9,986)
Exceed Threshold (Yes/No)	No	No	No	No	No	No	No
Localized Emissions Thresholds		81	485		4	3	
Over (Under)		(80.6)	(484.5)		(3.96)	(2.97)	
Exceed Threshold (Yes/No)		No	No		No	No	



**Table 10. GHG Emissions**

<b>Phases</b>	<b>CO<sub>2</sub>e (Metric Tons/yr)</b>	<b>SCAQMD Significance Threshold</b>	<b>Exceed Threshold (Yes/No)</b>
Construction	544	10,000	No
Operation	14	10,000	No

#### **4.5 Odors**

Potential sources that may emit odors during construction activities include the use of coating and solvents, and diesel-powered equipment. Due to relatively small footprint of the construction sites, limited use of odorous solvent and coating, and few pieces of diesel-powered equipment operating simultaneously, odor impacts would be less than significant. During operation, all odorous chemicals will be properly stored and handled, odor impact would be less than significant.

#### **4.6 Consistency with Regional Air Quality Plan**

The SCAQMD is required, pursuant to the Clean Air Act, to reduce emissions of certain pollutants for which the Basin is in non-attainment (i.e., ozone and PM<sub>10</sub>). The project would be subject to the SCAQMD's Air Quality Management Plan (AQMP). The AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections.

The determination of AQMP consistency is primarily concerned with the long-term influence of the project on air quality in the Basin. Neither the development of the project nor its operation would result in short-term and long-term regional impacts. The project would comply with SCAQMD Rule 403 and would implement all feasible mitigation measures for control of PM<sub>10</sub> and PM<sub>2.5</sub>; the project would be consistent with the goals and policies of the AQMP for control of fugitive dust. The proposed project is not expected in conflict with the AQMP.

#### **4.7 Cumulative Impacts**

With respect to the project's air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce regional-impact pollutant emissions, as outlined in the AQMP pursuant to federal Clean Air Act mandates. As such, the proposed project would comply with all applicable SCAQMD requirements and implement all feasible mitigation measures.

No cumulatively significant effects are anticipated for the proposed project. Long term operation and maintenance of the project improvements to be implemented would result in minimal air

quality impacts and would not contribute to cumulatively significant air quality impacts in the project vicinity. Therefore, no cumulatively significant effects from long-term operation are anticipated from implementation of the proposed project.

Within the context of CEQA, it is generally accepted that a single project does not typically generate enough GHG emissions to significantly influence global climate change. For the proposed project, no cumulatively significant GHG impacts will be experienced.

## SECTION 5

### MITIGATION MEASURES

Public Resources Code, Section 21081.6 (PRC 21081.6) requires that mitigation measures identified in environmental review documents prepared in accordance with California Environmental Quality Act (CEQA) are implemented after a project is approved. A Mitigation Monitoring and Reporting Program (MMRP) is intended to address the potential environmental impacts, and where appropriate, recommends measures to mitigate these impacts. As such, an MMP is required to guarantee that the adopted mitigation measures are successfully implemented. This plan lists each mitigation measure, describes the methods for implementation and verification, and identifies the responsible party or parties.

This air quality impact analysis found that the proposed project has less than significant impact. The MMP for the proposed project shall be in place to ensure compliance with SCAQMD Rules 402, 403 and all applicable permit conditions.

**SECTION 6****REFERENCES**

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CalEEMod 2016. South Coast Air Quality Management District, [www.CalEEMod.com](http://www.CalEEMod.com) July 2016.

LST 2016. South Coast Air Quality Management LST Methodology, [http://www.aqmd.gov/ceqa/handbook/lst/Method\\_final.pdf](http://www.aqmd.gov/ceqa/handbook/lst/Method_final.pdf)

SCAQMD Rule 403. South Coast Air Quality Management District Rule 403.

PBC 21018.6 Public Resource Code Section 21018.6, [https://leginfo.legislature.ca.gov/faces/codes\\_displaySection.xhtml?lawCode=PRC&sectionNum=21018.6](https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC&sectionNum=21018.6).

**APPENDIX A**

**CALEEMOD OUTPUT FILES**

Mesa Water District - Well No. 12 - South Coast AQMD Air District, Annual

**Mesa Water District - Well No. 12**  
**South Coast AQMD Air District, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	18.15	1000sqft	0.42	18,150.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	8			<b>Operational Year</b>	2020
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - Project Size - 0.42 AC

Construction Phase - Demolition 1/6/2020 to 1/17/2020  
 Well Drilling (24hr/day) 2/3/2020 to 2/28/2020  
 Well Drilling (08hr/day) 3/2/2020 to 4/24/2020  
 Well Equipping 12/7/2020 to 5/21/2021

Off-road Equipment - 1 Concrete/Industrial Saw - 81 HP  
 1 Rubber Tired Dozer - 357 HP  
 2 Tractors/Loaders/Backhoes - 108 HP  
 Off-road Equipment - 1 Cranes - 226 HP  
 2 Forklifts - 89 HP  
 2 Tractors/Loaders/Backhoes - 180 HP  
 Off-road Equipment - 1 Drill Rigs - 600 HP

Mesa Water District - Well No. 12 - South Coast AQMD Air District, Annual

- 1 Diesel Generator - 200 HP
- 1 Tractors/Loaders/Backhoes - 108 HP
- 1 Crane - 275 HP
- 1 Pump - 500 HP
- Off-road Equipment - 1 Drill Rigs - 600 HP
- 1 Diesel Generator - 200 HP
- 1 Tractors/Loaders/Backhoes - 108
- 1 Crane - 275 HP
- 1 Pump - 84 HP

- Off-road Equipment - 4 Cement and Mortar Mixer (10hp)
- 1 Crane (275hp)
- 2 Forklifts (89hp)
- 1 Paver (100hp)
- 1 Roller (95hp)
- 2 Tractor/Loaders/Backhoes (108hp)

- Trips and VMT - Demo: 8 workers per day x 2 for round trip
- Well Drilling (Phase 1): 8 workers per day x 2 for round trip
- Well Drilling (Phase 2): 8 workers per day x 2 for round trip
- Well Equipping: 8 workers per day x 2 for round trip

On-road Fugitive Dust - 99% Paved

Demolition - 800 CY x 1.35 = 1080 tons

Grading - 450 cy exported

Vehicle Trips - 1 Maintenance trip/month

Road Dust -

Consumer Products - No operation

Area Coating -

Construction Off-road Equipment Mitigation -

Fleet Mix - 1 LDT1

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generator - 4hr/month, 50hr/yr

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	100.00	120.00



## Mesa Water District - Well No. 12 - South Coast AQMD Air District, Annual

tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFleetMix	HHD	0.03	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	1.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.00
tblFleetMix	MCY	4.7770e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.0370e-003	0.00
tblFleetMix	SBUS	7.0500e-004	0.00
tblFleetMix	UBUS	1.9440e-003	0.00
tblGrading	MaterialExported	0.00	450.00
tblOffRoadEquipment	HorsePower	231.00	275.00
tblOffRoadEquipment	HorsePower	89.00	45.00
tblOffRoadEquipment	HorsePower	247.00	180.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	221.00	600.00
tblOffRoadEquipment	HorsePower	221.00	600.00
tblOffRoadEquipment	HorsePower	9.00	10.00
tblOffRoadEquipment	HorsePower	231.00	275.00
tblOffRoadEquipment	HorsePower	231.00	275.00

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tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	84.00	200.00
tblOffRoadEquipment	HorsePower	88.00	238.00
tblOffRoadEquipment	HorsePower	130.00	100.00
tblOffRoadEquipment	HorsePower	84.00	500.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	LoadFactor	0.74	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	12.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	500.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	107.00	160.00
tblTripsAndVMT	HaulingTripNumber	56.00	90.00

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tblTripsAndVMT	VendorTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	8.00	16.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.10

## 2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-6-2020	4-5-2020	1.4463	1.4463
2	4-6-2020	7-5-2020	0.2160	0.2160
4	10-6-2020	1-5-2021	0.1753	0.1753
5	1-6-2021	4-5-2021	0.4887	0.4887
6	4-6-2021	7-5-2021	0.2496	0.2496
		Highest	1.4463	1.4463

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0740	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Energy	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	69.1089	69.1089	2.4100e-003	7.9000e-004	69.4040
Mobile	7.9000e-004	1.1900e-003	0.0132	2.0000e-005	2.1400e-003	2.0000e-005	2.1600e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0361	2.0361	1.0000e-004	0.0000	2.0387
Stationary	0.0205	0.0573	0.0523	1.0000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003	0.0000	9.5199	9.5199	1.3300e-003	0.0000	9.5533
Waste						0.0000	0.0000		0.0000	0.0000	4.5693	0.0000	4.5693	0.2700	0.0000	11.3203
Water						0.0000	0.0000		0.0000	0.0000	1.3316	17.4132	18.7447	0.1375	3.3800e-003	23.1885
<b>Total</b>	<b>0.0974</b>	<b>0.0771</b>	<b>0.0813</b>	<b>2.3000e-004</b>	<b>2.1400e-003</b>	<b>4.4500e-003</b>	<b>6.5900e-003</b>	<b>5.7000e-004</b>	<b>4.4500e-003</b>	<b>5.0200e-003</b>	<b>5.9009</b>	<b>98.0786</b>	<b>103.9795</b>	<b>0.4114</b>	<b>4.1700e-003</b>	<b>115.5053</b>

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**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0740	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Energy	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	69.1089	69.1089	2.4100e-003	7.9000e-004	69.4040
Mobile	7.9000e-004	1.1900e-003	0.0132	2.0000e-005	2.1400e-003	2.0000e-005	2.1600e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0361	2.0361	1.0000e-004	0.0000	2.0387
Stationary	0.0205	0.0573	0.0523	1.0000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003	0.0000	9.5199	9.5199	1.3300e-003	0.0000	9.5533
Waste						0.0000	0.0000		0.0000	0.0000	4.5693	0.0000	4.5693	0.2700	0.0000	11.3203
Water						0.0000	0.0000		0.0000	0.0000	1.3316	17.4132	18.7447	0.1375	3.3800e-003	23.1885
<b>Total</b>	<b>0.0974</b>	<b>0.0771</b>	<b>0.0813</b>	<b>2.3000e-004</b>	<b>2.1400e-003</b>	<b>4.4500e-003</b>	<b>6.5900e-003</b>	<b>5.7000e-004</b>	<b>4.4500e-003</b>	<b>5.0200e-003</b>	<b>5.9009</b>	<b>98.0786</b>	<b>103.9795</b>	<b>0.4114</b>	<b>4.1700e-003</b>	<b>115.5053</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/6/2020	1/17/2020	5	10	
2	Well Drilling (Phase 1)	Grading	2/3/2020	2/28/2020	7	26	
3	Well Drilling (Phase 2)	Trenching	3/2/2020	4/24/2020	5	40	
4	Well Equipping	Building Construction	12/7/2020	5/21/2021	5	120	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**



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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	108	0.37
Well Drilling (Phase 1)	Bore/Drill Rigs	1	24.00	600	0.50
Well Drilling (Phase 1)	Concrete/Industrial Saws	0	8.00	81	0.73
Well Drilling (Phase 1)	Cranes	1	18.00	275	0.29
Well Drilling (Phase 1)	Generator Sets	1	10.00	200	0.74
Well Drilling (Phase 1)	Pumps	1	24.00	500	0.50
Well Drilling (Phase 1)	Rubber Tired Dozers	0	1.00	180	0.40
Well Drilling (Phase 1)	Tractors/Loaders/Backhoes	1	12.00	108	0.37
Well Drilling (Phase 2)	Bore/Drill Rigs	1	8.00	600	0.50
Well Drilling (Phase 2)	Cranes	1	6.00	275	0.29
Well Drilling (Phase 2)	Excavators	2	8.00	168	0.38
Well Drilling (Phase 2)	Generator Sets	1	8.00	84	0.74
Well Drilling (Phase 2)	Other General Industrial Equipment	1	8.00	238	0.34
Well Drilling (Phase 2)	Pumps	1	8.00	84	0.74
Well Drilling (Phase 2)	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Well Equipping	Cement and Mortar Mixers	4	6.00	10	0.56
Well Equipping	Cranes	1	4.00	275	0.29
Well Equipping	Forklifts	2	6.00	45	0.20
Well Equipping	Pavers	1	7.00	100	0.42
Well Equipping	Rollers	1	7.00	95	0.38
Well Equipping	Tractors/Loaders/Backhoes	2	8.00	108	0.37

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	16.00	0.00	160.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT
Well Drilling (Phase 1)	5	16.00	0.00	90.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT
Well Drilling (Phase 2)	8	16.00	0.00	0.00	14.70	6.90	0.00	LD_Mix	HDT_Mix	HHDT
Well Equipping	11	16.00	0.00	0.00	14.70	6.90	0.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

**3.2 Demolition - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0116	0.0000	0.0116	1.7500e-003	0.0000	1.7500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2400e-003	0.0907	0.0581	1.0000e-004		4.8800e-003	4.8800e-003		4.5700e-003	4.5700e-003	0.0000	8.7195	8.7195	2.1200e-003	0.0000	8.7725
<b>Total</b>	<b>9.2400e-003</b>	<b>0.0907</b>	<b>0.0581</b>	<b>1.0000e-004</b>	<b>0.0116</b>	<b>4.8800e-003</b>	<b>0.0164</b>	<b>1.7500e-003</b>	<b>4.5700e-003</b>	<b>6.3200e-003</b>	<b>0.0000</b>	<b>8.7195</b>	<b>8.7195</b>	<b>2.1200e-003</b>	<b>0.0000</b>	<b>8.7725</b>

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**3.2 Demolition - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-004	0.0114	1.9100e-003	2.0000e-005	5.7300e-003	2.0000e-005	5.7500e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.1296	2.1296	2.1000e-004	0.0000	2.1349
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.7000e-004	3.0300e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7901	0.7901	2.0000e-005	0.0000	0.7907
<b>Total</b>	<b>6.2000e-004</b>	<b>0.0117</b>	<b>4.9400e-003</b>	<b>3.0000e-005</b>	<b>6.6100e-003</b>	<b>3.0000e-005</b>	<b>6.6300e-003</b>	<b>8.6000e-004</b>	<b>3.0000e-005</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>2.9197</b>	<b>2.9197</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>2.9256</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.2000e-003	0.0000	5.2000e-003	7.9000e-004	0.0000	7.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2400e-003	0.0907	0.0581	1.0000e-004		4.8800e-003	4.8800e-003		4.5700e-003	4.5700e-003	0.0000	8.7195	8.7195	2.1200e-003	0.0000	8.7725
<b>Total</b>	<b>9.2400e-003</b>	<b>0.0907</b>	<b>0.0581</b>	<b>1.0000e-004</b>	<b>5.2000e-003</b>	<b>4.8800e-003</b>	<b>0.0101</b>	<b>7.9000e-004</b>	<b>4.5700e-003</b>	<b>5.3600e-003</b>	<b>0.0000</b>	<b>8.7195</b>	<b>8.7195</b>	<b>2.1200e-003</b>	<b>0.0000</b>	<b>8.7725</b>

