**EXHIBIT "J"**
**Nuview Library Replacement Project**

**PAYMENT SCHEDULE**

**Fixed Basic Services Fee Breakdown:**

| **Item** | **Amount** | **Payment Phase** |
|---|---|---|
| CM Fee: | $148,000 | 100% Invoiced during construction (no retention) |
| General Conditions: | $451,311 (10 Months) | 100% Invoiced during construction (no retention) |
| Preconstruction: | $25,000 | 100% Invoiced during pre-construction (no retention) |
| **Total:** | **$624,311** | |

# CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

***California Civil Code* Section 8132**

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

## Identifying Information

Name of Claimant: _____
Name of Customer: _____
Job Location: _____
Owner: _____
Through Date: _____

## Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____
Amount of Check: $_____
Check Payable to: _____

## Exceptions

This document does not affect any of the following:

(1) Retentions.
(2) Extras for which the claimant has not received payment.
(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:
Date(s) of waiver and release:_____
Amount(s) of unpaid progress payment(s): $_____
(4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

## Signature

Claimant's Signature: _____
Claimant's Title: _____
Date of Signature: _____

# UNCONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

***California Civil Code* Section 8134**

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

## Identifying Information

Name of Claimant: _____
Name of Customer: _____
Job Location: _____
Owner: _____
Through Date: _____

## Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: $_____

## Exceptions

This document does not affect any of the following:

(1) Retentions.
(2) Extras for which the claimant has not received payment.
(3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

## Signature

Claimant's Signature: _____
Claimant's Title: _____
Date of Signature: _____

Exhibit K – Release Forms

# CONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

***California Civil Code* Section 8136**

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

## Identifying Information

Name of Claimant: _____
Name of Customer: _____
Job Location: _____
Owner: _____

## Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____
Amount of Check: $_____
Check Payable to: _____

## Exceptions

This document does not affect any of the following:
Disputed claims for extras in the amount of: $_____

## Signature

Claimant's Signature: _____
Claimant's Title: _____
Date of Signature: _____

Exhibit K – Release Forms

# UNCONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

***California Civil Code* Section 8138**

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

## Identifying Information

Name of Claimant: _____
Name of Customer: _____
Job Location: _____
Owner: _____

## Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

## Exceptions

This document does not affect the following:
Disputed claims for extras in the amount of: $_____

## Signature

Claimant's Signature: _____
Claimant's Title: _____
Date of Signature: _____

## EXHIBIT "L"

## Nuview Library Replacement Project

## ADDITIONAL INSUREDS LIST

"Such policy shall name the County, its agencies, districts, special districts and departments, and their respective directors, officers, elected or appointed officials, agents, employees and representatives, including, without limitation, the members of the board of Supervisors, and all their indemnitees, as "additional insureds" and contain a waiver of subrogation in favor of the County and all other such additional insureds."

## EXHIBIT "M"

## Nuview Library Replacement Project

## SUB-CONSULTANT INSURANCE REQUIREMENTS

Any Sub-consultants Tilden-Coil Constructors, Inc. utilizes will be required to provide the same level of insurance as Tilden-Coil Constructors, Inc. Please refer to Article 10 of the Agreement.

## EXHIBIT "N"

## Nuview Library Replacement Project

## CONSTRUCTION MANAGER'S STAFFING FEE SCHEDULE

Construction Manager's Staffing Fee Schedule is included in the Fee Proposal attached hereinto as "Exhibit P".

**EXHIBIT "O"**

**Nuview Library Replacement Project**

**CONSTRUCTION MANAGER'S SUB-CONSULTANT SERVICES**

Not Used

**EXHIBIT "P"**

**Nuview Library Replacement Project**

**CONSTRUCTION MANAGER'S PROPOSAL**

Construction Manager's Proposal in included on the following pages and includes CM Services Proposal and General Conditions Estimate.

Tilden-Coil
CONSTRUCTORS
*Building with Integrity Since 1938*

# Tilden-Coil Constructors, Inc.
# Nuview Public Library Replacement
# CM Services Proposal

## Project Understanding

The project includes a new 3,800 sf Library to be located in Nuevo, CA.

## Total CM Contract

Total Construction Management Contract amount is comprised of 1) CM Fee, 2) Preconstruction Expenses and 3) General Conditions Expenses and shall be the fixed amount of **$624,311** as identified below.

**Construction Management Fee:** Tilden-Coil proposes the construction management fee of **$148,000** which is based upon 7.4% of the estimated final cost of construction (prime contracts), which is currently estimated to be $2 million. In order to fix our contract price as requested, we have based our construction management fee on the anticipated final cost of construction (prime contracts).

**Preconstruction Expenses:** Preconstruction includes CM Multi-Prime bidding and bid document development.

**General Conditions Expenses:** We have attached a fixed General Conditions expense budget for the each project. The General Conditions budget is based upon the timelines indicated in each budget.

## CM Proposal Breakdown

| Category | Total |
|---|---|
| Project Budget (1) | $2,000,000 |
| CM Fee (7.4%) | $148,000 |
| General Conditions | $451,311 |
| Total Construction | $2,599,311 |
| Preconstruction (2) | $25,000 |
| **Total CM Contract (3)** | **$624,311** |

(1) Project budget is the estimated final cost of construction (prime contracts)
(2) Preconstruction includes CM Multi-Prime bidding services
(3) Total CM Contract = CM Fee, General Conditions and Preconstruction

| Preconstruction Breakdown | Hours | Rate | Total |
|---|---|---|---|
| Development of up-front bidding documents | 40 | $145 | $5,800 |
| Scope development | 100 | $145 | $14,500 |
| Bidding and Bid Evaluation Support | 25 | $145 | $3,625 |
| Meetings | 7.41 | $145 | $1,075 |
| **Total** | **173** | **$145** | **$25,000** |

Tilden-Coil CONSTRUCTORS™
*Building with Integrity Since 1938*

Original: 06/02/17
Update: 06/02/17
Printed on: 08/21/17

## GENERAL CONDITIONS ESTIMATE

*Anticipated Construction Start date is October 2017.

| | | Const. | Closeout | Total |
|---|---|---|---|---|
| Nuview Library | Days | 365 | 30 | 395 |
| County of Riverside, EDA | Weeks | 43 | 9 | 52 |
| | Months | 10 | 2 | 12 |

| Description | Qty | Unit | Unit Cost | Total | General Conditions | Owner Expense | Direct Cost of the Work |
|---|---|---|---|---|---|---|---|
| **Construction Supervision** | | | | | | | |
| Project Executive | 1 | wk | $ 5,634 | $ 5,634 | X | | |
| Sr. Project Manager | | wk | $ 4,975 | $ - | | | |
| Project Manager (1/4) | 11 | wk | $ 4,542 | $ 49,204 | X | | |
| Assistant Project Manager | | wk | $ 4,326 | $ - | | | |
| Superintendent | | wk | $ 4,629 | $ - | | | |
| Area/Assistant Superintendent | 43 | wk | $ 4,326 | $ 186,018 | X | | |
| Project Engineer (1/2) | 22 | wk | $ 3,461 | $ 74,978 | X | | |
| Scheduler | | wk | $ 5,191 | $ - | | | |
| BIM Manager | | wk | $ 5,191 | $ - | | | |
| QA/QC Coordinator | | wk | $ 4,326 | $ - | | | |
| Safety Officer | 1.0 | wk | $ 4,326 | $ 4,326 | X | | |
| Project Administrative Assistant (1/4) | 11 | wk | $ 2,596 | $ 28,117 | X | | |
| Project Engineer Intern | | wk | $ 2,596 | $ - | | | |
| Field Labor | | wk | $ 3,028 | $ - | | | X |
| **Post-Construction / Closeout Labor & Expenses** | | | | | | | |
| Project Executive | | wk | $ 5,634 | $ - | | | |
| Sr. Project Manager | | wk | $ 4,975 | $ - | | | |
| Project Manager (1/4) | 2 | wk | $ 4,542 | $ 9,841 | X | | |
| Superintendent | | wk | $ 4,629 | $ - | | | |
| Project Engineer (1/2) | 4 | wk | $ 3,461 | $ 14,996 | X | | |
| Project Administrative Assistant (1/2) | 4 | wk | $ 2,596 | $ 11,247 | X | | |
| Project Engineer Intern | | wk | $ 2,596 | $ - | | | |
| Field Labor | | wk | $ 3,028 | $ - | | | |
| LEED Certification Submittals | | wk | $ 3,461 | $ - | | | |
| Owner Training | | wk | $ 3,461 | $ - | | | |
| Post-Occupancy Maintenance | | wk | $ 4,629 | $ - | | X | |
| Warranty Labor | | wk | $ 3,028 | $ - | | | |
| **Construction Materials/Expenses** | | | | | | | |
| **Site Management** | | | | | | | |
| Recycling/Trash Dumpster Removal / Haulin | 8 | each | $ 600 | $ 4,800 | X | | X |
| Final Clean Up | | sf | | $ - | | | X |
| Safety Measures | 1 | ls | $ 1,500 | $ 1,500 | X | | |
| Safety Equipment | | | | $ - | | | X |
| Fire Prevention Equipment (Fire Extinguishe | 1 | LS | $ 500 | $ 500 | X | | |
| Traffic Control / Signage | | | | $ - | | | X |
| Dust Control | | | | $ - | | | X |
| Construction Water | | mo | | $ - | | X | |
| Hydrant Meters | | mo | $ 350 | $ - | | | X |
| SWPPP Implementation | | | | $ - | | | X |
| QSP Owner Reporting (weekly/quarterly/annual) | | | | $ - | X | | |
| QSD | | | | $ - | | X | |
| Weather Protection | 1 | LS | $ 2,500 | $ 2,500 | X | | |

Tilden-Coil CONSTRUCTORS™
*Building with Integrity Since 1938*

Original: 06/02/17
Update: 06/02/17
Printed on: 08/21/17

## GENERAL CONDITIONS ESTIMATE

*Anticipated Construction Start date is October 2017.

| | | Const. | Closeout | Total |
|---|---|---|---|---|
| **Nuview Library** | **Days** | 365 | 30 | 395 |
| **County of Riverside, EDA** | **Weeks** | 43 | 9 | 52 |
| | **Months** | 10 | 2 | 12 |

| Description | Qty | Unit | Unit Cost | Total | General Conditions | Owner Expense | Direct Cost of the Work |
|---|---|---|---|---|---|---|---|
| Temporary Heating | | | | $ - | | | X |
| Caretaker/Security | | | | $ - | | X | |
| Temporary Fencing & gates | 1000 | lf | $ 7.50 | $ 7,500 | X | | |
| K-rail | | | | $ - | | | |
| Parking | | | | $ - | | | |
| Vandalism/Graffiti Repair | | | | $ - | | | |
| **Temporary Facilities & Storage** | | | | | | | |
| Office Trailer Rental & Expenses | 12 | mo | $ 350 | $ 4,200 | X | | |
| Office Trailer Mobilization & Set up & tear do | 2 | ea | $ 1,500 | $ 3,000 | X | | |
| Office Trailer Alarm (includes commissioning) | | mo | $ 50 | $ - | | | |
| Storage Bins | 10 | mo | $ 150 | $ 1,500 | X | | |
| Project Signs | 1 | ea | $ 1,000 | $ 1,000 | X | | |
| **Temporary Utilities & Services** | | | | | | | |
| Temp Power Poles & Connection (Tie Into E | 1 | ls | $ 5,000 | $ 5,000 | X | | X |
| Monthly Power (Tie Into Existing) | | mo | | $ - | | X | |
| Toilets / Hand Wash | 10 | mo | $ 750 | $ 7,500 | X | | |
| Temp Lighting | | | | $ - | | | X |
| Extend Temp Utilities | | | | $ - | | X | |
| **Equipment & Fuel** | | | | | | | |
| Management Fuel | 39 | wk | $ 100 | $ 3,900 | X | | |
| Supervision Fuel | 43 | wk | $ 100 | $ 4,300 | X | | |
| Equipment Fuel | | | | $ - | | | X |
| Small Tools/Equipment Repair | 10 | MO | $ 250 | $ 2,500 | X | | X |
| Equipment Rental | | | | $ - | | | X |
| On Site Transportation | | | | | | | X |
| **Specialty Services** | | | | | | | |
| Blueprints/Plans (Printing) | 1 | ls | $ 750 | $ 750 | | X | |
| Blueprints/Plans (Electronic Conversion/Software) | | | | | | X | |
| Photos/Video | | | | $ - | | | |
| Web Camera | | | | $ - | | | |
| Surveying | | | | $ - | | | X |
| C.P.M. Schedule | | | | $ - | X | | |
| Material Testing | | | | $ - | | X | |
| Special Inspections | | | | $ - | | X | |
| Soils Testing | | | | $ - | | X | |
| Electronic File Archiving | | | | $ - | X | | |
| **Communication Services** | | | | | | | |
| Project Telephones / Internet | 12 | mo | $ 350 | $ 4,200 | X | | |
| Cellular Phones | 12 | mo | $ 150 | $ 1,800 | X | | |
| Mobile/In Field Computing (tablets) | | | | $ - | | | |
| Project Management Software (Prolog) | | | | $ - | | | |
| Systems Installation/Network Config. (Trailer) | | | | $ - | | | |

Tilden-Coil CONSTRUCTORS™
*Building with Integrity Since 1938*

Original: 06/02/17
Update: 06/02/17
Printed on: 08/21/17

## GENERAL CONDITIONS ESTIMATE

*Anticipated Construction Start date is October 2017.

| | | Const. | Closeout | Total |
|---|---|---|---|---|
| **Nuview Library** | **Days** | 365 | 30 | 395 |
| **County of Riverside, EDA** | **Weeks** | 43 | 9 | 52 |
| | **Months** | 10 | 2 | 12 |

| Description | Qty | Unit | Unit Cost | Total | General Conditions | Owner Expense | Direct Cost of the Work |
|---|---|---|---|---|---|---|---|
| **Office Equipment** | | | | | | | |
| Office Equipment (Computers, Printers, Fax, | 10 | mo | $ 550 | $ 5,500 | X | | |
| Office Copier | | | | $ - | X | | |
| Office Furnishings | | | | $ - | X | | |
| Office Supplies | 10 | mo | $ 250 | $ 2,500 | X | | |
| Office Cleaning | | | | $ - | X | | |
| Drinking Water | 10 | mo | $ 50 | $ 500 | X | | |
| Postage/Shipping | 10 | mo | $ 150 | $ 1,500 | X | | |
| **Travel Expenses** | | | | | | | |
| Meetings | | | | $ - | | | |
| Promotion Expenses | | | | $ - | | | |
| Lodging | | | | $ - | | | |
| Meals | | | | $ - | | | |
| **Soft Costs** | | | | | | | |
| Owner Purchases | | | | $ - | | | |
| CM Insurance Expense | | | | | | | |
| Permits/Fees/Licenses | 1 | LS | $ 500 | $ 500 | X | | |

**Total General Conditions Estimate** $ 451,311

# BID AND CONTRACT DOCUMENTS

## FOR

## BID No. FM08190007119

## Nuview Library Replacement Project
## 29990 Lakeview Ave., Nuevo, CA 92567

July 31st, 2017

COUNTY OF RIVERSIDE
EDA
ECONOMIC DEVELOPMENT AGENCY

## 3403 10th St – 4th Floor
## Riverside, CA 92501

FORM APPROVED COUNTY COUNSEL
BY: Marsha L. Victor 8/30/17
MARSHA L. VICTOR DATE

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## NOTICE TO BIDDERS

The **County of Riverside** ("County") will receive sealed bids for the **Construction Management - Multi-Prime Bid No. FM08190007119 – Nuview Library Replacement Project**

Larry D. Smith Correctional Facility – Laundry Facility Expansion no later than **2:00 PM** on **Thursday, October 26th$^{th}$, 2017** (the "Bid Deadline")

at **Clerk of the Board located on the 1$^{st}$ Floor of the County Administrative Center, 4080 Lemon Street, Riverside, CA 92501.** The Project consists of Construction of one (1) new +/- 3,800 sft single story building wood framed building with site improvements as further described in the bid and contract documents ("County Documents"). The pre-qualified Bidders shall review the County Documents for more complete information regarding the Project and submission of bids. The architect's/engineer's construction cost estimate for this Project, including alternates, is **$2,000,000.**

Bid Documents are available via Smartbid by contacting Tilden-Coil Constructors at 951-684-5901. Bidders shall submit all documents for bidding as provided for in the Instruction to Bidders. **Bids will only be accepted from bidders who have previously pre-qualified with the County of Riverside. Bidders viewing plans online are responsible for contacting Amanda Apat at Tilden-Coil Constructors (951) 684-5901 and requesting to be included on the Plan holders List.** Bid sets are available for viewing in the Construction Manager's office. **Bidders are responsible for confirmation that they have viewed all addenda prior to the bid deadline and will be required to acknowledge addenda on their bid form.**

A **non-mandatory** pre-bid meeting and job walk for prime contractors will be held on

**Wednesday, September 20$^{th}$, 2017** at **10:00 AM**

at **29990 Lakeview Ave., Nuevo, CA 92567.** Though not mandatory it is highly encouraged that the following trades attend: **All Trades** (Due to access into the facility during construction protocol). The deadline to submit a request for information is **October 6, 2017**. RFI's may be submitted to mgarcia@tilden-coil.com.

Only Pre-qualified contractors are allowed to bid. Bids must be submitted to the County on the County's bid forms. **All bids must be addressed, sealed in an envelope, and received by the County no later than the Bid Deadline**. All bids will be publicly opened immediately after the Bid Deadline. Bids received after the Bid Deadline shall be rejected. County reserves the right to reject any or all bids and to waive any informality or irregularity in any bid received.

Bids shall be valid for **ninety (90) days** after the Bid Deadline. Bids must be accompanied by cash, a certified or cashier's check, or a bid bond in favor of the County in an amount not less than ten percent (10%) of the submitted total bid price. The successful bidder will be required to furnish a performance bond and a payment bond, each in the amount of one hundred percent (100%) of the total bid price in the manner described in the Contract Documents. Bidders shall comply with California Public Contract Code Section 4108 with respect to subcontractor bond requirements.

