ACOUSTICAL ANALYSIS REPORT

FOR CITY OF SAN DIEGO SUBMITTAL

Access Youth Academy
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San Diego, California 92114

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1.0 EXECUTIVE SUMMARY

The proposed project, Access Youth Academy, consists of the construction of a new building on a currently vacant lot. The new building will include three classrooms, a conference room, office spaces, and eight squash courts. The project site is located at 704 Euclid Avenue in the City of San Diego, California.

The primary noise sources in the vicinity of the project site are traffic noise from State Route 94, Euclid Avenue, and Guymon Street, and aircraft noise from the San Diego International Airport. Calculations show that worst-case combined noise levels at proposed building facades will range from 60.1 CNEL at the south-facing facade of the first floor to 72.9 CNEL at the east-facing facade of the second floor.

The City of San Diego requires interior noise levels of 45 CNEL or less in learning spaces and 50 CNEL or less in office spaces within the building. An interior noise analysis was performed considering the currently proposed exterior walls, roof, windows, and doors, and demonstrates that with windows closed, the current design is expected to be sufficient for reducing noise impacts to interior spaces to comply with these standards. As interior noise levels will exceed 45 CNEL or 50 CNEL with windows opened, mechanical ventilation will be required at the project site. With this project design feature in place, the project is expected to comply with the interior noise requirements of the City of San Diego Noise Element to the General Plan and the City of San Diego Encanto Neighborhoods Community Plan.

Calculations show that noise levels generated by anticipated HVAC units are expected to meet the applicable nighttime noise limits at surrounding property lines, as designed. No added project design features are deemed necessary for attenuating these mechanical noise impacts.

Due to the high noise levels associated with the demolition of the existing concrete slab on the project site, and the proximity of construction equipment to neighboring noise-sensitive receivers, a temporary noise barrier is required as mitigation to bring noise levels into compliance with applicable regulations during this construction activity. The noise barrier should be ten feet high along the northern property line of the subject property and should be six feet high along the western property line of the subject property. With these noise barriers in place during the demolition of the concrete slab, noise from temporary construction activities is expected to comply with the applicable construction noise limits of the City of San Diego at all surrounding properties during this phase of construction. During all remaining phases of construction, noise levels from construction activities are expected to remain in compliance with applicable regulations at all noise-sensitive receivers, without any mitigation. Construction is prohibited between the hours of 7 p.m. and 7 a.m. and on Sundays and legal holidays. Standard construction noise control methods, including adhering to permissible hours of operation, maintaining equipment in proper operating condition, and placing staging areas at furthest locations from noise sensitive receivers, in addition to installation of the proposed barrier wall during the demolition of the existing concrete slab, are expected to be sufficient for reducing noise impacts to surrounding receivers.

2.0 INTRODUCTION

This acoustical analysis report is submitted to satisfy the noise requirements of the City of San Diego. The purpose of this report is to assess exterior noise impacts to the site, and to identify project features necessary to meet the interior noise limits set within the City of San Diego Noise Element to the General Plan and the City of San Diego Encanto Neighborhoods Community Plan.

All noise level or sound level values presented herein are expressed in terms of decibels, with A-weighting to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, for a specified duration. The Community Noise Equivalent Level (CNEL) is a calculated 24-hour weighted average, where sound levels during evening hours of 7 p.m. to 10 p.m. have an added 5 dB weighting, and sound levels during nighttime hours of 10 p.m. to 7 a.m. have an added 10 dB weighting. This is similar to the Day-Night sound level, L_{DN}, which is a 24-hour average with an added 10 dB weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on A-weighted decibels. These metrics are used to express noise levels for both measurement and municipal regulations, for land use guidelines, and for enforcement of noise ordinances. According to the California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol (see reference), peak hour traffic noise levels are typically found to be close to predicted CNEL values. Therefore, CNEL values calculated in the traffic noise analysis for this project have been considered to be representative of peak hour noise impacts that would be experienced at on-site classrooms. Further explanation can be provided upon request.

2.1 Project Description

The proposed project, Access Youth Academy, consists of the construction of a new building on a currently vacant lot. The new building will include three classrooms, a conference room, office spaces, and eight squash courts. Storage areas, a kitchen, and locker rooms are also included in the construction. Project plans are provided as Appendix A.

2.2 Project Location

The proposed project is located at 704 Euclid Avenue in the City of San Diego, California. The Assessor's Parcel Number (APN) for the project is 548-010-13-00. The site is currently vacant. For a graphical representation of the site, please refer to the Vicinity Map, Assessor's Parcel Map, Satellite Aerial Photograph, and Topographic Map, provided as Figures 1 through 4, respectively.

2.3 Applicable Noise Regulations

The City of San Diego Noise Element to the General Plan and the City of San Diego Encanto Neighborhoods Community Plan both require that, for institutional uses, interior noise impacts from exterior sources must be controlled to be 45 CNEL or less within learning spaces and 50 CNEL or less within office spaces.

Additionally, noise sources on the project site must also be evaluated to determine their impact on neighboring receivers. The City of San Diego Municipal Code states that single family residential properties have noise limits of 50 dBA between the hours of 7 a.m. and 7 p.m., 45 dBA between the hours of 7 p.m. and 10 p.m., and 40 dBA between the hours of 10 p.m. and 7 a.m. The municipal code states that commercial properties have noise limits of 65 dBA between the hours of 7 a.m. and 7 p.m., 60 dBA between the hours of 7 p.m. and 10 p.m., and 60 dBA between the hours of 10 p.m. and 7 a.m. The subject property is considered commercial. Properties to the north, east, and west are single family zoning and/or use. The property to the south is commercial. The City of San Diego Municipal Code states that the sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. Therefore, the noise level limits at a boundary between commercial and single family residential use properties have been calculated as 57.5 dBA between the hours of 7 a.m. and 7 p.m., 52.5 dBA between the hours of 7 p.m. and 10 p.m., and 50 dBA between the hours of 10 p.m. and 7 a.m.

In addition, Section 59.5.0404 of the City of San Diego Municipal Code states that construction activity is prohibited between the hours of 7 p.m. and 7 a.m. and on Sundays and legal holidays. During permissible hours of operation, noise levels from construction activity must be limited to a twelve-hour average of no greater than 75 dBA at any property line zoned for residential use.

Pertinent sections of the City of San Diego Noise Element to the General Plan, Municipal Code, and the Encanto Neighborhoods Community Plan are provided as Appendix B.

3.0 ENVIRONMENTAL SETTING

3.1 Existing Noise Environment

The primary noise sources in the vicinity of the project site include automobile and truck traffic noise from State Route 94, Euclid Avenue, and Guymon Street, as well as noise contribution from aircraft overflight from the San Diego International Airport. No other noise source is considered to be significant.

3.1.1 Aircraft Overflight Noise Sources

San Diego International Airport is located approximately 5.5 miles to the west of the proposed project site. According to the most current Airport Influence Area for San Diego International Airport, the project site lies just outside the 60-65 dB CNEL contour. Based on the location near the contour, the aircraft noise impact at the project site is estimated to be approximately 60 CNEL. Please refer to Figure 5 for a graphical representation of these contours.

3.1.2 Existing Transportation Noise

Current (2015) traffic volumes are given based on information from the Caltrans Traffic Census, the San Diego Association of Governments (SANDAG) Average Traffic Volumes for Local Jurisdictions, and the SANDAG Series 12 Transportation Forecast Information Center (see references).

State Route 94 (SR-94) is a nine-lane, two-way Freeway running generally east-west to the north of the project site. The posted speed limit is 65 mph. According to counts obtained from the 2015 Caltrans traffic census, SR-94 currently carries approximately 91,500 Average Daily Trips (ADT) in the vicinity of the project site.

Euclid Avenue is a four-lane, two-way Major Arterial running north-south along the eastern boundary of the project site. The posted speed limit is 35 mph. According to SANDAG, Euclid Avenue currently carries a traffic volume of approximately 29,300 ADT in the vicinity of the project site.

Guymon Street is a two-lane, two-way Local roadway running generally east-west along the southern boundary of the project site. The posted speed limit is 25 mph. According to the

SANDAG TFIC Series 12 Adjusted Counts (2008), Euclid Avenue currently carries a traffic volume of approximately 800 ADT in the vicinity of the project site.

No current or future truck percentages were available for any of the roadways in the vicinity of the project site, other than State Route 94. However, based on neighboring and surrounding land use, on-site observations, and professional experience, a truck percentage mix of 3.00% medium trucks and 2.00% heavy trucks was used for Euclid Avenue and a truck percentage mix of 2.00% medium trucks and 1.00% heavy trucks was used for Guymon Street. According to Caltrans traffic counts, SR-94 currently carries a truck percentage mix of 2.84% medium and 1.06% heavy trucks.

Current and future (See Section 3.2) traffic volumes and vehicle mixes for roadway sections near the project site are shown in Table 1. For more information, please refer to Appendix C: Traffic Noise Model (TNM) Data and Results.

Table 1. Overall Roadway Traffic Information

Roadway Name	Speed Limit (mph)	Vehicle Mix (%)		Current Traffic (Year)	Future Traffic (2035)
		Medium Trucks	Heavy Trucks		
State Route 94	65	2.84	1.06	91,500 (2015)	94,400 / 98,900[1]
Euclid Avenue	35	3.00	2.00	29,300 (2015)	28,000
Guymon Street	25	2.00	1.00	800 (2008)	1,000

[1]Future traffic volumes of SR-94 are shown for segments eastbound and westbound, respectively.

Current traffic noise contours were calculated at five feet above ground level, without existing or proposed project structures, and showed that traffic noise impacts to the entire project site range from 64.6 CNEL to 72.6 CNEL. For a graphical representation of these contours, please refer to Figure 6: Site Plan Showing Current and Future Traffic CNEL Contours and Noise Measurement Location.

3.1.3 Measured Noise Level

An on-site inspection and noise measurements were taken on the afternoon of Monday, November 6, 2017. A “one-hour" equivalent noise measurement was made at approximately 61 feet west of the Euclid Avenue centerline, and approximately 23 feet north of the Guymon Street centerline. The microphone was placed at approximately five feet above grade.

Traffic volumes for Euclid Avenue and Guymon Street were recorded for automobiles, medium-size trucks, and large trucks during the measurement period. After a continuous 10-minute sound level measurement, no changes in the L_{EQ} were observable and results were recorded. The primary source of noise during the measurement was traffic on Euclid Avenue and Guymon Street, with some minor noise contribution from traffic traveling on SR-94. The measured noise level and related weather conditions are found in Table 2. For more information, please refer to Appendix C: Traffic Noise Model (TNM) Data and Results. For a graphical representation of the noise measurement location, please refer to Figure 6.

Table 2. On-Site Noise Measurement Conditions and Results	
Date	Monday, November 6, 2017
Time	2:11 p.m. – 2:23 p.m.
Conditions	Partly cloudy skies, winds at 7 mph, temperature in the mid 70s with moderate humidity
Measured Noise Level	68.5 dBA L_{EQ}

3.1.4 Calculated Noise Level

Noise levels were calculated for the site using the methodology described in Section 4.1 for the location, conditions, and traffic volumes counted during the noise measurements. The calculated noise levels (L_{EQ}) were compared with the measured on-site noise level to determine if adjustments or corrections (calibration) should be applied to the traffic noise prediction model in the Traffic Noise Model software (TNM). Adjustments are intended to account for site-specific variances in overall reflectivity or absorption, which may not be accurately represented by the default settings in the model.

The measured noise level of 68.5 dBA L_{EQ} at approximately 61 feet west of the Euclid Avenue centerline, and approximately 23 feet north of the Guymon Street centerline was compared to the calculated (modeled) noise level of 70.0 dBA L_{EQ} for the same conditions and traffic flow. According to the Federal Highway Administration's Highway Traffic Noise: Analysis and Abatement Guide (see reference), a traffic noise model is considered validated if the measured and calculated noise impacts differ by three decibels or less. No adjustment was deemed necessary to model future noise levels for this location as the difference between the measured and calculated levels was found to be less than three decibels. This information is presented in Table 3. Please refer to Appendix C: Traffic Noise Model (TNM) Data and Results for more information.

Table 3. Calculated versus Measured Traffic Noise Data

Calibration Receiver Position	Measured	Calculated	Difference	Correction
61 feet west of Euclid C.L. 23 feet north of Guymon C.L.	68.5 dBA L_{EQ}	70.0 dBA L_{EQ}	1.5 dB	None applied

3.2 Future Noise Environment

The future on-site noise environment is expected to be the result of the same noise sources, as well as permanent project-related noise generated by the proposed rooftop HVAC equipment, and temporary project-related noise generated by construction activity.

3.2.2 HVAC Noise Sources

The primary source of permanent noise generated on site is expected to be the operation of proposed rooftop mechanical (HVAC) equipment. According to mechanical plans, several pieces of rooftop mechanical equipment are proposed for the site. The sound power levels for the proposed rooftop HVAC equipment are shown in Table 4. Please refer to Appendix D: Manufacturer Data Sheets for additional information.

Table 4. Sound Power Levels of Rooftop HVAC Equipment								
Source	Sound Power Level at Octave Band Frequency (dBA)							Total (dBA)
	125	250	500	1K	2K	4K	8K	
Carrier 48HC-11	87.9	85.6	84.4	82.8	78.5	74.9	72.5	87.3
Carrier 48HC-20	83.9	80.4	81.8	78.7	76.5	72.2	65.4	84.1
Carrier 48HC-24	87.5	84.2	84.2	81.7	77.9	73.2	66.3	86.5
Cook ACE-B 195C6B	75.0	76.0	70.0	66.0	62.0	56.0	52.0	72.0
AAON RQ-005-8-J	78.0	79.0	72.0	67.0	65.0	60.0	55.0	74.9
AAON CB-B-060-8*	89.0	87.0	85.0	84.0	78.0	75.0	69.0	88.0

* No sound level information was available for the AAON CB-B-060-8 heat pump; therefore, the sound levels for a similar heat pump were used. The sound power levels shown above for AAON CB-B-060-8 were taken from a Trane WSC120A heat pump.

No other noise sources on site are anticipated to generate a significant amount of noise at neighboring properties.

3.2.3 Temporary Construction Equipment

An anticipated construction schedule was formulated using information provided by a site-specific memo from Dempsey Construction and from professional experience. Noise levels for proposed equipment are detailed in Table 5. All noise levels have been provided by the UK Department for Environment, Food, and Rural Affairs (DEFRA) Construction Noise Database, and all duty cycles have been provided by the Federal Highway Administration.

Table 5. Typical Construction Equipment Noise Levels		
Equipment Description	Duty Cycle (%)	Noise Level at 50 feet (dBA)
Excavator with Breaker	40	86
Dump Truck / Truck	40	75
Front Loader	40	72
Excavator	40	72
Dozer	40	74
Vibratory Roller	20	70
Concrete Mixer Truck	40	76
Concrete Pump Truck	20	74
Telescopic Forklift	40	67
150 kW Generator	50	61
Truck (for delivery of materials to project site)	40	75

These noise levels will be incorporated into the temporary construction noise analysis for the site, provided in Section 5.3.2.

4.0 METHODOLOGY AND EQUIPMENT

4.1 Methodology

4.1.1 Field Measurement

Typically, a “one-hour” equivalent sound level measurement (L_{EQ}, A-Weighted) is recorded for at least one noise-sensitive location on the site. During the on-site noise measurement, start and end times are recorded, vehicle counts are made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles) for the corresponding road segment(s). Supplemental sound measurements of one hour or less in duration are often made to further describe the noise environment of the site.

For measurements of less than one hour in duration, the measurement time is long enough for a representative traffic volume to occur and the noise level (L_{EQ}) to stabilize. The vehicle counts are then converted to one-hour equivalent volumes by applying an appropriate factor. Other field data gathered include measuring or estimating distances, angles-of-view, slopes, elevations, roadway grades, and vehicle speeds. This information is subsequently verified using available maps and records.

4.1.2 Roadway Noise Calculation

The Traffic Noise Model software, TNM Version 2.5 released in February 2004 by the U. S. Department of Transportation was used for all traffic modeling in the preparation of this report. TNM calculates the daytime average Hourly Noise Level (HNL) from traffic data including road alignment, elevation, lane configuration, projected traffic volumes, estimated truck composition percentages and vehicle speeds. The HNL is equivalent to the L_{EQ}, and may be converted to CNEL by the addition of 2.0 decibels, as suggested in the Wyle Laboratories Study (see reference). The daytime average hourly traffic volume, evaluated from Average Daily Trips (ADT) data as shown in the Wyle Study to be simply 5.8% of ADT, is then applied to models in TNM. Current and future CNEL is calculated for predetermined receiver locations.

In order to determine the estimated traffic volumes of roadways during the traffic noise measurement made on site for model calibration, the approximate percentage of the Average Daily Trips (ADT) value for the time period in which the measurement is made is incorporated into the traffic model. These percentages have been established in a study performed by Katz-Okitsu and Associates, Traffic Engineers (see reference). For purposes of calibrating the TNM, 7.4% of the ADT values for the current environment were used in calculations (for roadways that were not manually counted) to account for traffic between the hours of 2 p.m. and 3 p.m. in the vicinity of the project site. Further explanation can be supplied on request.

4.1.3 Exterior-to-Interior Noise Calculation

Analysis for the interior noise levels requires consideration of:

- Number of unique assemblies in the wall (doors, window/wall mount air conditioners, sliding glass doors, and windows)
- Size, number of units, and sound transmission data for each assembly type
- Length of sound impacted wall(s)
- Depth of sound impacted room
- Height of exterior wall of sound impacted room
- Exterior noise level at wall assembly or assemblies of sound impacted room

The Composite Sound Transmission data is developed for the exterior wall(s) and the calculated noise exposure is converted to octave band sound pressure levels (SPL) for typical traffic type noise. The reduction in room noise due to absorption is calculated and subtracted from the interior octave noise levels, and the octave band noise levels are logarithmically summed to yield the overall interior room noise level. When interior noise levels exceed the desired target for classrooms, the noise reduction achieved by each element is reviewed to determine the most cost-effective and compliant design modifications. Windows are usually the first to be reviewed, followed by the doors, and finally the walls.

4.1.4 Sound Transmission Class (STC) Ratings

Sound Transmission Class (STC) is a single number rating calculated in accordance with ASTM E413, using third-octave values of sound transmission loss. It provides an estimate of the sound performance of a partition, window, or door in sound insulation problems. Further information can be provided upon request.

Modeling of wall and floor/ceiling assemblies is accomplished using INSUL Version 9.0, which is a model-based computer program, developed by Marshall Day Acoustics for predicting the sound insulation of walls, floors, ceilings and windows. It is acoustically based on theoretical models that require only minimal material information that can make reasonable estimates of the sound transmission loss (TL), STC and IIC for use in sound insulation calculations; such as the design of common party walls and multiple family floor-ceiling assemblies, etc. INSUL can be used to quickly evaluate new materials or systems or investigate the effects of changes to existing designs. It models individual materials using the simple mass law and coincidence frequency approach and can model more complex assembly partitions, as well. It has evolved over several versions into an easy to use tool and has refined the theoretical models by continued comparison with laboratory tests to provide acceptable accuracy for a wide range of constructions. INSUL model performance comparisons with laboratory test data show that the model generally predicts the performance of a given assembly within 3 STC points. IIC predictions are generally made based on laboratory tests from a number of resources, including test data provided by product manufacturers and National Research Council of Canada tests.

4.1.5 Cadna Noise Modeling Software

Modeling of the outdoor noise environment is accomplished using Cadna Version 2018, which is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. Cadna (Computer Aided Noise Abatement) assists in the calculation, presentation, assessment, and alleviation of noise exposure. It allows for the input of project information such as noise source data, barriers, structures, and topography to create a detailed model and uses the most up-to-date calculation standards to predict outdoor noise impacts. Noise standards used by Cadna that are particularly relevant to this analysis include ISO 9613 (Attenuation of sound during propagation outdoors). Cadna provides results that are in line with basic acoustical calculations for distance attenuation and barrier insertion loss. Further explanation may be provided upon request.

4.1.6 Acoustical Formulas and Calculations

The following acoustical formulas and calculations have also been used in the preparation of this report.

Decibel Addition

To determine the combined logarithmic noise level of two known noise source levels, the values are converted to the base values, added together, and then converted back to the final logarithmic value, using the following formula:

$$L_C = 10\log(10^{L1/10} + 10^{L2/10} + \mathrm{K}\ 10^{LN/10})$$

where L_C = the combined noise level (dB), and
L_N = the individual noise sources (dB).

This procedure is also valid when used successively for each added noise source beyond the first two. The reverse procedure can be used to estimate the contribution of one source when the contribution of another concurrent source is known and the combined noise level is known. These methods can be used for L_{EQ} or other metrics (such as L_{DN} or CNEL), as long as the same metric is used for all components.

Attenuation Due To Distance

Attenuation due to distance is calculated by the equation:

$$SPL_2 = SPL_1 - 20\log(\frac{D_2}{D_1})$$

where SPL_1 = Known sound pressure level at known distance,
SPL_2 = Calculated sound pressure level at distance,
D_1 = Distance from source to location of known sound pressure level, and
D_2 = Distance from source to location of calculated sound pressure level.

This is identical to the more commonly used reference of 6 dB reduction for every doubling of distance. This equation does not take into account reduction in noise due to atmospheric absorption.

Hourly L_{EQ} Summation

To determine the hourly average noise levels (L_{EQ}) when the noise is created for less than the full hour, convert the logarithm values to the base energy value, multiply by the percentage of the hour that the noise occurs, and then convert the sum back to a logarithmic value. This is done with the following formula:

$$L_{EQ} = 10\log(P_H \times 10^{L_P/10})$$

where P_H = the percent or fraction of the hour noise is created, and

L_P = the partial hour noise level (dB).

Sound Power to Sound Pressure

To convert sound power levels to sound pressure levels, the following formula is used:

$$SPL = SWL - 20\log(D) - 0.5$$

where: SPL= Calculated sound pressure level at distance, and
D = Distance from source to location of calculated sound pressure level.

4.2 Measurement Equipment

Some or all of the following equipment was used at the site to measure existing noise levels:

- Larson Davis Model LxT Type 1 Integrating Sound Level Meter, Serial #4084
- Larson Davis Model CA250 Type 1 Calibrator, Serial #1081

The sound level meter was field-calibrated immediately prior to the noise measurement and checked afterward, to ensure accuracy. All sound level measurements conducted and presented in this report, in accordance with the regulations, were made with a sound level meter that conforms to the American National Standards Institute specifications for sound level meters (ANSI S1.4). All instruments are maintained with National Bureau of Standards traceable calibration, per the manufacturers' standards.

5.0 NOISE IMPACTS

5.1 Exterior Transportation Noise Impacts

As the traffic volume of Euclid Avenue is expected to decrease in the future, the current traffic volume has been used for this roadway for a worst-case analysis of traffic noise levels at the site. Worst-case combined noise impacts were calculated at building facades and showed that noise levels will range from 60.1 CNEL at the south-facing facade of the first floor to 72.9 CNEL at the east-facing facade of the second floor. Noise levels are shown in Table 6, and receiver locations are shown in Figure 7.