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**3.2 Demolition - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-004	0.0114	1.9100e-003	2.0000e-005	5.7300e-003	2.0000e-005	5.7500e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.1296	2.1296	2.1000e-004	0.0000	2.1349
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.7000e-004	3.0300e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7901	0.7901	2.0000e-005	0.0000	0.7907
<b>Total</b>	<b>6.2000e-004</b>	<b>0.0117</b>	<b>4.9400e-003</b>	<b>3.0000e-005</b>	<b>6.6100e-003</b>	<b>3.0000e-005</b>	<b>6.6300e-003</b>	<b>8.6000e-004</b>	<b>3.0000e-005</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>2.9197</b>	<b>2.9197</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>2.9256</b>

**3.3 Well Drilling (Phase 1) - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0835	0.8607	0.5784	2.3900e-003		0.0299	0.0299		0.0285	0.0285	0.0000	222.7549	222.7549	0.0398	0.0000	223.7489
<b>Total</b>	<b>0.0835</b>	<b>0.8607</b>	<b>0.5784</b>	<b>2.3900e-003</b>	<b>3.0000e-005</b>	<b>0.0299</b>	<b>0.0300</b>	<b>0.0000</b>	<b>0.0285</b>	<b>0.0285</b>	<b>0.0000</b>	<b>222.7549</b>	<b>222.7549</b>	<b>0.0398</b>	<b>0.0000</b>	<b>223.7489</b>

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**3.3 Well Drilling (Phase 1) - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	6.4100e-003	1.0700e-003	1.0000e-005	3.2200e-003	1.0000e-005	3.2300e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1979	1.1979	1.2000e-004	0.0000	1.2009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.3000e-004	7.1000e-004	7.8800e-003	2.0000e-005	2.2800e-003	2.0000e-005	2.3000e-003	6.1000e-004	2.0000e-005	6.2000e-004	0.0000	2.0544	2.0544	6.0000e-005	0.0000	2.0558
<b>Total</b>	<b>1.0800e-003</b>	<b>7.1200e-003</b>	<b>8.9500e-003</b>	<b>3.0000e-005</b>	<b>5.5000e-003</b>	<b>3.0000e-005</b>	<b>5.5300e-003</b>	<b>9.7000e-004</b>	<b>3.0000e-005</b>	<b>9.9000e-004</b>	<b>0.0000</b>	<b>3.2522</b>	<b>3.2522</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>3.2567</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0835	0.8607	0.5784	2.3900e-003		0.0299	0.0299		0.0285	0.0285	0.0000	222.7546	222.7546	0.0398	0.0000	223.7486
<b>Total</b>	<b>0.0835</b>	<b>0.8607</b>	<b>0.5784</b>	<b>2.3900e-003</b>	<b>1.0000e-005</b>	<b>0.0299</b>	<b>0.0299</b>	<b>0.0000</b>	<b>0.0285</b>	<b>0.0285</b>	<b>0.0000</b>	<b>222.7546</b>	<b>222.7546</b>	<b>0.0398</b>	<b>0.0000</b>	<b>223.7486</b>

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**3.3 Well Drilling (Phase 1) - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	6.4100e-003	1.0700e-003	1.0000e-005	3.2200e-003	1.0000e-005	3.2300e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1979	1.1979	1.2000e-004	0.0000	1.2009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.3000e-004	7.1000e-004	7.8800e-003	2.0000e-005	2.2800e-003	2.0000e-005	2.3000e-003	6.1000e-004	2.0000e-005	6.2000e-004	0.0000	2.0544	2.0544	6.0000e-005	0.0000	2.0558
<b>Total</b>	<b>1.0800e-003</b>	<b>7.1200e-003</b>	<b>8.9500e-003</b>	<b>3.0000e-005</b>	<b>5.5000e-003</b>	<b>3.0000e-005</b>	<b>5.5300e-003</b>	<b>9.7000e-004</b>	<b>3.0000e-005</b>	<b>9.9000e-004</b>	<b>0.0000</b>	<b>3.2522</b>	<b>3.2522</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>3.2567</b>

**3.4 Well Drilling (Phase 2) - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0566	0.5775	0.5337	1.3100e-003		0.0262	0.0262		0.0247	0.0247	0.0000	114.7515	114.7515	0.0311	0.0000	115.5293
<b>Total</b>	<b>0.0566</b>	<b>0.5775</b>	<b>0.5337</b>	<b>1.3100e-003</b>		<b>0.0262</b>	<b>0.0262</b>		<b>0.0247</b>	<b>0.0247</b>	<b>0.0000</b>	<b>114.7515</b>	<b>114.7515</b>	<b>0.0311</b>	<b>0.0000</b>	<b>115.5293</b>

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**3.4 Well Drilling (Phase 2) - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4300e-003	1.1000e-003	0.0121	3.0000e-005	3.5100e-003	3.0000e-005	3.5400e-003	9.3000e-004	2.0000e-005	9.6000e-004	0.0000	3.1605	3.1605	9.0000e-005	0.0000	3.1628
<b>Total</b>	<b>1.4300e-003</b>	<b>1.1000e-003</b>	<b>0.0121</b>	<b>3.0000e-005</b>	<b>3.5100e-003</b>	<b>3.0000e-005</b>	<b>3.5400e-003</b>	<b>9.3000e-004</b>	<b>2.0000e-005</b>	<b>9.6000e-004</b>	<b>0.0000</b>	<b>3.1605</b>	<b>3.1605</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>3.1628</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0566	0.5775	0.5337	1.3100e-003		0.0262	0.0262		0.0247	0.0247	0.0000	114.7514	114.7514	0.0311	0.0000	115.5292
<b>Total</b>	<b>0.0566</b>	<b>0.5775</b>	<b>0.5337</b>	<b>1.3100e-003</b>		<b>0.0262</b>	<b>0.0262</b>		<b>0.0247</b>	<b>0.0247</b>	<b>0.0000</b>	<b>114.7514</b>	<b>114.7514</b>	<b>0.0311</b>	<b>0.0000</b>	<b>115.5292</b>



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**3.4 Well Drilling (Phase 2) - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4300e-003	1.1000e-003	0.0121	3.0000e-005	3.5100e-003	3.0000e-005	3.5400e-003	9.3000e-004	2.0000e-005	9.6000e-004	0.0000	3.1605	3.1605	9.0000e-005	0.0000	3.1628
<b>Total</b>	<b>1.4300e-003</b>	<b>1.1000e-003</b>	<b>0.0121</b>	<b>3.0000e-005</b>	<b>3.5100e-003</b>	<b>3.0000e-005</b>	<b>3.5400e-003</b>	<b>9.3000e-004</b>	<b>2.0000e-005</b>	<b>9.6000e-004</b>	<b>0.0000</b>	<b>3.1605</b>	<b>3.1605</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>3.1628</b>

**3.5 Well Equipping - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0159	0.1404	0.1296	1.9000e-004		8.4300e-003	8.4300e-003		7.7900e-003	7.7900e-003	0.0000	16.0657	16.0657	4.8800e-003	0.0000	16.1876
<b>Total</b>	<b>0.0159</b>	<b>0.1404</b>	<b>0.1296</b>	<b>1.9000e-004</b>		<b>8.4300e-003</b>	<b>8.4300e-003</b>		<b>7.7900e-003</b>	<b>7.7900e-003</b>	<b>0.0000</b>	<b>16.0657</b>	<b>16.0657</b>	<b>4.8800e-003</b>	<b>0.0000</b>	<b>16.1876</b>

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**3.5 Well Equipping - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	5.2000e-004	5.7600e-003	2.0000e-005	1.6700e-003	1.0000e-005	1.6800e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5013	1.5013	4.0000e-005	0.0000	1.5023
<b>Total</b>	<b>6.8000e-004</b>	<b>5.2000e-004</b>	<b>5.7600e-003</b>	<b>2.0000e-005</b>	<b>1.6700e-003</b>	<b>1.0000e-005</b>	<b>1.6800e-003</b>	<b>4.4000e-004</b>	<b>1.0000e-005</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>1.5013</b>	<b>1.5013</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>1.5023</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0159	0.1404	0.1296	1.9000e-004		8.4300e-003	8.4300e-003		7.7900e-003	7.7900e-003	0.0000	16.0657	16.0657	4.8800e-003	0.0000	16.1876
<b>Total</b>	<b>0.0159</b>	<b>0.1404</b>	<b>0.1296</b>	<b>1.9000e-004</b>		<b>8.4300e-003</b>	<b>8.4300e-003</b>		<b>7.7900e-003</b>	<b>7.7900e-003</b>	<b>0.0000</b>	<b>16.0657</b>	<b>16.0657</b>	<b>4.8800e-003</b>	<b>0.0000</b>	<b>16.1876</b>

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**3.5 Well Equipping - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	5.2000e-004	5.7600e-003	2.0000e-005	1.6700e-003	1.0000e-005	1.6800e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5013	1.5013	4.0000e-005	0.0000	1.5023
<b>Total</b>	<b>6.8000e-004</b>	<b>5.2000e-004</b>	<b>5.7600e-003</b>	<b>2.0000e-005</b>	<b>1.6700e-003</b>	<b>1.0000e-005</b>	<b>1.6800e-003</b>	<b>4.4000e-004</b>	<b>1.0000e-005</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>1.5013</b>	<b>1.5013</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>1.5023</b>

**3.5 Well Equipping - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0772	0.6845	0.6749	1.0000e-003		0.0392	0.0392		0.0363	0.0363	0.0000	85.4097	85.4097	0.0259	0.0000	86.0579
<b>Total</b>	<b>0.0772</b>	<b>0.6845</b>	<b>0.6749</b>	<b>1.0000e-003</b>		<b>0.0392</b>	<b>0.0392</b>		<b>0.0363</b>	<b>0.0363</b>	<b>0.0000</b>	<b>85.4097</b>	<b>85.4097</b>	<b>0.0259</b>	<b>0.0000</b>	<b>86.0579</b>

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**3.5 Well Equipping - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3700e-003	2.4900e-003	0.0282	9.0000e-005	8.8600e-003	7.0000e-005	8.9300e-003	2.3500e-003	6.0000e-005	2.4200e-003	0.0000	7.7217	7.7217	2.1000e-004	0.0000	7.7269
<b>Total</b>	<b>3.3700e-003</b>	<b>2.4900e-003</b>	<b>0.0282</b>	<b>9.0000e-005</b>	<b>8.8600e-003</b>	<b>7.0000e-005</b>	<b>8.9300e-003</b>	<b>2.3500e-003</b>	<b>6.0000e-005</b>	<b>2.4200e-003</b>	<b>0.0000</b>	<b>7.7217</b>	<b>7.7217</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>7.7269</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0772	0.6845	0.6749	1.0000e-003		0.0392	0.0392		0.0363	0.0363	0.0000	85.4096	85.4096	0.0259	0.0000	86.0578
<b>Total</b>	<b>0.0772</b>	<b>0.6845</b>	<b>0.6749</b>	<b>1.0000e-003</b>		<b>0.0392</b>	<b>0.0392</b>		<b>0.0363</b>	<b>0.0363</b>	<b>0.0000</b>	<b>85.4096</b>	<b>85.4096</b>	<b>0.0259</b>	<b>0.0000</b>	<b>86.0578</b>

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**3.5 Well Equipping - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3700e-003	2.4900e-003	0.0282	9.0000e-005	8.8600e-003	7.0000e-005	8.9300e-003	2.3500e-003	6.0000e-005	2.4200e-003	0.0000	7.7217	7.7217	2.1000e-004	0.0000	7.7269
<b>Total</b>	<b>3.3700e-003</b>	<b>2.4900e-003</b>	<b>0.0282</b>	<b>9.0000e-005</b>	<b>8.8600e-003</b>	<b>7.0000e-005</b>	<b>8.9300e-003</b>	<b>2.3500e-003</b>	<b>6.0000e-005</b>	<b>2.4200e-003</b>	<b>0.0000</b>	<b>7.7217</b>	<b>7.7217</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>7.7269</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.9000e-004	1.1900e-003	0.0132	2.0000e-005	2.1400e-003	2.0000e-005	2.1600e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0361	2.0361	1.0000e-004	0.0000	2.0387
Unmitigated	7.9000e-004	1.1900e-003	0.0132	2.0000e-005	2.1400e-003	2.0000e-005	2.1600e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	2.0361	2.0361	1.0000e-004	0.0000	2.0387

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.82	0.00	0.00	5,741	5,741
Total	1.82	0.00	0.00	5,741	5,741

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

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**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	48.8662	48.8662	2.0200e-003	4.2000e-004	49.0410
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	48.8662	48.8662	2.0200e-003	4.2000e-004	49.0410
NaturalGas Mitigated	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	20.2428	20.2428	3.9000e-004	3.7000e-004	20.3631
NaturalGas Unmitigated	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	20.2428	20.2428	3.9000e-004	3.7000e-004	20.3631

**5.2 Energy by Land Use - NaturalGas**

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	379335	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	20.2428	20.2428	3.9000e-004	3.7000e-004	20.3631
<b>Total</b>		<b>2.0500e-003</b>	<b>0.0186</b>	<b>0.0156</b>	<b>1.1000e-004</b>		<b>1.4100e-003</b>	<b>1.4100e-003</b>		<b>1.4100e-003</b>	<b>1.4100e-003</b>	<b>0.0000</b>	<b>20.2428</b>	<b>20.2428</b>	<b>3.9000e-004</b>	<b>3.7000e-004</b>	<b>20.3631</b>



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**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	379335	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	20.2428	20.2428	3.9000e-004	3.7000e-004	20.3631
<b>Total</b>		<b>2.0500e-003</b>	<b>0.0186</b>	<b>0.0156</b>	<b>1.1000e-004</b>		<b>1.4100e-003</b>	<b>1.4100e-003</b>		<b>1.4100e-003</b>	<b>1.4100e-003</b>	<b>0.0000</b>	<b>20.2428</b>	<b>20.2428</b>	<b>3.9000e-004</b>	<b>3.7000e-004</b>	<b>20.3631</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	153368	48.8662	2.0200e-003	4.2000e-004	49.0410
<b>Total</b>		<b>48.8662</b>	<b>2.0200e-003</b>	<b>4.2000e-004</b>	<b>49.0410</b>

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**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	153368	48.8662	2.0200e-003	4.2000e-004	49.0410
<b>Total</b>		<b>48.8662</b>	<b>2.0200e-003</b>	<b>4.2000e-004</b>	<b>49.0410</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0740	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Unmitigated	0.0740	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0656					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
<b>Total</b>	<b>0.0740</b>	<b>0.0000</b>	<b>2.3000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.5000e-004</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.8000e-004</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0656					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
<b>Total</b>	<b>0.0740</b>	<b>0.0000</b>	<b>2.3000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.5000e-004</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.8000e-004</b>

**7.0 Water Detail**

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### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	18.7447	0.1375	3.3800e-003	23.1885
Unmitigated	18.7447	0.1375	3.3800e-003	23.1885