Bidders shall possess one or more of the following California Contractor's license(s) at the time of the bid opening in order to perform the work:

| Category # | Description | License |
|---|---|---|
| 01 | Site Demo, Earthwork, and Grading | A |
| 02 | Concrete (Building and Site) | C8 |
| 03 | Rough Carpentry | B |
| 04 | Roofing and Sheet Metal | C39 |
| 05 | Lath & Plaster and Drywall | C9 or C35 |
| 06 | Painting | C33 |
| 07 | Miscellaneous Specialties/General Construction | B |
| 08 | Fire Protection | C16 |
| 09 | Site Utilities and Plumbing | C36 |
| 10 | HVAC | C20 |
| 11 | Electrical and Low Voltage (Site and Building) | C10 |

Contractors wishing to bid on select trades **must** have been previously pre-qualified by the County prior to release of this Notice. Subcontractors must possess the appropriate licenses for each specialty subcontracted.

**Bid Form**. If Alternates are included in the Bidding Documents, then a Bid amount for each and every such Alternate shall be included in the spaces provided in the Bid Form for that purpose. If the Bidder determines that the Alternate does not affect the amount of its Base Bid, then the Bidder shall enter "No Change" in the Bid Form.

**Basis for Award**. Where the Bidding Documents include Allowances; the Lowest Bid Price is the Total Bid Amount identified on the Bid Form and shall include the Base Bid plus all Allowances. In the event of Alternate Bids, Alternate Bids shall not be included in the Total Bid Amount. If applicable the Alternate Bids shall be listed separately on the spaces provided on the Bid Form for Alternate Bids.

This Project is a public work for purposes of the California Labor Code, which requires payment of prevailing wages. County has obtained the general prevailing rates, which will be on file with the County's Construction Manager and will be available to any interested party.

A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in the Labor Code, unless registered and qualified to perform public work pursuant to Labor Code section 1725.5.

The contractor and all subcontractors shall furnish certified payroll records as required pursuant Labor Code section 1776 directly to the Labor Commissioner in accordance with Labor Code section 1771.4 on at least on a monthly basis (or more frequently if required by the County or the Labor Commissioner) and in a format prescribed by the Labor Commissioner. Monitoring and enforcement of the prevailing wage laws and related requirements will be performed by the Labor Commissioner/Department of Labor Standards Enforcement (DLSE), and by the County.

**COUNTY OF RIVERSIDE**

By: Eric Sydow, Economic Development Agency, and County of Riverside

Published: Nuview Library Replacement Project – 9/13/17 and 9/20/17.

# INSTRUCTIONS TO BIDDERS

Bidders shall follow the instructions in this document, and shall submit all documents, forms, and information required for consideration of a Bid.

County of Riverside ("County") will evaluate information submitted by the apparent low bidder and, if incomplete or unsatisfactory to County, Bidder's bid may be rejected at the sole discretion of County.

1. Bids are requested for a prime construction contract, or work described in general, for the following project ("Project"):

   **Bid No. FM08190007119 – Nuview Library Replacement Project**

2. County will receive sealed Bids from bidders as stipulated in the Notice to Bidders.

3. Bidders must submit Bids on the Bid Form and all other required County forms. Bids not submitted on the County's required forms shall be deemed non-responsive and shall not be considered. Additional sheets required to fully respond to requested information are permissible.

4. Bidders must supply all information required by each Bid Document. Bids must be full and complete. County reserves the right in its sole discretion to reject any Bid as non-responsive as a result of any error or omission in the Bid. Bidders must complete and submit all of the following documents with the Bid Form in the following order:
   a. 00 41 13 Bid Form
   b. 00 43 13 Bid Bond on the County's form or other security
   c. 00 43 36 Designated Subcontractor's List
   d. 00 45 01 Site-Visit Certification, if a site visit was required
   e. 00 45 19 Non-Collusion Declaration
   f. 00 45 46.11 Iran Contracting Act Certification
   g. 00 45 46.13 Verification of Contractor and Subcontractors' DIR Registration

5. Bidders must submit with their Bids cash, a cashier's check or a certified check payable to County, or a Bid Bond by an admitted surety insurer of not less than ten percent (10%) of amount of base Bid, plus all additive alternates. If Bidder chooses to provide a Bid Bond as security, Bidder must use the required form of corporate surety provided by County (Document 004313 Bid Bond). The Surety on Bidder's Bid Bond must be an insurer admitted in the State of California and authorized to issue surety bonds in the State of California. Bids submitted without necessary bid security will be deemed non-responsive and will not be considered.

6. If Bidder to whom the Project is awarded fails or neglects to enter into a written agreement ("Agreement") and submit required bonds, insurance certificates, and all other required documents, within **TEN (10)** calendar days after the date of the Notice of Award, County may deposit Bid Bond, cash, cashier's check, or certified check for collection, and proceeds thereof may be retained by County as liquidated damages for failure of Bidder to enter into the Agreement, in the sole discretion of County. It is agreed that calculation of damages County may suffer as a result of Bidder's failure to enter into the Agreement would be extremely difficult and impractical to determine and that the amount of the Bidder's required bid security shall be the agreed and conclusively presumed amount of damages.

7. Bidders must submit with the Bid the Designated Subcontractors List for those subcontractors who will perform any portion of Work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in excess of one half of one percent (0.5%) of total Bid. Failure to submit this list when required by law shall result in the Bid being deemed non-responsive and the Bid will not be considered.

   a. Bidder must designate the name, address, license number and trade of ALL listed Subcontractors with the Bid Proposal. The listed Subcontractors' DIR registration number and the value of their trades or portions of the work must be submitted to the County within 24 hours after the public opening and reading of the Bids if not included in the original Subcontractors listing. The failure of any Bid Proposal to include all information required by the Subcontractors List will result in rejection of the Bid Proposal for non-responsiveness. Pursuant to Labor Code section 1725.5, all subcontractors (of any tier) performing work on this Project must be properly registered with DIR.

8. If a mandatory pre-bid conference and site visit ("Site Visit") is requested as referenced in the Notice to Bidders, then Bidders must submit the Site-Visit Certification with their Bid. County will transmit to all prospective Bidders of record such Addenda as County in its discretion considers necessary in response to questions arising at the Site Visit. Oral statements shall not be relied upon and will not be binding or legally effective. Addenda issued by the County as a result of the Site Visit, if any, shall constitute the sole and exclusive record and statement of the results of the Site Visit.

9. Bidders shall submit the Non-collusion Declaration with their Bids. Bids submitted without the Non-collusion Declaration shall be deemed non-responsive and will not be considered.

10. County reserves the right to reject any Bid containing Erasures, Deletions, Inconsistent or Illegible Bids. The bid submitted must not contain any erasures, interlineations, or other corrections unless each such correction creates no inconsistency and is suitably authenticated by affixing in the margin immediately opposite the correction the signature or signatures of the person or persons signing the bid. In the event of inconsistency between words and figures in the bid price, words shall control figures. In the event that the County determines that any bid is unintelligible, inconsistent, or ambiguous, the County may reject such bid as not being responsive to the Notice Inviting Bids.

11. Bidders shall not modify the Bid Form or qualify their Bids. Bidders shall not submit to the County a scanned, re-typed, word-processed, or otherwise recreated version of the Bid Form or other County-provided document.

12. The Bidder and all Subcontractors under the Bidder shall pay all workers on all work performed pursuant to the Agreement not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the County, pursuant to sections 1770 et seq. of the California Labor Code. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Agreement, as determined by Director of the State of California Department of Industrial Relations, are available upon request at the County's principal office. Prevailing wage rates are also available on the internet at http://www.dir.ca.gov.

13. **[Reserved]**

14. In accordance with the provisions of California Public Contract Code §3300, the County requires that Bidders possess, at the time of submission of a Bid Proposal, at the time of award of a Contract for a Bid Package and at all times during the Work, the following classifications(s) of California Contractors License for each Bid Package, as set forth below. No payment shall be made for work, labor, materials or services provided under the Contract for the Work unless and until the Registrar of Contractors verifies to the County that the Bidder awarded the Contract is properly and duly licensed to perform the Work. Any Bidder not so duly and properly licensed shall be subject to all penalties imposed by law.

    Prequalification: The following Bid Categories as noted below have been pre-approved through a prequalification process as approved by the Board of Supervisors. Owner is not accepting any more prequalification for this bid.

| Category # | Description | License |
|---|---|---|
| 01 | Site Demo, Earthwork, and Grading | A |
| 02 | Concrete (Building and Site) | C8 |
| 03 | Rough Carpentry | B |
| 04 | Roofing and Sheet Metal | C39 |
| 05 | Lath & Plaster and Drywall | C9 or C35 |
| 06 | Painting | C33 |
| 07 | Miscellaneous Specialties/General Construction | B |
| 08 | Fire Protection | C16 |
| 09 | Site Utilities and Plumbing | C36 |
| 10 | HVAC | C20 |
| 11 | Electrical and Low Voltage (Site and Building) | C10 |

    Prime Contractors may contract with second tier subcontractors and/or vendors of their choice. Second tier subcontractors and/or vendors are not subject to prequalification with the County of Riverside. Only trade contractors submitting bids directly to the County of Riverside for any of the trade categories stated above are subject to the pre-qualification requirements.

15. Submission of Bid signifies careful examination of Contract Documents and complete understanding of the nature, extent, and location of Work to be performed. Bidders must complete the tasks listed below as a condition to bidding, and submission of a Bid shall constitute the Bidder's express representation to County that Bidder has fully completed the following:

a. Bidder has visited the Site, and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions and federal, state and local laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto;

b. Bidder has conducted or obtained and has understood all examinations, investigations, explorations, tests, reports, and studies that pertain to the subsurface conditions, as-built conditions, underground facilities, and all other physical conditions at or contiguous to the Site or otherwise that may affect the cost, progress, performance, or furnishing of Work, as Bidder considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time, and in accordance with the other terms and conditions of Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies, or similar information or data are or will be required by Bidder for such purposes;

c. Bidder has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents;

d. Bidder has given the County prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and the actual conditions, and the written resolution thereof by the County is acceptable to Bidder;

e. Bidder has made a complete disclosure in writing to the County of all facts bearing upon any possible interest, direct or indirect, that Bidder believes any representative of the County or other officer or employee of the County presently has or will have in the Agreement or in the performance thereof or in any portion of the profits thereof;

f. Bidder must, prior to bidding, perform the work, investigations, research, and analysis required by this document and that Bidder represented in its Bid Form and the Agreement that it performed prior to bidding. Bidder under the Agreement is charged with all information and knowledge that a reasonable bidder would ascertain from having performed this required work, investigation, research, and analysis. Bid prices must include entire cost of all work "incidental" to completion of the Work.

g. Conditions Shown on the Contract Documents: Information as to underground conditions, as-built conditions, or other conditions or obstructions, indicated in the Contract Documents, e.g., on Drawings or in Specifications, has been obtained with reasonable care, and has been recorded in good faith. However, County only warrants, and Bidder may only rely, on the accuracy of limited types of information.

(1) As to above-ground conditions or as-built conditions shown or indicated in the Contract Documents, there is no warranty, expressed or implied, or any representation express or implied, that such information is correctly shown or indicated. This information is verifiable by independent investigation and Bidder is required to make such verification as a condition to bidding. In submitting its Bid, Bidder shall rely on the results of its own independent investigation. In submitting its Bid, Bidder shall not rely on County-supplied information regarding above-ground conditions or as-built conditions.

(2) As to any subsurface condition shown or indicated in the Contract Documents, Bidder may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated. County is not responsible for the completeness of such information for bidding or construction; nor is County responsible in any way for any conclusions or opinions of Bidder drawn from such information; nor is the County responsible for subsurface conditions that are not specifically shown (for example, County is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown).

h. Conditions Shown in Reports and Drawings Supplied for Informational Purposes: Reference is made to the document entitled Geotechnical Data, and the document entitled Existing Conditions, for identification of:

(1) Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by Architect in preparing the Contract Documents; and

(2) Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that has been utilized by Architect in preparing the Contract Documents.

(3) These reports and drawings are **not** Contract Documents and, except for any "technical" data regarding subsurface conditions specifically identified in Geotechnical Data and Existing Conditions, and underground facilities data, Bidder may not in any manner rely on the information in these reports and drawings. Subject to the foregoing, Bidder must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by County.

16. Bidders may examine any available "as-built" drawings of previous work by giving County reasonable advance notice. County will not be responsible for accuracy of "as-built" drawings. The document entitled Existing Conditions applies to all supplied "as-built" drawings.

17. All questions about the meaning or intent of the Contract Documents are to be directed in writing through the Construction Manager. Interpretations or clarifications considered necessary by the County in response to such questions will be issued in writing by Addenda emailed, faxed, mailed, or delivered to all parties recorded by the County as having received the Contract Documents. Questions received less than **SEVEN (7)** calendar days prior to the date for opening Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

18. Addenda may also be issued to modify other parts of the Contract Documents as deemed advisable by the County.

19. Each Bidder must acknowledge each Addendum in its Bid Form by number or its Bid shall be considered non-responsive. Each Addendum shall be part of the Contract Documents. A complete listing of Addenda may be secured from the County.

20. Bids shall be based on products and systems specified in Contract Documents or listed by name in Addenda. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Bidder may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified. The County is not responsible and/or liable in any way for a Bidder's damages and/or claims related, in any way, to that Bidder's basing its bid on any requested substitution that the County has not approved. Bidders and materials suppliers who submit requests for substitutions prior to the award of the Project must do so in writing and in compliance with Public Contract Code section 3400. All requests must comply with the following:

    a. County must receive any request for substitution a minimum of **TEN (10)** calendar days prior to bid opening.

    b. Requests for substitutions shall contain sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the Specifications. Insufficient information shall be grounds for rejection of substitution.

    c. Approved substitutions shall be listed in Addenda. County reserves the right not to act upon submittals of substitutions until after bid opening.

    d. Substitutions may be requested after Contract has been awarded only if indicated in and in accordance with requirements specified in the Special Conditions and the Specifications.

21. All Bids must be sealed, and marked with name and address of the Bidder and the Project Number, Bid number, Bid package, and time of bid opening. Bids will be received as indicated in the Notice to Bidders.

    a. Mark envelopes with the name of the Project.

    b. Bids must be submitted to the **Clerk of the Board located on the 1st Floor of the County Administrative Center, 4080 Lemon Street, Riverside, CA 92501** by date and time shown in the Notice to Bidders.

    c. Bids must contain all documents as required herein.

22. Bids will be opened at or after the time indicated for receipt of bids.

23. The Agreement may include alternates. Alternates are defined as alternate products, materials, equipment, systems, methods, or major elements of the construction that may, at the County's option and under terms established in the Agreement and pursuant to section 20103.8 of the Public Contract Code, be selected for the Work.

24. The County shall award the Project, if it awards it at all, to the lowest responsive responsible bidder based on the criteria as indicated in the Notice to Bidders. In the event two or more responsible bidders submit identical bids, the County shall select the Bidder to whom to award the Project by lot.

25. Time for Completion: County may issue a Notice to Proceed within **THREE (3)** months from the date of the Notice of Award. Once Bidder has received the Notice to Proceed, Bidder shall complete the Work within the period of time indicated in the Contract Documents.

a. In the event that the County desires to postpone issuing the Notice to Proceed beyond this three (3) month period, it is expressly understood that with reasonable notice to the Bidder, the County may postpone issuing the Notice to Proceed.

b. It is further expressly understood by Bidder that Bidder shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed beyond a three (3) month period. If the Bidder believes that a postponement of issuance of the Notice to Proceed will cause a hardship to the Bidder, the Bidder may terminate the Agreement. Bidder's termination due to a postponement beyond this three (3) month period shall be by written notice to County within **TEN (10)** calendar days after receipt by Bidder of County's notice of postponement.

c. It is further understood by the Bidder that in the event that Bidder terminates the Agreement as a result of postponement by the County, the County shall only be obligated to pay Bidder for the Work that Bidder had performed at the time of notification of postponement and which the County had in writing authorized Bidder to perform prior to issuing a Notice to Proceed.

d. Should the Bidder terminate the Agreement as a result of a notice of postponement, County shall have the authority to award the Agreement to the next lowest responsive responsible bidder.

26. The Bidder to whom the Project is awarded shall execute and submit the following documents by 5:00 p.m. of the **TENTH (10TH)** calendar day following the date of the Notice of Award. Failure to properly and timely submit these documents entitles County to reject the bid as non-responsive.

a. Agreement: To be executed by successful Bidder. Submit four (4) copies, each bearing an original signature.

b. Escrow of Bid Documentation: This must include all required documentation. See the document Escrow of Bid Documentation for more information.

c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.

d. Payment Bond (100%) (Bidder's Labor and Material Bond): On the form provided in the Contract Documents and fully executed as indicated on the form.

e. Insurance Certificates and Endorsements as required.

f. Workers' Compensation Certification.

g. Prevailing Wage and Related Labor Requirements Certification. Disabled Veterans' Business Enterprise Participation Certification.

h. Drug-Free Workplace Certification.

**i. [RESERVED]**

j. Hazardous Materials Certification.

**k. [RESERVED]**

l. Imported Materials Certification.

27. Bid Protests: Any bid protest by any bidder regarding any other bid received must be submitted in writing to the County's Project Manager before 4:30 p.m. within three (3) business days following the Notice of Intent to Award, provided that each and all of the following are complied with:

a. Only a bidder who has actually submitted a bid, and who could be awarded a contract if the bid protest is upheld, is eligible to submit a bid protest. Subcontractors are not eligible to submit bid protests. A bidder may not rely on the bid protest submitted by another bidder.

b. The written bid protest shall set forth, in detail, all grounds for the bid protest, including, without limitation, all facts, supporting documentation, legal authorities, and arguments in support of the grounds for the bid protest. Any matters not set forth in the written bid protest shall be deemed waived. All factual contentions must be supported by competent, admissible and credible evidence. Any bid protest not conforming with the foregoing shall be rejected by the County as invalid. Materials or information submitted after the bid protest deadline will not be considered.

c. The bidder's protest must refer to the specific portions of all documents that form the basis for the protest.

d. The bidder's protest must include the legal name, address, and license number of the company submitting the bid protest, as well as the telephone number, fax number, and email address of the person representing the protesting party.

e. The party filing the protest must concurrently transmit a copy of the protest and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the bidder's protest. Such parties shall include all other bidders or proposers who appear to have a reasonable prospect of receiving an award of contract depending upon the outcome of the protest.

f. Provided that a bid protest is filed in strict conformity with the foregoing, the Project Manager for the County or designee shall review and evaluate the basis of the bid protest. The Project Manager or designee shall provide the bidder submitting the bid protest with a written statement concurring with or denying the bid protest.

g. A bidder may appeal the decision of the Project Manager for the County or designee to the Project Manager for the County within three (3) business days of notification thereof. The bidder's appeal shall conform to the requirements as noted in Items a through e above. Any appeal not conforming with the foregoing shall be rejected by the County as invalid.

h. Provided that a bidder's appeal to the County's decision is filed in strict conformity with the foregoing, the County shall review and evaluate the basis for the bidder's appeal. The County shall provide the bidder submitting the appeal a written statement concurring with or rescinding the County's determination of the bidder's bid protest, which shall be a final determination of the County.

i. The procedure and time limits set forth in this procedure are mandatory and are each bidder's sole and exclusive remedy in the event of bid protest. Failure to comply with these procedures shall constitute a waiver of any right to further pursue a bid protest, including filing a Government Code claim or legal proceedings.

j. The rendition of written statements by the County to adopt, modify, or reject the disposition of the bid protest or appeals reflected in such written statements shall be the expressed conditions precedent to the County of any legal or equitable proceedings relative to the bidding process, the County's award of a contract, the County's disposition of any bid protest, or the County's decision to reject all bids. In the event that any such legal or equitable proceedings are instituted and the County is named as a party thereto, the prevailing party(ies) shall recover from the other party(ies), as costs, all attorneys' fees and costs incurred in connection with any such proceeding, including any appeal arising therefrom.