Table 6. Worst-Case Noise Levels at Building Facades

Receiver	Facade Location	Floor	Exterior Noise Level (CNEL)		
			Traffic	Aircraft	Combined
F1	South	1	68.3	60.0	68.9
		2	68.8	60.0	69.3
F2	West	1	53.9	60.0	61.0
		2	55.1	60.0	61.2
F3	West	1	48.1	60.0	60.3
		2	50.4	60.0	60.5
F4	West	1	44.2	60.0	60.1
		2	48.2	60.0	60.3

Table 6. Worst-Case Noise Levels at Building Facades					
Receiver	Facade Location	Floor	Exterior Noise Level (CNEL)		
			Traffic	Aircraft	Combined
F5	South	1	43.1	60.0	60.1
		2	45.1	60.0	60.1
F6	West	1	47.5	60.0	60.2
		2	52.4	60.0	60.7
F7	North	1	61.6	60.0	63.9
		2	63.2	60.0	64.9
F8	North	1	66.6	60.0	67.5
		2	67.3	60.0	68.0
F9	East	1	72.0	60.0	72.3
		2	72.1	60.0	72.4
F10	East	1	72.2	60.0	72.5
		2	72.3	60.0	72.5
F11	East	1	72.0	60.0	72.3
		2	72.2	60.0	72.5
F12	East	1	72.6	60.0	72.8
		2	72.7	60.0	72.9

5.2 Interior Transportation Noise Impacts

The City of San Diego Noise Element to the General Plan and the City of San Diego Encanto Neighborhoods Community Plan require institutional uses to be designed in order to attenuate, control, and maintain interior noise levels to below 45 CNEL in educational space and 50 CNEL in office spaces. Contemporary exterior building construction is generally expected to achieve at least 15 decibels of exterior-to-interior noise attenuation, with windows opened, according to the U.S. Environmental Protection Agency (see reference). Therefore, proposed project building structures exposed to exterior noise levels greater than 60 or 65 CNEL could be subject to interior noise levels exceeding the 45 or 50 CNEL noise limits for interior space, respectively.

Exterior noise levels at many of the calculated receiver points on the proposed building facades exceed 60 CNEL, as shown in Table 4. Due to the elevated exterior noise levels at these building facades, an exterior-to-interior noise analysis was conducted for occupied spaces. The proposed exterior wall assemblies were evaluated using INSUL and were shown to have STC ratings of 47 and 54, and were incorporated into the interior noise analysis as such where they occur. The roof assembly was evaluated and determined to have a sound rating of STC 42. Glazing at the site is expected to be one-inch insulated glazing units with a rating of STC 34. More information is provided in Appendix E: Sound Insulation Prediction Results.

Table 7 below shows the results of the exterior-to-interior noise analysis for typical and worst-case spaces, considering the project as currently designed. For more information, please refer to Appendix F: Exterior-to-Interior Noise Analysis.

Table 7. Future Worst-Case Interior CNEL Noise Levels from Auto Traffic and Aircraft				
Room	Maximum Exterior Facade Impact (CNEL)	Proposed STC Rating for Windows and Exterior Glass Doors	Interior Noise Level (CNEL)	
			Windows Open	Windows Closed
101 Lobby / 102 Reception / 103 Parents Lounge	72.3	34	42.7	40.5
105 Classroom 1	72.0	34	64.6	38.5
106 Classroom 2	72.6	34	65.2	39.0
108 College Prep Room	72.6	34	64.9	39.0
108 College Prep Room / 109 Classroom 3	72.6	34	63.2	37.6
109 Classroom 3	68.3	34	58.5	33.4
120 Singles Court 6 (Worst-Case Court)	66.6	N/A	N/A	26.8
202 Gallery	72.2	34	63.1	40.5
204 Open Office	72.7	34	62.5	39.2
205 Office	72.7	34	65.4	44.5
207 Conference Room	68.8	34	60.8	38.9
208 Kitchen	60.0	34	52.7	35.0

As shown in Table 7, with the project as currently designed, interior noise impacts are expected to be less than 45 CNEL in learning spaces and less than 50 CNEL in office spaces with windows closed. Appropriate means of air circulation and provision of fresh air must be present to allow windows to remain closed for extended intervals of time so that acceptable levels of noise can be maintained on the interior. Therefore, a mechanical ventilation system is required for the project.

The ventilation system shall meet the criteria of the California Mechanical Code, including the capability to provide appropriate ventilation rates. The ventilation system shall not compromise the sound insulation capability of the exterior wall or be dependent on ventilation through windows. A Forced Air Unit (FAU) or its equivalent meeting the criterion described must be installed in these spaces to satisfy code requirements.

Exterior door installation should include all-around weather-tight door stop seals and an improved threshold closure system. The additional hardware will improve the doors' overall sound reduction properties. The transmission loss (TL) of an exterior door without weather-tight seals is largely a factor of sound leakage, particularly at the bottom of the door if excessive clearance is allowed for air transfer. By equipping exterior doors with all-around weather-tight seals and an airtight threshold closure at the bottom, a loss of up to 10 STC points can be prevented. Manufacturers of these products include such companies as Pemko and Reese. Manufacturer sheets are provided in Appendix G: Recommended Products.

Additionally, it is imperative to seal and caulk between the rough opening and the finished door frame for all doors by applying an acoustically resilient, non-skinning butyl caulking compound. Sealant application should be as generous as needed to ensure effective sound barrier isolation. The same recommendation would apply to any other penetrations through the assembly. The OSI Green Series Draft and Acoustical Sound Sealant and the Pecora AC-20 FTR Sealant are products specifically designed for this purpose. Please see Appendix G: Recommended Products.

The proposed project was analyzed for worst-case noise impacts from roadway traffic and aircraft overflight. With the proposed exterior wall assemblies, roof assembly, glazing, and mechanical ventilation in place, all interior space is expected to comply with the City of San Diego noise requirements established in the Noise Element to the General Plan and Encanto Neighborhoods Community Plan.

5.3 Project-Related Noise Impacts on Surrounding Property Lines

5.3.1 HVAC Noise

Anticipated HVAC noise levels have been calculated using Cadna at surrounding noise-sensitive receivers, considering the noise limits detailed in Section 2.3. Calculations take into account the proposed building on which HVAC units will be roof-mounted. Receivers have been placed at five feet above grade at all surrounding property lines. Calculations assume that all HVAC units will be operational for 100 percent of the time during all hours of the day, for a worst-case analysis, although actual operation would be expected to be intermittent and less frequent during the more sensitive nighttime hours.

Results of the analysis are shown in Table 8. More information is provided in Appendix H: Cadna Analysis Data and Results, and a graphical representation of evaluated source and receiver locations is shown in Figure 8.

Table 8. Mechanical Equipment Noise Levels at Surrounding Receivers

Receiver	Location	Nighttime Noise Limit (dBA)	Equipment Noise Level (dBA)
M1	West Property Line	50	38.1
M2	North Property Line	50	44.1
M3	East Property Line (Across Euclid)	50	37.9
M4	East Property Line (Across Euclid)	50	37.2

As shown above, noise levels from proposed HVAC equipment on site are expected to meet the applicable nighttime noise limits set by the City of San Diego without the implementation of added project design features. This evaluation is considered to be representative of worst-case HVAC noise generated on site.

5.3.2 Temporary Construction Noise

A schedule of construction activity was evaluated to determine potential temporary noise impacts to the surrounding residentially zoned receivers, per City of San Diego Municipal Code requirements. The nearest residential properties are to the north, east, and west of the project site. Any other potentially noise-sensitive receivers are located at a greater distance from construction activity and therefore would be exposed to lesser noise impacts due to distance attenuation and shielding provided by intervening structures.

An anticipated construction schedule was formulated using information provided by a site-specific memo from Dempsey Construction and from professional experience. A summary of construction activity is shown in Table 9.

Table 9. Anticipated Construction Activity	
Phase	**Anticipated Large Equipment**
1. Demolition	Excavator with Breaker, Dump Truck, Front Loader
2. Grading / Earthworks	Dump Truck, Front Loader, Excavator, Dozer, Vibratory Roller
3. Pouring Foundations	Concrete Mixer Truck (two trucks on site), Concrete Pump Truck
4. Exterior Skin	Truck (for delivery of materials to project site), Telescopic Forklift, 150 kW Generator

Noise levels were calculated at the nearest receivers to the north, east, and west using Cadna. Construction noise sources were placed near the center of the work area for each phase of construction. During the demolition phase, construction equipment was placed in the center of the existing concrete slab, as the majority of the demolition work will take place at this location. During all other phases of construction, construction equipment was placed in the center of the lot – to evaluate typical impacts to the surrounding receivers as equipment moves around the property. Noise calculations consider typical duty cycles of equipment, to account for periods of activity and inactivity on the site. Noise levels for each stage of construction are shown in Table 10. For a graphical representation of construction noise contours for each phase of construction, please refer to Figures 9 through 12.

Table 10. Unmitigated Temporary Construction Noise Levels at Surrounding Properties				
Phase	**Equipment Used**	**Receiver**	**Approximate Distance (ft)**	**Average Noise Level of Equipment (dBA)**
Demolition	Excavator with Breaker, Dump Truck, Front Loader	R1	128	73.3
		R2	67	**79.6**
		R3	25	**89.3**
		R4	147	72.0
		R5	184	69.8
Grading / Earthworks	Dump Truck, Front Loader, Excavator, Dozer, Vibratory Roller	R1	69	72.8
		R2	130	60.1
		R3	134	52.5
		R4	182	63.5
		R5	147	65.6

Table 10. Unmitigated Temporary Construction Noise Levels at Surrounding Properties				
Phase	**Equipment Used**	**Receiver**	**Approximate Distance (ft)**	**Average Noise Level of Equipment (dBA)**
Pouring Foundations	Concrete Mixer Truck (two trucks on site), Concrete Pump Truck	R1	69	73.1
		R2	130	67.4
		R3	134	67.0
		R4	182	64.2
		R5	147	66.2
Exterior Skin	Truck (for delivery of materials to project site), Telescopic Forklift, 150 kW Generator	R1	69	69.0
		R2	130	63.1
		R3	134	62.7
		R4	182	59.7
		R5	147	61.8

As shown above, construction noise impacts to surrounding properties are expected to comply with the applicable City of San Diego construction noise limits during all phases of construction, with the exception of the demolition phase. Due to the high noise levels associated with the demolition of the existing concrete slab on the project site and the proximity of construction equipment to neighboring noise sensitive receivers during this construction activity, a temporary noise barrier is required as mitigation along the north and west property lines of the subject property to bring noise levels into compliance with applicable regulations during the demolition phase of construction activity. Calculations were performed with a ten foot high noise barrier in place along the northern property line of the subject property and a six foot high noise barrier in place along the western property line of the subject property. Noise levels with this mitigation in place are shown in Table 11, below. For a graphical representation of the proposed orientation of the noise barrier during the demolition of the existing concrete slab and noise contours with this proposed mitigation in place, please refer to Figure 13.

Table 11. Mitigated Temporary Construction Noise Levels at Surrounding Properties				
Phase	**Equipment Used**	**Receiver**	**Approximate Distance (ft)**	**Average Noise Level of Equipment (dBA)**
Demolition	Excavator with Breaker, Dump Truck, Front Loader	R2	67	71.4
		R3	25	72.9

As shown above, with the proposed sound barrier in place, noise levels during the demolition phase of construction are expected to comply with applicable noise limits at all surrounding properties.

The sound barrier should be solid and constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, with no cracks or gaps, through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it should be tongue and groove and must be at least 7/8-inch thick or have a surface density of at least 3½ pounds per square foot. Any door or gate(s) must be designed with overlapping closures on the bottom and sides and meet the minimum specifications of the wall materials described above. The gate(s) may be of 3/4-inch thick or greater wood, solid-sheet metal of at least 18-gauge metal, or an exterior-grade solid-core steel door with prefabricated door jambs. An alternative option to the above criteria would be to install noise attenuation blankets, with a minimum STC rating of 28, and overlapping seams.

It has been determined that noise levels from construction activities associated with this project are expected to comply with the applicable City of San Diego construction noise limits at all surrounding property lines with activity limited to the daytime hours of 7 a.m. to 7 p.m during all phases of construction, with the exception of the demolition phase. During the demolition phase, a temporary noise barrier is required in order to mitigate noise impacts to surrounding properties located to the north and west of the subject property. The noise barrier should be ten feet high along the northern property line of the subject property and should be six feet high along the western property line of the subject property.

Although noise levels are shown to be in compliance with the construction noise limit of 75 dBA (with the installation of the proposed noise barrier during the demolition phase of construction), the following measures should still be practiced as a courtesy to surrounding properties.

1. Staging areas should be placed as far from occupied receivers as possible on the project site to limit any additional unnecessary noise exposure at sensitive receivers.

2. Place stationary equipment in locations that will have a lesser noise impact on nearby sensitive receivers.

3. Turn off equipment when not in use.

4. Limit the use of enunciators or public address systems, except for emergency notifications.

5. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging.

6. Schedule work to avoid simultaneous construction activities that both generate high noise levels.

7. Use equipment with effective mufflers.

8. Minimize the use of backup alarms.

With work limited to daytime hours permissible by the City of San Diego, the proposed noise barrier walls in place during the demolition phase, and adherence to the general good practice construction noise control techniques listed above, temporary construction noise is expected to remain in compliance with City of San Diego noise limits.

6.0 CONCLUSION

The City of San Diego requires interior noise levels of 45 CNEL or less in learning spaces and 50 CNEL or less in office spaces within the building. An interior noise analysis was performed considering the currently proposed exterior walls, roof, windows, and doors and demonstrates that the current design is expected to be sufficient for reducing noise impacts to comply with these standards with windows closed. As interior noise levels will exceed 45 CNEL or 50 CNEL with windows opened, mechanical ventilation will be required at the project site. With this project design feature in place, the project is expected to comply with the noise requirements of the City of San Diego Noise Element to the General Plan and the City of San Diego Encanto Neighborhoods Community Plan.

Calculations show that noise levels generated by anticipated HVAC units are expected to meet the applicable nighttime noise limits at surrounding property lines, as designed. No added project design features are deemed necessary for attenuating these mechanical noise impacts.

Due to the high noise levels associated with the demolition of the existing concrete slab on the project site, and the proximity of construction equipment to neighboring noise sensitive receivers, a noise barrier is required as mitigation in order to bring noise levels into compliance with applicable regulations during this construction activity. The noise barrier should be ten feet high along the northern property line of the subject property and should be six feet high along the western property line of the subject property. With these noise barrier walls in place during the demolition of the concrete slab, noise from temporary construction activities is expected to comply with the applicable construction noise limits of the City of San Diego at all surrounding property lines during this phase of construction. During all remaining phases of construction, noise levels from construction activities are expected to remain in compliance with applicable regulations at all noise-sensitive receivers, without requiring any mitigation. Construction is prohibited between the hours of 7 p.m. and 7 a.m. and on Sundays and legal holidays. Standard construction noise control methods, including adhering to permissible hours of operation, maintaining equipment in proper operating condition, and placing staging areas at the furthest possible locations from noise sensitive receivers, in addition to the installation of the proposed barrier wall during the demolition of the existing concrete slab, are expected to be sufficient for reducing noise impacts to surrounding receivers.

7.0 CERTIFICATION

All recommendations for noise control are based on the best information available at the time our consulting services are provided. However, as there are many factors involved in sound transmission, and Eilar Associates has no control over the construction, workmanship or materials, Eilar Associates is specifically not liable for final results of any recommendations or implementation of the recommendations.

The findings and recommendations of this acoustical analysis report are based on the information available and are a true and factual analysis of the potential acoustical issues associated with the Access Youth Academy project in the City of San Diego, California. This report was prepared by Mo Ouwenga, Amy Hool, and Jonathan Brothers.

M J Ouwenga

Mo Ouwenga, Acoustical Consultant I

Jonathan Brothers, Principal Acoustical Consultant

8.0 REFERENCES

1. City of San Diego Noise Element to the General Plan, June 2015.

2. City of San Diego Municipal Code.

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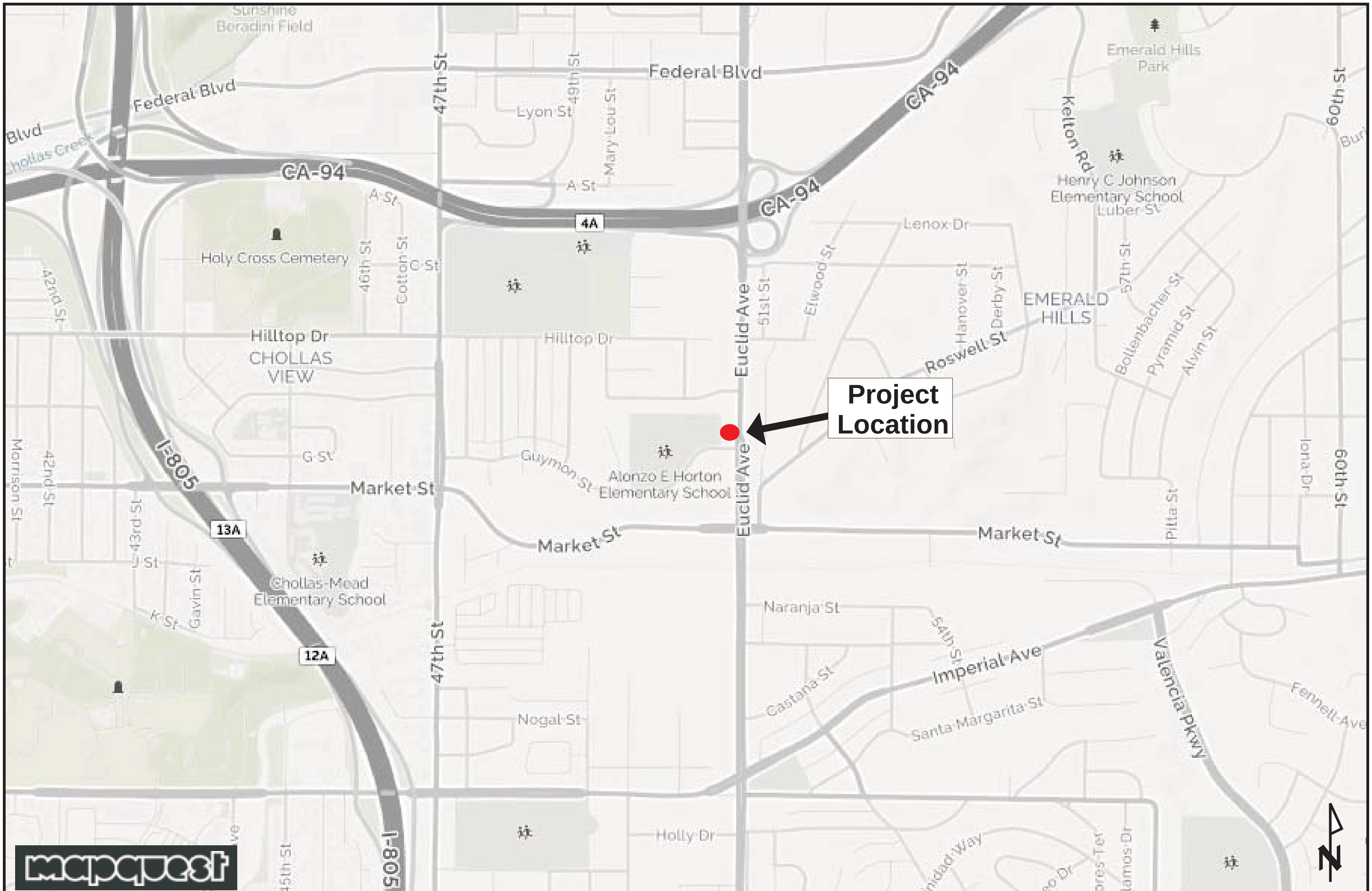
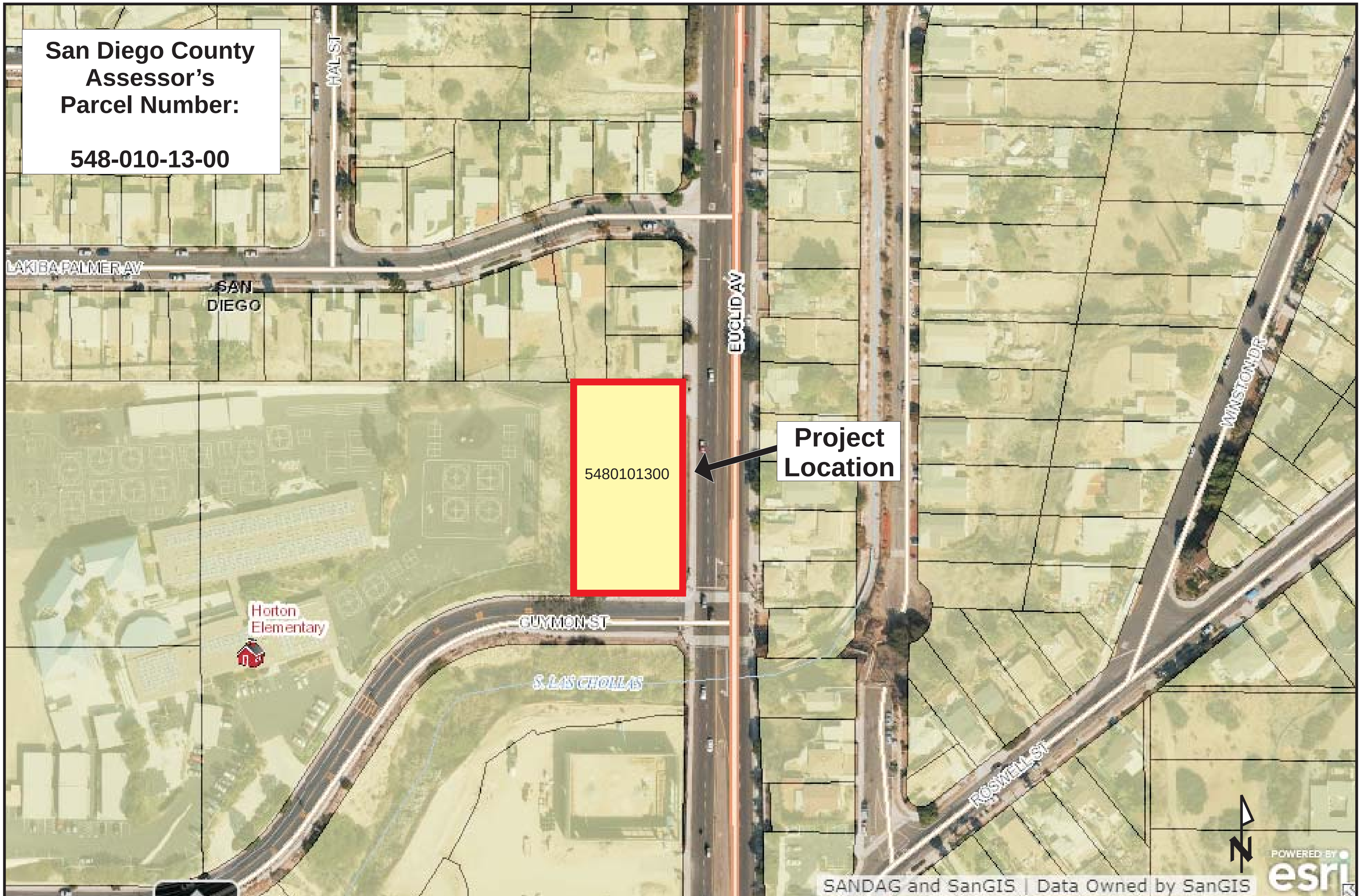
13. UK Department for Environment, Food, and Rural Affairs (DEFRA) Construction Noise Database.

14. U.S. Department of Transportation Federal Highway Administration, Construction Noise Handbook, Construction Equipment Noise Levels and Ranges.