### 7.2 Water by Land Use

#### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	4.19719 / 0	18.7447	0.1375	3.3800e-003	23.1885
<b>Total</b>		<b>18.7447</b>	<b>0.1375</b>	<b>3.3800e-003</b>	<b>23.1885</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	4.19719 / 0	18.7447	0.1375	3.3800e-003	23.1885
<b>Total</b>		<b>18.7447</b>	<b>0.1375</b>	<b>3.3800e-003</b>	<b>23.1885</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.5693	0.2700	0.0000	11.3203
Unmitigated	4.5693	0.2700	0.0000	11.3203

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**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	22.51	4.5693	0.2700	0.0000	11.3203
<b>Total</b>		<b>4.5693</b>	<b>0.2700</b>	<b>0.0000</b>	<b>11.3203</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	22.51	4.5693	0.2700	0.0000	11.3203
<b>Total</b>		<b>4.5693</b>	<b>0.2700</b>	<b>0.0000</b>	<b>11.3203</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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### 10.0 Stationary Equipment

#### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	50	500	0.73	Diesel

#### Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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#### User Defined Equipment

Equipment Type	Number
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### 10.1 Stationary Sources

#### Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 600 HP)	0.0205	0.0573	0.0523	1.0000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003	0.0000	9.5199	9.5199	1.3300e-003	0.0000	9.5533
<b>Total</b>	<b>0.0205</b>	<b>0.0573</b>	<b>0.0523</b>	<b>1.0000e-004</b>		<b>3.0200e-003</b>	<b>3.0200e-003</b>		<b>3.0200e-003</b>	<b>3.0200e-003</b>	<b>0.0000</b>	<b>9.5199</b>	<b>9.5199</b>	<b>1.3300e-003</b>	<b>0.0000</b>	<b>9.5533</b>

### 11.0 Vegetation



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**Mesa Water District - Well No. 14**  
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## 1.0 Project Characteristics

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### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	19.77	1000sqft	0.45	19,770.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	8			<b>Operational Year</b>	2020
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project Size - 0.45 AC

Construction Phase - Demolition 1/20/2020 to 1/31/2020

Well Drilling (24hr/day) 5/4/2020 to 5/29/2020

Well Drilling (08hr/day) 6/1/2020 to 7/24/2020

Well Equipping 4/7/2021 to 10/1/2021

Off-road Equipment - 1 Concrete/Industrial Saw - 81 HP

1 Rubber Tired Dozer - 357 HP

2 Tractors/Loaders/Backhoes - 108 HP

Off-road Equipment - 1 Cranes - 226 HP

2 Forklifts - 89 HP

2 Tractors/Loaders/Backhoes - 180 HP

Off-road Equipment - 1 Drill Rigs - 600 HP

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- 1 Diesel Generator - 200 HP
- 1 Tractors/Loaders/Backhoes - 108 HP
- 1 Crane - 275 HP
- 1 Pump - 500 HP
- Off-road Equipment - 1 Drill Rigs - 600 HP
- 1 Diesel Generator - 200 HP
- 1 Tractors/Loaders/Backhoes - 108
- 1 Crane - 275 HP
- 1 Pump - 84 HP

- Off-road Equipment - 4 Cement and Mortar Mixer (10hp)
- 1 Crane (275hp)
- 2 Forklifts (89hp)
- 1 Paver (100hp)
- 1 Roller (95hp)
- 2 Tractor/Loaders/Backhoes (108hp)

- Trips and VMT - Demo: 8 workers per day x 2 for round trip
- Well Drilling (Phase 1): 8 workers per day x 2 for round trip
- Well Drilling (Phase 2): 8 workers per day x 2 for round trip
- Well Equipping: 8 workers per day x 2 for round trip

On-road Fugitive Dust - 99% Paved

Demolition - 800 CY x 1.35 = 1080 tons

Grading - 450 cy exported

Vehicle Trips - 1 Maintenance trip/month

Road Dust -

Consumer Products - No operation

Area Coating -

Construction Off-road Equipment Mitigation -

Fleet Mix - 1 LDT1

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generator - 4hr/month, 50hr/yr

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	40
tblConstructionPhase	NumDays	100.00	120.00

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tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFleetMix	HHD	0.03	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	1.00
tblFleetMix	LDT2	0.20	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.8620e-003	0.00
tblFleetMix	MCY	4.7770e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	9.5600e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.0370e-003	0.00
tblFleetMix	SBUS	7.0500e-004	0.00
tblFleetMix	UBUS	1.9440e-003	0.00
tblGrading	MaterialExported	0.00	450.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	221.00	600.00
tblOffRoadEquipment	HorsePower	231.00	275.00
tblOffRoadEquipment	HorsePower	84.00	200.00
tblOffRoadEquipment	HorsePower	84.00	500.00
tblOffRoadEquipment	HorsePower	247.00	180.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	221.00	600.00
tblOffRoadEquipment	HorsePower	231.00	275.00
tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	88.00	238.00

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tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	9.00	10.00
tblOffRoadEquipment	HorsePower	231.00	275.00
tblOffRoadEquipment	HorsePower	89.00	45.00
tblOffRoadEquipment	HorsePower	130.00	100.00
tblOffRoadEquipment	HorsePower	80.00	95.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	LoadFactor	0.74	0.50
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	12.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	500.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	4.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	107.00	160.00
tblTripsAndVMT	HaulingTripNumber	56.00	90.00
tblTripsAndVMT	VendorTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00

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tblTripsAndVMT	WorkerTripNumber	8.00	16.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.10

**2.0 Emissions Summary**

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-6-2020	4-5-2020	0.0960	0.0960
2	4-6-2020	7-5-2020	1.3501	1.3501
3	7-6-2020	10-5-2020	0.2160	0.2160
6	4-6-2021	7-5-2021	0.4884	0.4884
7	7-6-2021	9-30-2021	0.4721	0.4721
		Highest	1.3501	1.3501

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0806	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.9000e-004	4.9000e-004	0.0000	0.0000	5.2000e-004
Energy	2.2300e-003	0.0203	0.0170	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	75.2773	75.2773	2.6200e-003	8.6000e-004	75.5988
Mobile	8.6000e-004	1.3000e-003	0.0144	2.0000e-005	2.3300e-003	3.0000e-005	2.3600e-003	6.2000e-004	2.0000e-005	6.4000e-004	0.0000	2.2178	2.2178	1.1000e-004	0.0000	2.2206
Stationary	0.0205	0.0573	0.0523	1.0000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003	0.0000	9.5199	9.5199	1.3300e-003	0.0000	9.5533
Waste						0.0000	0.0000		0.0000	0.0000	4.9753	0.0000	4.9753	0.2940	0.0000	12.3261
Water						0.0000	0.0000		0.0000	0.0000	1.4504	18.9674	20.4178	0.1498	3.6800e-003	25.2582
<b>Total</b>	<b>0.1042</b>	<b>0.0789</b>	<b>0.0839</b>	<b>2.4000e-004</b>	<b>2.3300e-003</b>	<b>4.5900e-003</b>	<b>6.9200e-003</b>	<b>6.2000e-004</b>	<b>4.5800e-003</b>	<b>5.2000e-003</b>	<b>6.4257</b>	<b>105.9830</b>	<b>112.4087</b>	<b>0.4479</b>	<b>4.5400e-003</b>	<b>124.9576</b>

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**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0806	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.9000e-004	4.9000e-004	0.0000	0.0000	5.2000e-004
Energy	2.2300e-003	0.0203	0.0170	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	75.2773	75.2773	2.6200e-003	8.6000e-004	75.5988
Mobile	8.6000e-004	1.3000e-003	0.0144	2.0000e-005	2.3300e-003	3.0000e-005	2.3600e-003	6.2000e-004	2.0000e-005	6.4000e-004	0.0000	2.2178	2.2178	1.1000e-004	0.0000	2.2206
Stationary	0.0205	0.0573	0.0523	1.0000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003	0.0000	9.5199	9.5199	1.3300e-003	0.0000	9.5533
Waste						0.0000	0.0000		0.0000	0.0000	4.9753	0.0000	4.9753	0.2940	0.0000	12.3261
Water						0.0000	0.0000		0.0000	0.0000	1.4504	18.9674	20.4178	0.1498	3.6800e-003	25.2582
<b>Total</b>	<b>0.1042</b>	<b>0.0789</b>	<b>0.0839</b>	<b>2.4000e-004</b>	<b>2.3300e-003</b>	<b>4.5900e-003</b>	<b>6.9200e-003</b>	<b>6.2000e-004</b>	<b>4.5800e-003</b>	<b>5.2000e-003</b>	<b>6.4257</b>	<b>105.9830</b>	<b>112.4087</b>	<b>0.4479</b>	<b>4.5400e-003</b>	<b>124.9576</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**



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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/20/2020	1/31/2020	5	10	
2	Well Drilling (Phase 1)	Grading	5/4/2020	5/29/2020	7	26	
3	Well Drilling (Phase 2)	Trenching	6/1/2020	7/24/2020	5	40	
4	Well Equipping	Building Construction	4/7/2021	10/1/2021	5	120	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	108	0.37
Well Drilling (Phase 1)	Bore/Drill Rigs	1	24.00	600	0.50
Well Drilling (Phase 1)	Concrete/Industrial Saws	0	8.00	81	0.73
Well Drilling (Phase 1)	Cranes	1	18.00	275	0.29
Well Drilling (Phase 1)	Generator Sets	1	10.00	200	0.74
Well Drilling (Phase 1)	Pumps	1	24.00	500	0.50
Well Drilling (Phase 1)	Rubber Tired Dozers	0	1.00	180	0.40
Well Drilling (Phase 1)	Tractors/Loaders/Backhoes	1	12.00	108	0.37
Well Drilling (Phase 2)	Bore/Drill Rigs	1	8.00	600	0.50
Well Drilling (Phase 2)	Cranes	1	6.00	275	0.29
Well Drilling (Phase 2)	Excavators	2	8.00	168	0.38
Well Drilling (Phase 2)	Generator Sets	1	8.00	84	0.74
Well Drilling (Phase 2)	Other General Industrial Equipment	1	8.00	238	0.34
Well Drilling (Phase 2)	Pumps	1	8.00	84	0.74
Well Drilling (Phase 2)	Tractors/Loaders/Backhoes	1	8.00	108	0.37
Well Equipping	Cement and Mortar Mixers	4	6.00	10	0.56
Well Equipping	Cranes	1	4.00	275	0.29
Well Equipping	Forklifts	2	6.00	45	0.20
Well Equipping	Pavers	1	7.00	100	0.42
Well Equipping	Rollers	1	7.00	95	0.38
Well Equipping	Tractors/Loaders/Backhoes	2	8.00	108	0.37

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	16.00	0.00	160.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT
Well Drilling (Phase 1)	5	16.00	0.00	90.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT
Well Drilling (Phase 2)	8	16.00	0.00	0.00	14.70	6.90	0.00	LD_Mix	HDT_Mix	HHDT
Well Equipping	11	16.00	0.00	0.00	14.70	6.90	0.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

**3.2 Demolition - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0116	0.0000	0.0116	1.7500e-003	0.0000	1.7500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2400e-003	0.0907	0.0581	1.0000e-004		4.8800e-003	4.8800e-003		4.5700e-003	4.5700e-003	0.0000	8.7195	8.7195	2.1200e-003	0.0000	8.7725
<b>Total</b>	<b>9.2400e-003</b>	<b>0.0907</b>	<b>0.0581</b>	<b>1.0000e-004</b>	<b>0.0116</b>	<b>4.8800e-003</b>	<b>0.0164</b>	<b>1.7500e-003</b>	<b>4.5700e-003</b>	<b>6.3200e-003</b>	<b>0.0000</b>	<b>8.7195</b>	<b>8.7195</b>	<b>2.1200e-003</b>	<b>0.0000</b>	<b>8.7725</b>

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**3.2 Demolition - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-004	0.0114	1.9100e-003	2.0000e-005	3.5000e-004	2.0000e-005	3.7000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	2.1296	2.1296	2.1000e-004	0.0000	2.1349
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.7000e-004	3.0300e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7901	0.7901	2.0000e-005	0.0000	0.7907
<b>Total</b>	<b>6.2000e-004</b>	<b>0.0117</b>	<b>4.9400e-003</b>	<b>3.0000e-005</b>	<b>1.2300e-003</b>	<b>3.0000e-005</b>	<b>1.2500e-003</b>	<b>3.2000e-004</b>	<b>3.0000e-005</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>2.9197</b>	<b>2.9197</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>2.9256</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.2000e-003	0.0000	5.2000e-003	7.9000e-004	0.0000	7.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2400e-003	0.0907	0.0581	1.0000e-004		4.8800e-003	4.8800e-003		4.5700e-003	4.5700e-003	0.0000	8.7195	8.7195	2.1200e-003	0.0000	8.7725
<b>Total</b>	<b>9.2400e-003</b>	<b>0.0907</b>	<b>0.0581</b>	<b>1.0000e-004</b>	<b>5.2000e-003</b>	<b>4.8800e-003</b>	<b>0.0101</b>	<b>7.9000e-004</b>	<b>4.5700e-003</b>	<b>5.3600e-003</b>	<b>0.0000</b>	<b>8.7195</b>	<b>8.7195</b>	<b>2.1200e-003</b>	<b>0.0000</b>	<b>8.7725</b>

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**3.2 Demolition - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-004	0.0114	1.9100e-003	2.0000e-005	3.5000e-004	2.0000e-005	3.7000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	2.1296	2.1296	2.1000e-004	0.0000	2.1349
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6000e-004	2.7000e-004	3.0300e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7901	0.7901	2.0000e-005	0.0000	0.7907
<b>Total</b>	<b>6.2000e-004</b>	<b>0.0117</b>	<b>4.9400e-003</b>	<b>3.0000e-005</b>	<b>1.2300e-003</b>	<b>3.0000e-005</b>	<b>1.2500e-003</b>	<b>3.2000e-004</b>	<b>3.0000e-005</b>	<b>3.5000e-004</b>	<b>0.0000</b>	<b>2.9197</b>	<b>2.9197</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>2.9256</b>

**3.3 Well Drilling (Phase 1) - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0835	0.8607	0.5784	2.3900e-003		0.0299	0.0299		0.0285	0.0285	0.0000	222.7549	222.7549	0.0398	0.0000	223.7489
<b>Total</b>	<b>0.0835</b>	<b>0.8607</b>	<b>0.5784</b>	<b>2.3900e-003</b>	<b>3.0000e-005</b>	<b>0.0299</b>	<b>0.0300</b>	<b>0.0000</b>	<b>0.0285</b>	<b>0.0285</b>	<b>0.0000</b>	<b>222.7549</b>	<b>222.7549</b>	<b>0.0398</b>	<b>0.0000</b>	<b>223.7489</b>