28. County reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, non-responsive, unbalanced, or conditional bids, to re-bid, and to reject the bid of any bidder if County believes that it would not be in the best interest of the County to make an award to that bidder, whether because the bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by County. County also reserves the right to waive inconsequential deviations not involving price, time, or changes in the Work. For purposes of this paragraph, an "unbalanced bid" is one having nominal prices for some work items and/or enhanced prices for other work items.

29. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of words over figures and/or numerals.

30. Prior to the award of the Project, County reserves the right to consider the responsibility of the Bidder. County may conduct investigations as County deems necessary to assist in the evaluation of any bid and to establish the responsibility, including, without limitation, qualifications and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to County's satisfaction within the prescribed time.

**31. [RESERVED]**

32. DIR Registration of Contractor and Subcontractors. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in the Labor Code, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

33. This Project is a public works project as defined in Labor Code section 1720. Each contractor bidding on this Project and all subcontractors (of any tier) performing any portion of the Work must comply with the Labor Code sections 1725.5 and 1771.1 and must be properly and currently registered with the California Department of Industrial Relations ("DIR") and qualified to perform public works pursuant to Labor Code section 1725.5 throughout the duration of the Project. For more information and up to date requirements, contractors are recommended to periodically review the DIR's website at www.dir.ca.gov. Contractor shall be solely responsible for ensuring compliance with Labor Code section 1725.5 as well as any requirements implemented by DIR applicable to its services or its subcontractors throughout the term of the Agreement and in no event shall contractor be granted increased payment from the County or any time extensions to complete the Project as a result of contractor's efforts to maintain compliance with the Labor Code or any requirements implemented by the DIR. Failure to comply with these requirements shall be deemed a material breach of this Agreement and grounds for termination for cause. The contractor and all subcontractors shall furnish certified payroll records as required pursuant to Labor Code section 1776 directly to the Labor Commissioner in accordance with Labor Code section 1771.4 on at least a monthly basis (or more frequently if required by the County or the Labor Commissioner) and in a format prescribed by the Labor Commissioner. The County reserves the right to withhold contract payments if the County is notified, or determines as the result of its own investigation, that contractor is in violation of any of the requirements set forth in Labor Code section 1720 et seq. at no penalty or cost to the County. Monitoring and enforcement of the prevailing wage laws and related requirements will be performed by the Labor Commissioner/ Department of Labor Standards Enforcement (DLSE), and by the County.

34. Bidders shall submit the Verification of Contractor and Subcontractors' DIR Registration Form with their Bids. Bidder's submitting Bids without this Form shall be granted a 24 hour grace period to provide proof of DIR Registration. Failure to provide the DIR Registration Verification within the 24 hour grace period shall deem their bid as non-responsive.

END OF DOCUMENT

## SECTION 00 30 00

## PROJECT DIRECTORY

| | |
|---|---|
| OWNER REPRESENTATIVE: | **Riverside County Economic Development Agency**<br>Contact: Erik Sydow<br>3403 Tenth Street, 4th Floor<br>Riverside, CA 92507<br>951/955-8274 P<br>ESYDOW@rivcoeda.org |
| ARCHITECT: | **Holt Architects, Inc.**<br>Contact: Matt Acton<br>70225 Highway 111, Suite D<br>Rancho Mirage, CA 92270<br>760/328.5280 P<br>760/328.5281 F<br>macton@holtarchitects.net |
| STRUCTURAL ENGINEER: | **Wiseman + Rohy**<br>Contact: Steve Rohy<br>9915 Mira Mesa Boulevard, Suite 200<br>San Diego, CA 92131<br>858/536-5166 P<br>srohy@wrengineers.com |
| MECHANICAL ENGINEER: | **Scott Design & Title 24, Inc.**<br>Contact: Tim Scott<br>77085 Michigan Drive<br>Palm Desert, CA 92211<br>760/200-4780 P<br>timscott@title24foryou.com |
| PLUMBING ENGINEER: | **Eglert Gutierrez Design**<br>Contact: Eglert Gutierrez<br>P.O. Box 11266<br>Palm Desert, CA 92255<br>760/851-7314 P<br>eglert@eglertdesign.com |
| ELECTRICAL ENGINEER: | **RASC Engineering**<br>Contact: Joe Ragowics<br>909/609-1888<br>joe@rasceng.com |
| CIVIL ENGINEER: | **W.J. McKEEVER**<br>Contact: Bill McKeever<br>900 E. Washington Street, Suite 208<br>Colton, CA 92324<br>909/825-8048<br>office@wjmckeeverinc.com |

DOCUMENT 00 31 32

# GEOTECHNICAL DATA

## 1. Summary

This document describes geotechnical data at or near the Project that is in the County's possession available for Contractor's review, and use of data resulting from various investigations. This document is **not** part of the Contract Documents. See General Conditions for definition(s) of terms used herein.

## 2. Geotechnical Reports

a. Geotechnical reports may have been prepared for and around the Site by soil investigation engineers hired by County of Riverside ("County"), and its consultants, contractors, and tenants.

b. Geotechnical reports may be inspected at the County offices or the Construction Manager's offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder's agreement to pay for such copies. These reports are **not** part of the Contract Documents.

c. The reports and drawings of physical conditions that may relate to the Project are the following:

1. Geotechnical Investigation Report (Converse Consultants Dated 3/25/16)

## 3. Use of Data

a. Geotechnical data were obtained only for use of County and its consultants, contractors, and tenants for planning and design and are **not** a part of Contract Documents.

b. Except as expressly set forth below, County does not warrant, and makes no representation regarding, the accuracy or thoroughness of any geotechnical data. Bidder represents and agrees that in submitting a Bid it is not relying on any geotechnical data supplied by County, except as specifically allowed below.

c. Under no circumstances shall County be deemed to make a warranty or representation of existing above ground conditions, as-built conditions, or other actual conditions verifiable by independent investigation. These conditions are verifiable by Contractor by the performance of its own independent investigation that Contractor should perform as a condition to bidding and Contractor must not and shall not rely on information supplied by County.

## 4. Limited Reliance Permitted on Certain Information

a. Reference is made herein for identification of:

Reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by County in preparation of the Contract Documents;

Drawings of physical conditions in or relating to existing subsurface structures (except underground facilities) that are at or contiguous to the Site and have been utilized by County in preparation of the Contract Documents.

b. Bidder may rely upon the general accuracy of the "technical data" contained in the reports and drawings identified above, but only insofar as it relates to subsurface conditions, provided Bidder has conducted the independent investigation required pursuant to Instructions to Bidders, and discrepancies are not apparent. The term "technical data" in the referenced reports and drawings shall be limited as follows:

(1) The term "technical data" shall include actual reported depths, reported quantities, reported soil types, reported soil conditions, and reported material, equipment or structures that were encountered during subsurface exploration. The term "technical data" does not include, and Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to subsurface conditions or described structures.

(2) The term "technical data" shall not include the location of underground facilities.

(3) Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. Bidder may rely upon the general accuracy of the "technical data" contained in such reports or drawings.

(4) Bidder is solely responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions, or information provided in the identified reports and drawings.

**5. Investigations/Site Examinations**

a. Before submitting a Bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of Contract Documents.

b. On request, County will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a Bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies. Such investigations and Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract Documents, including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such work, and County's prior approval.

END OF DOCUMENT

# UPDATED GEOTECHNICAL INVESTIGATION REPORT

Proposed Nuview Library
29990 Lakeview Avenue
Unincorporated Nuevo Area,Riverisde County, California
Converse Project No. 06-81-245-03

March 25, 2016

**Prepared For:**

County of Riverside
Economic Development Agency (EDA)
3403 10th Street, 4th Floor
Riverside, CA 92501

**Prepared By:**

**Converse Consultants**
10391 Corporate Drive
Redlands, California 92374

**Converse Consultants**
Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

March 25, 2016

Mr. Eric Sydow
Facilities Project Manager III
Project Management Office
County of Riverside Economic Development Agency (EDA)
3403 10th Street, 4th Floor
Riverside, CA 92501

Subject: **UPDATED GEOTECHNICAL INVESTIGATION REPORT**
Proposed Nuview Library
29990 Lakeview Avenue
Unincorporated Nuevo Area, Riverside County, California
Converse Project No. 06-81-245-03

Dear Mr. Sydow:

Enclosed are the findings of our updated geotechnical investigation performed for the proposed construction of the Nuview Library located at 29990 Lakeview Avenue in the unincorporated Nuevo area, Riverside County, California. This report updates the previous geotechnical investigation report prepared for RHA Landscape Architects dated November 15, 2007. Our services were provided in accordance with our proposal dated February 18, 2016 and your purchase order number FMARC-0000063566 dated February 25, 2016.

Based on our investigation, we conclude that the project site is suitable for the proposed library expansion, provided the findings and conclusions presented in this report are incorporated in the planning, design, and construction of the project.

We appreciate this opportunity to be of service to County of Riverside Economic Development Agency. If you should have any questions regarding this report, please feel free to contact the undersigned at (909) 796-0544.

**CONVERSE CONSULTANTS**

Hashmi S. E. Quazi, Ph.D., P.E., G. E.
Regional Manager/Principal Engineer

Dist: 4/Addressee
JB/SM/HSQ/kvg

10391 Corporate Drive, Redlands CA 92374
Telephone: (909) 796-0544 ♦ Facsimile: (909) 796-7675 ♦ www.converseconsultants.com

## PROFESSIONAL CERTIFICATION

This report has been prepared by the individuals whose seals and signatures appear hereon.

The findings, recommendations, specifications or professional opinions contained in this report were prepared in accordance with generally accepted professional engineering and engineering geologic principles and practice in this area of Southern California. There is no warranty, either expressed or implied.

Jordan Roper, P.E.
Project Engineer

REGISTERED PROFESSIONAL ENGINEER
JORDAN GREGORY ROPER
C 84175
CIVIL
STATE OF CALIFORNIA

Scot Mathis, C.E.G. , P.G.
Senior Geologist

REGISTERED GEOLOGIST
SCOT A. MATHIS
No. 2307
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

# EXECUTIVE SUMMARY

The following is a summary of our geotechnical investigation, conclusions and recommendations, as presented in the body of this report. Please refer to the appropriate sections of the report for complete conclusions and recommendations. In the event of a conflict between this summary and the report, or an omission in the summary, the report should prevail.

- The Nuview Library site is located at 29990 Lakeview Avenue in the unincorporated Nuevo area, Riverside County, California. The project will include demolition of the existing library building, construction of a new 3,700 square foot library building, sewage system, and a small storm water management basin.

- The Nuview Library is located at the northwest corner of an 8.96-acre site previously planned for development as a park. Converse prepared a geotechnical investigation report (Converse, 2007) for the park development. This report updates and expands the previous report to address the currently planned library.

- Our scope of work included site reconnaissance, field exploration, percolation testing, laboratory testing, engineering analysis, and preparation of this report.

- Ten (10) exploratory borings (BH-1 through BH-10) were drilled within the project site on September 11 and 13, 2007 as part of the park project. The borings were advanced using a truck-mounted drill rig equipped with eight-inch diameter hollow-stem augers for soil sampling. The depth of the borings ranged from 11.5 to 51.5 feet below existing ground surface (bgs).

- Two (2) additional exploratory borings (BH-11 and BH-12) were drilled within the project site on March 2, 2016. The borings were advanced using a truck-mounted drill rig equipped with eight-inch diameter hollow-stem augers for soil sampling. The depth of the borings were 5.0 and 50.0 feet below existing ground surface (bgs).

- The site soils consisted of alluvial deposits to the maximum depth explored of 51.5 feet below existing ground surface (bgs). Approximately 7.5 feet of fill was encountered in boring BH-12. This fill was likely placed during grading operations for the existing Nuview Library building pad. The alluvial deposits and fill generally consisted of layers of primarily silty sand and sand with trace clay.

- Groundwater was not encountered in any of the borings drilled within the project site to the maximum depth of 51.5 feet explored. Based on available information, the depth to the groundwater at the site vicinity is deeper than 100 feet bgs. Groundwater is not expected to be encountered during construction of the

proposed improvements. Shallow perched groundwater may be present locally, particularly following precipitation or irrigation events.

- Based on the results of our field exploration the subsurface soils at the site of the proposed improvements are anticipated to generally be excavatable with conventional heavy-duty excavation equipment.

- The estimated infiltration rate of the soils at the stormwater basin is 3.0 inches per hour. The estimated seepage pit percolation rate is 1.37 gallons per square foot per day.

- Laboratory testing was performed to determine the physical characteristics and engineering properties of the subsurface soils. Results of *in-situ* moisture and dry density tests are presented on the Logs of Borings in Appendix A, *Field Exploration.* Tests results are included in Appendix B, *Laboratory Testing Program.*

- The site is not located within a currently designated State of California or Riverside County designated Earthquake Fault Zone (CGS, 2007; Riverside County, 2016). There are no known active faults projecting toward or extending across the project site. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

- Seismic parameters based on 2013 California Building Code and site coordinates 33.8239 north and 117.1289 west are provided in Table No. 2, *CBC 2013 Seismic Parameters.*

- The potential hazards at the site from secondary effects of seismic activity including surface fault rupture, soil liquefaction, landslides, lateral spreading, tsunamis, seiches, and earthquake-induced flooding are considered low. The site has the potential for up to 6.2 inches of dynamic dry settlement and up to 2.7 inches of differential settlement over a distance of 40 linear feet.

- The site soils correspond to American Concrete Institute (ACI) exposure category S0 for sulfate and C1 for chlorides. The tested site soils range from mildly to severely corrosive to ferrous metals in contact with the soil. A qualified corrosion consultant should provide appropriate corrosion mitigation measures for ferrous metals in contact with the site soils.

- The site soils have Very Low expansion potential and Slight to Moderate collapse potential.

- Structure footings should be over-excavated to at least 36 inches below the ground surface, or 24 inches below bottom of footings, whichever is deeper.

Deeper removal will be needed if firm soil conditions are not exposed on the excavation bottom. The lateral limits of the over-excavation should extend at least 5 feet beyond the building footprint areas, where space is available.

- Footings placed at a depth of 18 inches below lowest adjacent grade may be designed based on an allowable net bearing capacity of 2,500 pounds per square foot (psf).

The site is suitable from a geotechnical standpoint for the proposed development, provided that the recommendations presented in this report are incorporated into the design and construction of the project.

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## APPENDICES

# 1.0 INTRODUCTION

This report presents the results of the geotechnical investigation update performed for the proposed construction of the Nuview Library located at 29990 Lakeview Avenue in the unincorporated Nuevo, Riverside County, California. The location of the site is shown in Figure No. 1, *Approximate Site Location Map.*

The purposes of this investigation were to determine the nature and engineering properties of the subsurface soils, provide earthwork recommendations, provide geotechnical recommendations for design and construction, and provide infiltration rates for the design of an onsite septic system and retention basin.

This report is prepared for the project described herein and is intended for use solely by the County of Riverside Economic Development Agency (RCEDA) and authorized agents. It should not be used as a bidding document but may be made available to the potential contractors for information on factual data only. For bidding purposes, the contractors should be responsible for making their own interpretation of the data contained in this report.