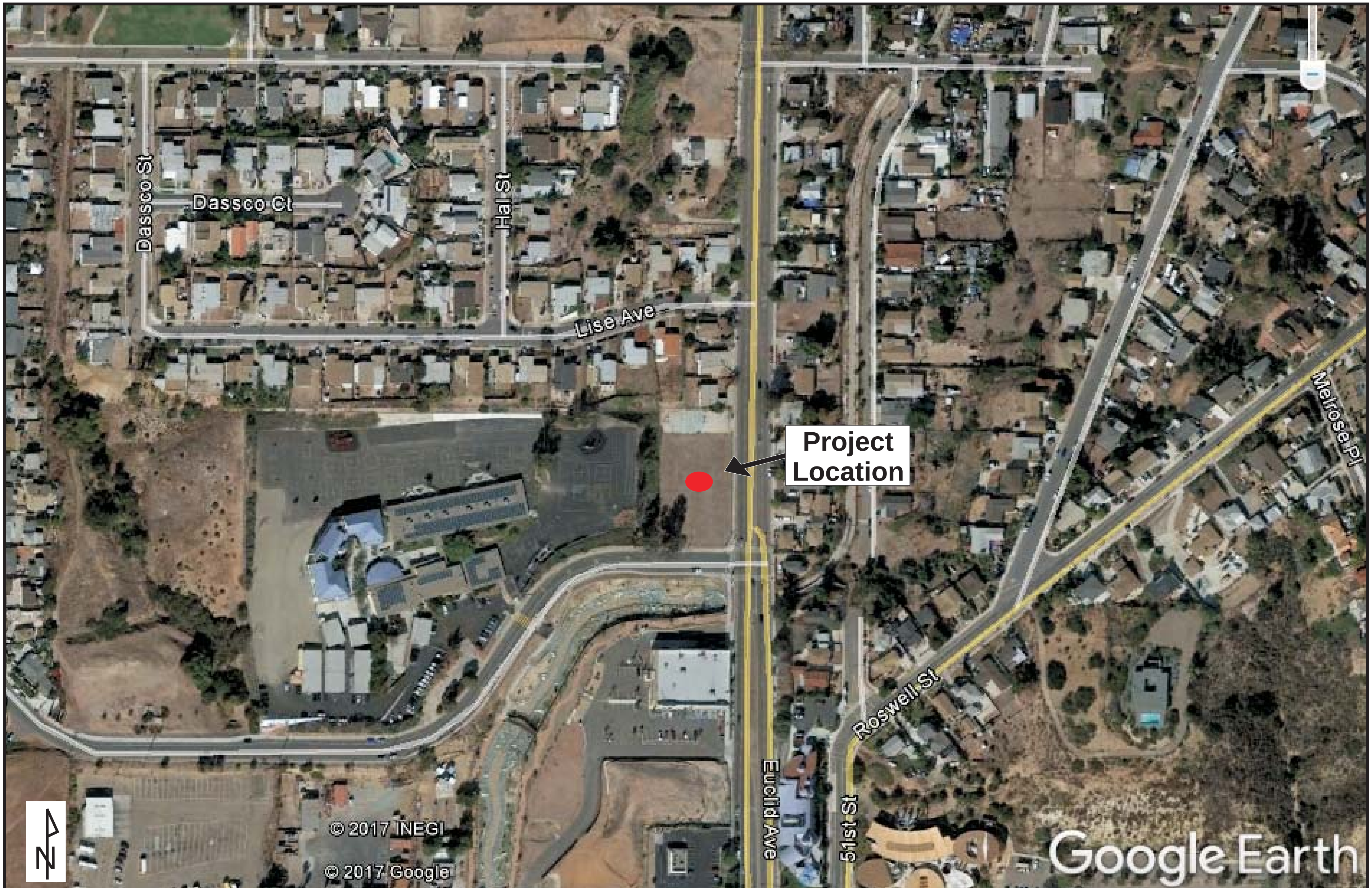
FIGURES



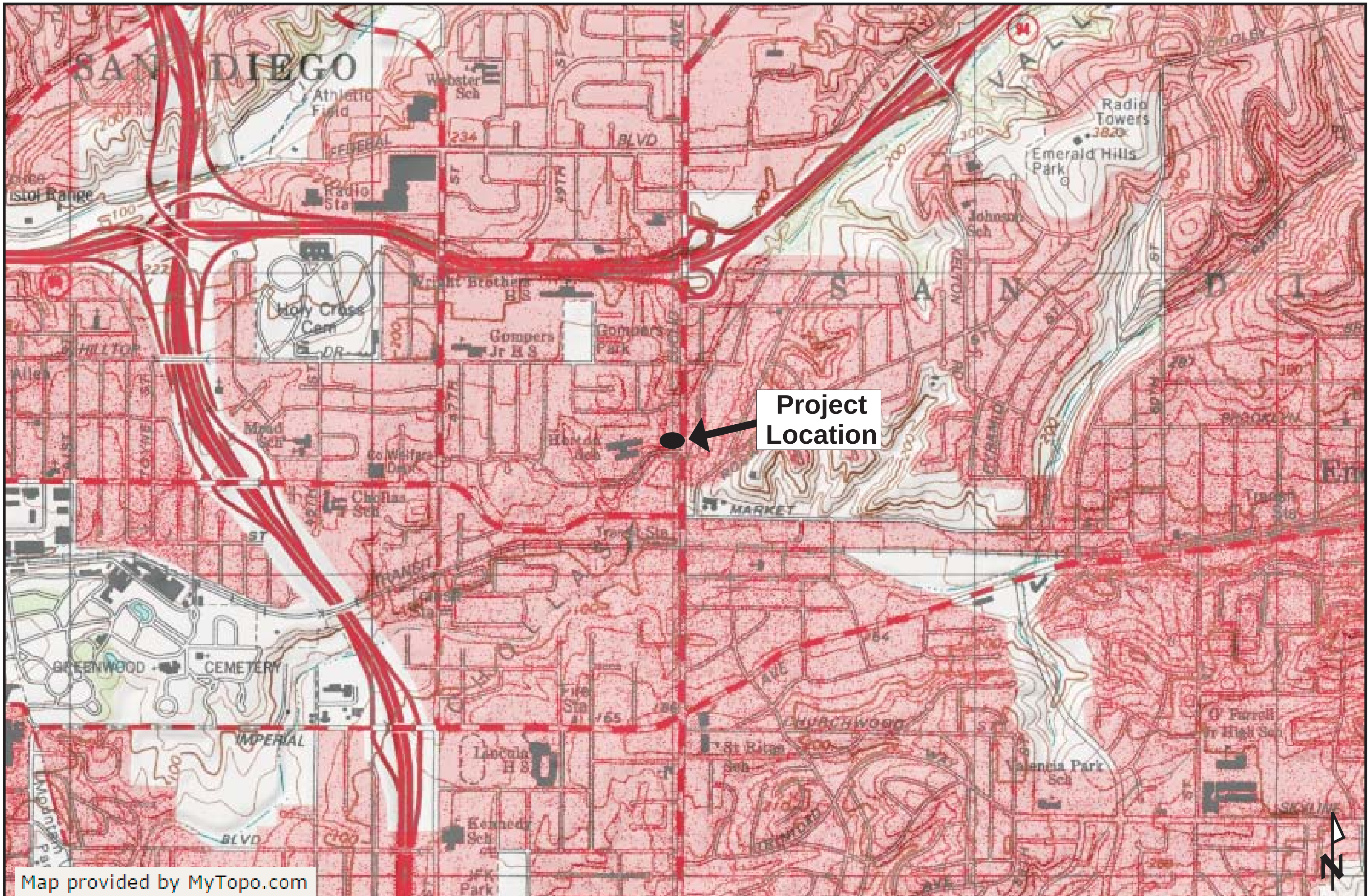
Eilar Associates, Inc. **210 South Juniper Street, Suite 100** **Escondido, California 92025** **760-738-5570**	**Vicinity Map** **Job # B71104N2**	**Figure 1**



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	Assessor's Parcel Map Job # B71104N2	Figure 2



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	Satellite Aerial Photograph Job # B71104N2	Figure 3



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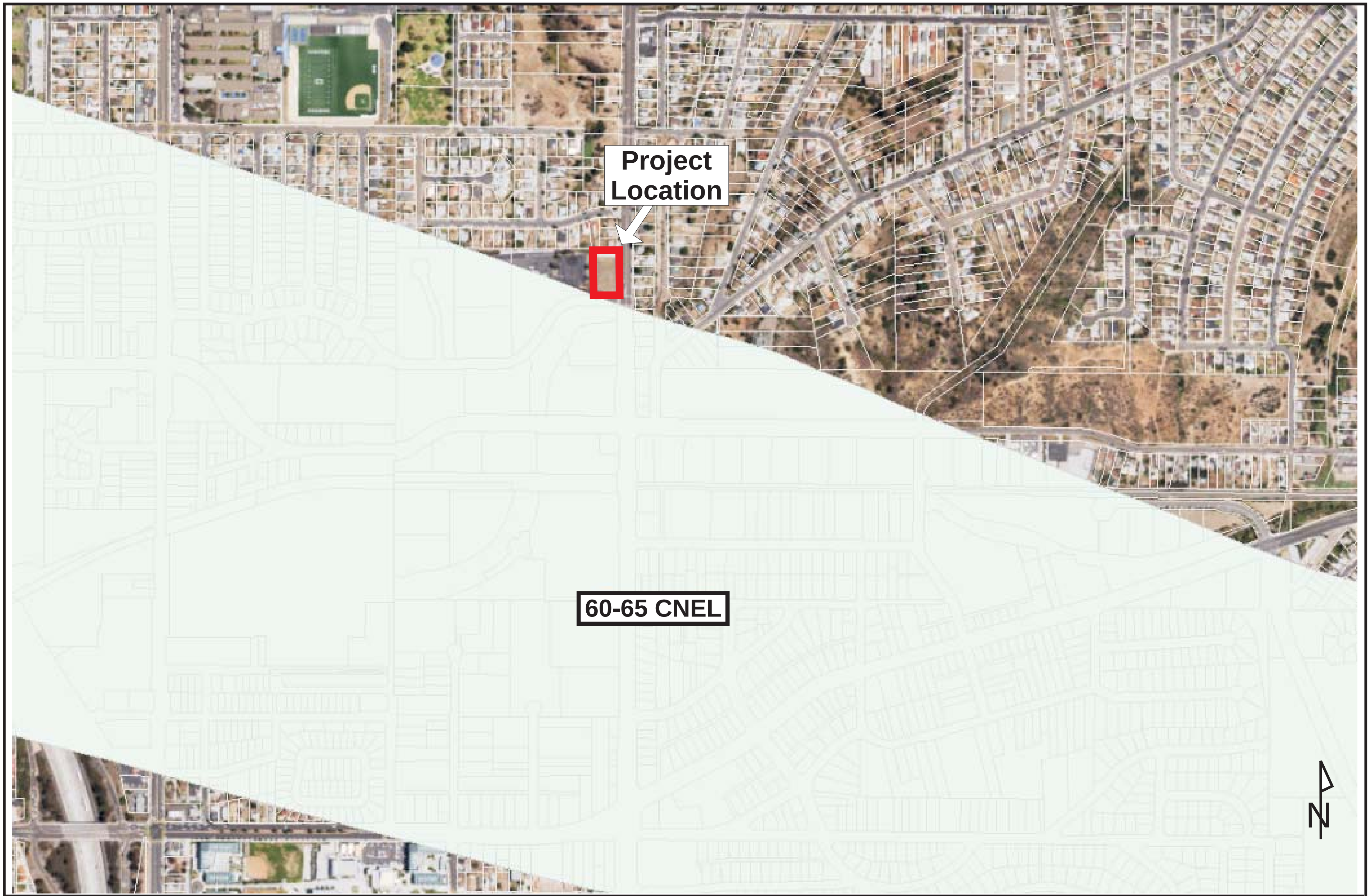
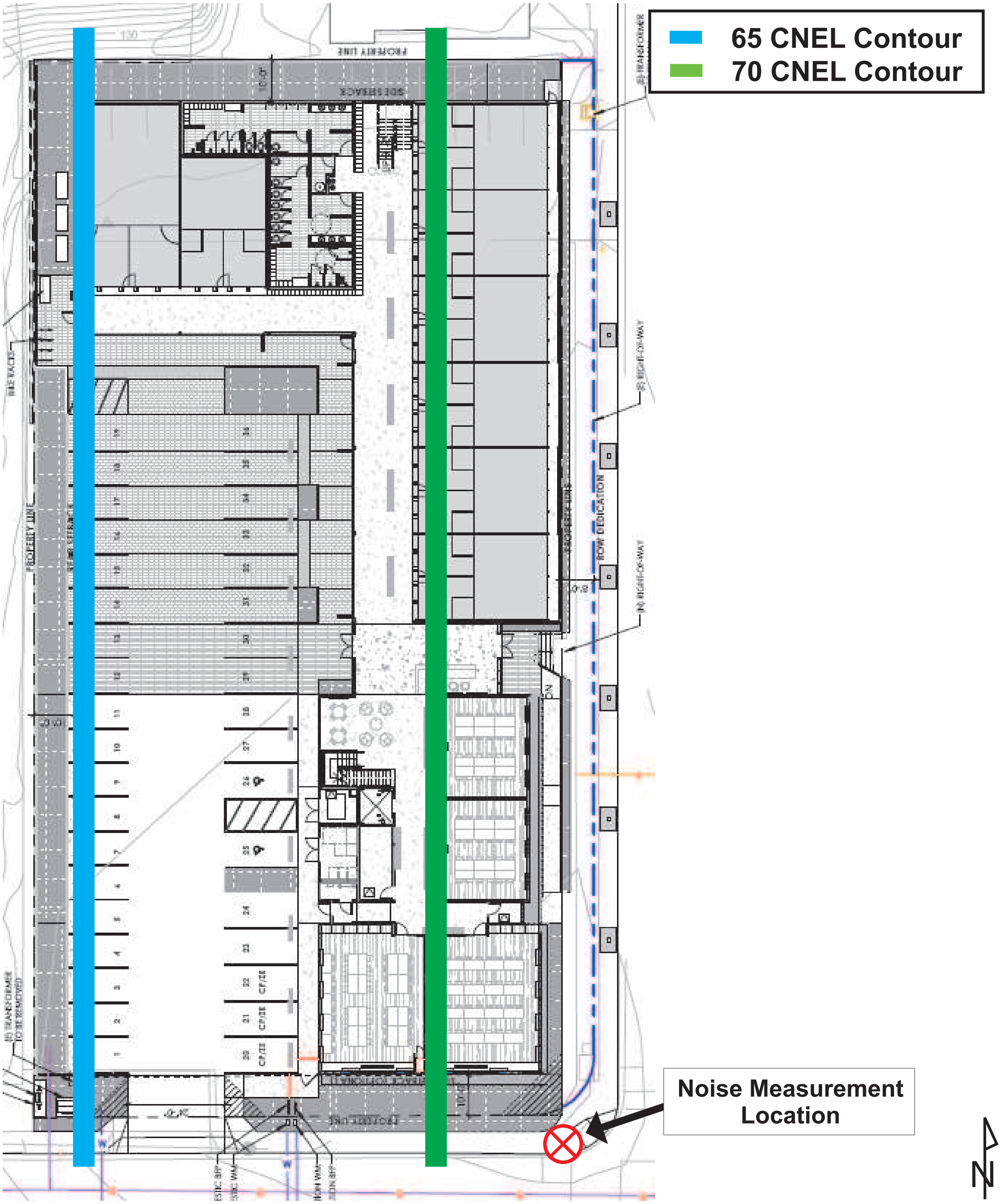
Topographic Map
Job # B71104N2

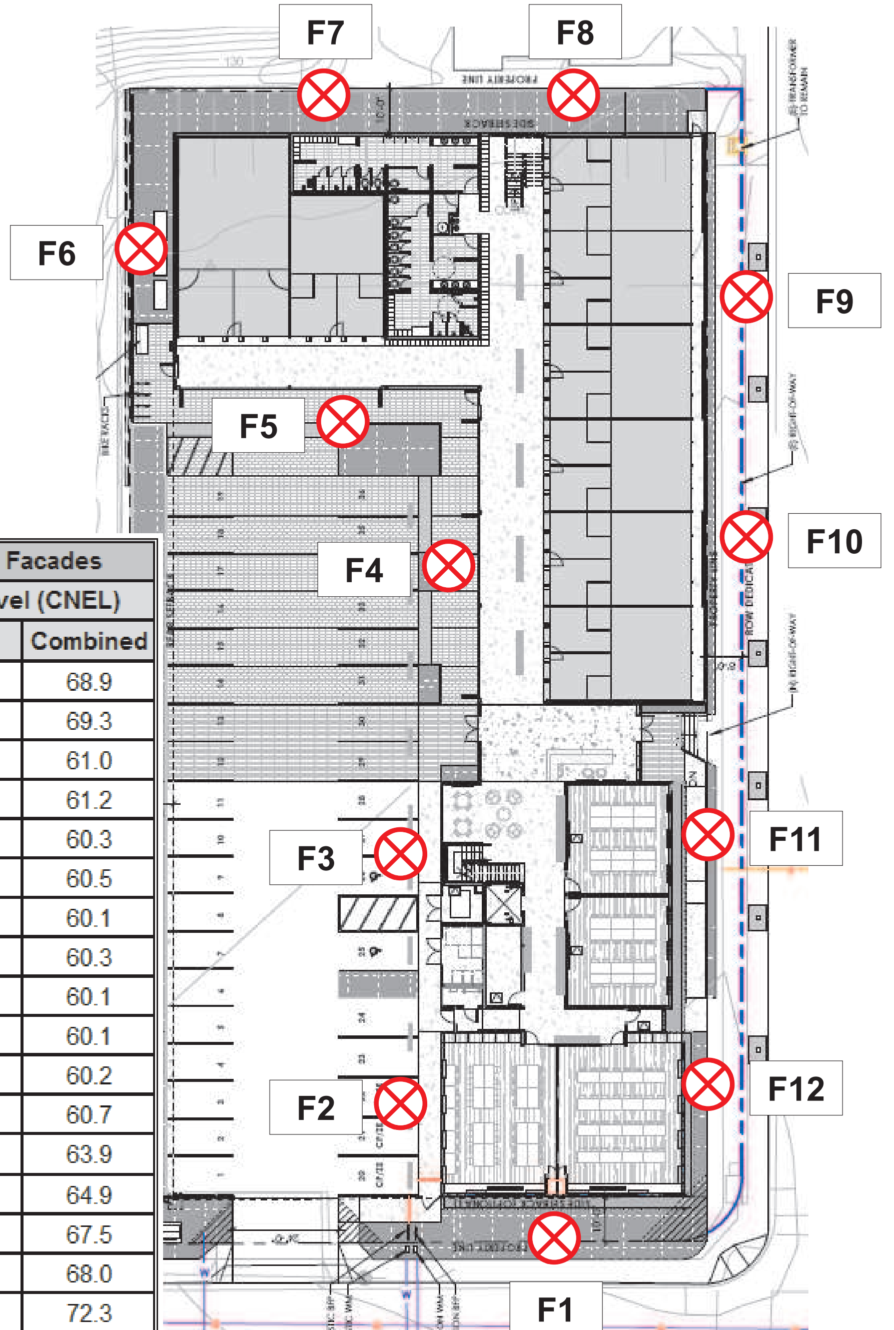
Figure 4



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	San Diego International Airport CNEL Contours and Project Location Job # B71104N2	Figure 5



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Site Plan Showing Current and Future Traffic CNEL Contours and Noise Measurement Location B71104N2**	Figure 6



Worst-Case Noise Levels at Building Facades				
Receiver	Floor	Exterior Noise Level (CNEL)		
		Traffic	Aircraft	Combined
F1	1	68.3	60.0	68.9
	2	68.8	60.0	69.3
F2	1	53.9	60.0	61.0
	2	55.1	60.0	61.2
F3	1	48.1	60.0	60.3
	2	50.4	60.0	60.5
F4	1	44.2	60.0	60.1
	2	48.2	60.0	60.3
F5	1	43.1	60.0	60.1
	2	45.1	60.0	60.1
F6	1	47.5	60.0	60.2
	2	52.4	60.0	60.7
F7	1	61.6	60.0	63.9
	2	63.2	60.0	64.9
F8	1	66.6	60.0	67.5
	2	67.3	60.0	68.0
F9	1	72.0	60.0	72.3
	2	72.1	60.0	72.4
F10	1	72.2	60.0	72.5
	2	72.3	60.0	72.5
F11	1	72.0	60.0	72.3
	2	72.2	60.0	72.5
F12	1	72.6	60.0	72.8
	2	72.7	60.0	72.9

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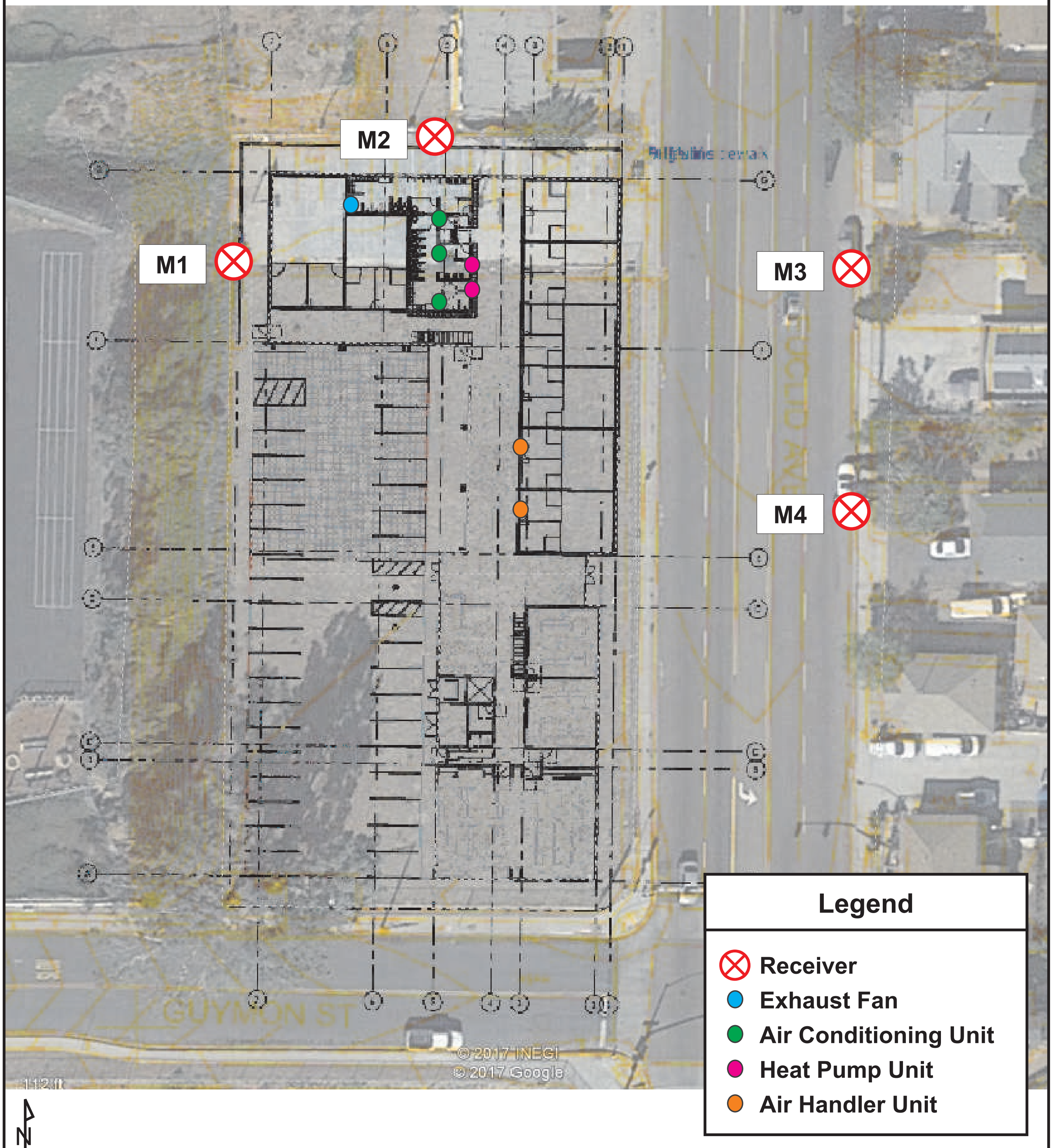
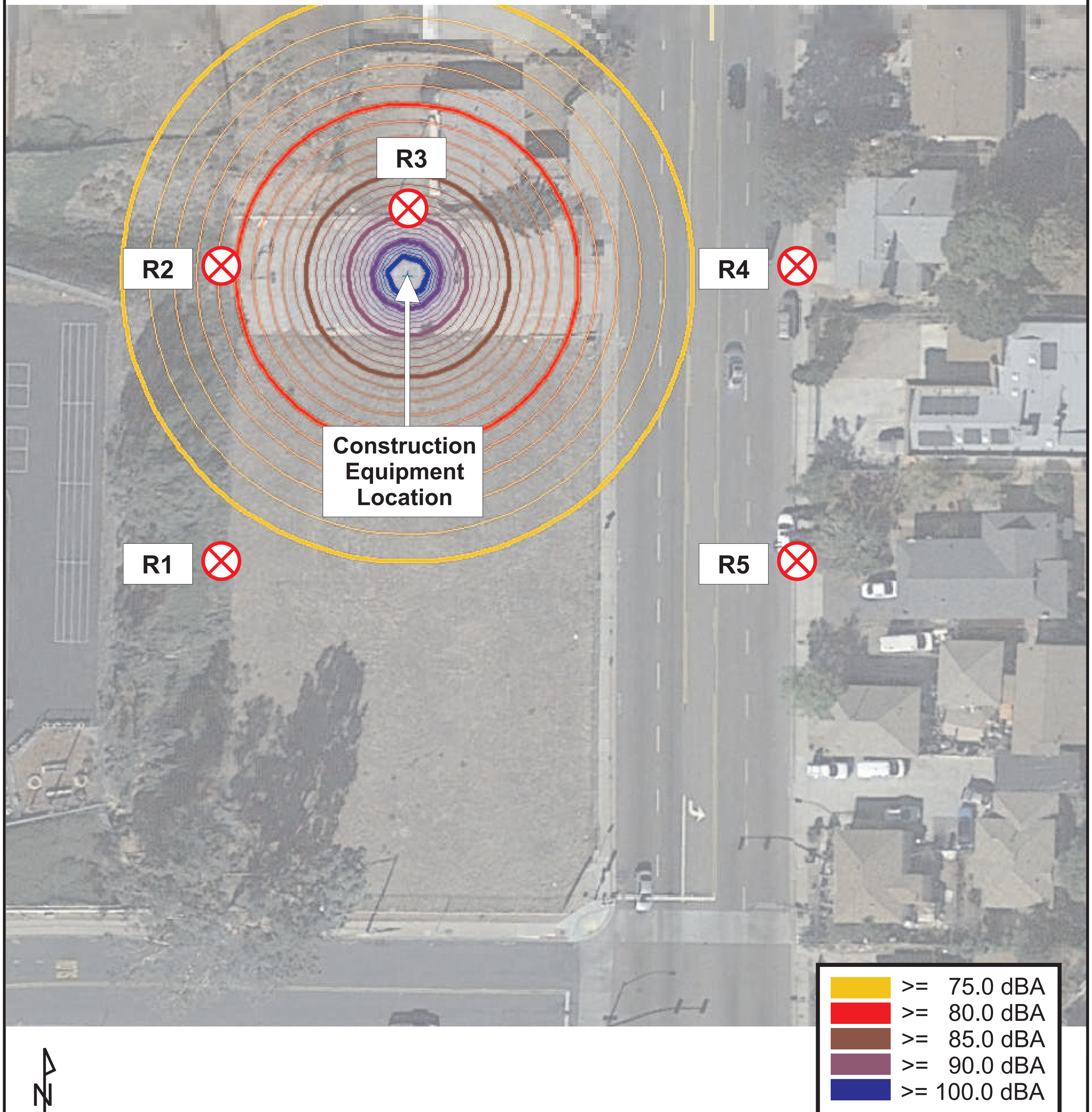
Site Plan Showing Worst-Case CNEL Impacts at Building Facades
Job # B71104N2