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**3.3 Well Drilling (Phase 1) - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	6.4100e-003	1.0700e-003	1.0000e-005	1.9000e-004	1.0000e-005	2.1000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	1.1979	1.1979	1.2000e-004	0.0000	1.2009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.3000e-004	7.1000e-004	7.8800e-003	2.0000e-005	2.2800e-003	2.0000e-005	2.3000e-003	6.1000e-004	2.0000e-005	6.2000e-004	0.0000	2.0544	2.0544	6.0000e-005	0.0000	2.0558
<b>Total</b>	<b>1.0800e-003</b>	<b>7.1200e-003</b>	<b>8.9500e-003</b>	<b>3.0000e-005</b>	<b>2.4700e-003</b>	<b>3.0000e-005</b>	<b>2.5100e-003</b>	<b>6.6000e-004</b>	<b>3.0000e-005</b>	<b>6.8000e-004</b>	<b>0.0000</b>	<b>3.2522</b>	<b>3.2522</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>3.2567</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0835	0.8607	0.5784	2.3900e-003		0.0299	0.0299		0.0285	0.0285	0.0000	222.7546	222.7546	0.0398	0.0000	223.7486
<b>Total</b>	<b>0.0835</b>	<b>0.8607</b>	<b>0.5784</b>	<b>2.3900e-003</b>	<b>1.0000e-005</b>	<b>0.0299</b>	<b>0.0299</b>	<b>0.0000</b>	<b>0.0285</b>	<b>0.0285</b>	<b>0.0000</b>	<b>222.7546</b>	<b>222.7546</b>	<b>0.0398</b>	<b>0.0000</b>	<b>223.7486</b>

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**3.3 Well Drilling (Phase 1) - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	6.4100e-003	1.0700e-003	1.0000e-005	1.9000e-004	1.0000e-005	2.1000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	1.1979	1.1979	1.2000e-004	0.0000	1.2009
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.3000e-004	7.1000e-004	7.8800e-003	2.0000e-005	2.2800e-003	2.0000e-005	2.3000e-003	6.1000e-004	2.0000e-005	6.2000e-004	0.0000	2.0544	2.0544	6.0000e-005	0.0000	2.0558
<b>Total</b>	<b>1.0800e-003</b>	<b>7.1200e-003</b>	<b>8.9500e-003</b>	<b>3.0000e-005</b>	<b>2.4700e-003</b>	<b>3.0000e-005</b>	<b>2.5100e-003</b>	<b>6.6000e-004</b>	<b>3.0000e-005</b>	<b>6.8000e-004</b>	<b>0.0000</b>	<b>3.2522</b>	<b>3.2522</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>3.2567</b>

**3.4 Well Drilling (Phase 2) - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0566	0.5775	0.5337	1.3100e-003		0.0262	0.0262		0.0247	0.0247	0.0000	114.7515	114.7515	0.0311	0.0000	115.5293
<b>Total</b>	<b>0.0566</b>	<b>0.5775</b>	<b>0.5337</b>	<b>1.3100e-003</b>		<b>0.0262</b>	<b>0.0262</b>		<b>0.0247</b>	<b>0.0247</b>	<b>0.0000</b>	<b>114.7515</b>	<b>114.7515</b>	<b>0.0311</b>	<b>0.0000</b>	<b>115.5293</b>

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**3.4 Well Drilling (Phase 2) - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4300e-003	1.1000e-003	0.0121	3.0000e-005	3.5100e-003	3.0000e-005	3.5400e-003	9.3000e-004	2.0000e-005	9.6000e-004	0.0000	3.1605	3.1605	9.0000e-005	0.0000	3.1628
<b>Total</b>	<b>1.4300e-003</b>	<b>1.1000e-003</b>	<b>0.0121</b>	<b>3.0000e-005</b>	<b>3.5100e-003</b>	<b>3.0000e-005</b>	<b>3.5400e-003</b>	<b>9.3000e-004</b>	<b>2.0000e-005</b>	<b>9.6000e-004</b>	<b>0.0000</b>	<b>3.1605</b>	<b>3.1605</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>3.1628</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0566	0.5775	0.5337	1.3100e-003		0.0262	0.0262		0.0247	0.0247	0.0000	114.7514	114.7514	0.0311	0.0000	115.5292
<b>Total</b>	<b>0.0566</b>	<b>0.5775</b>	<b>0.5337</b>	<b>1.3100e-003</b>		<b>0.0262</b>	<b>0.0262</b>		<b>0.0247</b>	<b>0.0247</b>	<b>0.0000</b>	<b>114.7514</b>	<b>114.7514</b>	<b>0.0311</b>	<b>0.0000</b>	<b>115.5292</b>



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**3.4 Well Drilling (Phase 2) - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4300e-003	1.1000e-003	0.0121	3.0000e-005	3.5100e-003	3.0000e-005	3.5400e-003	9.3000e-004	2.0000e-005	9.6000e-004	0.0000	3.1605	3.1605	9.0000e-005	0.0000	3.1628
<b>Total</b>	<b>1.4300e-003</b>	<b>1.1000e-003</b>	<b>0.0121</b>	<b>3.0000e-005</b>	<b>3.5100e-003</b>	<b>3.0000e-005</b>	<b>3.5400e-003</b>	<b>9.3000e-004</b>	<b>2.0000e-005</b>	<b>9.6000e-004</b>	<b>0.0000</b>	<b>3.1605</b>	<b>3.1605</b>	<b>9.0000e-005</b>	<b>0.0000</b>	<b>3.1628</b>

**3.5 Well Equipping - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0978	0.8675	0.8553	1.2700e-003		0.0497	0.0497		0.0460	0.0460	0.0000	108.2420	108.2420	0.0329	0.0000	109.0635
<b>Total</b>	<b>0.0978</b>	<b>0.8675</b>	<b>0.8553</b>	<b>1.2700e-003</b>		<b>0.0497</b>	<b>0.0497</b>		<b>0.0460</b>	<b>0.0460</b>	<b>0.0000</b>	<b>108.2420</b>	<b>108.2420</b>	<b>0.0329</b>	<b>0.0000</b>	<b>109.0635</b>

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**3.5 Well Equipping - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2700e-003	3.1500e-003	0.0357	1.1000e-004	0.0112	8.0000e-005	0.0113	2.9800e-003	8.0000e-005	3.0600e-003	0.0000	9.7860	9.7860	2.6000e-004	0.0000	9.7925
<b>Total</b>	<b>4.2700e-003</b>	<b>3.1500e-003</b>	<b>0.0357</b>	<b>1.1000e-004</b>	<b>0.0112</b>	<b>8.0000e-005</b>	<b>0.0113</b>	<b>2.9800e-003</b>	<b>8.0000e-005</b>	<b>3.0600e-003</b>	<b>0.0000</b>	<b>9.7860</b>	<b>9.7860</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>9.7925</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0978	0.8675	0.8553	1.2700e-003		0.0497	0.0497		0.0460	0.0460	0.0000	108.2419	108.2419	0.0329	0.0000	109.0634
<b>Total</b>	<b>0.0978</b>	<b>0.8675</b>	<b>0.8553</b>	<b>1.2700e-003</b>		<b>0.0497</b>	<b>0.0497</b>		<b>0.0460</b>	<b>0.0460</b>	<b>0.0000</b>	<b>108.2419</b>	<b>108.2419</b>	<b>0.0329</b>	<b>0.0000</b>	<b>109.0634</b>

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**3.5 Well Equipping - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2700e-003	3.1500e-003	0.0357	1.1000e-004	0.0112	8.0000e-005	0.0113	2.9800e-003	8.0000e-005	3.0600e-003	0.0000	9.7860	9.7860	2.6000e-004	0.0000	9.7925
<b>Total</b>	<b>4.2700e-003</b>	<b>3.1500e-003</b>	<b>0.0357</b>	<b>1.1000e-004</b>	<b>0.0112</b>	<b>8.0000e-005</b>	<b>0.0113</b>	<b>2.9800e-003</b>	<b>8.0000e-005</b>	<b>3.0600e-003</b>	<b>0.0000</b>	<b>9.7860</b>	<b>9.7860</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>9.7925</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.6000e-004	1.3000e-003	0.0144	2.0000e-005	2.3300e-003	3.0000e-005	2.3600e-003	6.2000e-004	2.0000e-005	6.4000e-004	0.0000	2.2178	2.2178	1.1000e-004	0.0000	2.2206
Unmitigated	8.6000e-004	1.3000e-003	0.0144	2.0000e-005	2.3300e-003	3.0000e-005	2.3600e-003	6.2000e-004	2.0000e-005	6.4000e-004	0.0000	2.2178	2.2178	1.1000e-004	0.0000	2.2206

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.98	0.00	0.00	6,253	6,253
Total	1.98	0.00	0.00	6,253	6,253

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

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**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.2278	53.2278	2.2000e-003	4.5000e-004	53.4182
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.2278	53.2278	2.2000e-003	4.5000e-004	53.4182
NaturalGas Mitigated	2.2300e-003	0.0203	0.0170	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.0496	22.0496	4.2000e-004	4.0000e-004	22.1806
NaturalGas Unmitigated	2.2300e-003	0.0203	0.0170	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.0496	22.0496	4.2000e-004	4.0000e-004	22.1806

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	413193	2.2300e-003	0.0203	0.0170	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.0496	22.0496	4.2000e-004	4.0000e-004	22.1806
<b>Total</b>		<b>2.2300e-003</b>	<b>0.0203</b>	<b>0.0170</b>	<b>1.2000e-004</b>		<b>1.5400e-003</b>	<b>1.5400e-003</b>		<b>1.5400e-003</b>	<b>1.5400e-003</b>	<b>0.0000</b>	<b>22.0496</b>	<b>22.0496</b>	<b>4.2000e-004</b>	<b>4.0000e-004</b>	<b>22.1806</b>

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**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	413193	2.2300e-003	0.0203	0.0170	1.2000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	22.0496	22.0496	4.2000e-004	4.0000e-004	22.1806
<b>Total</b>		<b>2.2300e-003</b>	<b>0.0203</b>	<b>0.0170</b>	<b>1.2000e-004</b>		<b>1.5400e-003</b>	<b>1.5400e-003</b>		<b>1.5400e-003</b>	<b>1.5400e-003</b>	<b>0.0000</b>	<b>22.0496</b>	<b>22.0496</b>	<b>4.2000e-004</b>	<b>4.0000e-004</b>	<b>22.1806</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	167057	53.2278	2.2000e-003	4.5000e-004	53.4182
<b>Total</b>		<b>53.2278</b>	<b>2.2000e-003</b>	<b>4.5000e-004</b>	<b>53.4182</b>

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**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	167057	53.2278	2.2000e-003	4.5000e-004	53.4182
<b>Total</b>		<b>53.2278</b>	<b>2.2000e-003</b>	<b>4.5000e-004</b>	<b>53.4182</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0806	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.9000e-004	4.9000e-004	0.0000	0.0000	5.2000e-004
Unmitigated	0.0806	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.9000e-004	4.9000e-004	0.0000	0.0000	5.2000e-004

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.1600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.9000e-004	4.9000e-004	0.0000	0.0000	5.2000e-004
<b>Total</b>	<b>0.0806</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.9000e-004</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>5.2000e-004</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.1600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0714					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.9000e-004	4.9000e-004	0.0000	0.0000	5.2000e-004
<b>Total</b>	<b>0.0806</b>	<b>0.0000</b>	<b>2.5000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>4.9000e-004</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>5.2000e-004</b>

**7.0 Water Detail**



Mesa Water District - Well No. 14 - South Coast AQMD Air District, Annual

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.4178	0.1498	3.6800e-003	25.2582
Unmitigated	20.4178	0.1498	3.6800e-003	25.2582

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	4.57181 / 0	20.4178	0.1498	3.6800e-003	25.2582
<b>Total</b>		<b>20.4178</b>	<b>0.1498</b>	<b>3.6800e-003</b>	<b>25.2582</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	4.57181 / 0	20.4178	0.1498	3.6800e-003	25.2582
<b>Total</b>		<b>20.4178</b>	<b>0.1498</b>	<b>3.6800e-003</b>	<b>25.2582</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.9753	0.2940	0.0000	12.3261
Unmitigated	4.9753	0.2940	0.0000	12.3261

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**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	24.51	4.9753	0.2940	0.0000	12.3261
<b>Total</b>		<b>4.9753</b>	<b>0.2940</b>	<b>0.0000</b>	<b>12.3261</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	24.51	4.9753	0.2940	0.0000	12.3261
<b>Total</b>		<b>4.9753</b>	<b>0.2940</b>	<b>0.0000</b>	<b>12.3261</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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### 10.0 Stationary Equipment

#### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	4	50	500	0.73	Diesel

#### Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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#### User Defined Equipment

Equipment Type	Number
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### 10.1 Stationary Sources

#### Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 600 HP)	0.0205	0.0573	0.0523	1.0000e-004		3.0200e-003	3.0200e-003		3.0200e-003	3.0200e-003	0.0000	9.5199	9.5199	1.3300e-003	0.0000	9.5533
<b>Total</b>	<b>0.0205</b>	<b>0.0573</b>	<b>0.0523</b>	<b>1.0000e-004</b>		<b>3.0200e-003</b>	<b>3.0200e-003</b>		<b>3.0200e-003</b>	<b>3.0200e-003</b>	<b>0.0000</b>	<b>9.5199</b>	<b>9.5199</b>	<b>1.3300e-003</b>	<b>0.0000</b>	<b>9.5533</b>

### 11.0 Vegetation

Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

**Pipeline Phase For Well 12 and 14**  
**South Coast AQMD Air District, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	37.90	1000sqft	0.87	37,900.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	31
<b>Climate Zone</b>	8			<b>Operational Year</b>	2020
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MW hr)</b>	702.44	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

Project Characteristics -

Land Use - 0.87 ac = 37900 sqft

Construction Phase - Stormdrain Pipeline Phase 4/13/20 to 5/1/20

Stormdrain Paving Phase 4/27/20 to 5/1/20

Pipeline Pave 7/27/20 to 12/4/21

Pipeline Pavement 11/23/21 to 12/4/21

Off-road Equipment - 1 Crushing/ Proc/ Equipment (Pavement grinder) 85 HP

1 paver 130 HP

1 Roller 80 HP

Off-road Equipment - 2 Tractors/Loaders/Backhoes - 108 HP

1 Welder 46 HP

1 Sweeper 250 HP

1 Plate Compactors 8 HP

1 Crushing/Proc Equipment (Jackhammer)(85 HP)

1 Concrete/Industrial Saw - 81 HP

Trips and VMT - 8 workers x 2 trips/ day = 16 Trips / day

750 hauling trips

On-road Fugitive Dust - 99% paved

Grading - 5300 CY Imported, 5900 CTY Exported

Vehicle Trips -

Off-road Equipment - 2 Tractors/Loaders/Backhoes - 108 HP

1 Welder 46 HP

1 Sweeper 250 HP

1 Plate Compactors 8 HP

1 Crushing/Proc Equipment (Jackhammer)(85 HP)

1 Concrete/Industrial Saw - 81 HP

Off-road Equipment - 1 Crushing/ Proc/ Equipment (Pavement grinder) 85 HP

1 paver 130 HP

1 Roller 80 HP

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	2.00	355.00

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tblConstructionPhase	NumDays	5.00	9.00
tblGrading	MaterialExported	0.00	2,650.00
tblGrading	MaterialExported	0.00	2,650.00
tblGrading	MaterialImported	0.00	2,650.00
tblGrading	MaterialImported	0.00	2,650.00
tblGrading	MeanVehicleSpeed	7.10	45.00
tblGrading	MeanVehicleSpeed	7.10	45.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	64.00	250.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	64.00	250.00
tblOffRoadEquipment	LoadFactor	0.78	0.50
tblOffRoadEquipment	LoadFactor	0.78	0.50
tblOffRoadEquipment	LoadFactor	0.78	0.56
tblOffRoadEquipment	LoadFactor	0.46	0.35
tblOffRoadEquipment	LoadFactor	0.46	0.35
tblOffRoadEquipment	LoadFactor	0.78	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Crushing/Proc. Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Crushing/Proc. Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00