# 2.0 PROJECT BACKGROUND AND DESCRIPTION

## *2.1 Project Background*

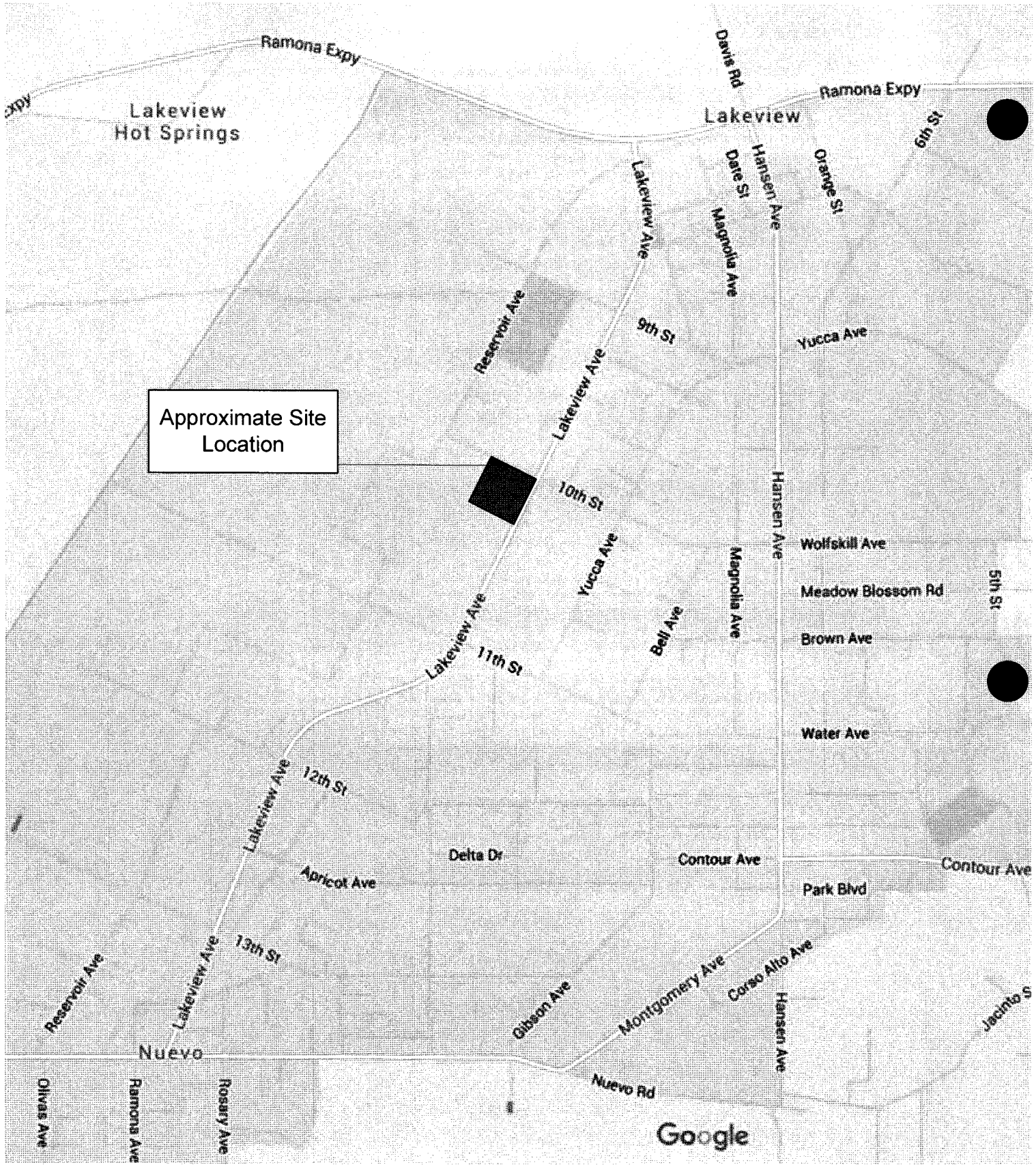
The Nuview Library is located at the northwest corner of an 8.96-acre site previously planned for development as a park. Converse Consultants was retained by RHA Landscape Architects as their geotechnical consultant for the park project. Converse prepared a Geotechnical Investigation Report dated November 15, 2007 (Converse, 2007) for the park development. As part of our scope of work we drilled 10 borings ranging in depths from 11.5 to 51.5 feet below existing ground surface, conducted appropriate laboratory testing and engineering analyses.

Subsequently, Mr. Dominick Lombardi with RCEDA retained Converse Consultants to prepare a percolation test report for design of an on-site sewage disposal system. Four percolation test pits were excavated in the southeast corner of the proposed park site. Our report titled, "Percolation Test Report," dated November 14, 2008, was submitted to Mr. Lombardi.

We understand that RCEDA have changed their site development plan. This report updates and expands our previous report (Converse, 2007) to address the currently planned library building.

## *2.2 Project Description*

The original proposed park project included the following improvements:




# Approximate Site Location Map

Project: Proposed Nuview Library Expansion
Location: Southwest Corner of 10th Street and Lakeview Avenue, Riverside County, California
For: County of Riverside Economic Development Agency (EDA)

Project No
06-81-245-03

**Converse Consultants**

FIGURE NO.
1

- Baseball/softball diamond
- Basketball court
- Playfield/Tot lot areas
- Security lighting
- Drinking fountain
- Shade structure
- Parking
- Skate park facility
- Future community center
- Multi-purpose field within open grass area
- Benches
- Outdoor exercise stations
- Perimeter fencing
- Picnic areas
- Asphalt perimeter and walking trail
- Bollards
- Restrooms
- Future health clinic

The updated project plan for the proposed library expansion includes the following:

- Demolition of the existing 2,700 square foot library building and septic system.
- Construction of a new 3,730 square foot library building.
- Construction of an on-site sewage system southwest corner of the proposed new library building. The sewage system would consist of a seepage pit with an inlet at approximately 10 feet bgs and a bottom at approximately 50 feet bgs. The seepage pit dimensions were provided by Matt Acton, Lead Designer for Holt Architecture.
- Construction of a small storm water basin northwest of the existing driveway.

## 3.0 SITE DESCRIPTION

The approximately 1-acre existing library site is developed with an approximately 2,700 square foot library building, parking lot, sidewalks, and landscaping. The site is relatively flat with an average elevation of 1466 feet above mean sea level (AMSL). It is bounded by Lakeview Avenue to the southeast, 10$^{th}$ Street to the northeast, and vacant land to the southwest and northwest. The existing library is located at the northeast corner of the 8.96-acre site.

The remainder of the 8.96-acre site is currently vacant measuring 650 to 450 feet northwest to southeast and 620 to 300 feet northeast to southwest. The site is relatively flat and is overgrown with grass and brush. The Nuview Fire Station is located to the northwest of the site.

## 4.0 SCOPE OF WORK

The scope of this update investigation included site reconnaissance, field exploration and laboratory testing, percolation testing, analysis and interpretation of data and preparation of this report.

### *4.1 Project Set-up*

The project set-up consisted of the following tasks.

- Review of the existing documents pertaining to local/regional geology, and groundwater.
- Conducted a site reconnaissance and mark the approved field exploration locations so that drill rig access was available.
- Notified Underground Service Alert (USA) at least 48 hours prior to investigation to clear the locations of any conflict with existing underground utilities.
- Retained a drilling subcontractor.

### *4.2 Field Exploration*

Ten exploratory borings (BH-1 through BH-10) were drilled within the project site on September 11 and 13, 2007. Two additional exploratory borings (BH-11 and BH-12) were drilled within the project site on March 2, 2016 for the investigation update. The borings were advanced using a truck-mounted drill rig equipped with eight-inch diameter hollow-stem augers for soil sampling. Boring locations are shown in Figure No. 2, *Approximate Boring Location Map*. The depths of the borings ranged from 5 and 51.5 feet below existing ground surface (bgs). Each boring was visually logged by a Converse geologist and sampled at regular intervals and at changes in subsurface soils. Detailed descriptions of the field exploration and sampling program are presented in Appendix A, *Field Exploration*.

California Modified Sampler (Ring samples), Standard Penetration Test samples, and bulk soil samples were obtained for laboratory testing.

Following completion of drilling, borings BH-11 and BH-12 were set up for percolation testing and presoaked. Percolation testing was completed the following day on March 3, 2016 as described in Appendix C, *Percolation Testing and Infiltration Rate Evaluation*. Following completion of percolation testing, the pipes were removed and the boreholes were loosely filled with soil cuttings.

The surface at the boring locations may settle over time. If construction is delayed, we recommend the owner monitor the boring site and backfill any settlement or depression that might occur, or provide protection around the area of the boring locations to prevent trip and fall injuries from occurring near the area of any potential settlement. Where encountered, existing pavement thicknesses were measured at the boring locations.


N

0 100 200 300 Feet

**EXPLANATION**

| | |
|---|---|
| BH-10 | Approximate Location and Number for Borings Completed in 2007 |
| BH-12 | Approximate Location and Number for Borings Completed in 2016 |

# Approximate Boring Location Map

Project: Proposed Nuview Library Expansion
Site Location: Southwest Corner of 10th Street and Lakeview Avenue, Riverside County, California
Client: County of Riverside Economic Development Agency (EDA)

Project No
06-81-245-03

**Converse Consultants**

FIGURE NO.
**2**

### 4.3 Laboratory Testing

Representative samples of the site soils were tested in the laboratory to aid in the soils classification and to evaluate the relevant engineering properties of the site soils. The tests conducted for the original investigation included:

- *In situ* moisture contents and dry densities (ASTM Standard D2216)
- Collapse (ASTM Standard D5333)
- Expansion Index (ASTM Standard D4829)
- R-value (ASTM Standard D2844)
- Sand equivalent (ASTM Standard D2419)
- Soil corrosivity tests (Caltrans 643, 422, 417, and 532)
- Grain size distribution (ASTM Standard D422)
- Maximum dry density and optimum-moisture content relationship (ASTM Standard D1557)
- Direct shear (ASTM Standard D3080)
- Consolidation (ASTM Standard D2435)

The tests conducted for the updated investigation included:

- *In-situ* moisture contents and dry densities (ASTM Standard D2216)
- Soil corrosivity tests (Caltrans 422, 417, and 643)
- Collapse (ASTM Standard D5333)
- Grain Size Distribution (ASTM Standard D422)
- Maximum dry density and optimum-moisture content relationship (ASTM Standard D1557)

For *in-situ* moisture and dry density data, see the logs of borings in Appendix A, *Field Exploration*. For a description of the laboratory test methods and test results, see Appendix B, *Laboratory Testing Program*.

### 4.4 Analyses and Report Preparation

Data obtained from the exploratory fieldwork and laboratory-testing program were analyzed and evaluated with respect to the planned construction. This updated report was prepared to provide the findings, conclusions and recommendations developed during our study and evaluation.

## 5.0 GEOLOGIC CONDITIONS

A general description of the regional and site-specific geology is presented in this section. Also presented in this section is a description of the subsurface conditions, various materials and groundwater conditions encountered at the site during field exploration.

### *5.1 Regional Geologic Setting*

The project site is located in the Perris Valley within the Peninsular Ranges physiographic province. The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges and valleys bounded on the north by the San Bernardino and San Gabriel Mountains, on the west by the Los Angeles Basin, and on the south by the Pacific Ocean.

The province is a seismically active region characterized by a series of northwest-trending strike-slip faults. The most prominent of the nearby fault zones include the San Jacinto and Elsinore, and San Andreas Fault Zones, all of which have been known to be active during Quaternary time.

Topography within the province is generally characterized by broad alluvial valleys separated by linear mountain ranges. This northwest-trending linear fabric is created by the regional faulting within the granitic basement rock of the Southern California Batholith. Broad, linear, alluvial valleys have been formed by erosion of these principally granitic mountain ranges.

The site is within the Perris Block, a relatively stable structural block. The Perris Block is bounded on the southwest by the Elsinore fault about 10 miles from the site, on the northeast by the San Jacinto fault zone at a distance of about 13 miles, and by the Cucamonga fault, more than 15 miles to the north. The southern boundary of the block is considered to be the Murrietta Hot Springs fault, which, although it is not as large as the other three bounding faults, is considered to be active because sedimentary deposits less than 11,000 years old have been offset by the fault.

### *5.2 Local Geology*

The site is located near the center of the Perris Valley, which is underlain by older Pleistocene alluvial fan deposits, comprised of sandy erosional debris from the nearby hills, and sand, silt and clay deposited in recent geologic time by flooding of the San Jacinto River. Alluvial deposits in the area consist of relatively unconsolidated sand, silt, and clay with some gravel. Basement rock consists of igneous rocks similar to the *granitic rock exposed in the hills that are within 2 miles of the site to the west, east, and south (Morton and Miller, 2006).*

### *5.3 Flooding*

Review of National Flood Insurance Rate Maps (FEMA, 2014) indicates that the project site is within an area designated as Zone X, which is defined as, "Areas determined to be outside the 0.2% annual chance floodplain."

## *5.4 Subsurface Conditions*

The encountered subsurface conditions are discussed in the following subsections.

### 5.4.1 Subsurface Profile

The site soils consisted of alluvial deposits to the maximum depth explored of 51.5 feet below existing ground surface (bgs).

Approximately 7.5 feet of fill was encountered in boring BH-12. This fill was likely placed during grading operations for the existing Nuview Library structure. The alluvial deposits consisted of layers of unconsolidated silty sand and sand with trace clay. Based on our observations and laboratory density testing, these deposits may be Holocene in age, rather than the older Pleistocene deposits mapped at the site location.

For additional information on the subsurface conditions, see Appendix A, *Field Exploration.*

### 5.4.2 Groundwater

Groundwater was not encountered in any of the borings drilled within project site to the maximum depth of 51.5 feet explored. Based on information obtained from the Cooperative Well Measuring Program report (Watermaster Support Services, 2015), the groundwater level at the nearest well (EMWD, NMW Co. #6) was recorded at 211 feet bgs, at elevation of 1,260 feet above mean sea level (MSL) in 2015. Groundwater levels in the well have ramped from 211 to 253 feet bgs from 1990 to 2015.

The GeoTracker database (SWRCB, 2016) was reviewed for groundwater data from wells located within approximately 1-mile of the project site. Nuview Union School District (Site No. T0606500596) is located approximately 1,200 feet southwest of the project site reported groundwater at an estimated depth of greater than 100 feet bgs in 1999.

Groundwater is not expected to be encountered during construction of the proposed improvements. Shallow perched groundwater may be present locally, particularly following precipitation or irrigation events.

### 5.4.3 Subsurface Variations

Based on results of the subsurface exploration and our experience, some variations in the continuity and nature of subsurface conditions within the project site should be anticipated. Because of the uncertainties involved in the nature and depositional characteristics of the earth material, care should be exercised in interpolating or extrapolating subsurface conditions between or beyond the boring locations.

For a detailed description of the subsurface materials encountered in the exploratory borings, see the boring logs in Appendix A, *Field Exploration.*

### *5.5 Excavatability*

Based on the results of our field exploration the subsurface soils at the site of the proposed improvements are anticipated to generally be excavatable with conventional heavy-duty excavation equipment. Selection of appropriate excavation equipment should be done by an experienced earthwork contractor.

## 6.0 LABORATORY TESTING

Laboratory testing was performed to determine the physical characteristics and engineering properties of the subsurface soils. Results of *in-situ* moisture and dry density tests are presented on the Logs of Borings in Appendix A, *Field Exploration.* Tests results are included in Appendix B, *Laboratory Testing Program.* Discussions of the various test results performed for the original and update investigations are presented in the following sections.

### *6.1 Original Investigation Laboratory Testing*

- *In-situ* Moisture and Dry Density – *In-situ* dry densities and moisture content of the upper 5 feet of the soil material ranged from 103 to 125 pounds per cubic feet (pcf) and from 2 to 9 percent, respectively.
- Collapse Potential – The collapse potential under a vertical stress of 2.0 kips-per-square-foot (ksf) of five relatively undisturbed representative samples (including one from consolidation test) was tested in accordance with the ASTM Standard D5333 test method. The collapse potential ranged 0.3 to 2.1 percent; indicating "Slight" collapse potential according to ASTM Standard D5333 test method.
- Expansion Index – Two representative samples from the upper 5 feet of the site soils were tested to evaluate Expansion Potential (EI) in accordance with the ASTM Standard D4829. The values of the measured EIs were 0 and 2. These values indicate "Very Low" expansion potential.
- R-value – One representative bulk soil sample was tested for resistance value (R-value) in accordance with ASTM Standard D2844. This test is designed to provide a relative measure of soil strength for use in pavement design. The test indicated an R-value of 38.
- Sand Equivalent – Two representative soil samples from the upper 15 feet of the site soils were tested to evaluate Sand Equivalent (SE) in accordance with the ASTM Standard D2419. The values of the measured SE were 16 and 19.
- Soil Corrosivity – Two representative samples of the site soils were tested to determine soil corrosivity with respect to common construction materials such as

concrete and steel. The test results are presented in 9.6, *Corrosivity Test Evaluation,* and in Appendix B, *Laboratory Testing Program.*

- Grain Size Analysis – Grain size analysis were performed on three representative soil samples according to ASTM Standard D422. The results are presented in Drawing No. B-1, *Grain Size Distribution Results*, in Appendix B, *Laboratory Testing Program.*
- Maximum Dry Density and Optimal Moisture Content – The typical moisture-density relationships of one representative soil sample was determined in accordance with ASTM Standard D1557. The maximum dry density of the tested sample was 129.5 pounds per cubic foot (pcf), with an optimum moisture content of 7.5 percent. Test results are shown on Drawing No. B-2, *Moisture-Density Relationship Results*, in Appendix B, *Laboratory Testing Program.*
- Direct Shear – Two direct shear tests were performed on a relatively undisturbed sample and a sample remolded to 90 percent of laboratory maximum dry density, in saturated conditions. The results indicate that the site soils have moderate shear strength.
- Consolidation Test – A consolidation test was performed on a representative sample of the site soils. Based on the results of this test, the compressibility of the site soils is moderate.

## 6.2 *Update Investigation Laboratory Testing*

- *In-situ* Moisture and Dry Density – *In-situ* dry densities and moisture content of the upper 10 feet of the soil material ranged from 112 to 129 pounds per cubic feet (pcf) and from 2 to 9 percent, respectively.
- Collapse Potential – The collapse potential under a vertical stress of 2.0 kips-per-square-foot (ksf) of one relatively undisturbed representative sample was tested in accordance with the ASTM Standard D5333 test method. The collapse potential measured 3.6 percent; indicating "Moderate" collapse potential within the footprint of the proposed library expansion according to ASTM Standard D5333 test method.
- Soil Corrosivity – One representative sample of the site soils within the footprint of the proposed library expansion was tested to determine soil corrosivity with respect to common construction materials such as concrete and steel. The test results are presented in 9.8, *Soil Corrosivity Evaluation,* and in Appendix B, *Laboratory Testing Program.*
- Grain Size Analysis – Grain size analysis were performed on three representative soil samples according to ASTM Standard D422. The results are presented in Drawing No. B-1, *Grain Size Distribution Results*, in Appendix B, *Laboratory Testing Program.*

- Maximum Dry Density and Optimal Moisture Content – The typical moisture-density relationships of one representative soil sample was determined in accordance with ASTM Standard D1557. The maximum dry density of the tested sample was 133.5 pounds per cubic foot (pcf), with an optimum moisture content of 8.0 percent. Test results are shown on Drawing No. B-2, *Moisture-Density Relationship Results*, in Appendix B, *Laboratory Testing Program*.

# 7.0 FAULTING AND SEISMICITY

Discussion on faulting and seismicity is presented in the following sections.

## *7.1 Faulting*

The site is not located within a currently designated State of California or Riverside County designated Earthquake Fault Zone (CGS, 2007; Riverside County, 2016). There are no known active faults projecting toward or extending across the project site. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

The proposed site is situated in a seismically active region. As is the case for most areas of Southern California, ground shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. During the life of the project, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the site.

The following table contains a list of active and potentially active faults within 100 kilometers of the subject site. The fault parameters and distances presented in the following table are based on the output from EQFAULT (Blake, 2000), revised in accordance with CGS fault parameters (Cao et. al., 2003).