Figure 7



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Satellite Aerial Photograph Showing Rooftop Mechanical Equipment and Receiver Locations** **Job # B71104N2**	Figure 8



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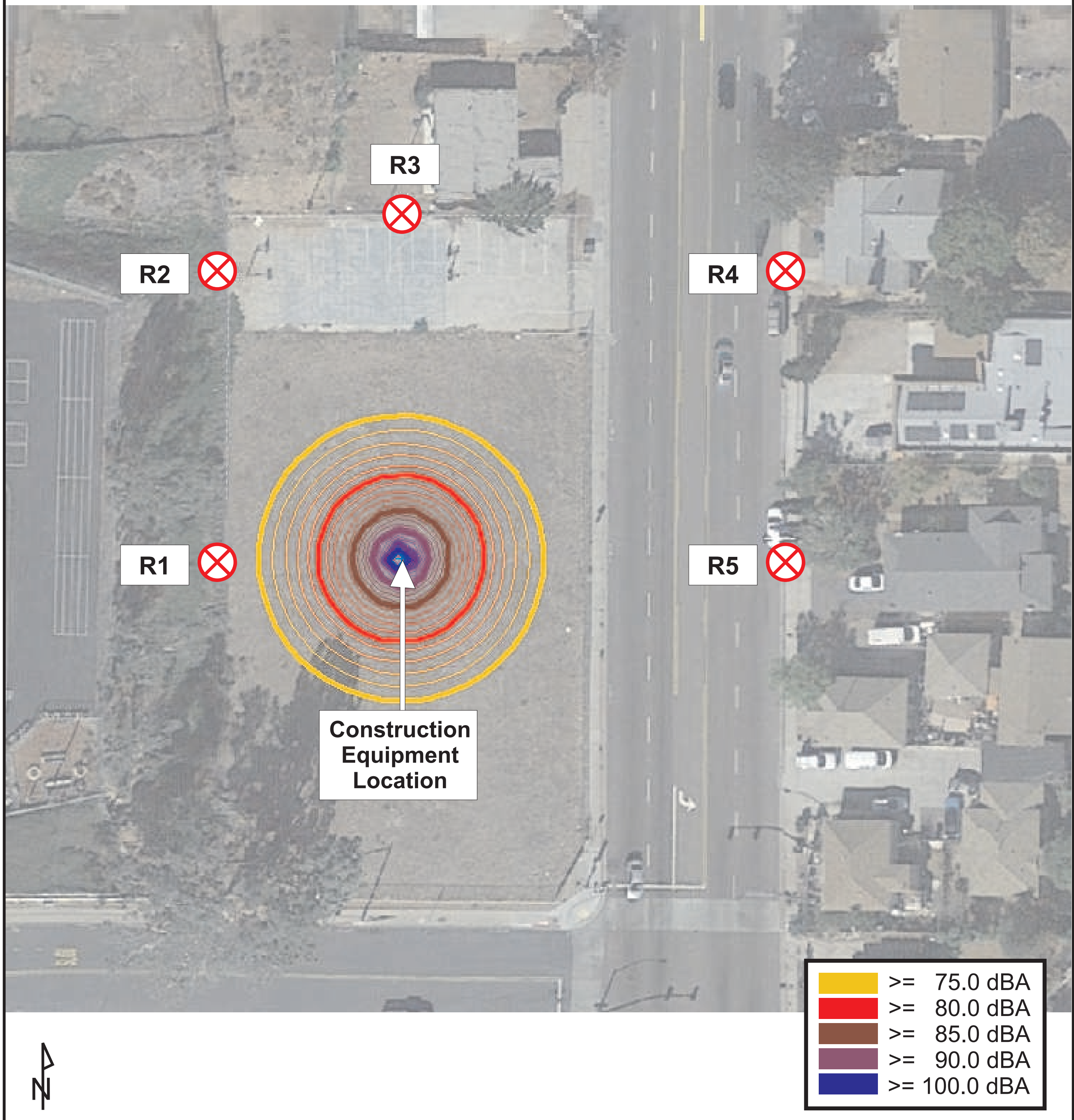
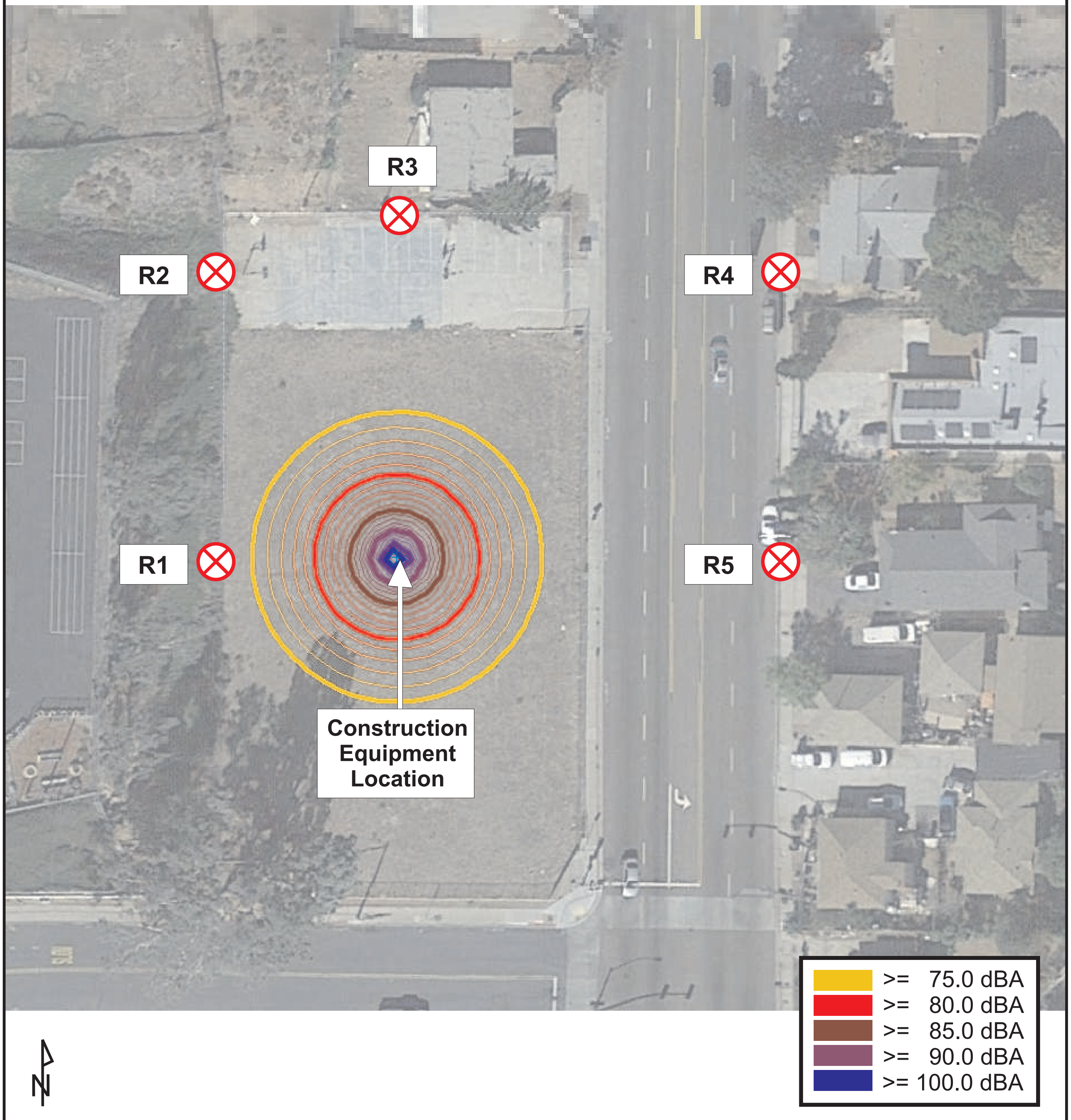
Satellite Aerial Photograph Showing Unmitigated Construction Noise Contours - Demolition
Job # B71104N2

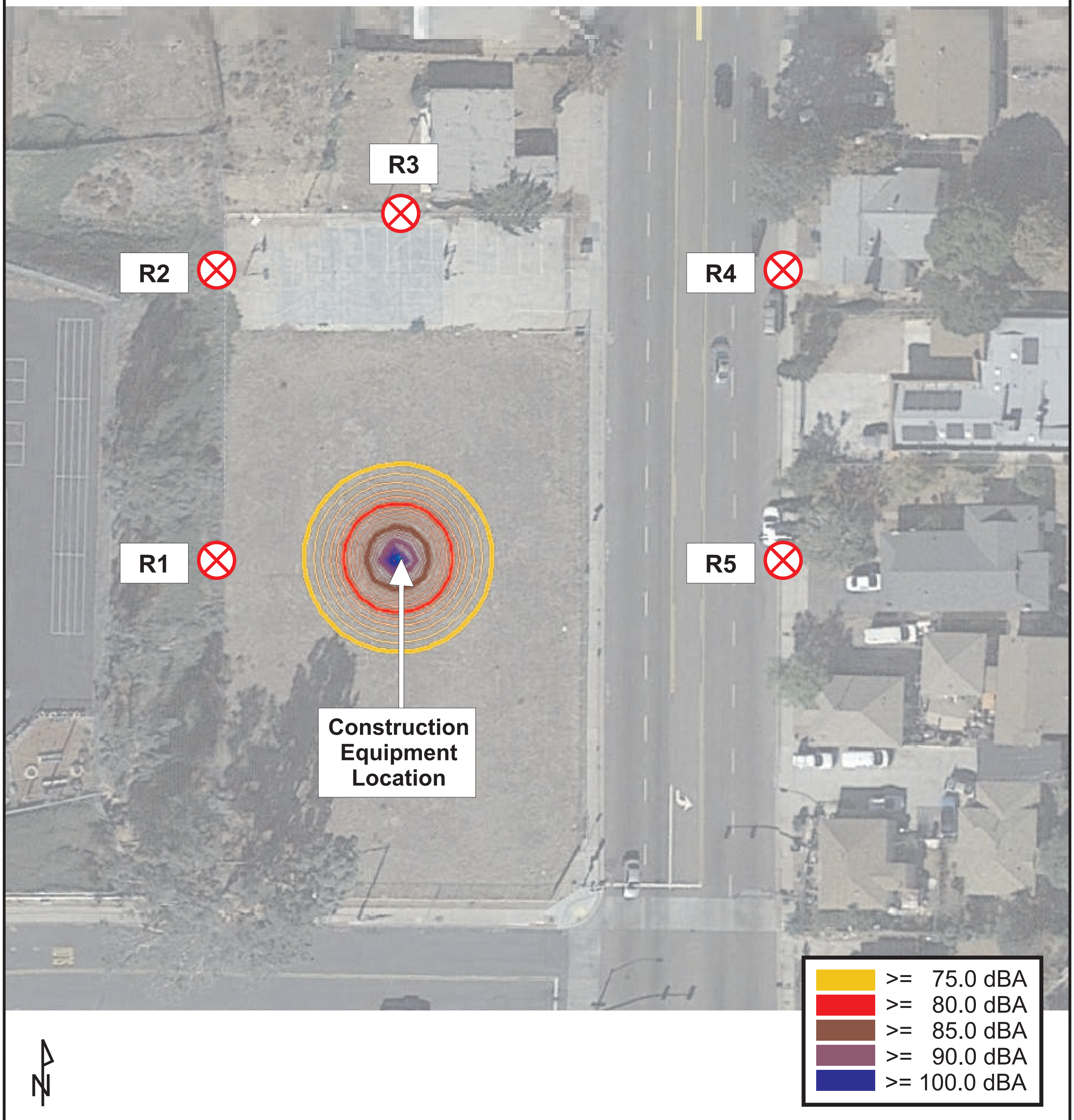
Figure 9



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Satellite Aerial Photograph Showing Unmitigated Construction Noise Contours - Grading / Earthworks** **Job # B71104N2**	Figure 10



Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Satellite Aerial Photograph Showing Unmitigated Construction Noise Contours - Pouring Foundations** **Job # B71104N2**	**Figure 11**



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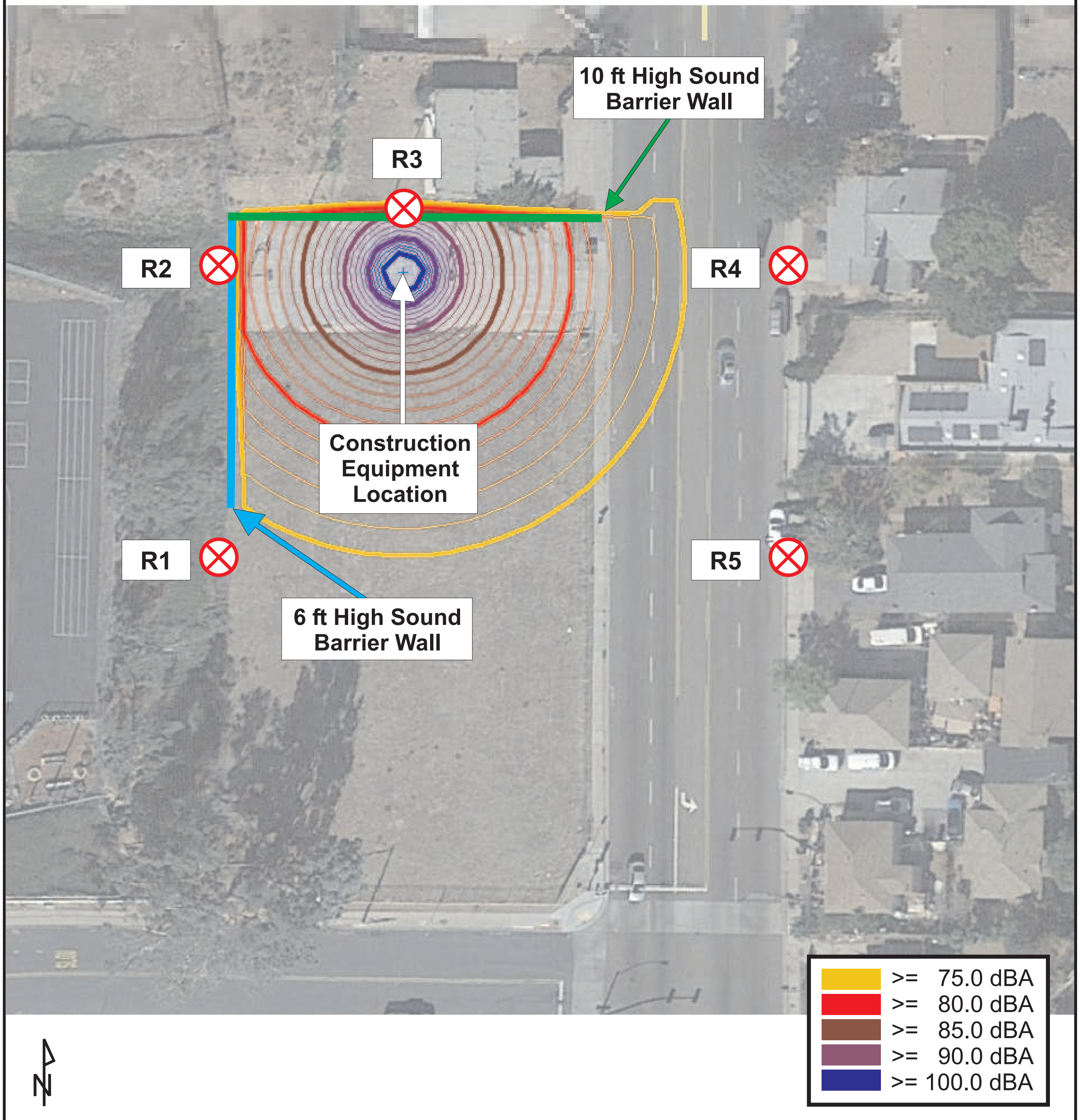
Satellite Aerial Photograph Showing Unmitigated Construction Noise Contours - Exterior Skin
Job # B71104N2

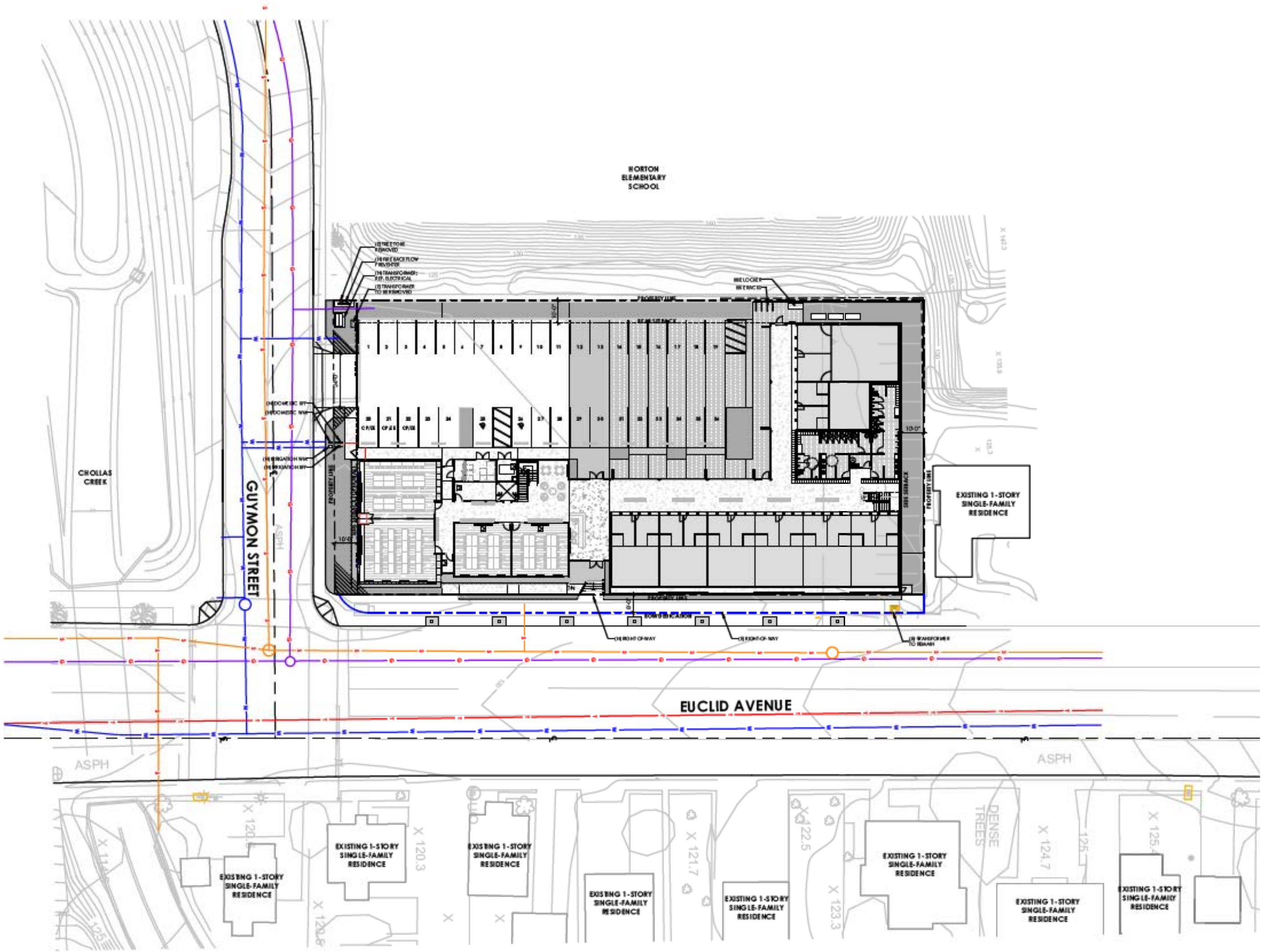
Figure 12



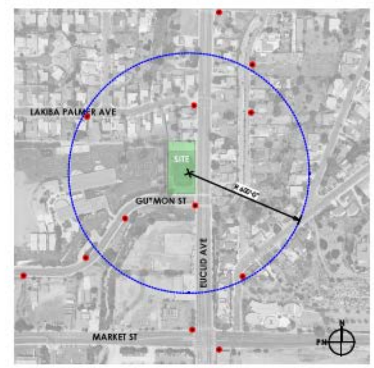
Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	Satellite Aerial Photograph Showing Mitigated Construction Noise Contours and Proposed Sound Barrier Location - Demolition Job # B71104N2	Figure 13

APPENDIX A

Project Plans



SITE PLAN ①
1" = 20'-0"



FIRE HYDRANT LOCATION ②
12" = 1'-0"

SITE PLAN NOTES

1. THIS PROJECT MUST COMPLY WITH MUNICIPAL CODE REQUIREMENTS FOR MAXIMUM HEIGHT OF THE STRUCTURE NOT TO EXCEED 30-FEET (SDMC 131.0444 AND 132.0505). THE HIGHEST POINT ON ROOF EQUIPMENT, PIPES, VENTS, ANTENNA, OR OTHER PROJECTIONS SHALL NOT EXCEED 30-FEET ABOVE GRADE.
2. THERE ARE NO EXISTING OR PROPOSED EASEMENTS ON THE PROJECT SITE.
3. PROVIDE BUILDING ADDRESS NUMBERS, VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER FHPS POLICY P-00-06 (UFC 901.4.4). BUILDING ADDRESS IS: 704 EUCLID AVENUE
4. NO EXISTING OR PROPOSED BUS STOPS ARE LOCATED ON THIS SITE.
5. REFER TO CIVIL SHEETS FOR SLOPE ANALYSIS, GRADING, IMPROVEMENT PLANS, DRAINAGE, AND OTHER ITEMS NOT SHOWN ON THIS SHEET.
6. REFER TO LANDSCAPE DRAWINGS FOR PLANTING AND HARDSCAPE.
7. SEE SHEETS A301 & A302 BUILDING SECTIONS FOR FLOOR TO CEILING BUILDING HEIGHT INFORMATION.