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tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripLength	20.00	5.00
tblTripsAndVMT	HaulingTripNumber	331.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	375.00
tblTripsAndVMT	HaulingTripNumber	262.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	374.00
tblTripsAndVMT	WorkerTripNumber	18.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00
tblTripsAndVMT	WorkerTripNumber	18.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00

**2.0 Emissions Summary**

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Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-20-2020	6-19-2020	0.1454	0.1454
2	6-20-2020	9-19-2020	0.3174	0.3174
3	9-20-2020	12-19-2020	0.5254	0.5254
4	12-20-2020	3-19-2021	0.8454	0.8454
5	3-20-2021	6-19-2021	0.9169	0.9169
6	6-20-2021	9-19-2021	0.9172	0.9172
7	9-20-2021	9-30-2021	0.1097	0.1097
		Highest	0.9172	0.9172

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1546	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	4.2700e-003	0.0388	0.0326	2.3000e-004		2.9500e-003	2.9500e-003		2.9500e-003	2.9500e-003	0.0000	144.3101	144.3101	5.0200e-003	1.6500e-003	144.9264
Mobile	0.0778	0.4584	1.1716	4.1600e-003	0.3357	4.2200e-003	0.3399	0.0900	3.9600e-003	0.0939	0.0000	383.7942	383.7942	0.0190	0.0000	384.2683
Waste						0.0000	0.0000		0.0000	0.0000	9.5406	0.0000	9.5406	0.5638	0.0000	23.6364
Water						0.0000	0.0000		0.0000	0.0000	2.7805	36.3614	39.1419	0.2871	7.0500e-003	48.4212
<b>Total</b>	<b>0.2366</b>	<b>0.4973</b>	<b>1.2047</b>	<b>4.3900e-003</b>	<b>0.3357</b>	<b>7.1700e-003</b>	<b>0.3429</b>	<b>0.0900</b>	<b>6.9100e-003</b>	<b>0.0969</b>	<b>12.3211</b>	<b>564.4666</b>	<b>576.7877</b>	<b>0.8749</b>	<b>8.7000e-003</b>	<b>601.2532</b>

Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1546	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	4.2700e-003	0.0388	0.0326	2.3000e-004		2.9500e-003	2.9500e-003		2.9500e-003	2.9500e-003	0.0000	144.3101	144.3101	5.0200e-003	1.6500e-003	144.9264
Mobile	0.0778	0.4584	1.1716	4.1600e-003	0.3357	4.2200e-003	0.3399	0.0900	3.9600e-003	0.0939	0.0000	383.7942	383.7942	0.0190	0.0000	384.2683
Waste						0.0000	0.0000		0.0000	0.0000	9.5406	0.0000	9.5406	0.5638	0.0000	23.6364
Water						0.0000	0.0000		0.0000	0.0000	2.7805	36.3614	39.1419	0.2871	7.0500e-003	48.4212
<b>Total</b>	<b>0.2366</b>	<b>0.4973</b>	<b>1.2047</b>	<b>4.3900e-003</b>	<b>0.3357</b>	<b>7.1700e-003</b>	<b>0.3429</b>	<b>0.0900</b>	<b>6.9100e-003</b>	<b>0.0969</b>	<b>12.3211</b>	<b>564.4666</b>	<b>576.7877</b>	<b>0.8749</b>	<b>8.7000e-003</b>	<b>601.2532</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

## Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Stormdrain Pipeline	Grading	4/13/2020	5/1/2020	5	15	
2	Paving	Paving	4/27/2020	5/1/2020	5	5	
3	pipeline	Grading	7/27/2020	12/4/2021	5	355	
4	pipeline paving	Paving	11/23/2021	12/4/2021	5	9	

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Stormdrain Pipeline	Concrete/Industrial Saws	1	8.00	81	0.73
Stormdrain Pipeline	Crushing/Proc. Equipment	1	6.00	85	0.50
Stormdrain Pipeline	Plate Compactors	1	8.00	8	0.43
Stormdrain Pipeline	Rubber Tired Dozers	0	1.00	247	0.40
Stormdrain Pipeline	Sweepers/Scrubbers	1	8.00	250	0.35
Stormdrain Pipeline	Tractors/Loaders/Backhoes	2	6.00	108	0.37
Stormdrain Pipeline	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Paving	Crushing/Proc. Equipment	1	6.00	85	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
pipeline paving	Crushing/Proc. Equipment	1	6.00	85	0.50
pipeline paving	Cement and Mortar Mixers	0	6.00	9	0.56
pipeline	Concrete/Industrial Saws	1	8.00	81	0.73
pipeline paving	Pavers	1	7.00	130	0.42
pipeline paving	Rollers	1	7.00	80	0.38
pipeline	Rubber Tired Dozers	0	1.00	247	0.40
pipeline	Tractors/Loaders/Backhoes	2	6.00	108	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
pipeline	Sweepers/Scrubbers	1	8.00	250	0.35
pipeline	Welders	1	8.00	46	0.45
pipeline	Plate Compactors	1	8.00	8	0.43
pipeline	Crushing/Proc. Equipment	1	6.00	85	0.50
pipeline paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

**Trips and VMT**

Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Stormdrain Pipeline	7	16.00	0.00	0.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT
Paving	4	16.00	0.00	375.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT
pipeline	7	16.00	0.00	0.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT
pipeline paving	4	16.00	0.00	374.00	14.70	6.90	5.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

**3.2 Stormdrain Pipeline - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0000e-004	0.0000	3.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0130	0.1073	0.0999	1.9000e-004		5.6600e-003	5.6600e-003		5.4600e-003	5.4600e-003	0.0000	16.2064	16.2064	3.3500e-003	0.0000	16.2902
<b>Total</b>	<b>0.0130</b>	<b>0.1073</b>	<b>0.0999</b>	<b>1.9000e-004</b>	<b>3.0000e-004</b>	<b>5.6600e-003</b>	<b>5.9600e-003</b>	<b>5.0000e-005</b>	<b>5.4600e-003</b>	<b>5.5100e-003</b>	<b>0.0000</b>	<b>16.2064</b>	<b>16.2064</b>	<b>3.3500e-003</b>	<b>0.0000</b>	<b>16.2902</b>

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**3.2 Stormdrain Pipeline - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.1000e-004	4.5400e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1852	1.1852	3.0000e-005	0.0000	1.1861
<b>Total</b>	<b>5.4000e-004</b>	<b>4.1000e-004</b>	<b>4.5400e-003</b>	<b>1.0000e-005</b>	<b>1.3200e-003</b>	<b>1.0000e-005</b>	<b>1.3300e-003</b>	<b>3.5000e-004</b>	<b>1.0000e-005</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>1.1852</b>	<b>1.1852</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.1861</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3000e-004	0.0000	1.3000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0130	0.1073	0.0999	1.9000e-004		5.6600e-003	5.6600e-003		5.4600e-003	5.4600e-003	0.0000	16.2064	16.2064	3.3500e-003	0.0000	16.2902
<b>Total</b>	<b>0.0130</b>	<b>0.1073</b>	<b>0.0999</b>	<b>1.9000e-004</b>	<b>1.3000e-004</b>	<b>5.6600e-003</b>	<b>5.7900e-003</b>	<b>2.0000e-005</b>	<b>5.4600e-003</b>	<b>5.4800e-003</b>	<b>0.0000</b>	<b>16.2064</b>	<b>16.2064</b>	<b>3.3500e-003</b>	<b>0.0000</b>	<b>16.2902</b>

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**3.2 Stormdrain Pipeline - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.1000e-004	4.5400e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1852	1.1852	3.0000e-005	0.0000	1.1861
<b>Total</b>	<b>5.4000e-004</b>	<b>4.1000e-004</b>	<b>4.5400e-003</b>	<b>1.0000e-005</b>	<b>1.3200e-003</b>	<b>1.0000e-005</b>	<b>1.3300e-003</b>	<b>3.5000e-004</b>	<b>1.0000e-005</b>	<b>3.6000e-004</b>	<b>0.0000</b>	<b>1.1852</b>	<b>1.1852</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.1861</b>

**3.3 Paving - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.2300e-003	0.0204	0.0213	3.0000e-005		1.2000e-003	1.2000e-003		1.1300e-003	1.1300e-003	0.0000	2.8161	2.8161	7.1000e-004	0.0000	2.8338
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.2300e-003</b>	<b>0.0204</b>	<b>0.0213</b>	<b>3.0000e-005</b>		<b>1.2000e-003</b>	<b>1.2000e-003</b>		<b>1.1300e-003</b>	<b>1.1300e-003</b>	<b>0.0000</b>	<b>2.8161</b>	<b>2.8161</b>	<b>7.1000e-004</b>	<b>0.0000</b>	<b>2.8338</b>



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**3.3 Paving - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.1000e-004	0.0267	4.4700e-003	5.0000e-005	0.0134	5.0000e-005	0.0135	1.4800e-003	5.0000e-005	1.5300e-003	0.0000	4.9912	4.9912	5.0000e-004	0.0000	5.0036
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.5100e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3951	0.3951	1.0000e-005	0.0000	0.3954
<b>Total</b>	<b>7.9000e-004</b>	<b>0.0268</b>	<b>5.9800e-003</b>	<b>5.0000e-005</b>	<b>0.0139</b>	<b>5.0000e-005</b>	<b>0.0139</b>	<b>1.6000e-003</b>	<b>5.0000e-005</b>	<b>1.6500e-003</b>	<b>0.0000</b>	<b>5.3862</b>	<b>5.3862</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>5.3989</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.2300e-003	0.0204	0.0213	3.0000e-005		1.2000e-003	1.2000e-003		1.1300e-003	1.1300e-003	0.0000	2.8161	2.8161	7.1000e-004	0.0000	2.8338
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.2300e-003</b>	<b>0.0204</b>	<b>0.0213</b>	<b>3.0000e-005</b>		<b>1.2000e-003</b>	<b>1.2000e-003</b>		<b>1.1300e-003</b>	<b>1.1300e-003</b>	<b>0.0000</b>	<b>2.8161</b>	<b>2.8161</b>	<b>7.1000e-004</b>	<b>0.0000</b>	<b>2.8338</b>

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**3.3 Paving - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.1000e-004	0.0267	4.4700e-003	5.0000e-005	0.0134	5.0000e-005	0.0135	1.4800e-003	5.0000e-005	1.5300e-003	0.0000	4.9912	4.9912	5.0000e-004	0.0000	5.0036
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.5100e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3951	0.3951	1.0000e-005	0.0000	0.3954
<b>Total</b>	<b>7.9000e-004</b>	<b>0.0268</b>	<b>5.9800e-003</b>	<b>5.0000e-005</b>	<b>0.0139</b>	<b>5.0000e-005</b>	<b>0.0139</b>	<b>1.6000e-003</b>	<b>5.0000e-005</b>	<b>1.6500e-003</b>	<b>0.0000</b>	<b>5.3862</b>	<b>5.3862</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>5.3989</b>

**3.4 pipeline - 2020**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0989	0.8151	0.7591	1.4500e-003		0.0430	0.0430		0.0415	0.0415	0.0000	123.1689	123.1689	0.0255	0.0000	123.8056
<b>Total</b>	<b>0.0989</b>	<b>0.8151</b>	<b>0.7591</b>	<b>1.4500e-003</b>	<b>0.0000</b>	<b>0.0430</b>	<b>0.0430</b>	<b>0.0000</b>	<b>0.0415</b>	<b>0.0415</b>	<b>0.0000</b>	<b>123.1689</b>	<b>123.1689</b>	<b>0.0255</b>	<b>0.0000</b>	<b>123.8056</b>

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**3.4 pipeline - 2020**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0700e-003	3.1200e-003	0.0345	1.0000e-004	0.0100	8.0000e-005	0.0101	2.6600e-003	7.0000e-005	2.7300e-003	0.0000	9.0075	9.0075	2.6000e-004	0.0000	9.0140
<b>Total</b>	<b>4.0700e-003</b>	<b>3.1200e-003</b>	<b>0.0345</b>	<b>1.0000e-004</b>	<b>0.0100</b>	<b>8.0000e-005</b>	<b>0.0101</b>	<b>2.6600e-003</b>	<b>7.0000e-005</b>	<b>2.7300e-003</b>	<b>0.0000</b>	<b>9.0075</b>	<b>9.0075</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>9.0140</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0989	0.8151	0.7591	1.4500e-003		0.0430	0.0430		0.0415	0.0415	0.0000	123.1687	123.1687	0.0255	0.0000	123.8054
<b>Total</b>	<b>0.0989</b>	<b>0.8151</b>	<b>0.7591</b>	<b>1.4500e-003</b>	<b>0.0000</b>	<b>0.0430</b>	<b>0.0430</b>	<b>0.0000</b>	<b>0.0415</b>	<b>0.0415</b>	<b>0.0000</b>	<b>123.1687</b>	<b>123.1687</b>	<b>0.0255</b>	<b>0.0000</b>	<b>123.8054</b>

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**3.4 pipeline - 2020**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0700e-003	3.1200e-003	0.0345	1.0000e-004	0.0100	8.0000e-005	0.0101	2.6600e-003	7.0000e-005	2.7300e-003	0.0000	9.0075	9.0075	2.6000e-004	0.0000	9.0140
<b>Total</b>	<b>4.0700e-003</b>	<b>3.1200e-003</b>	<b>0.0345</b>	<b>1.0000e-004</b>	<b>0.0100</b>	<b>8.0000e-005</b>	<b>0.0101</b>	<b>2.6600e-003</b>	<b>7.0000e-005</b>	<b>2.7300e-003</b>	<b>0.0000</b>	<b>9.0075</b>	<b>9.0075</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>9.0140</b>

**3.4 pipeline - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1856	1.4891	1.5876	3.0600e-003		0.0758	0.0758		0.0731	0.0731	0.0000	260.4073	260.4073	0.0529	0.0000	261.7304
<b>Total</b>	<b>0.1856</b>	<b>1.4891</b>	<b>1.5876</b>	<b>3.0600e-003</b>	<b>0.0000</b>	<b>0.0758</b>	<b>0.0758</b>	<b>0.0000</b>	<b>0.0731</b>	<b>0.0731</b>	<b>0.0000</b>	<b>260.4073</b>	<b>260.4073</b>	<b>0.0529</b>	<b>0.0000</b>	<b>261.7304</b>