**Table No. 1, Summary of Regional Faults**

| Fault Name | Approximate Distance (miles (km)) | Moment Magnitude (Mw) |
|---|---|---|
| San Jacinto-San Jacinto Valley | 5.2 (8.3) | 6.9 |
| San Jacinto-Anza | 13.6 (21.9) | 7.2 |
| San Jacinto-San Bernardino | 14.9 (23.9) | 6.7 |
| Elsinore-Glen Ivy | 17.8 (28.7) | 6.8 |
| Elsinore-Temecula | 17.8 (28.7) | 6.8 |
| San Andreas - San Bernardino | 18.5 (29.7) | 7.5 |
| San Andreas - Southern | 18.5 (29.7) | 7.4 |
| Chino-Central Ave. (Elsinore) | 26.0 (41.8) | 6.7 |
| Pinto Mountain | 28.5 (45.8) | 7.2 |
| Whittier | 29.3 (47.2) | 6.8 |
| North Frontal Fault Zone (West) | 29.8 (47.9) | 7.2 |

| Fault Name | Approximate Distance (miles (km)) | Moment Magnitude (Mw) |
|---|---|---|
| Elsinore-Julian | 31.6 (50.9) | 7.1 |
| Cleghorn | 32.0 (51.5) | 6.5 |
| Cucamonga | 32.2 (51.8) | 6.9 |
| North Frontal Fault Zone (East) | 34.0 (54.7) | 6.7 |
| San Jose | 38.5 (61.9) | 6.4 |
| San Andreas - Coachella | 38.5 (61.9) | 7.2 |
| Helendale - S. Lockhardt | 40.6 (65.4) | 7.3 |
| San Andreas - Mojave | 40.8 (65.6) | 7.4 |
| Sierra Madre | 41.1 (66.2) | 7.2 |
| Elysian Park Thrust | 42.4 (68.3) | 6.7 |
| Newport-Inglewood (Offshore) | 43.4 (69.8) | 7.1 |
| San Jacinto-Coyote Creek | 43.7 (70.4) | 6.8 |
| Burnt Mtn. | 44.1 (70.9) | 6.5 |
| Lenwood-Lockhart-Old Woman Sprgs | 46.4 (74.6) | 7.5 |
| Eureka Peak | 46.7 (75.1) | 6.4 |
| Landers | 47.2 (75.9) | 7.3 |
| Newport-Inglewood (L.A. Basin) | 48.1 (77.4) | 7.1 |
| Compton Thrust | 48.9 (78.7) | 6.8 |
| Rose Canyon | 50.9 (81.9) | 7.2 |
| Clamshell-Sawpit | 51.9 (83.6) | 6.5 |
| Johnson Valley (Northern) | 52.0 (83.7) | 6.7 |
| Earthquake Valley | 54.4 (87.5) | 6.5 |
| Raymond | 56.0 (90.2) | 6.5 |
| Emerson So. - Copper Mtn. | 56.7 (91.2) | 7.0 |
| Palos Verdes | 59.0 (94.9) | 7.3 |
| Coronado Bank | 59.8 (96.2) | 7.6 |
| Verdugo | 61.6 (99.2) | 6.9 |
| Calico - Hidalgo | 62.0 (99.7 ) | 7.3 |

## *7.2 CBC Seismic Design Parameters*

Seismic parameters based on California Building Code (CBSC, 2013) are provided in the following table. A site-specific seismic design study was not required because the Mapped 1-second Spectral Response Acceleration ($S_1$) is below 0.750g. These parameters were determined using the U.S. Seismic Maps Tool (USGS, 2016).

**Table No. 2, CBC 2013 Seismic Parameters**

| Seismic Parameters | |
|---|---|
| Coordinates | 33.8239°N, -117.1289°W |
| Site Class | "D" |
| Mapped Short period (0.2-sec) Spectral Response Acceleration, $S_s$ | 1.617g |
| Mapped 1-second Spectral Response Acceleration, $S_1$ | 0.662g |
| Site Coefficient (from Table 1613.5.3(1)), $F_a$ | 1.0 |
| Site Coefficient (from Table 1613.5.3(2)), $F_v$ | 1.5 |
| MCE 0.2-sec period Spectral Response Acceleration, $S_{Ms}$ | 1.167g |
| MCE 1-second period Spectral Response Acceleration, $S_{M1}$ | 0.993g |
| Design Spectral Response Acceleration for short period $S_{ds}$ | 1.078g |
| Design Spectral Response Acceleration for 1-second period, $S_{d1}$ | 0.662g |
| Peak Ground Acceleration, PGA | 0.629g |

### *7.3 Secondary Effects of Seismic Activity*

In general, secondary effects of seismic activity include surface fault rupture, soil liquefaction, landslides, lateral spreading, settlement due to seismic shaking, tsunamis, seiches, and earthquake-induced flooding. The site-specific potential for each of these seismic hazards is discussed in the following sections.

***Surface Fault Rupture:*** The site is not located within a currently designated State of California or Riverside County Earthquake Fault Zone (CGS, 2007, Riverside County, 2016). There are no known active faults projecting toward or extending across the project site. The potential for surface rupture resulting from the movement of nearby major faults is not known with certainty but is considered low.

***Liquefaction:*** Liquefaction is defined as the phenomenon in which a cohesionless soil mass within the upper 50 feet of the ground surface suffers a substantial reduction in its shear strength due the development of excess pore pressures. During earthquakes, excess pore pressures in saturated soil deposits may develop as a result of induced cyclic shear stresses, resulting in liquefaction.

Soil liquefaction generally occurs in submerged granular soils and non-plastic silts during or after strong ground shaking. There are several general requirements for liquefaction to occur. They are as follows:

- Soils must be submerged
- Soils must be loose to medium-dense
- Ground motion must be intense

- Duration of shaking must be sufficient for the soils to lose shear resistance

The project site is in an area designated as having low susceptibility to liquefaction by Riverside County. Groundwater was not encountered during the investigations to the maximum explored depth of 51.5 feet bgs and is deeper than 200 feet bgs in the site vicinity. Due to the absence of shallow groundwater, the potential for liquefaction is considered low.

***Seismic Settlement:*** Seismically-induced settlement occurs in loose unsaturated granular soils during ground shaking associated with earthquakes. Based on the analysis presented in Appendix D, *Dry Seismic Settlement Analysis*, the site has the potential for up to 6.2 inches of dynamic dry settlement and up to 2.7 inches of differential settlement over a distance of 40 linear feet.

***Landslides:*** Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. Due to the relatively flat nature of the project site and surrounding area, landslides are not considered to be a risk.

***Lateral Spreading:*** Seismically induced lateral spreading involves primarily lateral movement of earth materials toward open slope faces over underlying materials which are liquefied due to ground shaking. It differs from the slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. Based on the relatively flat nature of the project site and low liquefaction potential, the risk of lateral spreading is considered low.

***Tsunamis:*** Tsunamis are large waves generated in open bodies of water by fault displacement or major ground movement. Due to the inland location of the site, tsunamis are not considered to be a risk.

***Seiches:*** Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Lake Perris is located approximately 2.5 miles northwest fo the site. Due to the distance from Lake Perris, the potential for flooding due to off-site seiching is considered low.

***Earthquake-Induced Flooding***: Dams or other water-retaining structures may fail as a result of large earthquakes. The project site located adjacent to but not within a designated Riverside County inundation zone (Riverside County, 2013). The risk of flooding due to offsite dam failure is considered low.

# 8.0 EARTHWORK/SITE GRADING RECOMMENDATIONS

## *8.1 General Evaluation*

This section contains our general recommendations regarding earthwork and grading recommendations for the proposed project. These recommendations are based on the results of our field exploration, laboratory testing, our experience with similar projects, and data evaluation as presented in the preceding sections. These recommendations may need to be modified based on observation of the actual field conditions during grading.

Based on our field exploration, laboratory testing, and analyses of subsurface conditions at the site, remedial grading will be required to prepare the site for support of the proposed structure that are constructed with conventional shallow footings. To reduce differential settlement, variations in the soil type, degree of compaction, and thickness of the compacted fill placed underneath the footings should be kept uniform.

Site grading recommendations provided below are based on our experience with similar projects in the area and our evaluation of this investigation. Site preparation for the proposed structures will require removal of existing structures, improvements, and other existing underground manmade structures and utilities.

All debris, surface vegetation, deleterious material, existing undocumented fill, and surficial soils containing roots and perishable materials should be stripped and removed from the site. Deleterious material, including organics, concrete, and debris generated during excavation, should not be placed as fill.

The excavated site soils, free of vegetation, shrub and debris, may be placed as compacted fill in structural areas after proper processing. Rocks larger than 3 inches in the largest dimension should not be placed as fill. If encountered, on-site clayey soils with an expansion index exceeding 20 should not be re-used for compaction within 2 feet below the proposed foundations. Soils containing organic materials should not be used as structural fill.

The final bottom surfaces of all excavations should be observed and approved by the project geotechnical consultant prior to placing any fill. Based on these observations, removal of localized areas deeper than those documented may be required during grading. Therefore, some variations in the depth and lateral extent of excavation recommended in this report should be anticipated.

## *8.2 Over-excavation for Structures and Pavements*

We recommend over-excavation for structure footings to be at least 24 inches below bottom of footings. The lateral limits of the over-excavation should extend at least 5 feet beyond the building footprint areas, where space is available.

Based on the samples collected in the undocumented fill layer, it appears the densities are at or near 90 percent relative compaction of maximum dry density. At the completion of the overexcavation, the undocumented fill layer should be verified to be at least 90 percent of the laboratory maximum dry density and have a very low expansion potential. The density and expansion potential should be verified through testing. If these requirements are not met, the undocumented fill should be removed.

For pavement and at grade hardscapes, we recommend over-excavation be at least 18 inches below existing grade and extend at least 12 inches laterally, where space is available.

Over-excavation should not undermine adjacent off-site improvements. Remedial grading should not extend within a projected 1:1 (horizontal to vertical) plane projected down from the outer edge of adjacent off-site improvements.

If soft or yielding soil conditions are encountered, deeper removals may be required. The actual depth of removal should be based on recommendations and observation made during grading. Therefore, some variations in the depth and lateral extent of over-excavation recommended in this report should be anticipated.

### *8.3 Structural Fill*

All surfaces to receive additional fill should be scarified to a depth of 6 inches. The scarified soil should be moisture conditioned to within ± 3 percent of optimum moisture for granular soils or 0 to 2 percent above optimum for fine soils. The scarified soil should be recompacted to at least 90 percent of the laboratory maximum dry density prior to the placement of any fill.

Fill soils should be evenly spread in horizontal, 8-inch-maximum, loose lifts. The fill materials should be thoroughly mixed and moisture conditioned to within 3 percent of optimum moisture content for granular soils and up to 2 percent above optimum moisture content for fine-grained soils. The *in situ* moisture contents of the upper 5 feet of soils at the time of our investigation was generally in the range of 2 to 9 percent. The optimum moisture content for the site soils is approximately 7 to 8 percent. Moisture conditioning will be required during site grading.

All fill placed at the site should be compacted to at least 90 percent of the laboratory maximum dry density as determined by ASTM Standard D1557 test method. The upper 12 inches of soil below asphalt and concrete pavement, should be compacted to at least 95 percent of laboratory maximum dry density.

Fill materials should not be placed, spread or compacted during unfavorable weather conditions. When site grading is interrupted by heavy rain, filling operations should not

resume until the geotechnical consultant approves the moisture and density conditions of the previously placed fill.

To reduce differential settlement, variations in the soil type, degree of compaction and thickness of the compacted fill placed underneath the foundations should be kept to a minimum.

The project geotechnical consultant should observe the placement of fill and conduct in-place field density tests to check for adequate moisture content and relative compaction as required by the project specifications. Where less than the required relative compaction is indicated, additional compactive efforts should be applied and the soil moisture-conditioned as necessary, until the required relative compaction is attained.

### *8.4 Shrinkage and Subsidence*

Soil shrinkage and/or bulking as a result of remedial grading depends on several factors including the depth of over-excavation, and the grading method and equipment utilized, and average relative compaction. For preliminary estimation, bulking and shrinkage factors for various units of earth material at the site may be taken as presented below.

- The approximate shrinkage factor for the native alluvial soils is estimated to range from 0 to 15 percent. An average of 7 percent may be used for earthwork planning.
- For estimation purposes, ground subsidence may be taken as 0.12 feet in previously ungraded areas or 0.05 feet in previously graded areas.

Although these values are only approximate, they represent our best estimates of the factors to be used to calculate lost volume that may occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field-testing using the actual equipment and grading techniques be conducted.

## 9.0 DESIGN AND CONSTRUCTION RECOMMENDATIONS

### *9.1 Shallow Foundation Design Parameters for Buildings*

The proposed structure may be supported on conventional continuous (strip) and/or isolated (spread) footings. Footings should be placed on at least 24 inches of compacted fill as described in Section 8.0, *Earthwork/Site Grading Recommendations*.

Interior and exterior footings should be placed at least 18 inches below lowest adjacent soil grade. Width of the continuous and isolated footings should be at least 18 inches. Footings may be designed based on an allowable net bearing capacity of 2,500 pounds per square foot (psf).

### *9.2 Lateral Earth Pressure*

If retaining walls are planned, the following recommendations should be followed in design and construction. The earth pressure behind any buried wall depends primarily on the allowable wall movement, type of backfill materials, backfill slopes, wall inclination, surcharges, and any hydrostatic pressure. It is recommended that the backfill for the retaining walls will consist of soils with expansion index less than 20. The following fluid pressures are recommended for vertical walls with no hydrostatic pressure, and no surcharge.

**Table No. 3, Equivalent Fluid Pressure**

| Condition | Equivalent Fluid Pressure, pcf |
|---|---|
| Free to deflect (Cantilever) | 41 |
| Restrained (At-rest) | 62 |

### *9.3 Lateral Resistance*

Resistance to lateral loads can be assumed to be provided by friction acting at the base of foundations and by passive earth pressure. A coefficient of friction of 0.35 between concrete and soil may be used with the dead load forces. Passive earth pressure of 260 psf per foot of depth may be used for the sides of footings poured against recompacted native soils. The maximum value of the passive earth pressure should be limited to 2,500 psf. These lateral resistances may be increased by 33 percent for seismic forces.

Vertical and lateral bearing values indicated above are for the total dead loads and frequently applied live loads. If normal code requirements are applied for design, the above vertical bearing and lateral resistance values may be increased by 33 percent for short duration loading, which will include the effect of wind or seismic forces.

### *9.4 Slabs-on-Grade*

Structural design elements of slabs-on-grade, including but not limited to thickness, reinforcement, joint spacing, should be selected based on the analysis performed by the project structural engineer considering anticipated loading conditions and the modulus of subgrade reaction of the supporting materials.

Slabs should be designed and constructed as promulgated by the American Concrete Institute (ACI) and the Portland Cement Association (PCA). Care should be taken during concrete placement to avoid slab curling. Prior to the slab pour, all utility trenches should be properly backfilled and compacted.

The upper 12 inches of soil subgrade under slabs-on-grade should be moisture conditioned to 0 to 3 percent above optimum moisture content within 12 hours prior to placement of concrete.

Subgrade for slabs-on-grade should be firm and uniform. All loose or disturbed soils including under-slab utility trench backfill should be recompacted.

### *9.5 Soil Expansion*

Foundations, slabs, and other structures may be designed for very low expansive soil conditions (Expansion Index ≤ 20). The undocumented fill soils should be verified to have a very low expansion potential prior to use as structural fill. We recommend that additional expansion index tests be performed at the completion of sub-grade preparation, to verify the as-constructed expansion potential.

### *9.6 Settlement*

Static settlement will be due to foundation loads, as well as long-term compression of fill soils and compressible native materials below the fill.

Anticipated total static settlement of continuous and isolated footing, designed as recommended above, from structural load-induced settlements and short-term settlement of properly compacted fill is 1.0 inch or less. The expected differential settlement can be taken as equal to one half of the total settlement over a distance of 40 feet.

Based on the analysis presented in Appendix D, *Dry Seismic Settlement Analysis*, the site has the potential for up to 6.2 inches of dynamic dry settlement and up to 2.7 inches of dynamic differential settlement over a distance of 40 linear feet.

The static and dynamic settlement estimates should <u>not</u> be combined for design purposes. The maximum combined static and dynamic settlement is not anticipated to exceed the maximum anticipated dynamic settlement.

### *9.7 Soil Corrosivity Evaluation*

Converse retained the Environmental Geotechnology Laboratory, Inc., located in Arcadia, California, to test one bulk sample for the updated investigation. Two representative bulk samples were tested for the original investigation. The tests included minimum resistivity, pH, soluble sulfates, and chloride content, with the results of all three tests summarized on the following table.

**Table No. 4, Soil Corrosivity Test Results**

| Boring No. | Sample Depth (feet) | pH (Caltrans 643) | Soluble Chlorides (Caltrans 422) ppm | Soluble Sulfate (Caltrans 417) % by Weight | Saturated Resistivity (Caltrans 532) Ohm-cm |
|---|---|---|---|---|---|
| BH-3 | 0.0-5.0 | 7.5 | 1.7 | 0.0028 | 11,200 |
| BH-7 | 0.0-5.0 | 7.1 | 16 | 0.0031 | 4,160 |
| BH-12* | 1.0-5.0 | 7.93 | 560 | 0.020 | 690 |

*Test located within the footprint of the proposed library building.

The sulfate contents of the site soils correspond to American Concrete Institute (ACI) exposure category S0 (ACI 318-11, Table 4.2.1). ACI recommends a minimum compressive strength of 2,500 psi with no type restriction for exposure category S0 in ACI 318-11, Table 4.3.1.

We anticipate that concrete structures will be exposed to moisture from precipitation and irrigation. Based on the site location and the results of chloride testing of the site soils, we do not anticipate that concrete structures will be exposed to external sources of chlorides, such as deicing chemicals, salt, brackish water, or seawater. ACI specifies exposure category C1 where concrete is exposed to moisture, but not to external sources of chlorides (ACI 318-11, Table 4.2.1). ACI provides concrete design recommendations in ACI 318-11, Table 4.3.1, including a minimum compressive strength of 2,500 psi, and a maximum chloride content of 0.3 percent.

The tested site soils range from mildly to severely corrosive for ferrous metals in contact with the soil (Romanoff, 1957). Converse does not practice in the area of corrosion consulting. A qualified corrosion consultant should provide appropriate corrosion mitigation measures for ferrous metals in contact with the site soils.