FOR ADDITIONAL DIMENSIONS REFERENCE FLOOR PLANS SHEETS A101, A102, & A103

DEFERRED SUBMITTALS

1. FIRE SPRINKLER SYSTEM 2016 CFC AND 2016 NFPA 13
2. FIRE ALARM SYSTEM 2016 CFC 907 AND 2016 NFPA 13
3. EXTERIOR CLADDING SYSTEMS: STOREFRONTS
4. ELEVATOR SUPPORT RAIL

SEPARATE PERMITS

1. THE WORK IN THE PUBLIC RIGHT-OF-WAY WILL BE UNDER A SEPARATE PERMIT. REFER TO PTS #572129
2. THE SUBMITTAL FOR A PHOTOVOLTAIC SYSTEM WILL BE UNDER A SEPARATE PERMIT.

GENERAL NOTES

1. NOTES ON THIS SHEET ARE AN ACCUMULATION OF ITEMS ON THE PLANS, ELEVATIONS, & SECTIONS PLAN SHEETS. NOT ALL ITEMS ARE FOUND ON EACH SHEET.
2. DIMENSIONS SHOWN ARE TYPICAL OF THIS SHEET ONLY, UNLESS NOTED OTHERWISE.
3. GRID LINES ARE MEASURED FROM EXTERIOR FACE OF STUD, CMU, & CONCRETE AND FROM THE CENTERLINE OF STEEL MEMBERS, U.N.O.
4. OVERALL FLOOR PLAN - INTERIOR DIMENSIONS ARE MEASURED TO FACE OF STUD, U.N.O.
5. ENLARGED INTERIOR PLANS, ENLARGED INTERIOR ELEVATIONS, ENLARGED INTERIOR SECTIONS/DETAILS ARE MEASURED TO FACE/EDGE OF FINISHED SURFACE, U.N.O.
6. FINISHED FLOOR ELEVATION CALL-OUTS ARE BASED OFF OF 0-0" AMSL.
7. NOT ALL UNDERGROUND & ABOVE GROUND UTILITIES & EQUIPMENT ARE SHOWN IN THESE DRAWINGS.
8. NOT ALL PROJECT ITEMS ARE SHOWN IN THESE DRAWINGS. ITEMS SHOWN ARE FOR GRAPHIC PURPOSES AND SHALL BE VERIFIED WITH THE APPROPRIATE DISCIPLINES DOCUMENTS FOR ADDITIONAL DETAILED INFORMATION. CONTRACTOR TO COORDINATE ALL PROJECT ITEMS.
9. REFER TO WALL, FLOOR, AND CEILING TYPES FOR R-VALUES.
10. THIS PROJECT SHALL COMPLY WITH THE CITY OF SAN DIEGO LIGHTING ORDINANCE.
11. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
12. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
13. ALL ROOFING TO BE CLASS 'A' FIRE RATED.
14. REFER TO DETAIL SHEETS A500'S FOR TYPICAL DETAILS NOT SPECIFICALLY REFERENCED ON THESE DRAWINGS.
15. ARCHITECT TO APPROVE FINAL TILE LAYOUT PRIOR TO INSTALLATION.

KEYNOTES

*	COORDINATE FINAL SELECTIONS OF EQUIPMENT, SYSTEMS, MATERIAL, COLOR, FINISH AND SIMILAR ELEMENTS WITH ARCHITECT
3.7	CONCRETE SITE WALL
3.9	ARCHITECTURAL CAST-IN-PLACE CONCRETE STAIRS
5.2	DECORATIVE METAL HANDRAIL AND/OR GUARDRAIL SYSTEM
5.4	CONCRETE & STEEL PAN STAIR W/ STEEL STRINGERS
5.6	METAL TRELLIS SYSTEM
5.7	METAL ROOF ACCESS LADDER W/SECURITY DOOR
6.5	INTERIOR MILLWORK / CASEWORK
7.2	ALUM. BREAK METAL PANEL
7.3	FIBER CEMENT WALL PANEL; COLOR 01
7.4	FIBER CEMENT WALL PANEL; COLOR 02
8.1	ALUM. STOREFRONT WINDOW SYSTEM; REF. SCHED.
8.3	ALUM. STOREFRONT DOOR SYSTEM; REF. SCHED.
8.4	DOOR SYSTEM; REF. SCHED.
8.5	ALUM. BI-FOLDING DOOR SYSTEM; REF SCHED.
9.4	CEMENT PLASTER STUCCO; 3-COAT SYSTEM W/ ACRYLIC TOPCOAT - COLOR 01
10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
10.3	MIRROR W/ UP & DOWNLIGHT
11.2	TELEVISION - REF. SCHED.
11.4	CEILING MOUNTED PROJECTION SCREEN
12.1	ROLLER WINDOW SHADES - MANUAL; RECESSED
12.2	ROLLER WINDOW SHADES - MANUAL; WALL/WINDOW
12.3	ROLLER WINDOW SHADES - MOTORIZED W/ZIP; RECESSED
12.5	ROLLER WINDOW BLACKOUT SHADES - MOTORIZED W/ZIP; RECESSED
12.6	ROLLER WINDOW BLACKOUT SHADES - MOTORIZED W/ZIP; WALL
13.1	SINGLES SQUASH COURT SYSTEM - PER MANUF.
13.2	DOUBLES SQUASH COURT SYSTEM - PER MANUF.
22.1f	PLUMBING FIXTURE - DRINKING FOUNTAIN W/ BOTTLE FILLING STATION
23.2	MECHANICAL EQUIPMENT - REF. MECH.
26.2	LIGHT FIXTURE; REF. ELECT.

LEGEND

ACCESS YOUTH ACADEMY

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LICENSED ARCHITECT
NO. C 24394
1-31-19
STATE OF CALIFORNIA

REVISIONS

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02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

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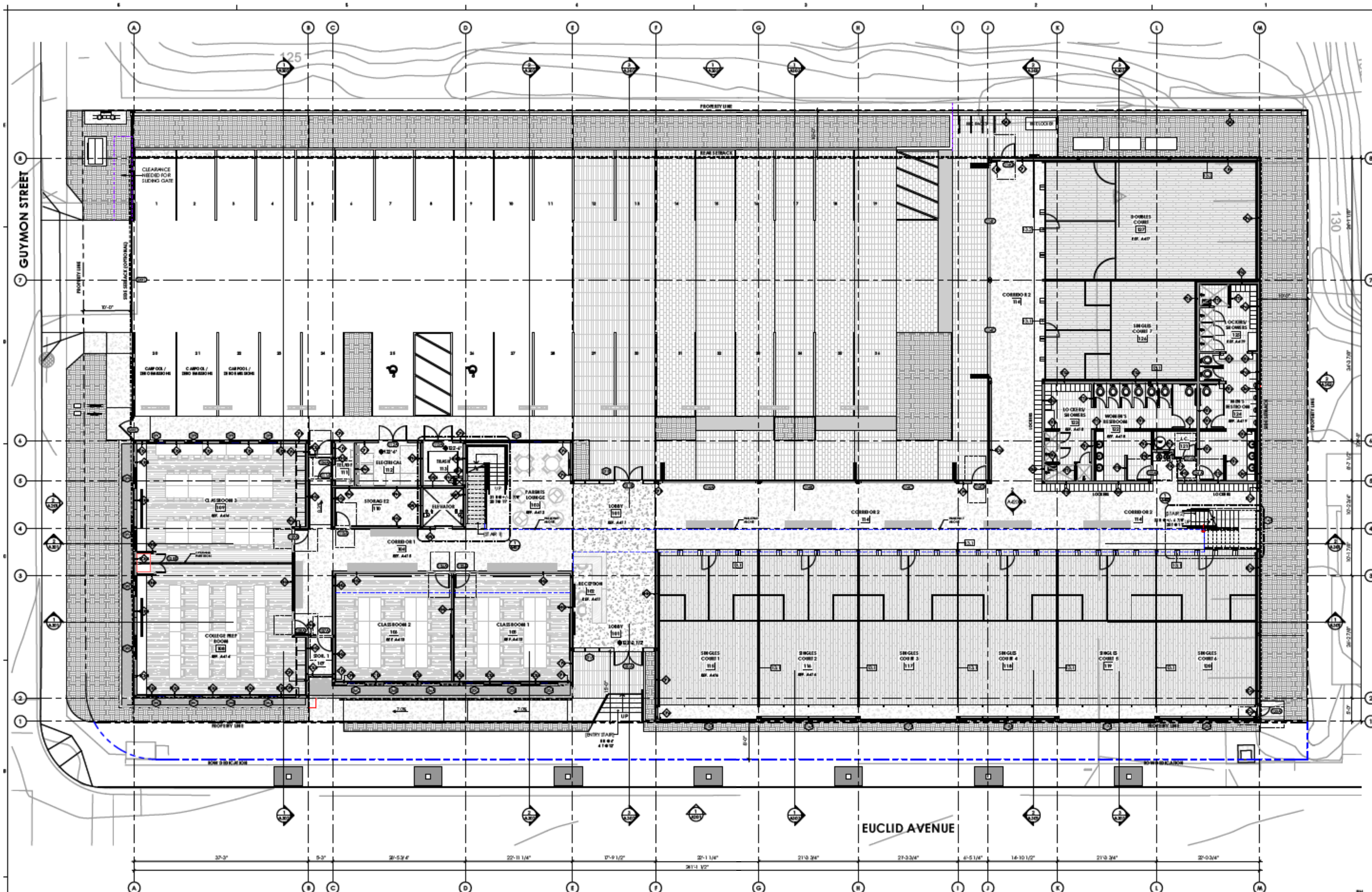
OVERALL SITE PLAN

A001



LEVEL 1 FLOOR PLAN 1
1/8" = 1'-0"

GENERAL NOTES

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12. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
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14. REFER TO DETAIL SHEETS A500'S FOR TYPICAL DETAILS NOT SPECIFICALLY REFERENCED ON THESE DRAWINGS.
15. ARCHITECT TO APPROVE FINAL TILE LAYOUT PRIOR TO INSTALLATION.

KEYNOTES

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3.7	CONCRETE SITE WALL
3.9	ARCHITECTURAL CAST-IN-PLACE CONCRETE STAIRS
5.2	DECORATIVE METAL HANDRAIL AND/OR GUARDRAIL SYSTEM
5.4	CONCRETE & STEEL PAN STAIR W/ STEEL STRINGERS
5.6	METAL TRELLIS SYSTEM
5.7	METAL ROOF ACCESS LADDER W/SECURITY DOOR
6.5	INTERIOR MILLWORK / CASEWORK
7.2	ALUM. BREAK METAL PANEL
7.3	FIBER CEMENT WALL PANEL; COLOR 01
7.4	FIBER CEMENT WALL PANEL; COLOR 02
8.1	ALUM. STOREFRONT WINDOW SYSTEM; REF. SCHED.
8.3	ALUM. STOREFRONT DOOR SYSTEM; REF. SCHED.
8.4	DOOR SYSTEM; REF. SCHED.
8.5	ALUM. BIFOLDING DOOR SYSTEM; REF SCHED.
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26.2	LIGHT FIXTURE; REF. ELECT.

LEGEND

INTERIOR

- CONCRETE - POLISHED EXPOSED AGGREGATE; REF SCHEDULE
- CONCRETE - POLISHED; REF SCHEDULE
- RESILIENT RUBBER FLOORING; REF SCHEDULE
- WOOD SPORTS FLOORING; REF SCHEDULE
- PORCELAIN TILE; REF SCHEDULE
- CARPET TILE; REF SCHEDULE
- LVT (LUXURY VINYL TILE); REF SCHEDULE
- VCT (VINYL COMPOSITE TILE); REF SCHEDULE

EXTERIOR

- CONCRETE - SAND FINISH; REF LANDSCAPE
- CONCRETE - EXPOSED AGGREGATE; REF LANDSCAPE
- UNIT CONCRETE PAVERS 1; REF LANDSCAPE
- UNIT CONCRETE PAVERS 2; REF LANDSCAPE
- LANDSCAPE PLANTING; REF LANDSCAPE
- TRUNCATED DOMES; REF LANDSCAPE
- TREE GRATE; REF LANDSCAPE

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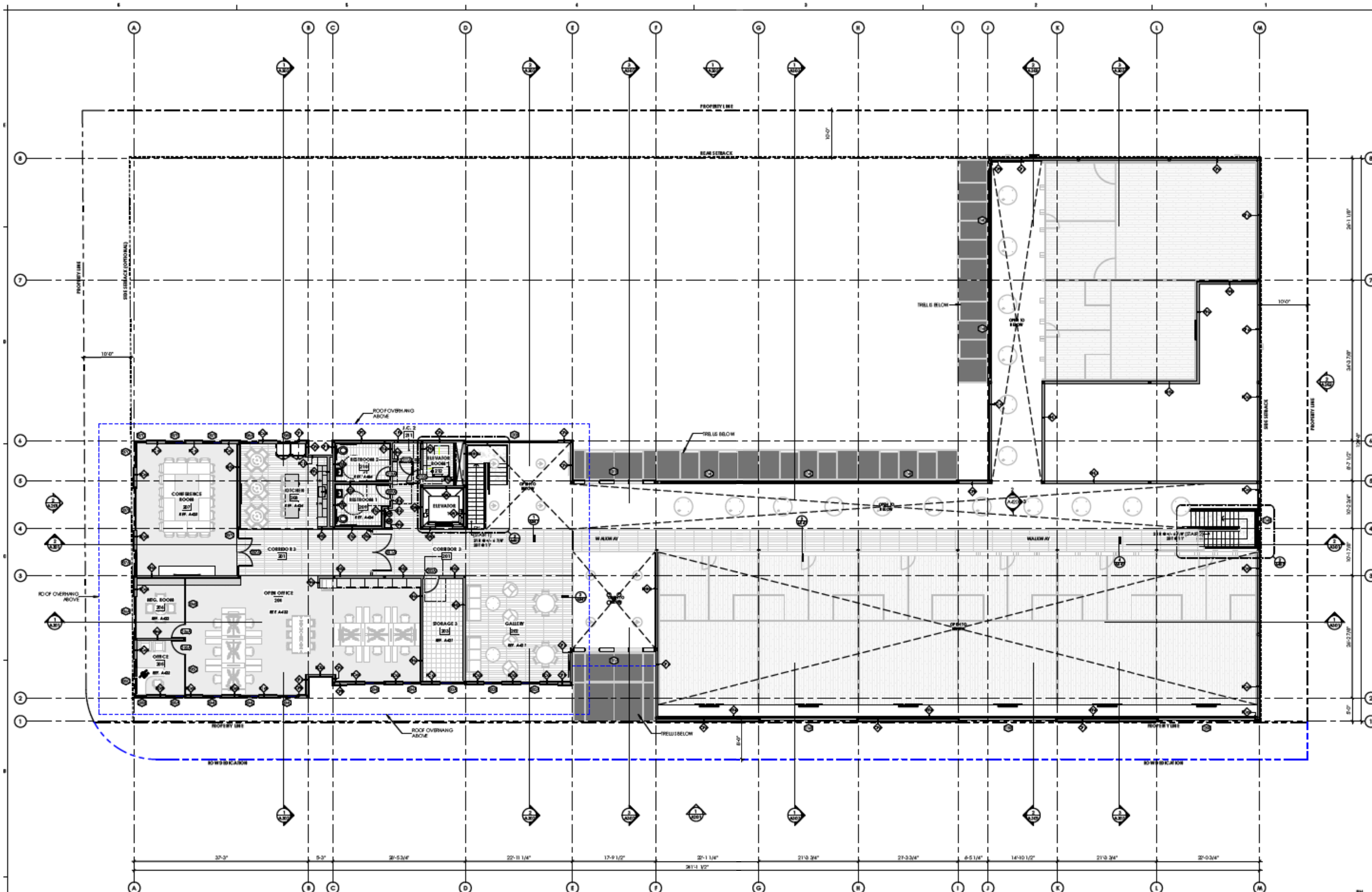
FLOOR PLAN - LEVEL 1

A101



LEVEL 2 FLOOR PLAN 1
1/8" = 1'-0"

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7.2	ALUM. BREAK METAL PANEL
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7.4	FIBER CEMENT WALL PANEL; COLOR 02
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10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
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11.2	TELEVISION - REF. SCHED.
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26.2	LIGHT FIXTURE - REF. ELECT.

LEGEND

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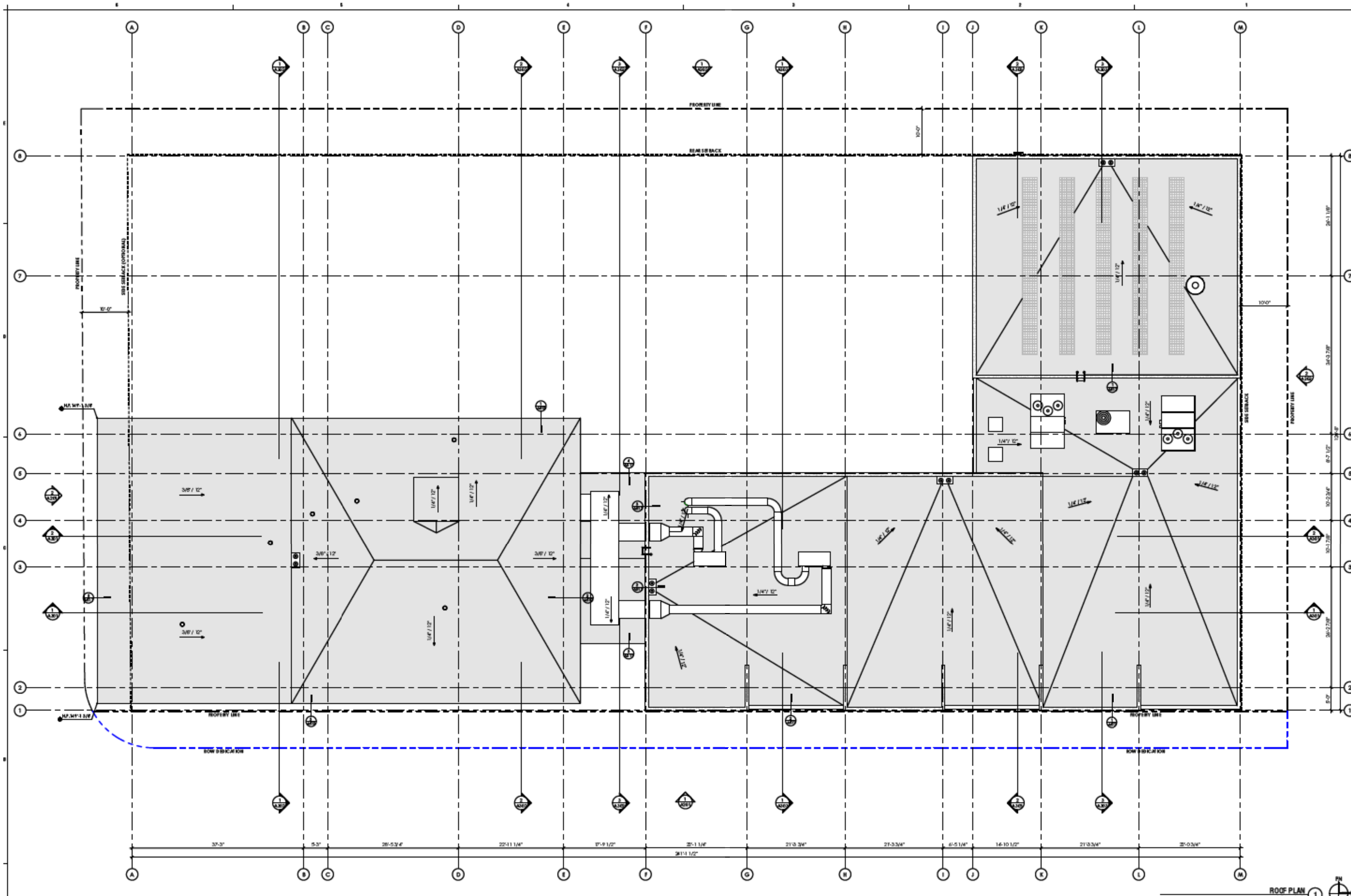
FLOOR PLAN - LEVEL 2

A102



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23.2	MECHANICAL EQUIPMENT - REF. MECH.
26.2	LIGHT FIXTURE; REF. ELECT.