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**3.4 pipeline - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0400e-003	5.9400e-003	0.0672	2.0000e-004	0.0212	1.6000e-004	0.0213	5.6200e-003	1.5000e-004	5.7600e-003	0.0000	18.4251	18.4251	4.9000e-004	0.0000	18.4375
<b>Total</b>	<b>8.0400e-003</b>	<b>5.9400e-003</b>	<b>0.0672</b>	<b>2.0000e-004</b>	<b>0.0212</b>	<b>1.6000e-004</b>	<b>0.0213</b>	<b>5.6200e-003</b>	<b>1.5000e-004</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>18.4251</b>	<b>18.4251</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>18.4375</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1856	1.4891	1.5876	3.0600e-003		0.0758	0.0758		0.0731	0.0731	0.0000	260.4070	260.4070	0.0529	0.0000	261.7301
<b>Total</b>	<b>0.1856</b>	<b>1.4891</b>	<b>1.5876</b>	<b>3.0600e-003</b>	<b>0.0000</b>	<b>0.0758</b>	<b>0.0758</b>	<b>0.0000</b>	<b>0.0731</b>	<b>0.0731</b>	<b>0.0000</b>	<b>260.4070</b>	<b>260.4070</b>	<b>0.0529</b>	<b>0.0000</b>	<b>261.7301</b>

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**3.4 pipeline - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0400e-003	5.9400e-003	0.0672	2.0000e-004	0.0212	1.6000e-004	0.0213	5.6200e-003	1.5000e-004	5.7600e-003	0.0000	18.4251	18.4251	4.9000e-004	0.0000	18.4375
<b>Total</b>	<b>8.0400e-003</b>	<b>5.9400e-003</b>	<b>0.0672</b>	<b>2.0000e-004</b>	<b>0.0212</b>	<b>1.6000e-004</b>	<b>0.0213</b>	<b>5.6200e-003</b>	<b>1.5000e-004</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>18.4251</b>	<b>18.4251</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>18.4375</b>

**3.5 pipeline paving - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5600e-003	0.0328	0.0371	6.0000e-005		1.8500e-003	1.8500e-003		1.7400e-003	1.7400e-003	0.0000	4.9122	4.9122	1.2600e-003	0.0000	4.9436
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>3.5600e-003</b>	<b>0.0328</b>	<b>0.0371</b>	<b>6.0000e-005</b>		<b>1.8500e-003</b>	<b>1.8500e-003</b>		<b>1.7400e-003</b>	<b>1.7400e-003</b>	<b>0.0000</b>	<b>4.9122</b>	<b>4.9122</b>	<b>1.2600e-003</b>	<b>0.0000</b>	<b>4.9436</b>

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**3.5 pipeline paving - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	0.0253	4.3400e-003	5.0000e-005	0.0134	4.0000e-005	0.0134	1.4800e-003	4.0000e-005	1.5200e-003	0.0000	4.9271	4.9271	4.8000e-004	0.0000	4.9391
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.2000e-004	2.5100e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6881	0.6881	2.0000e-005	0.0000	0.6885
<b>Total</b>	<b>8.8000e-004</b>	<b>0.0255</b>	<b>6.8500e-003</b>	<b>6.0000e-005</b>	<b>0.0142</b>	<b>5.0000e-005</b>	<b>0.0142</b>	<b>1.6900e-003</b>	<b>5.0000e-005</b>	<b>1.7400e-003</b>	<b>0.0000</b>	<b>5.6152</b>	<b>5.6152</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>5.6276</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5600e-003	0.0328	0.0371	6.0000e-005		1.8500e-003	1.8500e-003		1.7400e-003	1.7400e-003	0.0000	4.9122	4.9122	1.2600e-003	0.0000	4.9436
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>3.5600e-003</b>	<b>0.0328</b>	<b>0.0371</b>	<b>6.0000e-005</b>		<b>1.8500e-003</b>	<b>1.8500e-003</b>		<b>1.7400e-003</b>	<b>1.7400e-003</b>	<b>0.0000</b>	<b>4.9122</b>	<b>4.9122</b>	<b>1.2600e-003</b>	<b>0.0000</b>	<b>4.9436</b>

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**3.5 pipeline paving - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.8000e-004	0.0253	4.3400e-003	5.0000e-005	0.0134	4.0000e-005	0.0134	1.4800e-003	4.0000e-005	1.5200e-003	0.0000	4.9271	4.9271	4.8000e-004	0.0000	4.9391
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.2000e-004	2.5100e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	1.0000e-005	2.2000e-004	0.0000	0.6881	0.6881	2.0000e-005	0.0000	0.6885
<b>Total</b>	<b>8.8000e-004</b>	<b>0.0255</b>	<b>6.8500e-003</b>	<b>6.0000e-005</b>	<b>0.0142</b>	<b>5.0000e-005</b>	<b>0.0142</b>	<b>1.6900e-003</b>	<b>5.0000e-005</b>	<b>1.7400e-003</b>	<b>0.0000</b>	<b>5.6152</b>	<b>5.6152</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>5.6276</b>

**4.0 Operational Detail - Mobile**

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**4.1 Mitigation Measures Mobile**



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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0778	0.4584	1.1716	4.1600e-003	0.3357	4.2200e-003	0.3399	0.0900	3.9600e-003	0.0939	0.0000	383.7942	383.7942	0.0190	0.0000	384.2683
Unmitigated	0.0778	0.4584	1.1716	4.1600e-003	0.3357	4.2200e-003	0.3399	0.0900	3.9600e-003	0.0939	0.0000	383.7942	383.7942	0.0190	0.0000	384.2683

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	264.16	50.03	25.77	883,514	883,514
Total	264.16	50.03	25.77	883,514	883,514

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

Historical Energy Use: N

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**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	102.0401	102.0401	4.2100e-003	8.7000e-004	102.4052
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	102.0401	102.0401	4.2100e-003	8.7000e-004	102.4052
NaturalGas Mitigated	4.2700e-003	0.0388	0.0326	2.3000e-004		2.9500e-003	2.9500e-003		2.9500e-003	2.9500e-003	0.0000	42.2700	42.2700	8.1000e-004	7.7000e-004	42.5212
NaturalGas Unmitigated	4.2700e-003	0.0388	0.0326	2.3000e-004		2.9500e-003	2.9500e-003		2.9500e-003	2.9500e-003	0.0000	42.2700	42.2700	8.1000e-004	7.7000e-004	42.5212

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	792110	4.2700e-003	0.0388	0.0326	2.3000e-004		2.9500e-003	2.9500e-003		2.9500e-003	2.9500e-003	0.0000	42.2700	42.2700	8.1000e-004	7.7000e-004	42.5212
<b>Total</b>		<b>4.2700e-003</b>	<b>0.0388</b>	<b>0.0326</b>	<b>2.3000e-004</b>		<b>2.9500e-003</b>	<b>2.9500e-003</b>		<b>2.9500e-003</b>	<b>2.9500e-003</b>	<b>0.0000</b>	<b>42.2700</b>	<b>42.2700</b>	<b>8.1000e-004</b>	<b>7.7000e-004</b>	<b>42.5212</b>

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**5.2 Energy by Land Use - Natural Gas**

**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	792110	4.2700e-003	0.0388	0.0326	2.3000e-004		2.9500e-003	2.9500e-003		2.9500e-003	2.9500e-003	0.0000	42.2700	42.2700	8.1000e-004	7.7000e-004	42.5212
<b>Total</b>		<b>4.2700e-003</b>	<b>0.0388</b>	<b>0.0326</b>	<b>2.3000e-004</b>		<b>2.9500e-003</b>	<b>2.9500e-003</b>		<b>2.9500e-003</b>	<b>2.9500e-003</b>	<b>0.0000</b>	<b>42.2700</b>	<b>42.2700</b>	<b>8.1000e-004</b>	<b>7.7000e-004</b>	<b>42.5212</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	320255	102.0401	4.2100e-003	8.7000e-004	102.4052
<b>Total</b>		<b>102.0401</b>	<b>4.2100e-003</b>	<b>8.7000e-004</b>	<b>102.4052</b>

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**5.3 Energy by Land Use - Electricity**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	320255	102.0401	4.2100e-003	8.7000e-004	102.4052
<b>Total</b>		<b>102.0401</b>	<b>4.2100e-003</b>	<b>8.7000e-004</b>	<b>102.4052</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1546	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Unmitigated	0.1546	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0176					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1370					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
<b>Total</b>	<b>0.1546</b>	<b>0.0000</b>	<b>4.9000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.4000e-004</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-003</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0176					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1370					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
<b>Total</b>	<b>0.1546</b>	<b>0.0000</b>	<b>4.9000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>9.4000e-004</b>	<b>9.4000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0000e-003</b>

**7.0 Water Detail**

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### 7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	39.1419	0.2871	7.0500e-003	48.4212
Unmitigated	39.1419	0.2871	7.0500e-003	48.4212

### 7.2 Water by Land Use

#### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	8.76437 / 0	39.1419	0.2871	7.0500e-003	48.4212
<b>Total</b>		<b>39.1419</b>	<b>0.2871</b>	<b>7.0500e-003</b>	<b>48.4212</b>

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**7.2 Water by Land Use**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	8.76437 / 0	39.1419	0.2871	7.0500e-003	48.4212
<b>Total</b>		<b>39.1419</b>	<b>0.2871</b>	<b>7.0500e-003</b>	<b>48.4212</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.5406	0.5638	0.0000	23.6364
Unmitigated	9.5406	0.5638	0.0000	23.6364

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**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	47	9.5406	0.5638	0.0000	23.6364
<b>Total</b>		<b>9.5406</b>	<b>0.5638</b>	<b>0.0000</b>	<b>23.6364</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	47	9.5406	0.5638	0.0000	23.6364
<b>Total</b>		<b>9.5406</b>	<b>0.5638</b>	<b>0.0000</b>	<b>23.6364</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------



## Pipeline Phase For Well 12 and 14 - South Coast AQMD Air District, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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**APPENDIX B**  
**CULTURAL RESOURCES**

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# ***Cultural Resource Record Search Review***

## ***Mesa Water Well Project***

### **MESA WATER WELL PROJECT RECORD SEARCH RESULTS**

#### **GENERAL PROJECT DESCRIPTION**

The Mesa Water District is proposing to construct two new potable water wells on approximately 0.89 acre of land located in the City of Santa Ana, California. Well No. 12 is located at 4011 W. Chandler Avenue. Well No. 13 is located at 3120 S. Croddy Way. The Project includes drilling, constructing, developing, testing, and equipping of Well No. 12 and Well No. 13, plus construction of facilities at the sites for operation of the wells. In addition, construction of approximately 4,500 feet of linear pipeline will connect the two wells to the Mesa Water distribution system traversing Chandler Avenue to Croddy Way to W. MacArthur Boulevard to Hyland Avenue. The depth of ground disturbance during construction will vary for the Project and includes: Well No. 12 is approximately 1,030 feet below ground surface (bgs); Well No. 13 is approximately 990 feet bgs; and the linear pipeline will reach depths up to approximately 18 feet bgs.

The Project also includes demolition of two existing structures: an existing office and storage building at 4011 West Chandler Avenue and an existing office and storage building at 3120 South Croddy Way.

#### **RECORD SEARCH RESULTS**

A records search was conducted of the Project's Area of Potential Effect (APE) and surrounding areas via the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System on September 13, 2018 (SCCIC File No.: 19378.5313). For the records search, the study area included a half mile buffer centered on the APE. As part of this records search, the SCCIC database of survey reports and overviews was consulted, as well as documented cultural resources, cultural landscapes, and ethnic resources. Additionally, the search included a review of the following publications and lists: California Office of Historic Preservation (OHP) Historic Properties Directory, National Register of Historic Places (NRHP), OHP Archaeological Determinations of Eligibility, California Inventory of Historical Resources/California Register of Historic Resources (CRHR), California Points of Historical Interest, California Historical Landmarks, and local historic resource inventories. See Enclosure 1 for record search results.

One previously conducted cultural resource survey (VN-00299<sup>1</sup>) and no previously recorded cultural resources were identified within the APE. VN-00299 consisted of an overview for archaeological, architectural, and paleontological resources and was conducted in 1975. An additional 16 previous studies have been conducted within a half mile of the APE between 1975 and 2007. These cultural resource investigations are comprised of archaeological and

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<sup>1</sup> Archaeological Associates 1975. *Compilation of Historical, Archaeological, and Paleontological Data for Costa Mesa*. On file at the SCCIC.

## ***Cultural Resource Record Search Review Mesa Water Well Project***

architectural surveys, and literature searches. A map and list of the previously recorded resources within half mile of the APE is provided in Enclosure 1.

Based on the SCCIC record search results, no CRHR or NRHP listed or eligible sites were identified within the APE. One previously recorded historic building (P-30-176943: Ana Mesa Inn) was identified within a half mile of the APE. This building appears unevaluated for the CRHR/NRHP. A list of the previously recorded resources within half mile of the APE is provided in Enclosure 1.

### **Review of Historic Aerial Photographs**

Review of historic aerial photographs provides information regarding potential unrecorded historic features or sites within the APE. Based on the map review<sup>2</sup>, the APE was undeveloped agricultural land from 1953 to 1972. By 1995, the APE appears as a paved north to south trending road with building adjacent east and west, similar as it appears today.

### **NATIVE AMERICAN HERITAGE COMMISSION SACRED LANDS FILE SEARCH**

Tetra Tech, Inc. contacted the California Native American Heritage Commission (NAHC) on August 24, 2018 and requested that the NAHC review its Sacred Lands Files. The NAHC replied on August 27, 2018 that results were negative for Native American Native tribal resources within the APE and provided a list of local Native American contacts with knowledge of the Project area. The NAHC recommends conducting outreach to the listed tribes or individuals as they may have knowledge of cultural resources within or near the Project area. Native American consultation is part of the lead CEQA agency's responsibilities under Assembly Bill 52 (AB52), and CEQA. See Enclosure 2 for NAHC sacred lands file search results.

### **ARCHAEOLOGICAL AND ARCHITECTURAL SURVEYS**

Due to the built environment of the APE (e.g. paved roads, buildings) and lack of visible native ground surface soils, an archaeological survey was not conducted for the Project.

An architectural survey was not conducted for the Project. The two buildings proposed for demolition located at West Chandler Avenue and the other at 3120 South Croddy Way were both constructed post 1977 and are under 45 years of age. As of the date of this document, the buildings are not considered historic resources under CEQA. Projects that could impact buildings or structures, 45 years old or older, may require a historic built environment review and survey by a qualified historian or architectural historian.

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<sup>2</sup> Historic Aerials by Netronline 2018. Electronic database located at <https://www.historicaerials.com/viewer> accessed 9/23/2018.

# ***Cultural Resource Record Search Review***

## ***Mesa Water Well Project***

### **RECOMMENDATIONS**

Although the Project area is relatively densely developed, very few previous archaeological studies have been conducted throughout the region. The surficial deposits within the APE have been subjected to previous ground disturbance. The depth of ground surface disturbance is unknown. The Project area is within the southern end of the broad Coastal Plain of Orange County, specifically the Tustin Plain. Sediments within the APE consist of Holocene (recent to 10,000 years old, 10 to 20 feet in depth) and Pleistocene (10,000 to 2 million years old, 20 feet - plus in depth) alluvium deposits derived from the erosion of bedrock out of the Santa Ana Mountain and the San Joaquin Hills. Late Pleistocene and Holocene deposits are generally considered more likely to contain prehistoric deposits. If construction ground disturbance depths range within native soils (approximately 1 to 2 feet in depth and beyond), there would be a potential to impact previously unrecorded subsurface cultural resources.