### *9.8 Infiltration Rate and Seepage Pit Percolation Rate*

The infiltration rate at the planned stormwater basin was estimated based on percolation testing at BH-11 presented in Appendix C, *Percolation Testing and Infiltration Rate Evaluation*. The estimated infiltration rate at the stormwater basin is 3.0 inches per hour.

The seepage pit percolation rate was estimated based on percolation testing at BH-12 presented in Appendix C, *Percolation Testing and Infiltration Rate Evaluation*. The estimated seepage pit percolation rate is 1.37 gallons per square foot per day.

A safety factor of 2 was applied to the measured infiltration rate and seepage pit percolation rate to account for subsurface variations, uncertainty in the test method, and

future siltation. The stormwater basin and seepage pit designer should determine whether additional design-related safety factors are appropriate.

### *9.9 Flexible Asphalt Concrete Pavement Design*

An R-value of 38 was obtained on a representative soil sample. At the completion of grading, the actual R-value of the final subgrade soils should be determined and the pavement structural sections should be reevaluated.

Asphalt concrete pavement sections corresponding to Traffic Indices (TIs) ranging from 5.0 to 7.0, and an R-value of 38 are presented for preliminary design. Analysis was based on Caltrans' design procedure for flexible pavement structural sections. The results of our analysis are summarized in the following table.

**Table No. 5, Recommended Preliminary Pavement Sections**

| R-value | Traffic Index (TI) | Pavement Section | |
|---|---|---|---|
| | | Asphalt Concrete (inches) | Aggregate Base (inches) |
| 38 | 5 | 3.0* | 6.0* |
| | 6 | 3.5 | 6.0 |
| | 7 | 4.0 | 7.5 |

*Riverside County minimum pavement section is 3" of asphalt concrete over 6" of aggregate base

Prior to placement of aggregate base, at least the upper 12 inches of subgrade soils should be scarified, moisture-conditioned if necessary, and recompacted to at least 95 percent of the laboratory maximum dry density as defined by ASTM Standard D1557 test method.

Base materials should conform with Section 200-2.2,"*Crushed Aggregate Base*," of the current Standard Specifications for Public Works Construction (SSPWC; Public Works Standards, 2015) and should be placed in accordance with Section 301.2 of the SSPWC.

Asphaltic concrete materials should conform to Section 203 of the SSPWC and should be placed in accordance with Section 302.5 of the SSPWC.

### *9.10 Site Drainage*

Adequate positive drainage should be provided away from the structures to prevent ponding and to reduce percolation of water into structural backfill. We recommend that the landscape area immediately adjacent to foundations should be designed sloped away from the building with a minimum 5 percent slope gradient for at least 10 feet measured perpendicular to the face of the wall. Impervious surfaces within 10 feet of the foundation should have a minimum 2 percent slope away from the building.

Planters and landscaped areas adjacent to the building perimeter should be designed to minimize water infiltration into the subgrade soils.

## 10.0 GEOTECHNICAL SERVICES DURING CONSTRUCTION

This report has been prepared to aid in the evaluation of the site, to prepare site grading recommendations, and to assist the structural engineer in the design of the proposed structures. It is recommended that final design drawings and specifications be reviewed by the project's geotechnical consultant to evaluate if the recommendations of this report have been properly implemented.

Recommendations presented herein are based upon the assumptions that continuous earthwork monitoring will be provided by Converse. Excavation bottoms should be observed by a Converse representative. Structural fill and backfill should be placed and compacted during continuous observation and testing by this office. Footing excavations should be observed by Converse prior to placement of steel and concrete, so that footings are founded on satisfactory materials and excavations are free of loose and disturbed materials.

## 11.0 CLOSURE

This report is prepared for the project described herein and is intended for use solely by Riverside County EDA and their authorized agents, to assist in the design and construction of the proposed project. Converse Consultants is not responsible or liable for any claims or damages associated with interpretation of available information provided to others.

Site exploration identifies actual soil conditions only at those points where samples are taken, when they are taken. Data derived through sampling and laboratory testing is extrapolated by Converse employees who render an opinion about the overall soil conditions. Actual conditions in areas not sampled may differ. In the event that changes to the project occur, or additional, relevant information about the project is brought to our attention, the recommendations contained in this report may not be valid unless these changes and additional relevant information are reviewed and the recommendations of this report are modified or verified in writing. In addition, the recommendations can only be finalized by observing actual subsurface conditions revealed during construction. Converse cannot be held responsible for misinterpretation or changes to our recommendations made by others during construction.

Our findings and recommendations were obtained in accordance with generally accepted professional principles practiced in geotechnical engineering. We make no other warranty, either expressed or implied. Our conclusions and recommendations are based on the results of the field investigations and laboratory tests, combined with interpolation and extrapolation of soil conditions between and beyond the boring locations.

## 12.0 REFERENCES

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# Appendix A

## Field Exploration

# APPENDIX A

## FIELD EXPLORATION

Field exploration included a site reconnaissance and subsurface exploration program. During the site reconnaissance, the surface conditions were noted, and the approximate locations of the test borings were determined. Exploratory borings were approximately located using existing boundary and other features as a guide and should be considered accurate only to the degree implied by the method used.

Ten exploratory borings (BH-1 through BH-10) were drilled within the project site (proposed park) on September 11 and 13, 2007. Two additional borings (BH-11 and BH-12) were drilled within the project site on March 2, 2016 for this investigation update. The borings were advanced using a truck-mounted drill rig equipped with eight-inch diameter hollow-stem augers for soil sampling. The depth of the borings ranged from 5.0 to 51.5 feet below existing ground surface (bgs). Encountered earth materials were continuously logged by a Converse geologist and classified in the field by visual examination in accordance with the Unified Soil Classification System. Where appropriate, field descriptions and classifications have been modified to reflect laboratory test results.

Ring samples of the subsurface materials were obtained at frequent intervals in the exploratory borings using a drive sampler (2.4-inches inside diameter and 3-inches outside diameter) lined with sample rings. The steel ring sampler was driven into the bottom of the borehole with successive drops of a 140-pound driving weight falling 30 inches. Samples are retained in brass rings (2.4-inches inside diameter and 1.0-inch in height) and carefully sealed in waterproof plastic containers for shipment to the Converse laboratory. Blow counts for each sample interval are presented on the logs of borings.

Bulk samples of typical soil types were also obtained. Standard Penetration Test (SPT) was also performed in the deep borings using a standard (1.4-inches inside diameter and 2.0-inches outside diameter) split-barrel sampler. The mechanically driven hammer for the SPT sampler was 140 pounds, failing 30 inches for each blow. The recorded blow counts for every 6 inches for a total of 1.5 feet of sampler penetration are shown on the Logs of Borings. The standard penetration test was performed in accordance with the ASTM Standard D1586 test method.

It should be noted that the exact depths at which material changes occur cannot always be established accurately. Unless a more precise depth can be established by other means, changes in material conditions that occur between driven samples are indicated in the logs at the top of the next drive sample.

Following completion of drilling, borings BH-11 and BH-12 were set up for percolation testing and presoaked. Percolation testing was completed the following day on March 03, 2016 as described in Appendix C, *Percolation Testing*. Following completion of percolation testing, the pipes were removed and the borehole was loosely filled with soil cuttings.

The surface at the boring locations may settle over time. We recommend that the property owner monitor the boring locations and backfill any settlement or depressions that might occur, or provide fencing around the boring locations to prevent trip and fall injuries from occurring near the area of any potential settlement.

A key to soil symbols and terms is presented as Drawing No. A-1. Logs of the exploratory borings are presented in Drawing Nos. A-2 through A-13. Boring summary sheets also include descriptions of the materials, pertinent field data and supplementary laboratory data.

# SOIL CLASSIFICATION CHART

| MAJOR DIVISIONS | | | SYMBOLS GRAPH | SYMBOLS LETTER | TYPICAL DESCRIPTIONS |
|---|---|---|---|---|---|
| COARSE GRAINED SOILS<br>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE | GRAVEL AND GRAVELLY SOILS<br>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE | CLEAN GRAVELS<br>(LITTLE OR NO FINES) | | GW | WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | | | | GP | POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | | GRAVELS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES) | | GM | SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES |
| | | | | GC | CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES |
| | SAND AND SANDY SOILS<br>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE | CLEAN SANDS<br>(LITTLE OR NO FINES) | | SW | WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES |
| | | | | SP | POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES |
| | | SANDS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES) | | SM | SILTY SANDS, SAND - SILT MIXTURES |
| | | | | SC | CLAYEY SANDS, SAND - CLAY MIXTURES |
| FINE GRAINED SOILS<br>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | | ML | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |
| | | | | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | | | | OL | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY |
| | SILTS AND CLAYS | LIQUID LIMIT GREATER THAN 50 | | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS |
| | | | | CH | INORGANIC CLAYS OF HIGH PLASTICITY |
| | | | | OH | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS |
| HIGHLY ORGANIC SOILS | | | | PT | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS |

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

## BORING LOG SYMBOLS

SAMPLE TYPE

- STANDARD PENETRATION TEST — Split barrel sampler in accordance with ASTM D-1586-84 Standard Test Method
- DRIVE SAMPLE 2.42" I.D. sampler.
- DRIVE SAMPLE No recovery
- BULK SAMPLE
- GROUNDWATER WHILE DRILLING
- GROUNDWATER AFTER DRILLING

LABORATORY TESTING ABBREVIATIONS

| TEST TYPE | | STRENGTH | |
|---|---|---|---|
| (Results shown in Appendix B) | | Pocket Penetrometer | p |
| | | Direct Shear | ds |
| | | Direct Shear (single point) | ds* |
| | | Unconfined Compression | uc |
| | | Triaxial Compression | tx |
| CLASSIFICATION | | Vane Shear | vs |
| Plasticity | pi | | |
| Grain Size Analysis | ma | Consolidation | c |
| Passing No. 200 Sieve | wa | Collapse Test | col |
| Sand Equivalent | se | Resistance (R) Value | r |
| Expansion Index | ei | Chemical Analysis | ca |
| Compaction Curve | max | Electrical Resistivity | er |
| Hydrometer | h | Permeability | perm |
| Disturb | Dist. | | |

## UNIFIED SOIL CLASSIFICATION AND KEY TO BORING LOG SYMBOLS

Converse Consultants

**PROPOSED MAUEL PARK**
**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **A-1**

# Log of Boring No. BH - 1

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | ■ | ▨ | 15/18/18 | 2 | 114 | r |
| | | - trace clay | ■ | ▨ | 7/8/8 | 4 | 119 | |
| 5 | | | ■ | | 7/9/10 | 7 | 119 | |
| 10 | | **SAND (SP):** fine- to coarse-grained, dark brown. | ■ | | 2/4/4 | 3 | 98 | |
| | | End of boring at 11.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

Converse Consultants

**PROPOSED MAUEL PARK**
**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing **A - 2**

# Log of Boring No. BH - 2

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | | | | | | ma |
| | | | ■ | | 9/10/13 | 4 | 115 | |
| 5 | | - dark brown | ■ | | 7/11/11 | 5 | 112 | col |
| 10 | | **SAND (SP):** fine- to coarse-grained, gray brown. | ■ | | 5/8/8 | 2 | 117 | |
| | | End of boring at 11.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

Converse Consultants

**PROPOSED MAUEL PARK**
**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **A - 3**

# Log of Boring No. BH - 3

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | | | | | | ca, er |
| | | | ■ | | 6/11/11 | 3 | 111 | |
| 5 | | **SAND TO SILTY SAND (SP-SM):** fine- to coarse-grained, dark brown. | ■ | | 8/8/6 | 2 | 114 | c |
| 10 | | **SAND (SP):** fine-grained, dark gray. | ■ | | 4/4/6 | 4 | 104 | |
| | | End of boring at 11.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing **A - 4**

# Log of Boring No. BH - 4

Dates Drilled: 9/11/2007 Logged by: AB Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to medium-grained, dark brown. | ■ | ▨ | 9/11/14 | 2 | 103 | ma, max, ds, ei |
| | | | ■ | ▨ | 4/8/5 | 5 | 108 | col |
| 5 | | | ■ | | 3/5/5 | 5 | 103 | |
| 10 | | | ■ | | 4/4/6 | 17 | 109 | |
| 15 | | | ■ | | 10/13/14 | 7 | 122 | |
| 20 | | | ■ | | 8/12/16 | 14 | 116 | |
| 25 | | | ■ | | 5/11/16 | 7 | 111 | |
| 30 | | | ☒ | | 5/6/8 | | | ma |

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**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **A - 5a**

# Log of Boring No. BH - 4

Dates Drilled: 9/11/2007 Logged by: AB Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **SILTY SAND (SM):** fine- to coarse-grained, brown. | X | | 10/12/10 | | | |
| 40 | | - little clay | X | | 10/18/19 | | | |
| 45 | | | X | | 26/35/50 (5") | | | |
| 50 | | **SAND (SP):** fine- to coarse-grained, brown. | X | | 25/30/50 (3") | | | |
| | | End of boring at 51.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/11/07. | | | | | | |
| 55 | | | | | | | | |
| 60 | | | | | | | | |
| 65 | | | | | | | | |

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Drawing **A - 5b**

# Log of Boring No. BH - 5

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | ■ | ▨ | 6/8/9 | 3 | 113 | |
| | | | ■ | ▨ | 3/5/8 | 3 | 109 | |
| 5 | | - trace clay | ■ | | 5/9/11 | 4 | 117 | |
| 10 | | | ■ | | 3/9/10 | 6 | 113 | |
| 15 | | | ■ | | 6/13/19 | 4 | 115 | |
| | | End of boring at 16.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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Drawing No. **A - 6**

# Log of Boring No. BH - 6

Dates Drilled: 9/11/2007 Logged by: AB Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **2" ASPHALT CONCRETE OVER 4.5" AGGREGATE BASE** | | | | | | |
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to medium-grained, dark brown. | ■ | ▨ | 11/28/34 | 8 | 123 | |
| | | | ■ | ▨ | 10/14/10 | 8 | 125 | |
| 5 | | | ■ | | 12/12/12 | 8 | 119 | |
| 10 | | **SAND (SP):** fine- to coarse-grained, brown. | ■ | | 9/9/10 | 3 | 116 | |
| | | End of boring at 11.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/11/07. | | | | | | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing **A - 7**

# Log of Boring No. BH - 7

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | | | | | | ei, ca, er |
| | | | ■ | ▨ | 3/3/5 | 5 | 113 | |
| 5 | | - dark brown | ■ | | 3/3/3 | 7 | 114 | ds, col |
| 10 | | | ■ | | 5/8/11 | 7 | 110 | |
| 15 | | **SAND (SP):** fine- to coarse-grained, brown. | ■ | ▨ | 6/10/15 | 5 | 106 | ma, se |
| 20 | | | ■ | | 7/15/11 | 3 | 118 | |
| | | End of boring at 21.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **A - 8**

# Log of Boring No. BH - 8

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | | | | | | |
| | | | ■ | | 2/3/5 | 7 | 114 | |
| 5 | | | ■ | | 3/3/5 | 9 | 118 | |
| 10 | | | ■ | | 3/8/9 | 7 | 113 | |
| 15 | | **SAND (SP):** fine- to coarse-grained, brown. | ■ | | 5/9/9 | 2 | 115 | |
| | | End of boring at 16.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing **A - 9**

# Log of Boring No. BH - 9

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | ■ | ▨ | 7/10/14 | 2 | 110 | |
| 5 | | | ■ | ▨ | 7/7/3 | 4 | 109 | col |
| 10 | | | ■ | | 4/7/13 | 8 | 104 | |
| | | End of boring at 11.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 15 | | | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **A - 10**

# Log of Boring No. BH -10

Dates Drilled: 9/13/2007 Logged by: CG Checked By: RJR

Equipment: CME 75 WITH 8" HSA Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): N/A Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM(Qal)**<br>**SILTY SAND (SM):** fine- to coarse-grained, brown. | ■ | ▨ | 10/11/11 | 3 | 112 | |
| | | | ■ | ▨ | 5/5/9 | 4 | 107 | |
| 5 | | - trace to little clay | ■ | | 12/15/11 | 4 | 119 | |
| 10 | | **SAND TO SILTY SAND (SP-SM):** fine- to coarse-grained, brown. | ■ | | 4/6/8 | 2 | 111 | se |
| 15 | | | ■ | | 6/10/15 | 4 | 113 | |
| | | End of boring at 16.5 feet.<br>Groundwater not encountered during drilling.<br>Boring backfilled with soil cuttings on 9/13/07. | | | | | | |
| 20 | | | | | | | | |
| 25 | | | | | | | | |
| 30 | | | | | | | | |

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**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing **A - 11**

# Log of Boring No. BH-11

Dates Drilled: 3/2/2016 Logged by: Jay Burnham Checked By: Scot Mathis

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **ALLUVIUM**<br>**SILTY SAND (SM):** fine to medium-grained, brown. | | | | | | ma |
| | | | | | 13/16/11 | 2 | 113 | |
| 5 | | End of boring at 5 feet bgs.<br>No groundwater encountered.<br>Borehole set up for percolation testing on March 2, 2016. | | | | | | |

Converse Consultants

Proposed Nuview Library Expansion
29990 Lakeview Ave
Unincorporated area of Nuevo, Riverside County, California
For: County of Riverside Economic Development Agency (EDA)

Project No. 06-81-245-03

Drawing No. A-12

# Log of Boring No. BH-12

Dates Drilled: 3/2/2016 Logged by: Jay Burnham Checked By: Scot Mathis

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **UNDOCUMENTED FILL**<br>**SILTY SAND (SM):** fine to coarse-grained, trace CLAY, olive brown. | | | | | | ma, max, ca, er |
| | | | ■ | | 8/13/32 | 9 | 129 | |
| 5 | | | ■ | | 15/14/11 | 6 | 114 | |
| | | **ALLUVIUM**<br>**SILTY SAND (SM):** fine to coarse-grained, trace CLAY, olive brown. | ■ | | 3/4/4 | 7 | 117 | col ma |
| 10 | | | ■ | | 3/3/3 | 5 | 112 | |
| 15 | | | ■ | | 8/9/13 | 8 | 114 | |
| 20 | | | ☒ | | 2/4/6 | | | |
| 25 | | | ■ | | 8/7/13 | 11 | 102 | |
| 30 | | | ☒ | | 2/3/6 | | | |

Converse Consultants

Proposed Nuview Library Expansion
29990 Lakeview Ave
Unincorporated area of Nuevo, Riverside County, California
For: County of Riverside Economic Development Agency (EDA)

Project No. 06-81-245-03

Drawing No. A-13a

# Log of Boring No. BH-12

Dates Drilled: 3/2/2016 Logged by: Jay Burnham Checked By: Scot Mathis

Equipment: 8" HOLLOW STEM AUGER Driving Weight and Drop: 140 lbs / 30 in

Ground Surface Elevation (ft): Depth to Water (ft): NOT ENCOUNTERED

| Depth (ft) | Graphic Log | SUMMARY OF SUBSURFACE CONDITIONS<br>This log is part of the report prepared by Converse for this project and should be read together with the report. This summary applies only at the location of the boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered. | SAMPLES DRIVE | SAMPLES BULK | BLOWS | MOISTURE | DRY UNIT WT. (pcf) | OTHER |
|---|---|---|---|---|---|---|---|---|
| | | **SAND (SP):** fine to coarse-grained, brown. | ■ | | 10/18/22 | 4 | 119 | |
| 40 | | - trace CLAY, red brown | ☒ | | 6/10/14 | | | |
| 45 | | **SILTY SAND (SM):** fine to coarse-grained, brown. | ■ | | 12/17/25 | 8 | 120 | |
| 50 | | - no CLAY | ☒ | | 11/14/19 | | | |

End of boring at 50 feet bgs.
No groundwater encountered.
Borehole set up for percolation testing on March 2, 2016.