LEGEND

	CLASS "A" ROOF, PVC ROOFING OVER STRUCTURAL WOOD FRAMING W/ BATT INSULATION; REF ROOF TYPES
	METAL STANDING SEAM ROOF; FINISH PER SCHEDULE
	ROOF DRAIN AND OVERFLOW DRAIN; REF ROOF DETAILS
	HVAC VARIABLE REFRIGERANT FLOW SYSTEM - REF. MECHANICAL
	ROOF HATCH; REF ROOF DETAILS
	EXHAUST AIR - REF. MECHANICAL
	SPOT ELEVATION
T.O.P. XXX'-XX"	TOP OF PARAPET ELEVATION
T.O.D. XXX'-XX"	TOP OF DRAIN ELEVATION
H.P. XXX'-XX"	HIGH POINT ELEVATION
L.P. XXX'-XX"	LOW POINT ELEVATION

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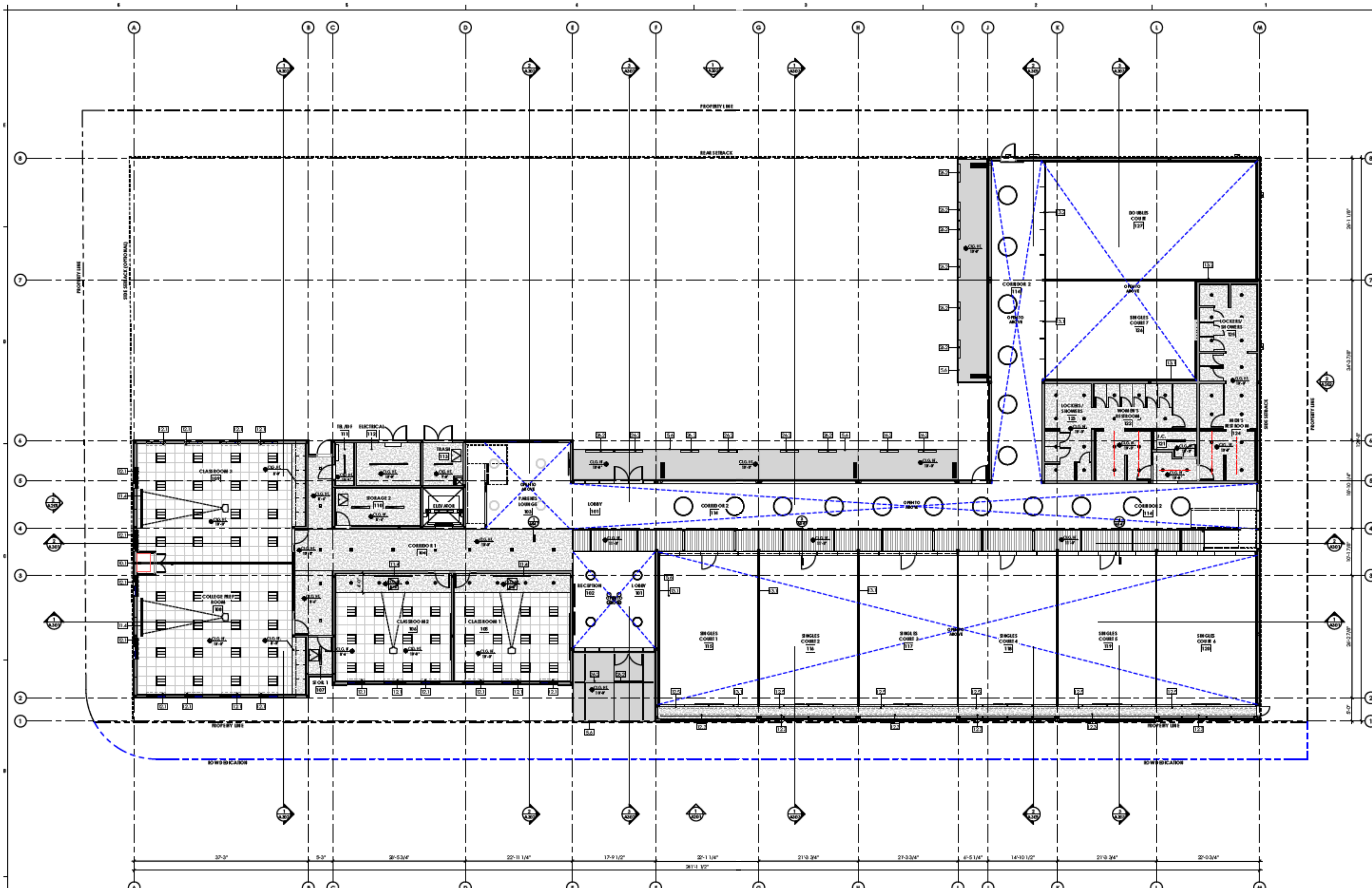
ROOF PLAN

A103



LEVEL 1 CEILING PLAN (1)
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KEYNOTES

*	COORDINATE FINAL SELECTIONS OF EQUIPMENT, SYSTEMS, MATERIAL, COLOR, FINISH AND SIMILAR ELEMENTS WITH ARCHITECT
3.7	CONCRETE SITE WALL
3.9	ARCHITECTURAL CAST-IN-PLACE CONCRETE STAIRS
5.2	DECORATIVE METAL HANDRAIL AND/OR GUARDRAIL SYSTEM
5.4	CONCRETE & STEEL PAN STAIR W/ STEEL STRINGERS
5.6	METAL TRELLIS SYSTEM
5.7	METAL ROOF ACCESS LADDER W/SECURITY DOOR
6.5	INTERIOR MILLWORK / CASEWORK
7.2	ALUM. BREAK METAL PANEL
7.3	FIBER CEMENT WALL PANEL; COLOR 01
7.4	FIBER CEMENT WALL PANEL; COLOR 02
8.1	ALUM. STOREFRONT WINDOW SYSTEM; REF. SCHED.
8.3	ALUM. STOREFRONT DOOR SYSTEM; REF. SCHED.
8.4	DOOR SYSTEM; REF. SCHED.
8.5	ALUM. BIFOLDING DOOR SYSTEM; REF SCHED.
9.4	CEMENT PLASTER STUCCO; 3-COAT SYSTEM W/ ACRYLIC TOPCOAT - COLOR 01
10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
10.3	MIRROR W/ UP & DOWNLIGHT
11.2	TELEVISION - REF. SCHED.
11.4	CEILING MOUNTED PROJECTION SCREEN
12.1	ROLLER WINDOW SHADES - MANUAL; RECESSED
12.2	ROLLER WINDOW SHADES - MANUAL; WALL/WINDOW
12.3	ROLLER WINDOW SHADES - MOTORIZED W/ZIP; RECESSED
12.5	ROLLER WINDOW BLACKOUT SHADES - MOTORIZED W/ZIP; RECESSED
12.6	ROLLER WINDOW BLACKOUT SHADES - MOTORIZED W/ZIP; WALL
13.1	SINGLES SQUASH COURT SYSTEM - PER MANUF.
13.2	DOUBLES SQUASH COURT SYSTEM - PER MANUF.
22.1f	PLUMBING FIXTURE - DRINKING FOUNTAIN W/ BOTTLE FILLING STATION
23.2	MECHANICAL EQUIPMENT - REF. MECH.
26.2	LIGHT FIXTURE; REF. ELECT.

LEGEND

- GYPSUM BOARD CEILING; REF SCHEDULE
- 24"x24" ACOUSTIC CEILING TILE; REF SCHEDULE
- WOOD T&G WITH ETCHING; REF SCHEDULE
- TRELLIS - PERFORATED PANEL; REF SCHEDULE
- ACOUSTIC METAL DECK; REF SCHEDULE
- LINEAR METAL PANEL CEILING; REF SCHEDULE
- WOOD GRILLE PANEL CEILING; REF SCHEDULE

ACCESS YOUTH ACADEMY

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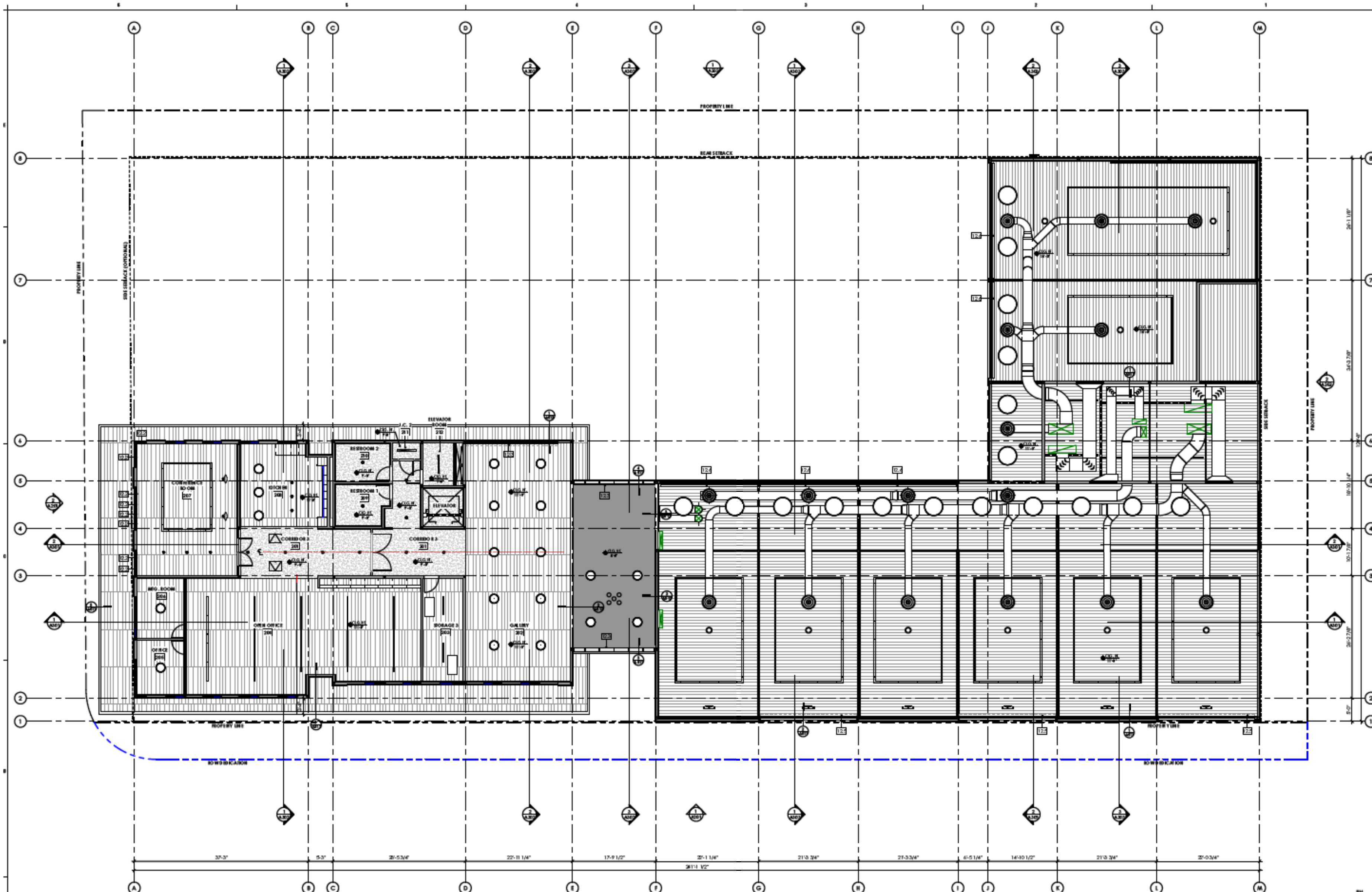
REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

RCP - LEVEL 1

A111



LEVEL 2 CEILING PLAN (1)
1/8" = 1'-0"

GENERAL NOTES

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6. FINISHED FLOOR ELEVATION CALL-OUTS ARE BASED OFF OF 0-0" AMSL.
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12. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
13. ALL ROOFING TO BE CLASS 'A' FIRE RATED.
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KEYNOTES

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7.4	FIBER CEMENT WALL PANEL; COLOR 02
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8.4	DOOR SYSTEM; REF. SCHED.
8.5	ALUM. BIFOLDING DOOR SYSTEM; REF SCHED.
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10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
10.3	MIRROR W/ UP & DOWNLIGHT
11.2	TELEVISION - REF. SCHED.
11.4	CEILING MOUNTED PROJECTION SCREEN
12.1	ROLLER WINDOW SHADES - MANUAL; RECESSED
12.2	ROLLER WINDOW SHADES - MANUAL; WALL /WINDOW
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12.6	ROLLER WINDOW BLACKOUT SHADES - MOTORIZED W/ZIP; WALL
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LEGEND

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LICENSED ARCHITECT
NO. C 24384
1-31-19
STATE OF CALIFORNIA

REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

RCP - LEVEL 2

A112

ACCESS YOUTH ACADEMY

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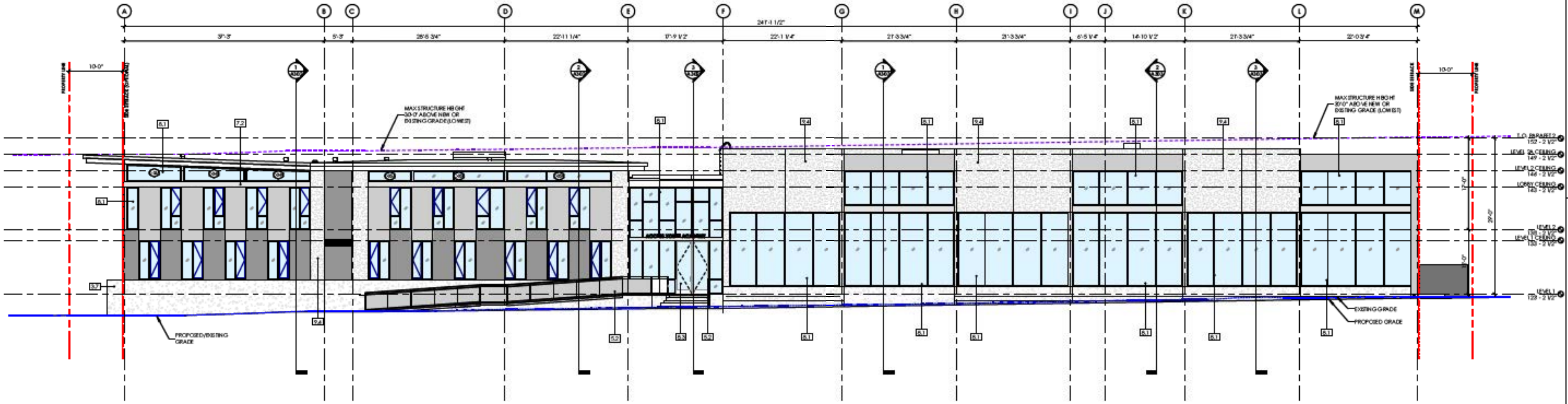
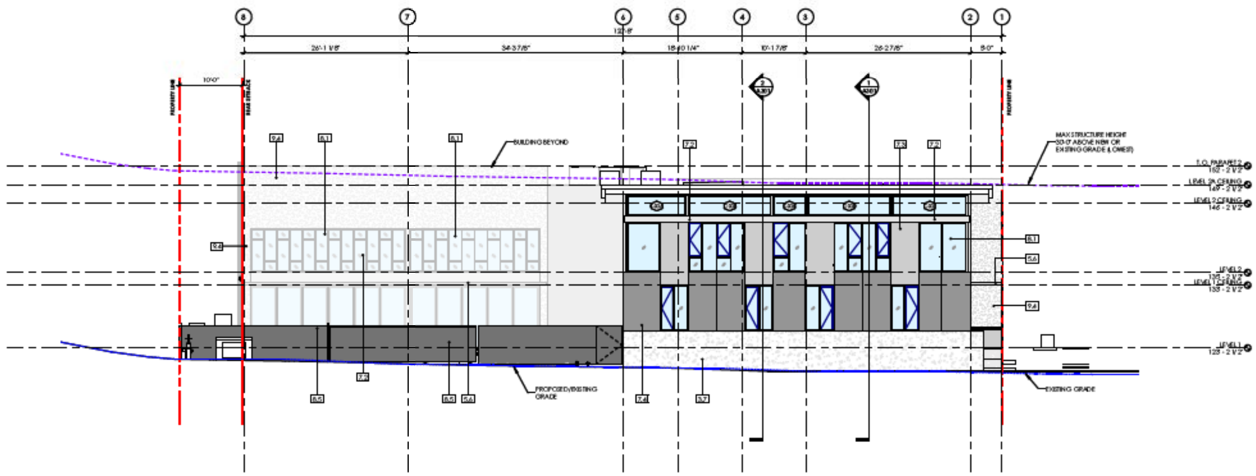


EAST ELEVATION (1)
1/8" = 1'-0"



SOUTH ELEVATION (2)
1/8" = 1'-0"

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8.3	ALUM. STOREFRONT DOOR SYSTEM; REF. SCHED.
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10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
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11.2	TELEVISION - REF. SCHED.
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12.1	ROLLER WINDOW SHADES - MANUAL; RECESSED
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22.1F	PLUMBING FIXTURE - DRINKING FOUNTAIN W/ BOTTLE FILLING STATION
23.2	MECHANICAL EQUIPMENT - REF. MECH.
26.2	LIGHT FIXTURE - REF. ELECT.

LEGEND

LICENSED ARCHITECT
NO. C 24394
STATE OF CALIFORNIA

REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

BUILDING ELEVATION

A201

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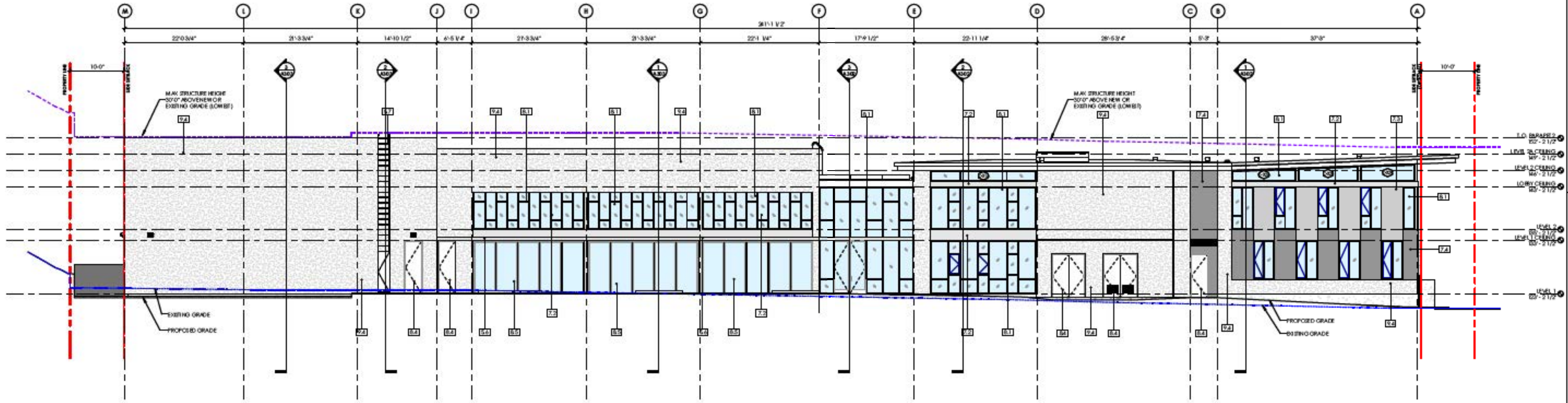
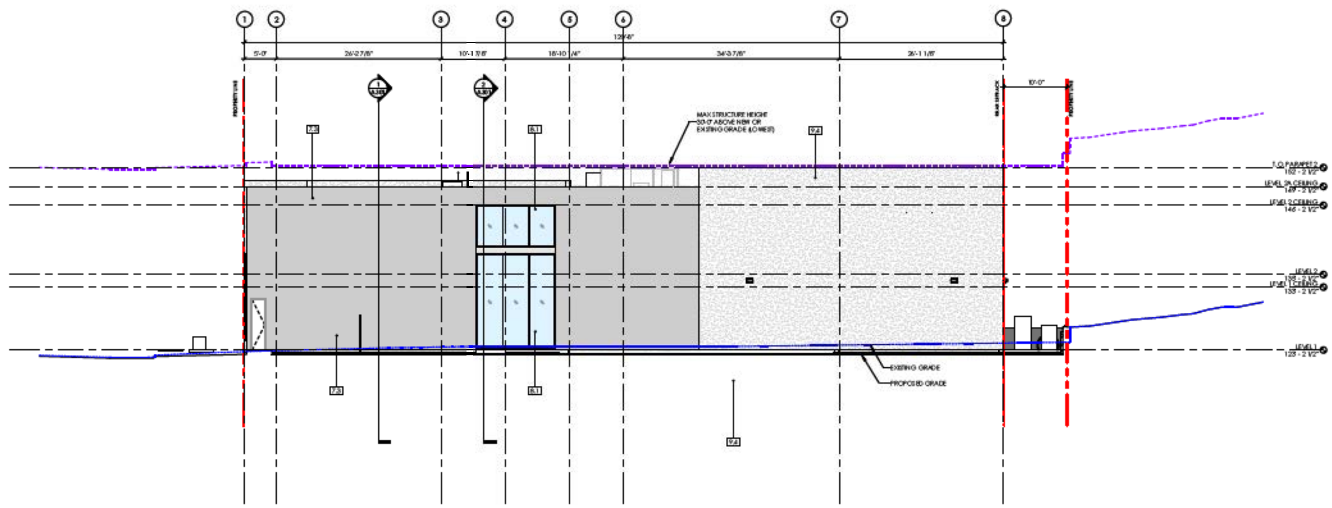


WEST ELEVATION 1
1/8" = 1'-0"



NORTH ELEVATION 2
1/8" = 1'-0"

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LEGEND

LICENSED ARCHITECT
NO. C 24304
1-31-19
STATE OF CALIFORNIA

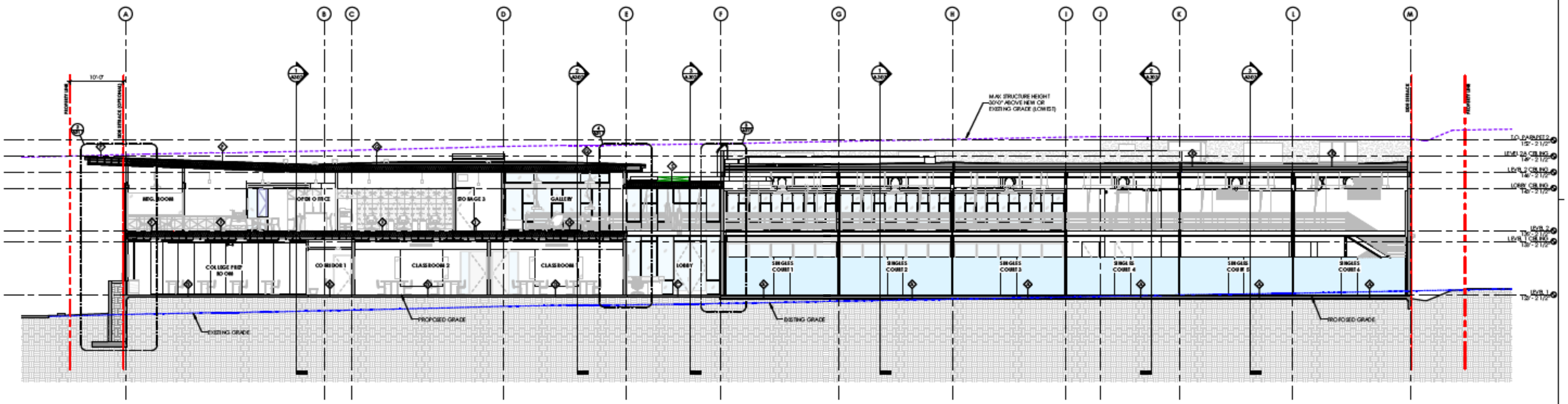
REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

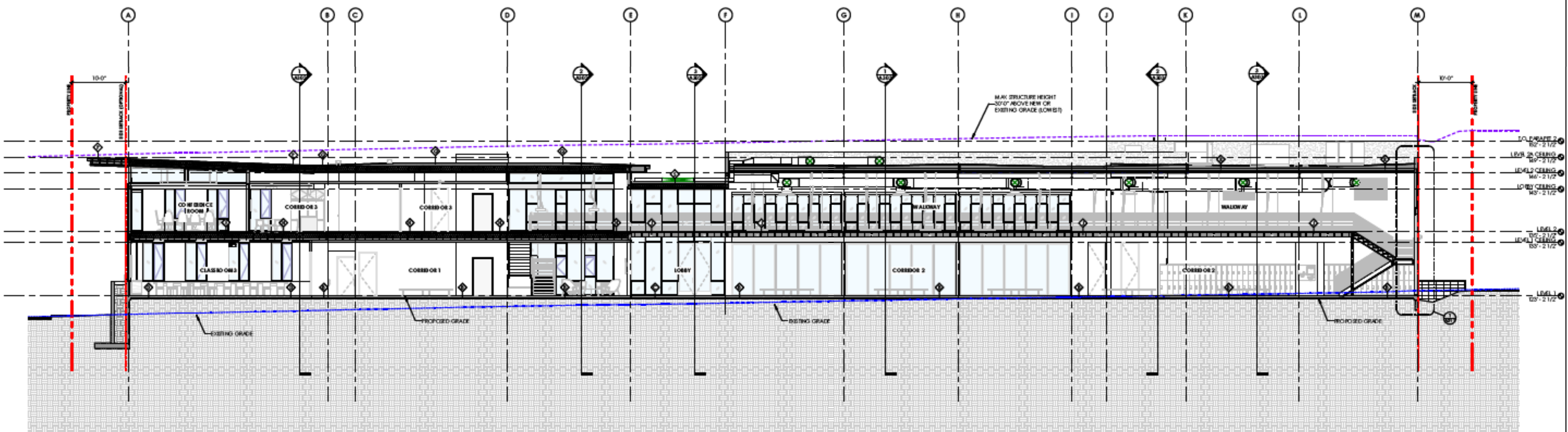
Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

BUILDING ELEVATION

A202



N/S BUILDING SECTION 01
1/8" = 1'-0"



N/S BUILDING SECTION 02
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11. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
12. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
13. ALL ROOFING TO BE CLASS 'A' FIRE RATED.
14. REFER TO DETAIL SHEETS A500'S FOR TYPICAL DETAILS NOT SPECIFICALLY REFERENCED ON THESE DRAWINGS.
15. ARCHITECT TO APPROVE FINAL TILE LAYOUT PRIOR TO INSTALLATION.