Existing regulations require that if human remains and/or funerary cultural items defined by the Health and Safety Code, Section 7050.5, are inadvertently discovered, all work in the vicinity of the find would cease and the Orange County Coroner would be contacted immediately. If the remains are found to be Native American as defined by Health and Safety Code, Section 7050.5, the coroner will contact the NAHC by telephone within 24 hours. The NAHC shall immediately notify the person it believes to be the Most Likely Descendant (MLD) as stipulated by California Public Resources Code (PRC, Section 5097.98. The MLD(s), with the permission of the landowner and/or authorized representative, shall inspect the site of the discovered remains and recommend treatment regarding the remains and any associated grave goods. The MLD shall complete their inspection and make their recommendations within 48 hours of notification by the NAHC. Any discovery of human remains would be treated in accordance with Section 5097.98 of the PRC and Section 7050.5 of the Health and Safety Code. Therefore, with compliance with existing regulations, Project impact would be less than significant.

The following archaeological management measures below are recommended for the Project.

**CUL-1 Environmental Training** – prior to construction of the Project, a qualified archaeologist will provide a cultural resource briefing that includes all applicable laws and penalties pertaining to disturbing cultural resources, a brief discussion of the prehistoric and historic regional context and archaeological sensitivity of the area, types of cultural resources found in the area, instruction that Project workers will halt construction if a cultural resource is inadvertently discovered during construction, and procedures to follow in the event an inadvertent discovery (Inadvertent Discovery Plan) is encountered, including appropriate treatment and respectful behavior of a discovery (e.g., no posting to social media or photographs). If requested, a local tribal representative(s) shall be invited to participate in the environmental training to discuss or provide text from a tribal cultural perspective regarding the cultural resources within the region, and;

## ***Cultural Resource Record Search Review Mesa Water Well Project***

**CUL 2: Inadvertent Discovery of Archaeological Resources During Construction** – A qualified archaeologist shall prepare an Inadvertent Discovery Plan for the Project. During Project-level construction, should subsurface archaeological resources be discovered, all activity in the vicinity of the find shall stop and a qualified archaeologist shall be contacted to assess the significance of the find according to California Environmental Quality Act (CEQA) Guidelines Section 15064.5. If any find is determined to be significant, the archaeologist shall determine, in consultation with the implementing agency and any local Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation. Per CEQA Guidelines Section 15126.4(b)(3), preservation in place shall be the preferred means to avoid impacts to archaeological resources qualifying as historical resources. Methods of avoidance may include, but shall not be limited to, Project re-route or re-design, Project cancellation, or identification of protection measures such as capping or fencing. Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures, such as data recovery or other appropriate measures, in consultation with the implementing agency and any local Native American representatives expressing interest in prehistoric or tribal resources. If an archaeological site does not qualify as an historical resource but meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site shall be treated in accordance with the provisions of Section 21083.2.



*Cultural Resource Record Search Review*  
*Mesa Water Well Project*

**ENCLOSURE 1**  
**SCCIC RESULTS**

**South Central Coastal Information Center**

California State University, Fullerton  
Department of Anthropology MH-426  
800 North State College Boulevard  
Fullerton, CA 92834-6846  
657.278.5395 / FAX 657.278.5542

[sccic@fullerton.edu](mailto:sccic@fullerton.edu)

*California Historical Resources Information System*  
*Orange, Los Angeles, and Ventura Counties*

9/13/2018

Records Search File No.: 19378.5313

Jenna Farrell  
Tetra Tech, Inc.  
2969 Prospect Park Dr. Ste 100  
Rancho Cordova, CA 95670

Re: Record Search Results for the Mesa Water Well Project

The South Central Coastal Information Center received your records search request for the project area referenced above, located on the Newport Beach, CA USGS 7.5' quadrangle. The following reflects the results of the records search for the project area and a ½-mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format:  custom GIS maps  shape files  hand-drawn maps

Resources within project area: 0	None
Resources within ½-mile radius: 1	SEE ATTACHED MAP or LIST
Resources listed in the OHP Historic Properties Directory within project area: 0	None
Resources listed in the OHP Historic Properties Directory within ½-mile radius: 0	None
Reports within project area: 1	OR-00299
Reports within ½-mile radius: 16	SEE ATTACHED MAP or LIST

- Resource Database Printout (list):**  enclosed  not requested  nothing listed
- Resource Database Printout (details):**  enclosed  not requested  nothing listed
- Resource Digital Database (spreadsheet):**  enclosed  not requested  nothing listed
- Report Database Printout (list):**  enclosed  not requested  nothing listed
- Report Database Printout (details):**  enclosed  not requested  nothing listed
- Report Digital Database (spreadsheet):**  enclosed  not requested  nothing listed
- Resource Record Copies:**  enclosed  not requested  nothing listed
- Report Copies:**  enclosed  not requested  nothing listed
- OHP Historic Properties Directory:**  enclosed  not requested  nothing listed

**Archaeological Determinations of Eligibility:**     enclosed     not requested     nothing listed  
**Los Angeles Historic-Cultural Monuments**     enclosed     not requested     nothing listed  
**Historical Maps:**     enclosed     not requested     nothing listed  
**Ethnographic Information:**     not available at SCCIC  
**Historical Literature:**     not available at SCCIC  
**GLO and/or Rancho Plat Maps:**     not available at SCCIC  
**Caltrans Bridge Survey:**     not available at SCCIC; please go to  
<http://www.dot.ca.gov/hq/structur/strmaint/historic.htm>  
**Shipwreck Inventory:**     not available at SCCIC; please go to  
[http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks\\_Database.asp](http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp)  
**Soil Survey Maps: (see below)**     not available at SCCIC; please go to  
<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

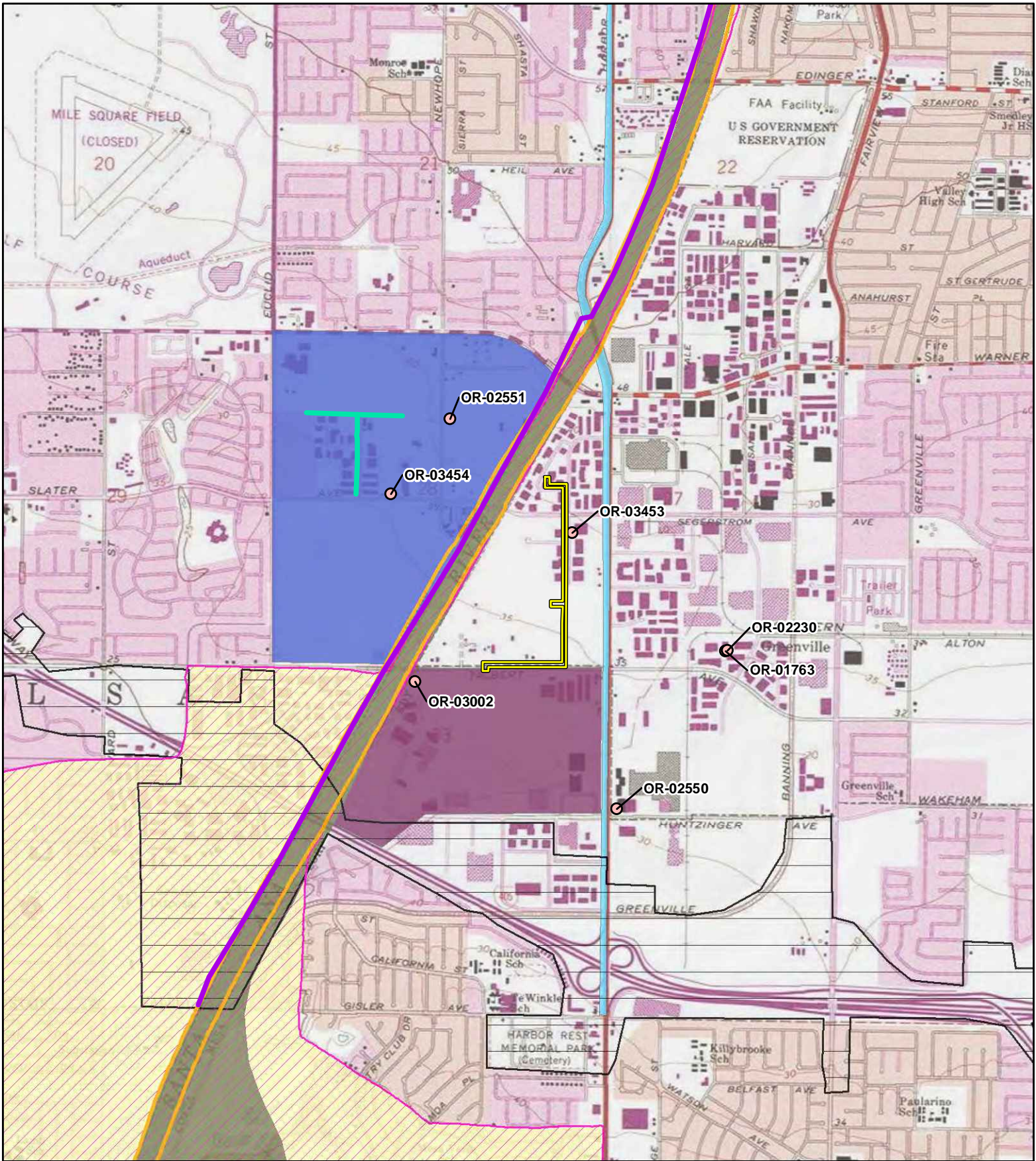
Thank you for using the [California Historical Resources Information System](#),

Isabela Kott  
GIS Technician/Staff Researcher

Enclosures:

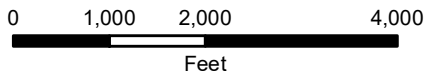
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- (X) Resource Database Printout (list) – 1 page
- (X) Resource Database Printout (details) – 1 page
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- (X) Report Database Printout (list) – 5 pages
- (X) Report Database Printout (details) – 24 pages
- (X) Report Digital Database (spreadsheet) – 17 lines
- (X) Report Copies – (project area only) 121 pages





Mesa Water Well Project  
Previous Reports

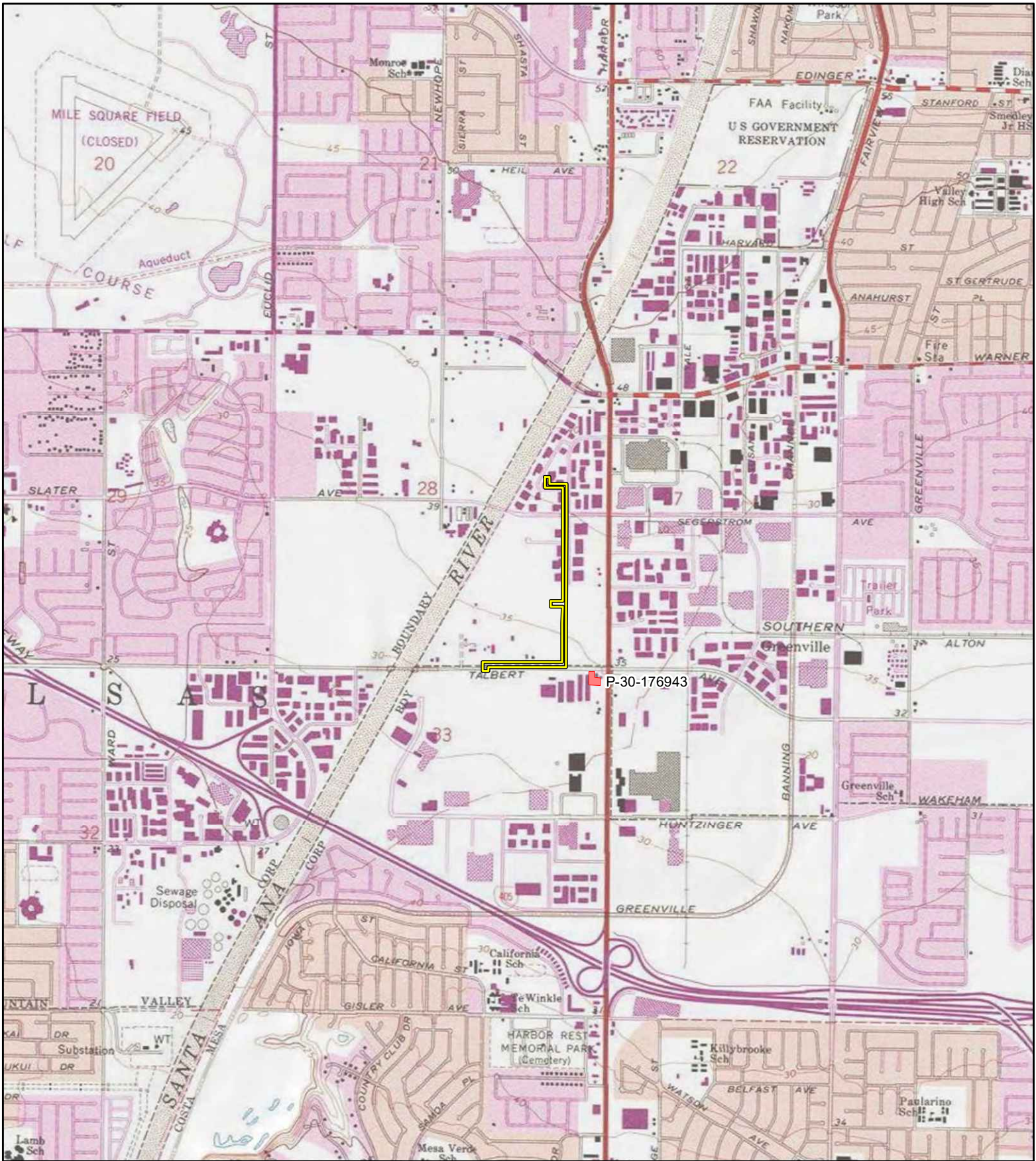
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- Site Boundary
- Previous Report Point
- OR-01950
- OR-04259
- OR-00270
- OR-00299
- OR-00334
- OR-00801
- OR-01836
- OR-03776
- OR-04087
- OR-04172