Converse Consultants

Proposed Nuview Library Expansion
29990 Lakeview Ave
Unincorporated area of Nuevo, Riverside County, California
For: County of Riverside Economic Development Agency (EDA)

Project No. 06-81-245-03

Drawing No. A-13b

# Appendix B

## Laboratory Testing Program

# APPENDIX B

## LABORATORY TESTING PROGRAM

Tests were conducted in the Converse Geotechnical Laboratory on representative samples for the purpose of evaluating physical properties and engineering characteristics. Tests performed on samples collected borings BH-1 through BH-10 were for the park investigation completed in 2007 and borings BH-11 and BH-12 were performed for the library building update. Test results are presented on the exploration logs and in this appendix. A summary of the various laboratory tests conducted is presented below.

### Moisture Content and Dry Density

Results of moisture content and dry density tests, performed on relatively undisturbed ring samples were used to aid in the classification of the soils and to provide quantitative measure of the *in situ* dry density. Data obtained from this test provides qualitative information on strength and compressibility characteristics of site soils. For test results, see the Logs of Borings in Appendix A, *Field Exploration*.

### Collapse Potential

To evaluate the moisture sensitivity (collapse/swell potential) of the encountered soils, seven representative ring samples were loaded up to approximately 2 kips per square foot (ksf), allowed to stabilize under load, and then submerged. The test was conducted in accordance with ASTM Standard D5333 laboratory procedure. The test results are presented in the following table.

**Table No. B-1, Collapse Tests Results**

| Boring No | Sample Depth (feet) | Soil Description | Percent Collapse, % (+/- Swell/Collapse) | Collapse Potential |
|---|---|---|---|---|
| BH-2 | 5.0-6.5 | Silty Sand (SM) | -1.5 | Slight |
| BH-3* | 5.0-6.5 | Sand to Silty Sand (SP-SM) | -0.3 | Slight |
| BH-4 | 3.0-3.5 | Silty Sand (SM) | -0.8 | Slight |
| BH-7 | 5.0-6.5 | Silty Sand (SM) | -0.3 | Slight |
| BH-9 | 5.0-6.5 | Silty Sand (SM) | -2.1 | Moderate |
| BH-12** | 7.5-9.0 | Silty Sand (SM), trace Clay | -3.6 | Moderate |

*Obtained from Consolidation Test.
** Test performed for the updated report

## Expansion Index Tests

Two representative bulk samples were tested to evaluate the expansion potential of material encountered at the site. The test was conducted in accordance with ASTM Standard D4829. The test results are presented in the following table.

**Table No. B-2, Expansion Index Test Results**

| Boring No. | Depth (feet) | Soil Description | Expansion Index | Expansion Potential |
|---|---|---|---|---|
| BH-4 | 0-5 | Silty Sand (SM) | 2 | Very Low |
| BH-7 | 0-5 | Silty Sand (SM) | 0 | Very Low |

## R-value Test

One representative bulk soil sample was tested for resistance value (R-value) in accordance with State of California Standard Method CT301. This test is designed to provide a relative measure of soil strength for use in pavement design. The test results are shown in the following table.

**Table No. B-3, R-value Test Result**

| Boring No. | Depth (feet) | Soil Classification | Measured R-value |
|---|---|---|---|
| BH-1 | 0-5 | Silty Sand (SM) | 38 |

## Sand Equivalent Tests

Two representative bulk samples were tested in accordance with the ASTM Standard D2419 to determine the Sand Equivalent (SE). Test results are summarized in the following table.

**Table No. B-4, Sand Equivalent Test Results**

| Boring No. | Depth (feet) | Soil Description | Sand Equivalent |
|---|---|---|---|
| BH-7 | 15-20 | Silty Sand (SM) | 19 |
| BH-10 | 0-5 | Silty Sand (SM) | 16 |

## Soil Corrosivity

Three representative soil samples were tested to determine minimum electrical resistivity, pH, and chemical content, including soluble sulfate and chloride concentrations. The purpose of these tests is to determine the corrosion potential of site soils when placed in contact with common construction materials. These tests were

performed by Schiff Associates in Claremont, California. The test results are presented in the following table.

**Table No. B-5, Corrosivity Test Results**

| Sample Location (Boring/Depth) | Depth (ft) | pH | Soluble Sulfate (CA 417) (ppm) | Soluble Chlorides (CA 422) (ppm) | Saturated Resistivity (CA 643) Ohm-cm |
|---|---|---|---|---|---|
| BH-3 | 0.0-5.0 | 7.5 | 28 | 1.7 | 11,200 |
| BH-7 | 0.0-5.0 | 7.1 | 31 | 16.0 | 4,160 |
| BH-12* | 1.0-5.0 | 7.9 | 560 | 0.020 | 690 |

* Test performed for the updated report

## Grain-Size Analysis

To assist in classification of soils, mechanical grain-size analyses were performed on six selected samples. Testing was performed in general accordance with the ASTM Standard D422 test method. Grain-size curves for the original report test results are shown in Drawing No. B-1a, *Grain Size Distribution Results*. Grain-size curves for the update report test results are shown in Drawing No. B-1b, *Grain Size Distribution Results*.

## Maximum Dry Density Test

Laboratory maximum dry density-moisture content relationship tests were performed on two representative bulk samples. The tests were conducted in accordance with ASTM Standard D1557 laboratory procedure. The original report test results are presented on Drawing No. B-2a, *Moisture-Density Relationship Results*. The update report test results are presented on Drawing No. B-2b, *Moisture-Density Relationship Results*

## Direct Shear Tests

Two direct shear tests were performed on a relatively undisturbed sample and a sample remolded to 90 percent of the laboratory maximum dry density at soaked moisture conditions. For each test, three sampler rings were placed, one at a time, directly into the test apparatus and subjected to a range of normal loads appropriate for the anticipated loading conditions.

The samples were sheared at a constant strain rate of 0.05 inch/minute. Shear deformation was recorded until a maximum of about 0.25-inch shear displacement was achieved. Peak strength was selected from the shear-stress deformation data and plotted to determine the shear strength parameters. For test data, including sample

density and moisture content, see Drawing Nos. B-3 and B-4, *Direct Shear Test Results,* and in the following table.

**Table No. B-6, Direct Shear Test Results**

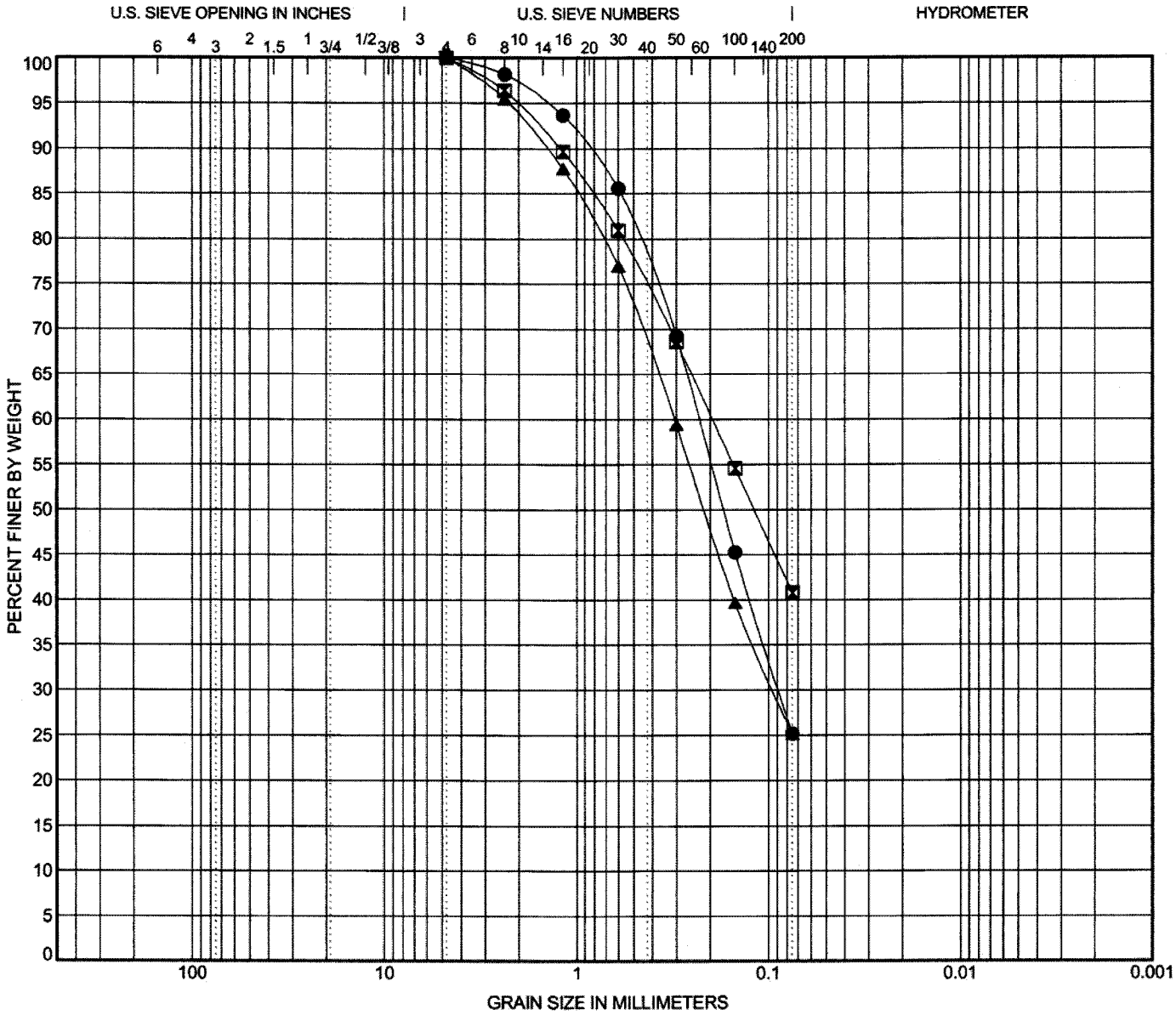
| Boring No. | Depth (feet) | Soil Classification | Test Conditions | Friction Angle (degrees) | Cohesion (psf) |
|---|---|---|---|---|---|
| BH-4 | 0.0-5.0 | Silty Sand (SM) | Remolded to 90% Relative Compaction | 39 | 0 |
| BH-7 | 5.0-6.5 | Silty Sand (SM) | Saturated and drained | 31 | 200 |

## Consolidation Test

Data obtained from this test performed on a relatively undisturbed soil sample was used to evaluate the settlement characteristics of the foundation soils under load. Preparation for this test involved trimming the sample and placing the one-inch high brass ring into the test apparatus, which contained porous stones, both top and bottom, to accommodate drainage during testing. Normal axial loads were applied to one end of the sample through the porous stones, and the resulting deflections were recorded at various time periods. The load was increased after the sample reached a reasonable state of equilibrium. Normal loads were applied at a constant load-increment ratio, successive loads being generally twice the preceding load. The sample was tested at field and submerged conditions. The test results, including sample density and moisture content, are presented in Drawing No. B-5, *Consolidation Test Results*.

## Sample Storage

Soil samples presently stored in our laboratory will be discarded 30 days after the date of this report, unless this office receives a specific request to retain the samples for a longer period.




| COBBLES | GRAVEL | | SAND | | | SILT OR CLAY |
|---|---|---|---|---|---|---|
| | coarse | fine | coarse | medium | fine | |

| | Boring No. | Depth (ft) | Description | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ● | BH - 2 | 0.0-5.0' | SILTY SAND (SM) | | | | | |
| ⊠ | BH - 4 | 30.0-31.5' | SILTY SAND (SM) | | | | | |
| ▲ | BH - 7 | 15.0-20.0' | SILTY SAND (SM) | | | | | |

| | Boring No. | Depth (ft) | D100 | D60 | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|
| ● | BH - 2 | 0.0-5.0' | 4.75 | 0.229 | 0.088 | | 0.0 | 74.8 | 25.2 | |
| ⊠ | BH - 4 | 30.0-31.5' | 4.75 | 0.195 | | | 0.0 | 59.2 | 40.8 | |
| ▲ | BH - 7 | 15.0-20.0' | 4.75 | 0.307 | 0.094 | | 0.0 | 74.8 | 25.2 | |

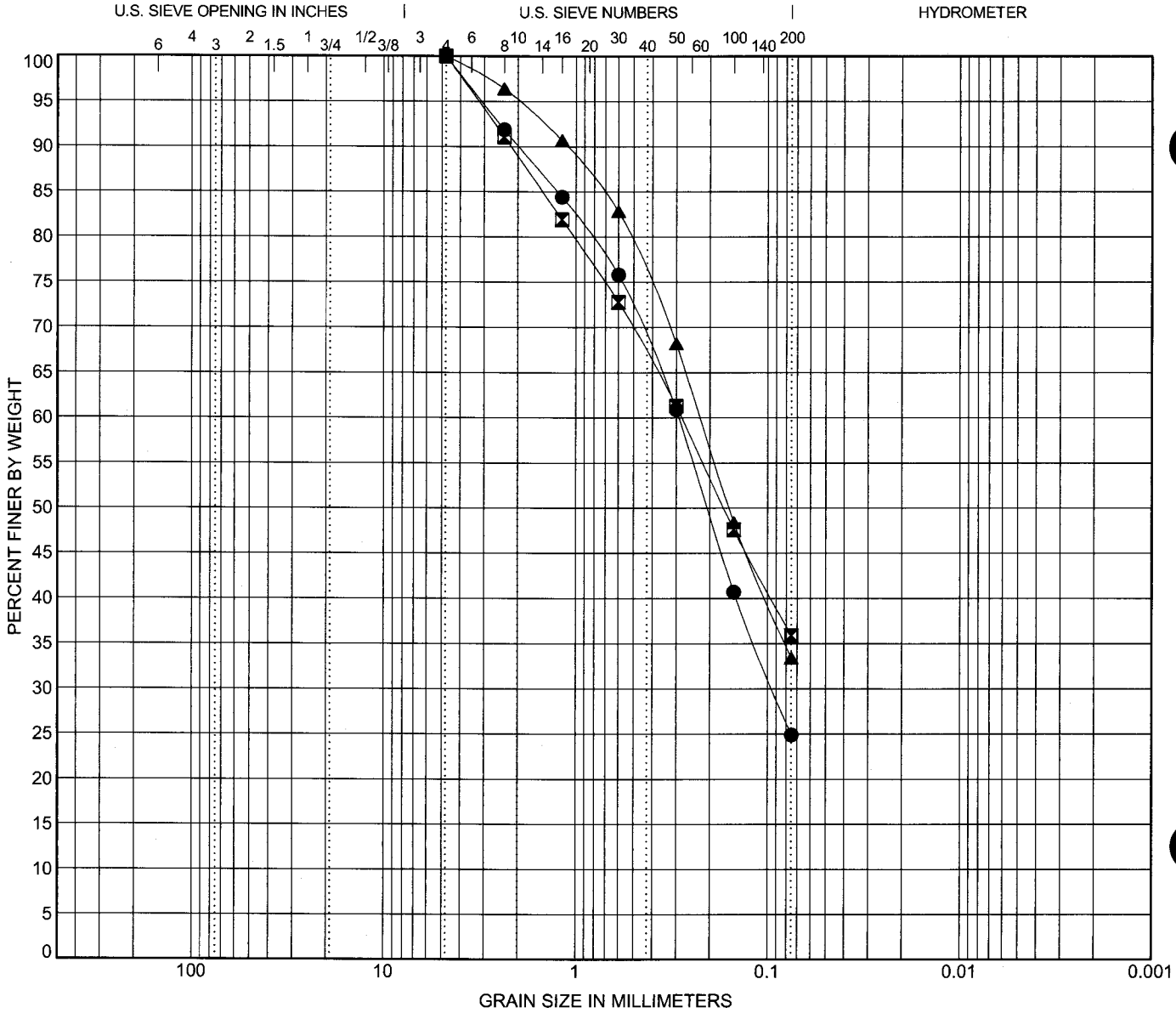
# GRAIN SIZE DISTRIBUTION RESULTS

Converse Consultants

**PROPOSED MAUEL PARK**
**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **B - 1** a




| COBBLES | GRAVEL | | SAND | | | SILT OR CLAY |
|---|---|---|---|---|---|---|
| | coarse | fine | coarse | medium | fine | |

| | Boring No. | Depth (ft) | Description | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ● | **BH-11** | **1.0-5.0** | **Silty Sand (SM)** | | | | | |
| ⊠ | **BH-12** | **1.0-5.0** | **Silty Sand (SM), trace Clay** | | | | | |
| ▲ | **BH-12** | **7.5-12.5** | **Silty Sand (SM), trace Clay** | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| | Boring No. | Depth (ft) | D100 | D60 | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|
| ● | **BH-11** | **1.0-5.0** | **4.75** | **0.291** | **0.094** | | **0.0** | **75.1** | **24.9** | |
| ⊠ | **BH-12** | **1.0-5.0** | **4.75** | **0.281** | | | **0.0** | **64.1** | **35.9** | |
| ▲ | **BH-12** | **7.5-12.5** | **4.75** | **0.225** | | | **0.0** | **66.6** | **33.4** | |
| | | | | | | | | | | |
| | | | | | | | | | | |