KEYNOTES

*	COORDINATE FINAL SELECTIONS OF EQUIPMENT, SYSTEMS, MATERIAL, COLOR, FINISH AND SIMILAR ELEMENTS WITH ARCHITECT
3.7	CONCRETE SITE WALL
3.9	ARCHITECTURAL CAST-IN-PLACE CONCRETE STAIRS
5.2	DECORATIVE METAL HANDRAIL AND/OR GUARDRAIL SYSTEM
5.4	CONCRETE & STEEL PAN STAIR W/ STEEL STRINGERS
5.6	METAL TRELLIS SYSTEM
5.7	METAL ROOF ACCESS LADDER W/SECURITY DOOR
6.5	INTERIOR MILLWORK / CASEWORK
7.2	ALUM. BREAK METAL PANEL
7.3	FIBER CEMENT WALL PANEL: COLOR 01
7.4	FIBER CEMENT WALL PANEL: COLOR 02
8.1	ALUM. STOREFRONT WINDOW SYSTEM: REF. SCHED.
8.3	ALUM. STOREFRONT DOOR SYSTEM: REF. SCHED.
8.4	DOOR SYSTEM: REF. SCHED.
8.5	ALUM. BI-FOLDING DOOR SYSTEM: REF SCHED.
9.4	CEMENT PLASTER STUCCO: 3-COAT SYSTEM W/ ACRYLIC TOPCOAT - COLOR 01
10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
10.3	MIRROR W/ UP & DOWN LIGHT
11.2	TELEVISION - REF. SCHED.
11.4	CEILING MOUNTED PROJECTION SCREEN
12.1	ROLLER WINDOW SHADES - MANUAL; RECESSED
12.2	ROLLER WINDOW SHADES - MANUAL; WALL /WINDOW
12.3	ROLLER WINDOW SHADES - MOTORIZED W/ZIP; RECESSED
12.5	ROLLER WINDOW BLACKOUT SHADES - MOTORIZED W/ZIP; RECESSED
12.6	ROLLER WINDOW BLACKOUT SHADES - MOTORIZED W/ZIP; WALL
13.1	SINGLES SQUASH COURT SYSTEM - PER MANUF.
13.2	DOUBLES SQUASH COURT SYSTEM - PER MANUF.
22.1F	PLUMBING FIXTURE - DRINKING FOUNTAIN W/ BOTTLE FILLING STATION
23.2	MECHANICAL EQUIPMENT - REF. MECH.
26.2	LIGHT FIXTURE - REF. ELECT.

LEGEND

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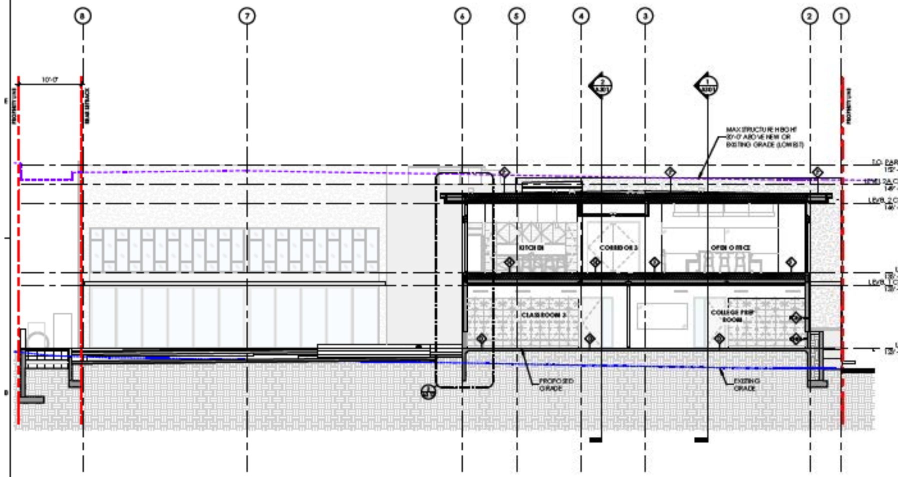
REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

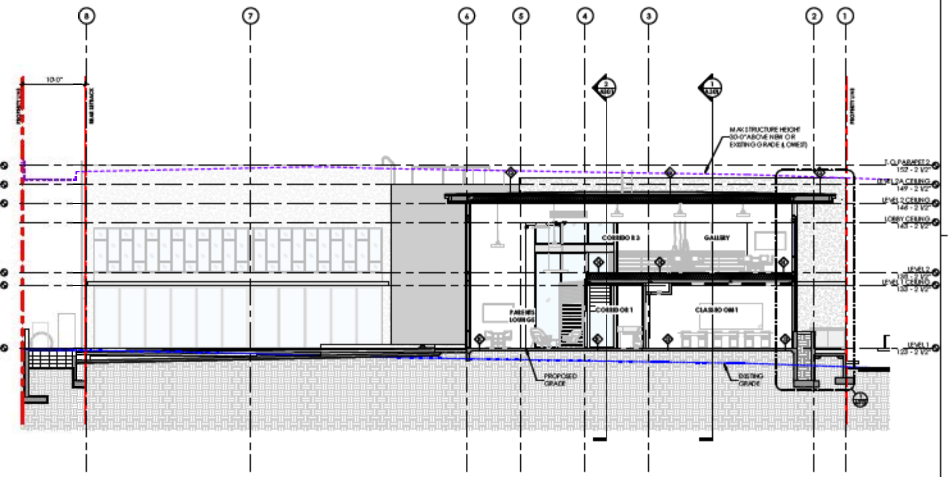
Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

BUILDING SECTIONS

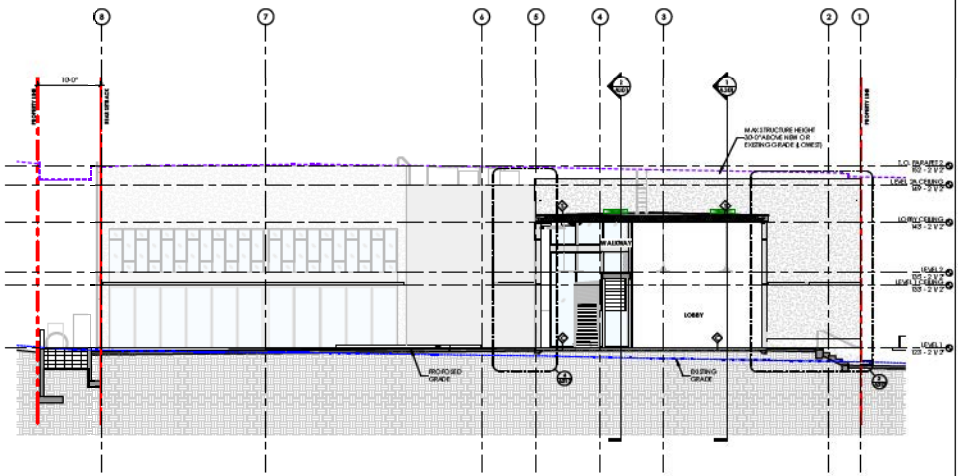
A301



E/W BUILDING SECTION 01 (1)
1/8" = 1'-0"



E/W BUILDING SECTION 02 (2)
1/8" = 1'-0"



E/W BUILDING SECTION 03 (3)
1/8" = 1'-0"

GENERAL NOTES

1. NOTES ON THIS SHEET ARE AN ACCUMULATION OF ITEMS ON THE PLANS, ELEVATIONS, & SECTIONS PLAN SHEETS, NOT ALL ITEMS ARE FOUND ON EACH SHEET.
2. DIMENSIONS SHOWN ARE TYPICAL OF THIS SHEET ONLY, UNLESS NOTED OTHERWISE.
3. GRID LINES ARE MEASURED FROM EXTERIOR FACE OF STUD, CMU, & CONCRETE AND FROM THE CENTERLINE OF STEEL MEMBERS, U.N.O.
4. OVERALL FLOOR PLAN - INTERIOR DIMENSIONS ARE MEASURED TO FACE OF STUD, U.N.O.
5. ENLARGED INTERIOR PLANS, ENLARGED INTERIOR ELEVATIONS, ENLARGED INTERIOR SECTIONS/DETAILS ARE MEASURED TO FACE/EDGE OF FINISHED SURFACE, U.N.O.
6. FINISHED FLOOR ELEVATION CALL-OUTS ARE BASED OFF OF 0-0" AMSL.
7. NOT ALL UNDERGROUND & ABOVE GROUND UTILITIES & EQUIPMENT ARE SHOWN IN THESE DRAWINGS.
8. NOT ALL PROJECT ITEMS ARE SHOWN IN THESE DRAWINGS. ITEMS SHOWN ARE FOR GRAPHIC PURPOSES AND SHALL BE VERIFIED WITH THE APPROPRIATE DISCIPLINES DOCUMENTS FOR ADDITIONAL DETAILED INFORMATION. CONTRACTOR TO COORDINATE ALL PROJECT ITEMS.
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KEYNOTES

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3.9	ARCHITECTURAL CAST-IN-PLACE CONCRETE STAIRS
5.2	DECORATIVE METAL HANDRAIL AND/OR GUARDRAIL SYSTEM
5.4	CONCRETE & STEEL PAN STAIR W/ STEEL STRINGERS
5.6	METAL TRELLIS SYSTEM
5.7	METAL ROOF ACCESS LADDER W/SECURITY DOOR
6.5	INTERIOR MILLWORK / CASEWORK
7.2	ALUM. BREAK METAL PANEL
7.3	FIBER CEMENT WALL PANEL: COLOR 01
7.4	FIBER CEMENT WALL PANEL: COLOR 02
8.1	ALUM. STOREFRONT WINDOW SYSTEM; REF. SCHED.
8.3	ALUM. STOREFRONT DOOR SYSTEM; REF. SCHED.
8.4	DOOR SYSTEM; REF. SCHED.
8.5	ALUM. BI-FOLDING DOOR SYSTEM; REF SCHED.
9.4	CEMENT PLASTER STUCCO; 3-COAT SYSTEM W/ ACRYLIC TOPCOAT - COLOR 01
10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
10.3	MIRROR W/ UP & DOWN LIGHT
11.2	TELEVISION - REF. SCHED.
11.4	CEILING MOUNTED PROJECTION SCREEN
12.1	ROLLER WINDOW SHADES - MANUAL; RECESSED
12.2	ROLLER WINDOW SHADES - MANUAL; WALL/WINDOW
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23.2	MECHANICAL EQUIPMENT - REF. MECH.
26.2	LIGHT FIXTURE - REF. ELECT.

LEGEND

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APN: 548-010-13-00

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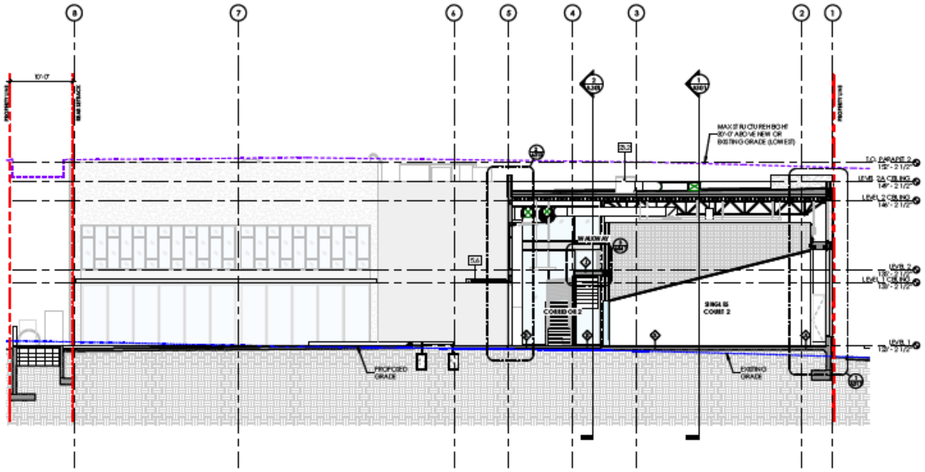
REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

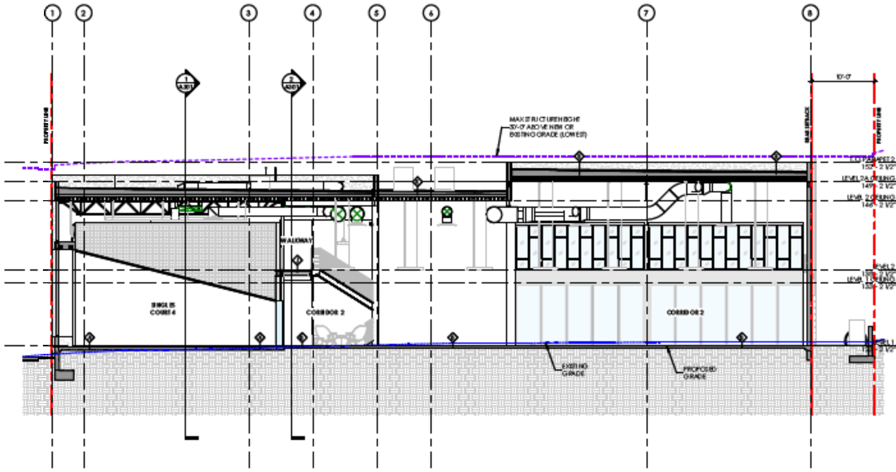
Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

BUILDING SECTIONS

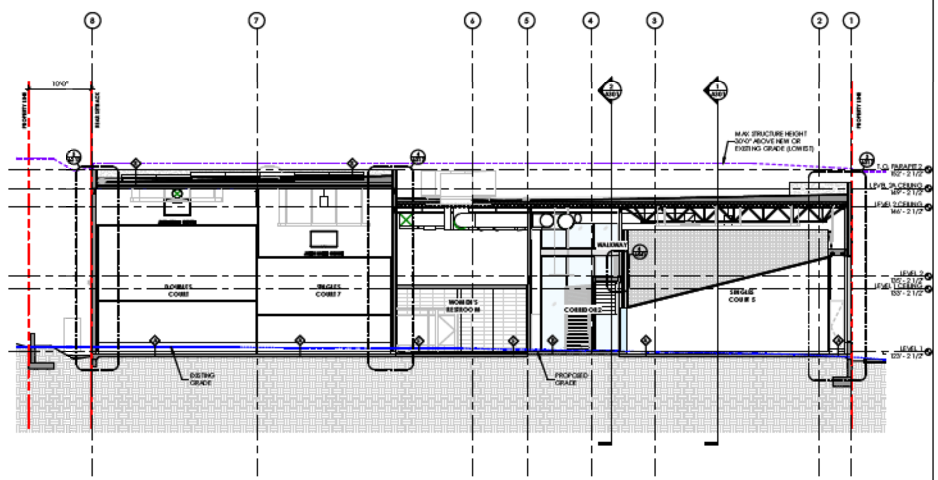
A302



E/W BUILDING SECTION 04 (1)
1/8" = 1'-0"



E/W BUILDING SECTION 05 (2)
1/8" = 1'-0"



E/W BUILDING SECTION 06 (3)
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8.5	ALUM. BI-FOLDING DOOR SYSTEM; REF SCHED.
9.4	CEMENT PLASTER STUCCO: 3-COAT SYSTEM W/ ACRYLIC TOPCOAT - COLOR 01
10.1	OPERABLE PARTITION
10.2	GLASS WHITEBOARD
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22.1f	PLUMBING FIXTURE - DRINKING FOUNTAIN W/ BOTTLE FILLING STATION
23.2	MECHANICAL EQUIPMENT - REF. MECH.
26.2	LIGHT FIXTURE: REF. ELECT.

LEGEND

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LICENSED ARCHITECT
NO. C 24304
1-31-19
STATE OF CALIFORNIA

REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

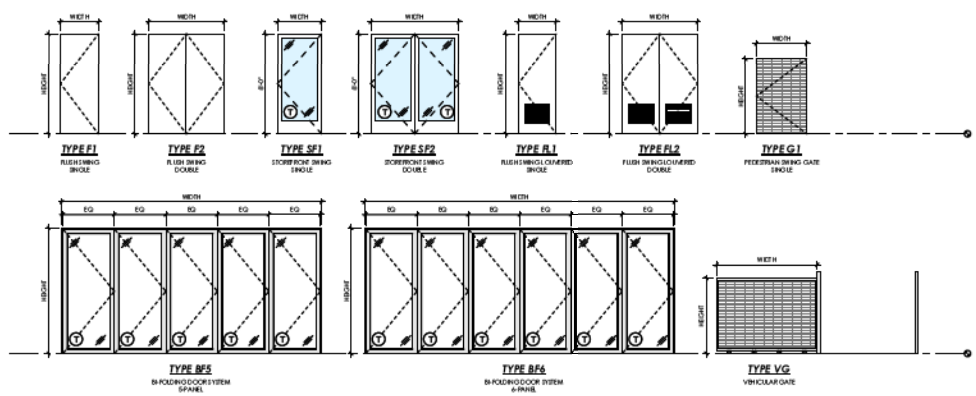
BUILDING SECTIONS

A303

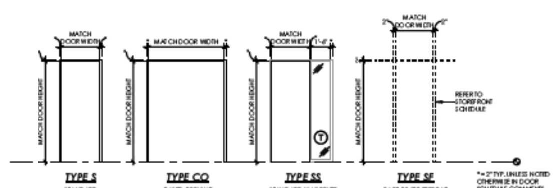
DOOR SCHEDULE

MARK	USE	ROOM	DOOR TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	DOOR FINISH	DOOR FIRE RATING	DOOR HARDWARE SET	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	GLAZING TYPE	GLAZING U-VALUE	GLAZING SHGC	DETAILS HEAD	DETAILS SILL	DETAILS JAMB	MANUFACTURER	SERIES	COMMENTS
101A	Exterior	LOBBY	SF2	6' - 0"	10' - 0"	AL/GL		NR		SF	AL										
101B	Exterior	LOBBY	SF2	6' - 0"	10' - 0"	AL/GL		NR		SF	AL										
104A	Exterior	CORRIDOR 1	F1	3' - 0"	8' - 0"	HM	PTD			S	HM	PTD	-	-	-						
105A	Interior	CLASSROOM 1	F1	3' - 0"	8' - 0"	WD	PTD			SS	WD	PTD		-	-						
106A	Interior	CLASSROOM 2	F1	3' - 0"	8' - 0"	WD	PTD			SS	WD	PTD		-	-						
107A	Interior	STORAGE 1	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
108A	Interior	COLLEGE PREP ROOM	F1	3' - 0"	8' - 0"	WD	PTD			SS	WD	PTD		-	-						
108B	Interior	COLLEGE PREP ROOM	F2	4' - 0"	10' - 0"	WD	PTD			CO	HM	PTD	-	-	-						
109A	Interior	CLASSROOM 3	F1	3' - 0"	8' - 0"	WD	PTD			SS	WD	PTD		-	-						
110A	Interior	STORAGE 2	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
111A	Interior	TEL/IDF	FL1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
112A	Exterior	ELECTRICAL	FL2	6' - 0"	8' - 0"	HM	PTD			CO	HM	PTD	-	-	-						
113A	Exterior	TRASH	F2	6' - 0"	8' - 0"	HM	PTD			CO	HM		-	-	-						
114A	Interior	CORRIDOR 2	BF5	20' - 8"	10' - 0"	AL/GL					AL										
114B	Interior	CORRIDOR 2	BF5	20' - 8"	10' - 0"	AL/GL					AL										
114C	Interior	CORRIDOR 2	BF5	20' - 8"	10' - 0"	AL/GL					AL										
114D	Exterior	CORRIDOR 2	F1	3' - 0"	9' - 10"	HM	PTD			S	HM	PTD	-	-	-						
114E	Interior	CORRIDOR 2	BF5	20' - 8"	10' - 0"	AL/GL					AL										
114F	Interior	CORRIDOR 2	BF6	24' - 8"	10' - 0"	AL/GL					AL										
114G	Exterior	CORRIDOR 2	F1	3' - 0"	9' - 10"	HM	PTD			S	HM	PTD	-	-	-						
120A	Exterior	FRONT COURT ACCESS	F1	2' - 0"	8' - 0"	HM	PTD			S	HM	PTD	-	-	-						
121A	Interior	JANITOR'S CLOSET	F1	2' - 8"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
122A	Interior	WOMEN'S RESTROOM	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
124A	Interior	MEN'S RESTROOM	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
201A	Interior	CORRIDOR 3	F2	8' - 0"	8' - 0"	WD	PTD			CO	HM	PTD	-	-	-						
203A	Interior	STORAGE 3	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
205A	Interior	OFFICE	SF1	3' - 0"	7' - 10"	AL/GL				SF	AL										
206A	Interior	MEETING ROOM	SF1	3' - 0"	7' - 10"	AL/GL				SF	AL										
207A	Interior	CONFERENCE ROOM	SF2	6' - 0"	8' - 10"	AL/GL				SF	AL										
209A	Interior	RESTROOM 1	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
210A	Interior	RESTROOM 2	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
211A	Interior	JANITOR'S CLOSET 2	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
212A	Interior	ELEVATOR ROOM	F1	3' - 0"	8' - 0"	WD	PTD			S	HM	PTD	-	-	-						
S001	Exterior	PARKING	VG	23' - 6"	6' - 0"			NR													
S002	Exterior	SOUTH SITE	G1	4' - 0"	6' - 0"			NR													

DOOR TYPES



DOOR FRAME TYPES



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LICENSED ARCHITECT
STATE OF CALIFORNIA
NO. C 24394
1-31-19

REVISIONS

No.	Description	Date
01	100% SD Submittal	04/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: 1/4" = 1'-0"
SRA Project Number: 1703