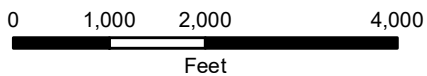




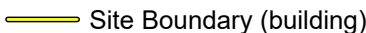



Mesa Water Well Project  
Previously Recorded Resources

1:24,000



Legend

-  Site Boundary (building)
-  Previously Recorded Resource



## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-00270		1975	Leonard, Nelson N. III and Mathew C. Hall	Description and Evaluation of Cultural Resources Within the US Army Corps of Engineers' Santa Ana River Project	Archaeological Research Unit, UC Riverside	30-000277
OR-00299	Paleo -	1978	Van Horn, David M.	A Compilation of Archaeological, Historical and Paleontological Data for the City of Costa Mesa	Archaeological Associates, Ltd.	30-000058, 30-000076, 30-000163, 30-000165, 30-000174, 30-000297, 30-000357, 30-000506, 30-000687
OR-00334		1974	Leonard, Nelson N. III	An Archaeological Reconnaissance of the Fountain Valley Project	University of California, Los Angeles Archaeological Survey	
OR-00801		1985	Langenwalter, Paul E. and James Brock	Phase II Archaeological Studies Prado Basin and the Lower Santa Ana River		30-000089, 30-000817
OR-01763	Cellular -	1998	Bonner, Wayne H.	Cultural Resources Records Search and Literature Review Report for a Pacific Bell Mobile Services Telecommunications Facility: Cm 063-34, in the City of Santa Ana, California	Chambers Group, Inc.	
OR-01836		1998	Padon, Beth	Cultural Resource Review for Groundwater Replenishment System Program EIR/Tier I/EIS, Orange County Water District and County Sanitation Districts of Orange County	Discovery Works, Inc.	
OR-01950		1976	Douglas, Ronald D.	An Archaeological Survey of Two Properties for the City of Fountain Valley, Orange County	Public Antiquities Salvage Team, CSUF	
OR-02230	Cellular -	2000	Duke, Curt	Cultural Resource Assessment for Modifications to Pacific Bell Wireless Facility Cm 063-34, County of Orange, Ca	LSA Associates, Inc.	
OR-02550	Cellular -	2002	Duke, Curt	Cultural Resource Assessment Cingular Wireless Facility No. Sc 035-05 Orange County, California	LSA Associates, Inc.	
OR-02551	Cellular -	2002	Duke, Curt	Cultural Resource Assessment at & T Wireless Services Facility No. 13051b Orange County, California	LSA Associates, Inc.	
OR-03002	Cellular -	2005	Thal, Sean	Cultural Resource Assessment for the Cahill (CA-7072I) Cellular Facility Near 1700 Macarthur Blvd., Costa Mesa, Ca, Orange County	Earth Touch Inc.	
OR-03453	Cellular -	2007	Bonner, Wayne H.	Cultural Resource Records Search and Site Visit Results for T-mobile Candidate La02824e (croddy Carriage), 2907 Croddy Way, Santa Ana, Orange County, California	Michael Brandman Associates	

## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-03454	Cellular -	2007	Bonner, Wayne H.	Cultural Resource Records Search and Site Visit Results for T-mobile Candidate La23639b (fountain Valley Storage), 11345 Slater Avenue, Fountain Valley, Orange County, California	Michael Brandman Associates	
OR-03776		2000	Padon, Beth	Historic Property Survey Report for Harbor Boulevard Smart Street Improvements, City of Garden Grove, Orange County, California.	Discovery Works, Inc.	30-157376, 30-176876, 30-176877, 30-176878, 30-176879, 30-176880, 30-176881, 30-176882, 30-176883, 30-176884, 30-176885, 30-176886, 30-176887, 30-176888, 30-176889, 30-176890, 30-176891, 30-176892, 30-176893, 30-176894, 30-176895, 30-176896, 30-176897, 30-176898, 30-176899, 30-176900, 30-176901, 30-176902, 30-176903, 30-176904, 30-176905, 30-176906, 30-176907, 30-176908, 30-176909, 30-176910, 30-176911, 30-176912, 30-176913, 30-176914, 30-176915, 30-176916, 30-176917, 30-176918, 30-176919, 30-176920, 30-176921, 30-176922, 30-176923, 30-176924, 30-176925, 30-176926, 30-176927, 30-176928, 30-176929, 30-176930, 30-176931, 30-176932, 30-176933, 30-176934, 30-176935, 30-176936, 30-176937, 30-176938, 30-176939, 30-176940, 30-176941, 30-176942, 30-176943
OR-04087		1998	Salenius, Sylvia	Program EIR/Tier 1 EIS, Groundwater Replenishment System	Orange County Water District & Orange County Sanitation District	



## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-04172		2011	Chasteen, Carrie	Historic Property Survey Report San Diego Freeway (I-405) Improvement Project SR-73 to I-605, Orange and Los Angeles Counties	Parsons	19-189879, 19-189880, 19-189881, 19-189882, 19-189883, 19-189884, 19-189885, 19-189886, 19-189887, 19-189888, 19-189890, 19-189891, 19-189892, 19-189893, 19-189894, 19-189895, 19-189896, 19-189897, 19-189898, 19-189899, 19-189900, 19-189901, 19-189902, 19-189903, 19-189904, 19-189905, 19-189906, 19-189907, 19-189908, 19-189909, 19-189910, 19-189911, 19-189912, 19-189913, 19-189914, 19-189915, 19-189916, 19-189917, 19-189918, 19-189919, 19-189920, 19-189921, 19-189922, 19-189923, 19-189924, 19-189925, 19-189926, 19-189927, 30-000113, 30-000162, 30-001352, 30-001502, 30-177135, 30-177136, 30-177137, 30-177138, 30-177139, 30-177140, 30-177141, 30-177142, 30-177143, 30-177144, 30-177145, 30-177146, 30-177147, 30-177148, 30-177149, 30-177150, 30-177151, 30-177152, 30-177153, 30-177154, 30-177155, 30-177156, 30-177157, 30-177158, 30-177159, 30-177160, 30-177161, 30-177162, 30-177163, 30-177164, 30-177165, 30-177166, 30-177167, 30-177168, 30-177169, 30-177170, 30-177171, 30-177172, 30-177173, 30-177174, 30-177175, 30-177176, 30-177177, 30-177178, 30-177179, 30-177180, 30-177181, 30-177182, 30-177183, 30-177184, 30-177185, 30-177186, 30-177187, 30-177188, 30-177189, 30-177190, 30-177191, 30-177192, 30-177193, 30-177194, 30-177195, 30-177196, 30-177197, 30-177198, 30-177199, 30-177200, 30-177201, 30-177202, 30-177203, 30-177204, 30-177205, 30-177206, 30-177207, 30-177208, 30-177209, 30-177210, 30-177211, 30-177212, 30-177213, 30-177214, 30-177215, 30-177216, 30-177217, 30-177218, 30-177219, 30-177220,

## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
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## Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
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OR-04259		2007	Becker, Kenneth, Goodman, John, Sewell, Kristin, and Van Galder, Sarah	Cultural Resources Monitoring Report, Orange County Water District Groundwater Replenishment System, Orange County, California	SRI	30-001670, 30-001671, 30-100402

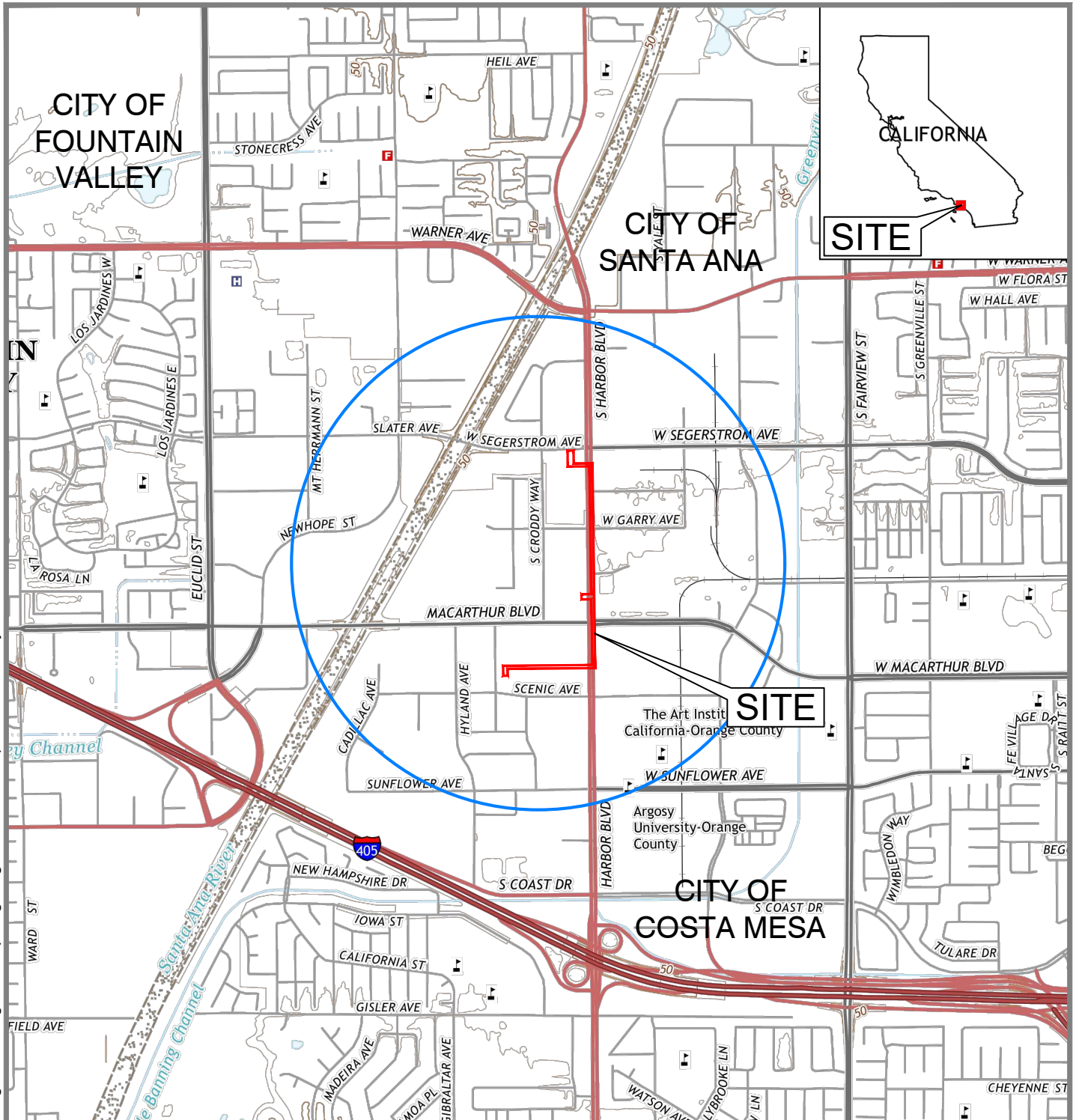
# Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-30-176943		OHP Property Number - 154087; Resource Name - Ana Mesa Inn; Other - map #11; Other - zip 92626	Building	Historic	HP05 (Hotel/motel)	2000 (McElroy, Sheila, Circa: Historic Property Development)	OR-03776

*Cultural Resource Record Search Review*  
*Mesa Water Well Project*

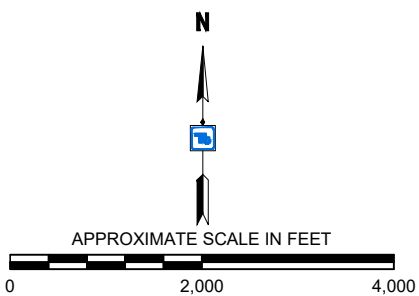
**ENCLOSURE 2**  
**NAHC SACRED LANDS FILE SEARCH RESULTS**

P:\19027-IEW - Mesa WD-West Chandler\CAD\Figure 1 - Regional Map.dwg Aug 09, 2018 - 4:29pm daniel.READY



**Legend**

- Site Boundary
- 1/2-Mile Radius



**Notes:**

1. Base Map Source: Newport Beach, CA Quadrangle 7.5-Minute Series, U.S. Geological Survey (2015).
2. Site is in Township 5S, Range 10W, Section 28 and Township 5S, Range 10W, Section 33.

MESA WATER DISTRICT

**REGIONAL MAP**

WELL NO. 12, WELL NO. 13 AND PIPELINE SANTA ANA/COSTA MESA, CA



PREPARED BY:  
**TETRA TECH, INC.**

17885 Von Karman Avenue, Suite 500  
Irvine, CA 92614-6213  
Phone: (949) 809-5000 Fax: (949) 809-5010

PROJECT NUMBER	APPROVED BY	DRAWN BY	DATE	FIGURE
194-9027	JF	DVK	AUG 2018	<b>1</b>

## Sacred Lands File & Native American Contacts List Request

### NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd, Suite 100  
West Sacramento, CA 95501  
(916) 373-3710  
(916) 373-5471 – Fax  
[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)

*Information Below is Required for a Sacred Lands File Search*

Project: \_\_\_\_\_

County: \_\_\_\_\_

USGS Quadrangle

Name: \_\_\_\_\_

Township: \_\_\_\_\_ Range: \_\_\_\_\_ Section(s): \_\_\_\_\_

Company/Firm/Agency:

\_\_\_\_\_  
Contact Person: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Extension: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Project Description:

\_\_\_\_ Project Location Map is attached

**NATIVE AMERICAN HERITAGE COMMISSION**

Environmental and Cultural Department  
1550 Harbor Blvd., ROOM 100  
West SACRAMENTO, CA 95691  
(916) 373-3710  
Fax (916) 373-5471



August 27, 2018

Jenna Farrell

Tetra Tech

Sent by Email: [jenna.farrell@tetrattech.com](mailto:jenna.farrell@tetrattech.com)

Re: Mesa Water Well Project, Orange County

Dear Ms. Farrell,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or [frank.lienert@nahc.ca.gov](mailto:frank.lienert@nahc.ca.gov).

Sincerely,

  
Frank Lienert  
Associate Governmental Program Analyst



**Native American Heritage Commission  
Native American Contacts  
August 27, 2018**

Juaneno Band of Mission Indians Acjachemen Nation  
Matias Belardes. Chairperson  
32161 Avenida Los Amigos Juaneno  
San Juan Capistrano , CA 92675  
kaamalam@gmail.com  
(949) 444-4340 (Cell)

Juaneno Band of Mission Indians Acjachemen Nation  
Jovce Perry. Tribal Manager  
4955 Paseo Seoovia Juaneno  
Irvine , CA 92612  
kaamalam@gmail.com  
(949) 293-8522

Gabrieleno/Tongva San Gabriel Band of Mission Indians  
Anthony Morales. Chairperson  
P.O. Box 693 Gabrielino Tonava  
San Gabriel , CA 91778  
GTTribalcouncil@aol.com  
(626) 483-3564 Cell  
  
(626) 286-1262 Fax

Gabrielino-Tonava Tribe  
Linda Candelaria. Chairperson  
No Current Address on File Gabrielino

Gabrielino /Tonava Nation  
Sandonne Goad. Chairperson  
106 1/2 Judge John Aiso St., #231 Gabrielino Tonava  
Los Angeles , CA 90012  
sgoad@gabrielino-tonava.com  
(951) 807-0479

Gabrieleno Band of Mission Indians - Kizh Nation  
Andrew Salas. Chairperson  
P.O. Box 393 Gabrielino  
Covina , CA 91723  
admin@gabrielenoindians.org  
(626) 926-4131

Juaneno Band of Mission Indians Acjachemen Nation  
Teresa Romero. Chairwoman  
31411-A La Matanza Street Juaneno  
San Juan Capistrano , CA 92675  
tromero@juaneno.com  
(949) 488-3484  
(530) 354-5876 Cell  
(949) 488-3294 Fax

Gabrielino-Tonava Tribe  
Charles Alvarez. Councilmember  
23454 Vanowen St. Gabrielino  
West Hills , CA 91307  
roadkinacharles@aol.com  
(310) 403-6048

Juaneño Band of Mission Indians  
Sonia Johnston. Tribal Chairperson  
P.O. Box 25628 Juaneno  
Santa Ana , CA 92799  
sonia.johnston@sbcglobal.net

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed **Mesa Water Well Project, Orange County**