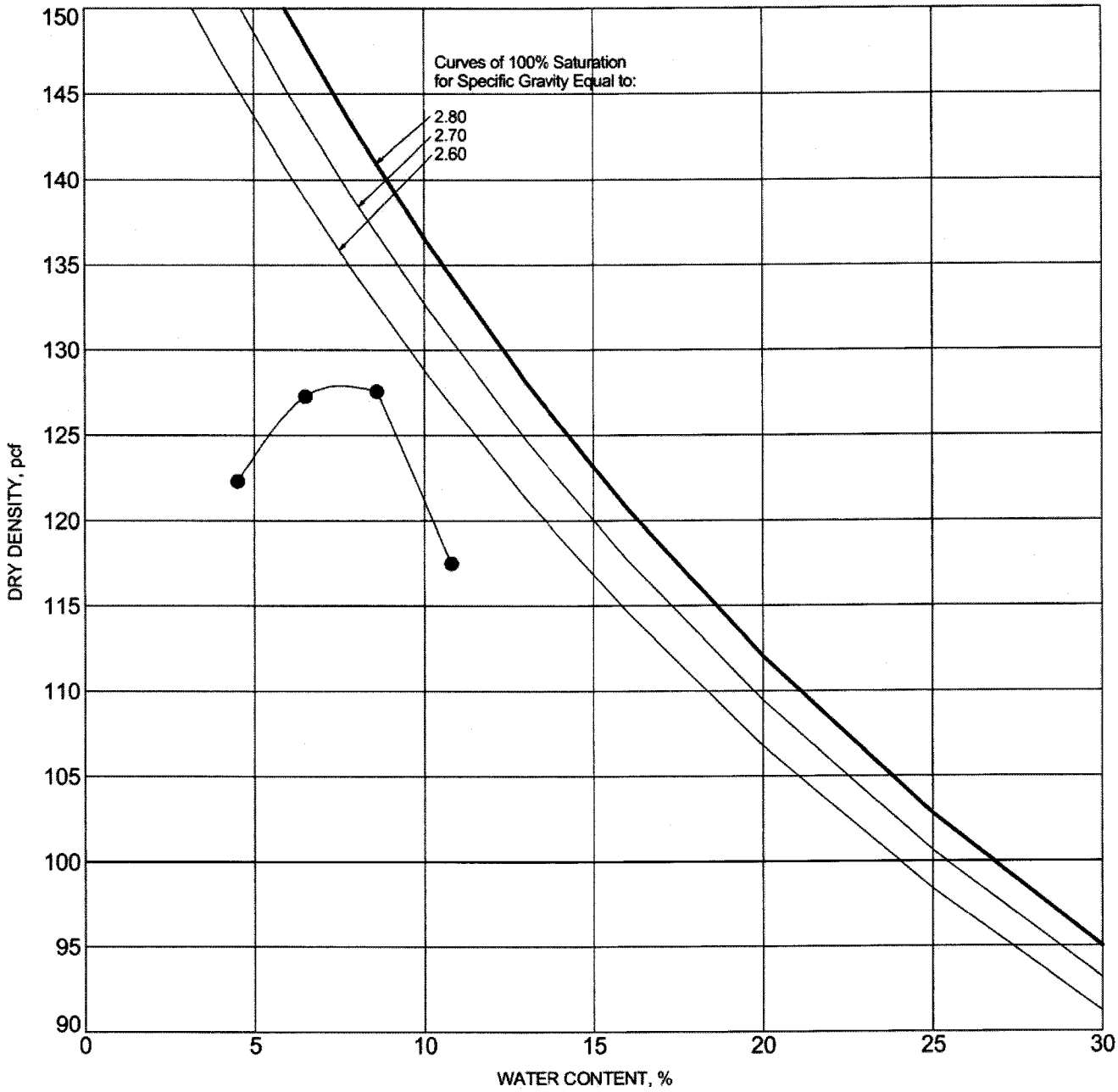
# GRAIN SIZE DISTRIBUTION RESULTS

Converse Consultants

Proposed Nuview Library Expansion
29990 Lakeview Ave
Unincorporated area of Nuevo, Riverside County, California
For: County of Riverside Economic Development Agency (EDA)

Project No. **06-81-245-03**

Drawing No. **B-1b**




| SYMBOL | BORING NO. | DEPTH (ft) | DESCRIPTION | ASTM TEST METHOD | OPTIMUM WATER, % | MAXIMUM DRY DENSITY, pcf |
|---|---|---|---|---|---|---|
| ● | BH - 4 | 0.0-5.0' | SILTY SAND (SM) | A | 7.5 | 129.5 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

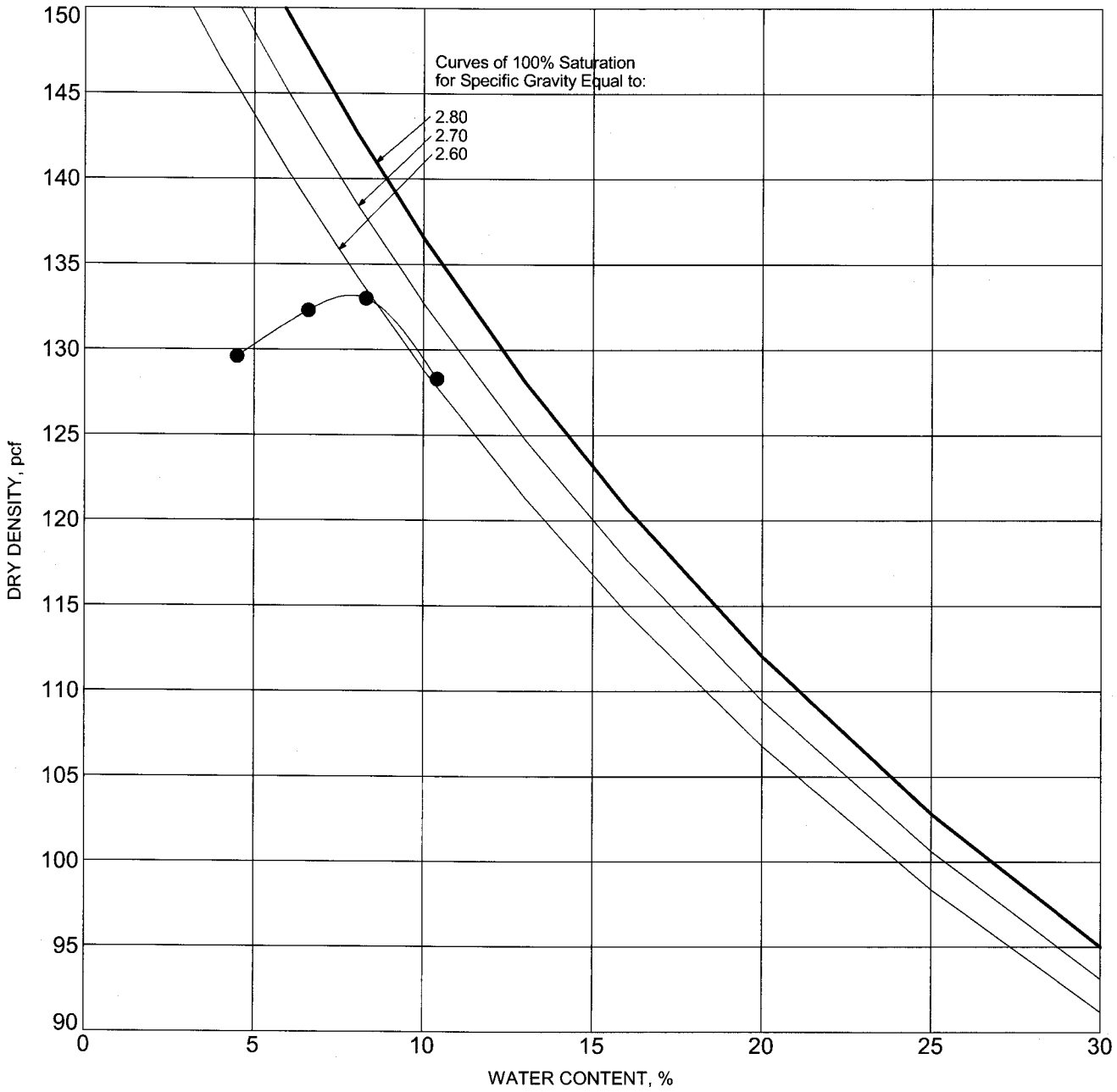
# MOISTURE-DENSITY RELATIONSHIP RESULTS

Converse Consultants

**PROPOSED MAUEL PARK**
**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No.
**06-81-245-01**

Drawing No.
**B - 2** a




| SYMBOL | BORING NO. | DEPTH (ft) | DESCRIPTION | ASTM TEST METHOD | OPTIMUM WATER, % | MAXIMUM DRY DENSITY, pcf |
|---|---|---|---|---|---|---|
| ● | **BH-12** | **7.5-12.5** | **Silty Sand (SM), trace Clay, Olive Brown** | **D1557 - B** | **8.0** | **133.5** |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

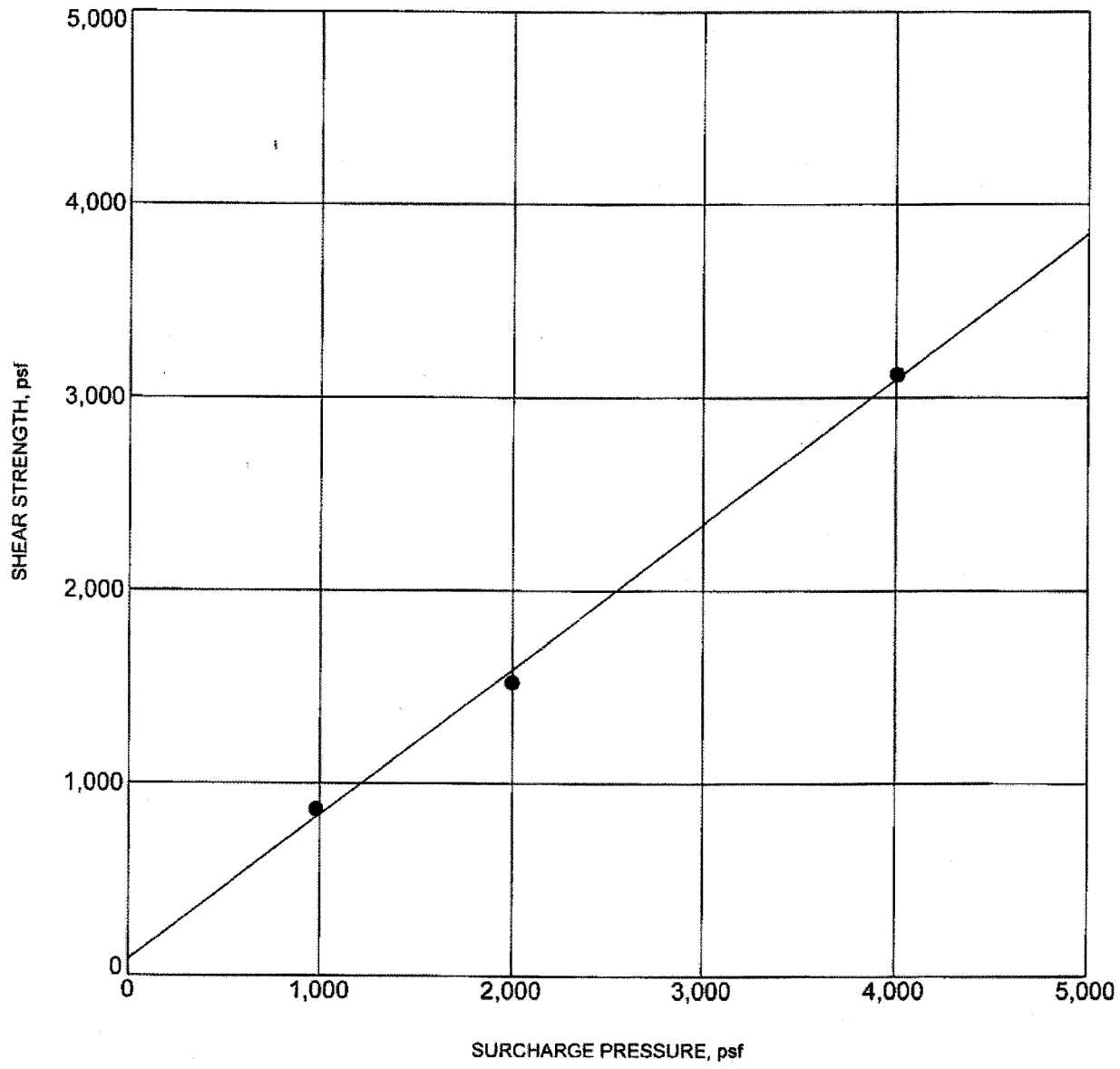
# MOISTURE-DENSITY RELATIONSHIP RESULTS

Converse Consultants

Proposed Nuview Library Expansion
29990 Lakeview Ave
Unincorporated area of Nuevo, Riverside County, California
For: County of Riverside Economic Development Agency (EDA)

Project No. **06-81-245-03**

Drawing No. **B-2b**




| | | | |
|---|---|---|---|
| BORING NO. : | BH - 4 | DEPTH (ft) : | 0.0-5.0' |
| DESCRIPTION : | SILTY SAND (SM) | | |
| COHESION (psf) : | 100 | FRICTION ANGLE (degrees) | 37 |
| MOISTURE CONTENT (%) : | 7.7 | DRY DENSITY (pcf) : | 117.2 |

NOTE: Ultimate Strength, Sample Remolded to 90% of the Laboratory Maximum Dry Density

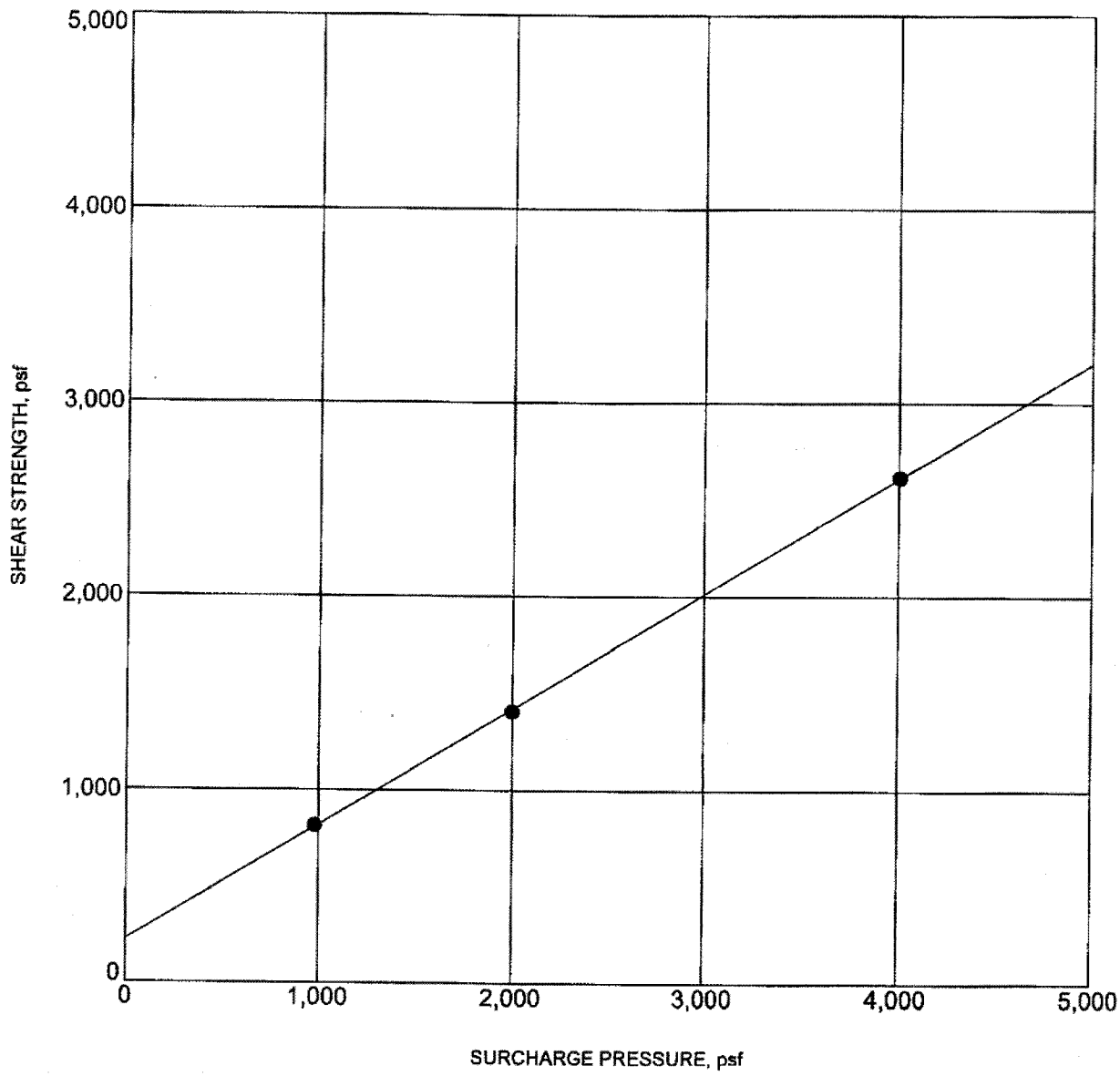
# DIRECT SHEAR TEST RESULTS

Converse Consultants

**PROPOSED MAUEL PARK**
**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **B - 3**




| | | | |
|---|---|---|---|
| BORING NO. : | BH - 7 | DEPTH (ft) : | 5.0-6.5' |
| DESCRIPTION : | SILTY SAND (SM) | | |
| COHESION (psf) : | 200 | FRICTION ANGLE (degrees) | 31 |
| MOISTURE CONTENT (%) : | 7.7 | DRY DENSITY (pcf) : | 114.1 |

NOTE: Ultimate Strength.

# DIRECT SHEAR TEST RESULTS

Converse Consultants

**PROPOSED MAUEL PARK**
**Unincorporated Area of Lakeview/Nuevo,**
**Riverside County, California**
**For: RHA Landscape Architects**

Project No. **06-81-245-01**

Drawing No. **B - 4**