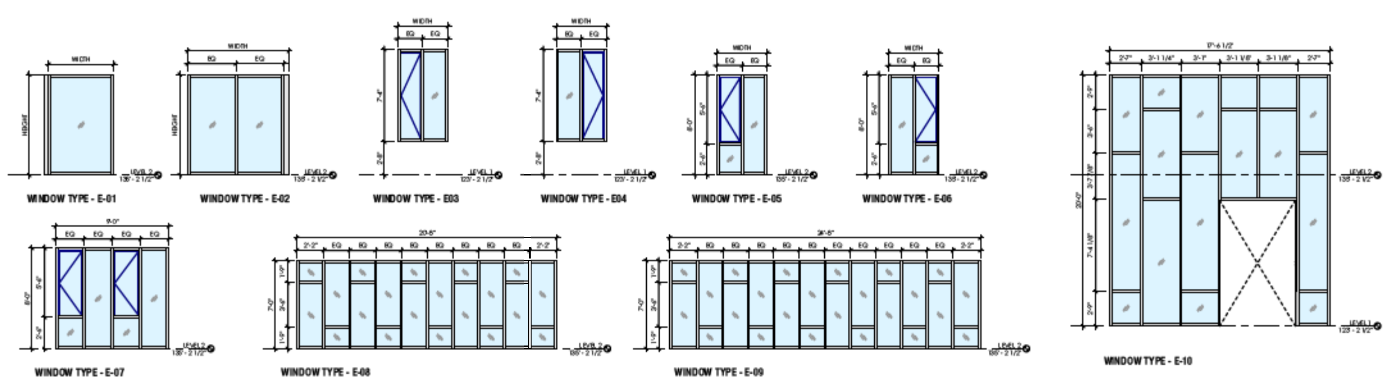
DOOR SCHEDULE

A601

STOREFRONT WINDOW SCHEDULE

NO.	TYPE	ROOM	SIZE: WIDTH	SIZE: HEIGHT	FRAME: MATERIAL	FRAME: FINISH	GLAZING: TYPE	GLAZING: U-VALUE	GLAZING: S.H.G.C.	DETAILS: HEAD	DETAILS: SILL	DETAILS: JAMB	MANUF	SERIES	SHADES	COMMENTS
101A	E-10	LOBBY	17' - 6 1/2"	20' - 0"	AL	AN	GL-1						ARCADIA INC.	T500-OPG3000		
101B	E-10 O.H.	LOBBY	17' - 6 1/2"	20' - 0"	AL	AN	GL-1						ARCADIA INC.	T500-OPG3000		
103A	E-15	PARENTS LOUNGE	19' - 9"	10' - 0"	AL								ARCADIA INC.	TC470		
103B	E-16	PARENTS LOUNGE	19' - 9"	8' - 0"	AL								ARCADIA INC.	TC470		
105A	E-03	CLASSROOM 1	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
105B	E-03	CLASSROOM 1	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
105C	E-03	CLASSROOM 1	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
106A	E-03	CLASSROOM 2	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
106B	E-03	CLASSROOM 2	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
106C	E-03	CLASSROOM 2	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
108A	E-04	COLLEGE PREP ROOM	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
108B	E-04	COLLEGE PREP ROOM	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
108C	E-04	COLLEGE PREP ROOM	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
108D	E-04	COLLEGE PREP ROOM	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
108E	E-04	COLLEGE PREP ROOM	4' - 6"	7' - 4"	AL								ARCADIA INC.	TC470		
108F	E-04	COLLEGE PREP ROOM	4' - 6"	7' - 4"	AL								ARCADIA INC.	TC470		
109A	E-03	CLASSROOM 3	4' - 6"	7' - 4"	AL								ARCADIA INC.	TC470		
109B	E-03	CLASSROOM 3	4' - 6"	7' - 4"	AL								ARCADIA INC.	TC470		
109C	E-03	CLASSROOM 3	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
109D	E-03	CLASSROOM 3	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
109E	E-03	CLASSROOM 3	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
109F	E-03	CLASSROOM 3	4' - 0"	7' - 4"	AL								ARCADIA INC.	TC470		
114A	E-17	CORRIDOR 2	12' - 7"	15' - 3"	AL								ARCADIA INC.	T500-OPG1900		1911 MULLION W/ STEEL
114B	E-18	CORRIDOR 2	12' - 7"	6' - 7"	AL								ARCADIA INC.	TC470		
114C	E-08	CORRIDOR 2	20' - 8"	7' - 0"	AL								ARCADIA INC.	TC470		
114D	E-08	CORRIDOR 2	20' - 8"	7' - 0"	AL								ARCADIA INC.	TC470		
114E	E-08	CORRIDOR 2	20' - 8"	7' - 0"	AL								ARCADIA INC.	TC470		
114F	E-08	CORRIDOR 2	20' - 8"	7' - 0"	AL								ARCADIA INC.	TC470		
114G	E-09	CORRIDOR 2	24' - 8"	7' - 0"	AL								ARCADIA INC.	TC470		
115A	E-13	SINGLES COURT 1	20' - 6 3/4"	13' - 10"	AL								ARCADIA INC.	TC670		TH630 MULLION W/ STEEL
116A	E-13	SINGLES COURT 2	20' - 6 3/4"	13' - 10"	AL								ARCADIA INC.	TC670		TH630 MULLION W/ STEEL
116B	E-14	SINGLES COURT 2	20' - 6 3/4"	6' - 7"	AL								ARCADIA INC.	TC470		
117A	E-13	SINGLES COURT 3	20' - 6 3/4"	13' - 10"	AL								ARCADIA INC.	TC670		TH630 MULLION W/ STEEL
118A	E-13	SINGLES COURT 4	20' - 6 3/4"	13' - 10"	AL								ARCADIA INC.	TC670		TH630 MULLION W/ STEEL
118B	E-14	SINGLES COURT 4	20' - 6 3/4"	6' - 7"	AL								ARCADIA INC.	TC470		
119A	E-13	SINGLES COURT 5	20' - 6 3/4"	13' - 10"	AL								ARCADIA INC.	TC670		TH630 MULLION W/ STEEL
120A	E-13	SINGLES COURT 6	20' - 6 3/4"	13' - 10"	AL								ARCADIA INC.	TC670		TH630 MULLION W/ STEEL
120B	E-14	SINGLES COURT 6	20' - 6 3/4"	6' - 7"	AL								ARCADIA INC.	TC470		
202A	E-05	GALLERY	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
202B	E-05	GALLERY	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
203A	E-05	STORAGE 3	5' - 4"	8' - 0"	AL								ARCADIA INC.	TC470		
204A	E-05	OPEN OFFICE	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
204B	E-05	OPEN OFFICE	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
204C	E-06	OPEN OFFICE	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
204D	E-06	OPEN OFFICE	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
204E	E-06	OPEN OFFICE	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
205A	E-06	OFFICE	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
205B	E-01	OFFICE	2' - 2 3/4"	8' - 0"	AL								ARCADIA INC.	TC470		
205C	E-02	OFFICE	7' - 7 7/8"	8' - 0"	AL								ARCADIA INC.	TC470		
205D	I-03	OFFICE	11' - 9 5/8"	8' - 0"	AL								ARCADIA INC.			
206A	E-07 O.H.	MEETING ROOM	9' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
206B	I-02	MEETING ROOM	13' - 0 3/4"	8' - 0"	AL								ARCADIA INC.			
207A	E-05	CONFERENCE ROOM	5' - 1 7/8"	8' - 0"	AL								ARCADIA INC.	TC470		
207B	E-07	CONFERENCE ROOM	9' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
207C	E-01	CONFERENCE ROOM	5' - 2"	8' - 0"	AL								ARCADIA INC.	TC470		
207D	E-01	CONFERENCE ROOM	2' - 2 3/4"	8' - 0"	AL								ARCADIA INC.	TC470		
207E	E-05	CONFERENCE ROOM	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
207F	E-05	CONFERENCE ROOM	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
207G	I-01	CONFERENCE ROOM	10' - 0"	9' - 0"	AL								ARCADIA INC.			
208A	E-05	KITCHEN	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
208B	E-05	KITCHEN	4' - 0"	8' - 0"	AL								ARCADIA INC.	TC470		
C-01A	C-01A	PARENTS LOUNGE	19' - 9"	2' - 0"	AL								ARCADIA INC.	TC470		
C-02A	C-02A	KITCHEN	12' - 0"	2' - 2 17/32"	AL								ARCADIA INC.	TC470		
C-02B	C-02B	CONFERENCE ROOM	11' - 3 1/2"	2' - 7 19/32"	AL								ARCADIA INC.	TC470		
C-02C	C-02C	CONFERENCE ROOM	10' - 2 3/4"	3' - 0 9/32"	AL								ARCADIA INC.	TC470		
C-03A	C-03A	CONFERENCE ROOM	9' - 3 3/4"	3' - 2 9/16"	AL								ARCADIA INC.	TC470		
C-03B	C-03B	CONFERENCE ROOM	13' - 1 3/4"	3' - 2 9/16"	AL								ARCADIA INC.	TC470		
C-03C	C-03C	CONFERENCE ROOM	5' - 1 7/8"	3' - 2 9/16"	AL								ARCADIA INC.	TC470		
C-03D	C-03D	MEETING ROOM	13' - 1 3/4"	3' - 2 9/16"	AL								ARCADIA INC.	TC470		
C-03E	C-03E	OFFICE	11' - 9 5/8"	3' - 2 9/16"	AL								ARCADIA INC.	TC470		
C-04A	C-04A	OFFICE	10' - 2 3/4"	3' - 0 9/32"	AL								ARCADIA INC.	TC470		
C-04B	C-04B	OPEN OFFICE	11' - 3 1/2"	2' - 7 19/32"	AL								ARCADIA INC.	TC470		
C-04C	C-04C	OPEN OFFICE	12' - 0"	2' - 2 17/32"	AL								ARCADIA INC.	TC470		
C-05A	C-05A	OPEN OFFICE	8' - 0"	2' - 0"	AL								ARCADIA INC.	TC470		
C-05B	C-05B	OPEN OFFICE / STORAGE 3	16' - 11 3/4"	2' - 0"	AL								ARCADIA INC.	TC470		
C-05C	C-05C	GALLERY	19' - 7 3/4"	2' - 0"	AL								ARCADIA INC.	TC470		

CLERESTORY STOREFRONT WINDOW TYPES



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T SQUARED ENGINEERING
1340 SPECIALTY DRIVE #E
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SAN DIEGO, CA 92120
P: 619.280.4321

COMMISSIONING
AXIOM COMMISSIONING GROUP
310 VIA VERA CRUZ #206
SAN MARCOS, CA 92078
P: 760.842.1800

LICENSED ARCHITECT — STATE OF CALIFORNIA — NO. C 24394

REVISIONS

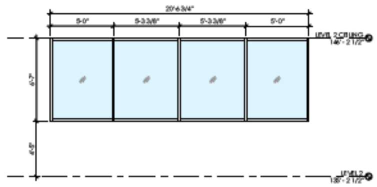
No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: 1/4" = 1'-0"
SRA Project Number: 1703

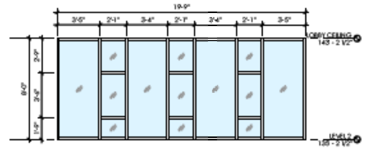
STOREFRONT WINDOW SCHEDULE

A602

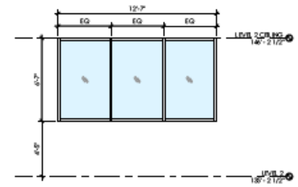
EXTERIOR STOREFRONT WINDOW TYPES (CONTINUED)



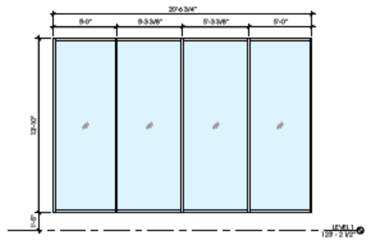
WINDOW TYPE - E-14



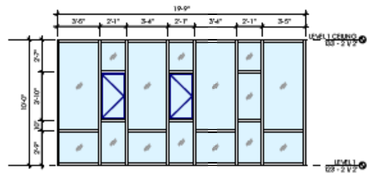
WINDOW TYPE - E-16



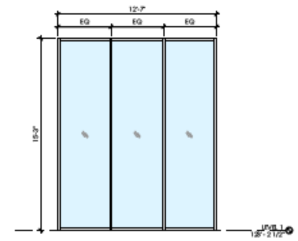
WINDOW TYPE - E18



WINDOW TYPE - E-13

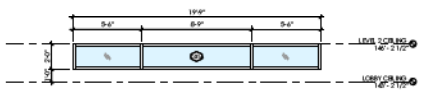


WINDOW TYPE - E-15

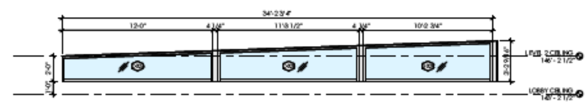


WINDOW TYPE - E17

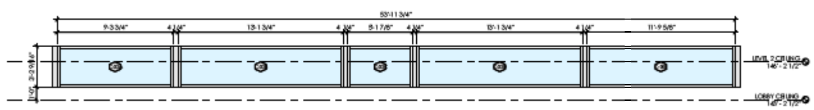
CLERESTORY STOREFRONT WINDOW TYPES



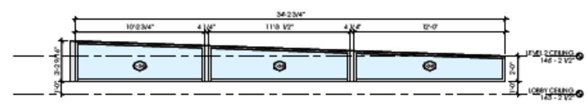
WINDOW TYPE - C-01



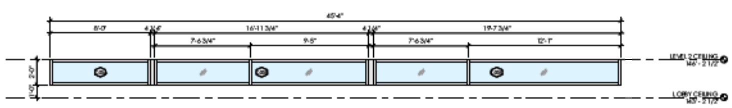
WINDOW TYPE - C-02



WINDOW TYPE - C-03

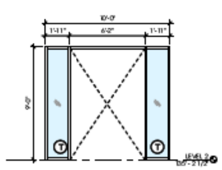


WINDOW TYPE - C-04

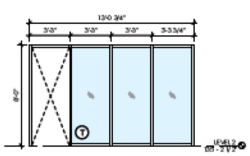


WINDOW TYPE - C-05

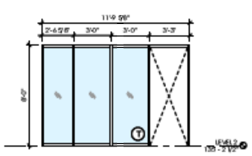
INTERIOR STOREFRONT WINDOW TYPES



WINDOW TYPE - I-01



WINDOW TYPE - I-02



WINDOW TYPE - I-03

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AXIOM COMMISSIONING GROUP
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P: 760.842.1800

REVISIONS

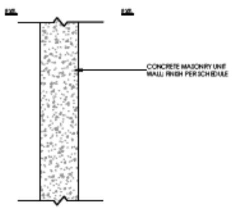
No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date	Scale
11/15/2017	1/4" = 1'-0"

SRA Project Number
1703

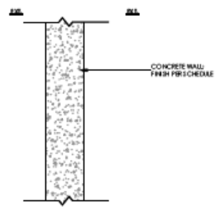
STOREFRONT WINDOW SCHEDULE

A603



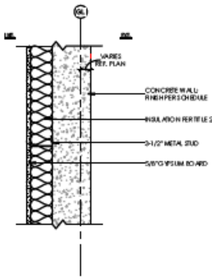
CM8 = 7-5/8" CMU

CM# EXT. CONCRETE MASONRY UNIT



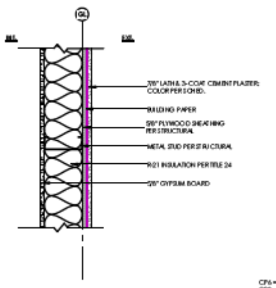
CN6 = 6" CONCRETE
CN8 = 8" CONCRETE

CN# EXT. CONCRETE



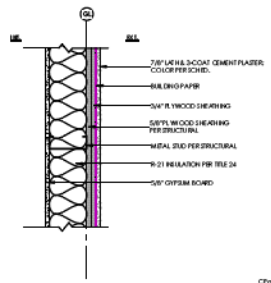
CNF6 = 6" CONCRETE

CNF# EXT. CONCRETE W/ GYP. BOARD INT.



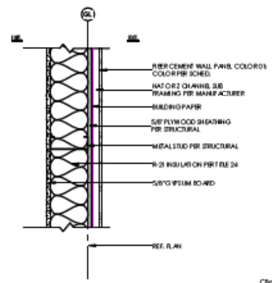
CP6 = 6" METAL STUD
CP8 = 8" METAL STUD

CP# EXT. METAL STUD W/ CEMENT PLASTER EXT. / GYP. BOARD INT.



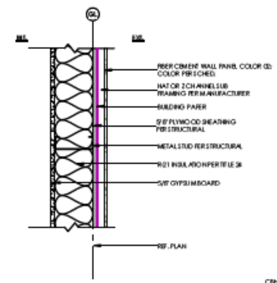
CPa6 = 6" METAL STUD

CPa# EXT. METAL STUD W/ CEMENT PLASTER EXT. / GYP. BOARD INT. 2



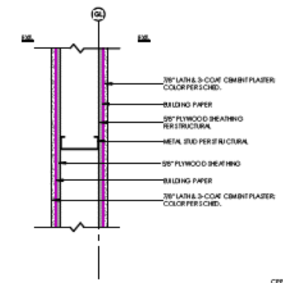
CBa6 = 6" METAL STUD

FCa# EXT. METAL STUD W/ FIBER CEMENT PANEL 01 EXT. / GYP. BOARD INT.



CBb6 = 6" METAL STUD

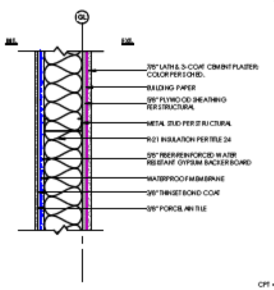
FCb# EXT. METAL STUD W/ FIBER CEMENT PANEL 02 EXT. / GYP. BOARD INT.



CPP6 = 6" METAL STUD

CPP# EXT. METAL STUD W/ CEMENT PLASTER BOTH SIDES

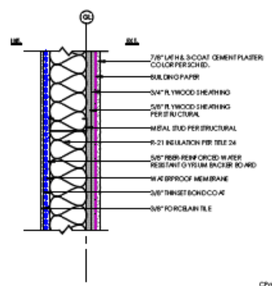
TCNA W247-15
TCNA B431-15



CPT = 6" METAL STUD

CPT# EXT. METAL STUD W/ CEMENT PLASTER EXT. / TILE INT.

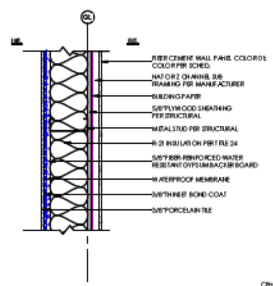
TCNA W247-15
TCNA B431-15



CPaT = 6" METAL STUD

CPaT# EXT. METAL STUD W/ CEMENT PLASTER EXT. / TILE INT. 2

TCNA W247-15
TCNA B431-15



CBaT = 6" METAL STUD

FCaT# EXT. METAL STUD W/ FIBER CEMENT PANEL 01 EXT. / TILE INT.

PARTITION TYPE GENERAL NOTES

THE "PARTITION TYPE TAG", ILLUSTRATED BELOW, REPRESENTS THE COMPLETE EXTENT OF ALL PARTITIONS INDICATED BY THE SYMBOL ON THE FLOOR PLANS, AND OTHER DRAWINGS IN THE PROJECT DOCUMENTS. REFER TO PARTITION TYPE DETAILS INDICATED BY THE "PARTITION TYPE" CHARACTER ON THE TAG. FOR EXAMPLE: DETAIL "TYPE A".

REFER TO THE FIRE RATING LEGEND FOR THE FIRE-RESISTANCE CLASSIFICATION NOTED BY THE "FIRE RATING INDICATION" ON THE TAG. FOR EXAMPLE: "1" = 60 MINUTE FIRE-RESISTANCE RATED ASSEMBLY.

REFER TO METAL STUD SIZE OR CMU WIDTH AS INDICATED BY THE "METAL STUD/CMU WIDTH" CHARACTER ON THE TAG AS SHOWN ON THE PARTITION TYPE DETAILS. FOR EXAMPLE: "4" = 4" METAL STUDS.

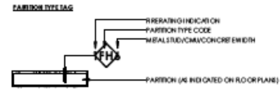
REFER TO THE "PARTITION TYPE MODIFIER" NOTES BELOW, WHICH APPLY TO EACH PARTITION WHERE MODIFIERE CHARACTER(S) ARE SHOWN ON THE TAG.

REFER TO THE "PARTITION KEYNOTES" AS INDICATED, WHICH APPLY TO EACH PARTITION WHERE KEYNOTE CHARACTER(S) ARE SHOWN ON THE TAG.

REFER TO STRUCTURAL FOR TYPICAL FRAMING DETAILS

GENERAL NOTES - SEISMIC ZONES IBC D-F
ALL METAL STUD PARTITION TYPES SHALL COMPLY WITH PARTITION TYPE GENERAL NOTES, AND ALL METAL STUDS SHALL BE MIN. 33 MIL, U.O.N.
ALL CMU PARTITION TYPES SHALL COMPLY WITH PARTITION TYPE GENERAL NOTES, AND REINFORCING AS INDICATED ON THE STRUCTURAL DRAWINGS, U.O.N.

PARTITION TYPE TAG



FIRE RATING LEGEND

THE COMPLETE ASSEMBLY OF EACH PARTITION WITH A FIRE RATING INDICATION SYMBOL SHOWN ON THE TAG, SHALL COMPLY WITH ALL REQUIREMENTS OF THE FIRE-RESISTANCE RATING CLASSIFICATION.

SYMBOL	RATING CLASSIFICATION
<OMITTED>	NON-RATED PARTITION, U.O.N.
1	60 MIN. FIRE-RESISTANCE RATED FIRE PARTITION
1S	60 MIN. FIRE-RESISTANCE RATED & SMOKE BARRIER PARTITION
2	120 MIN. FIRE-RESISTANCE RATED FIRE BARRIER
3	180 MIN. FIRE-RESISTANCE RATED FIRE BARRIER
4	240 MIN. FIRE-RESISTANCE RATED FIRE BARRIER

EXTERIOR PARTITION TYPE NAME LEGEND

CM=	CONCRETE MASONRY UNIT
CN=	CONCRETE
CNF=	CONCRETE WITH FURRING
CP=	CEMENT PLASTER
CPa=	CEMENT PLASTER
CPP=	CEMENT PLASTER
CPT=	CEMENT PLASTER/TILE
CPaT=	CEMENT PLASTER/TILE
FCa=	FIBER CEMENT WALL PANEL
FCb=	FIBER CEMENT WALL PANEL
FCaT=	FIBER CEMENT WALL PANEL/TILE

INTERIOR PARTITION TYPE NAME LEGEND

FH=	FULL HEIGHT
FHH=	FULL HEIGHT
FHS=	FULL HEIGHT, SHEAR
FHHS=	FULL HEIGHT, SHEAR
FT=	FULL HEIGHT/TILE
FTT=	FULL HEIGHT/TILE
FTS=	FULL HEIGHT/TILE, SHEAR
PH=	PARTIAL HEIGHT
LH=	LOW HEIGHT
FF=	FULL HEIGHT FURRING
FFS=	FULL HEIGHT FURRING/TILE, SHEAR
PF =	PARTIAL HEIGHT FURRING
SW=	SHAFTWALL
SWS=	SHAFTWALL, SHEAR
CW=	CHASEWALL
AW=	ACOUSTIC WALL

WALL TYPE NOTES

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LICENSED ARCHITECT
PAUL RACHE SAFDIE
NO. C 24384
1-31-19
STATE OF CALIFORNIA

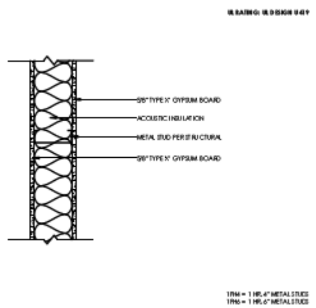
REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

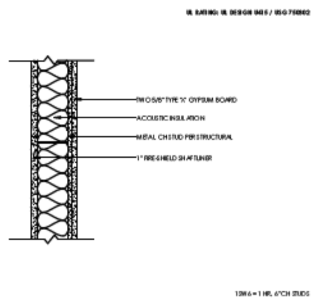
Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1708

PARTITION TYPES - EXTERIOR

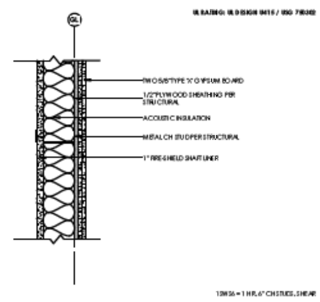
A701



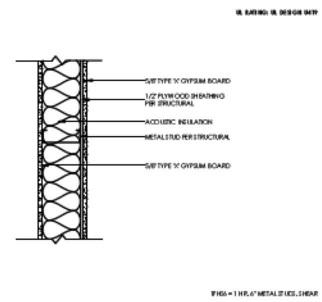
1FH# INT. METAL STUD W/ GYP. BOARD / GYP. BOARD (1-HR RATED)



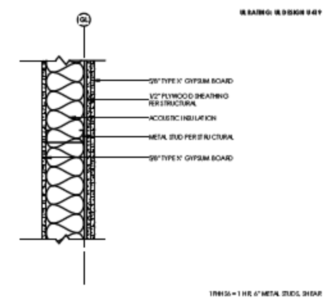
1SW# INT. METAL CH STUD SHAFTWALL W/ GYP. BOARD / GYP. BOARD (1-HR RATED)



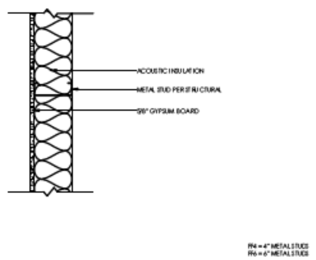
1SWS# INT. METAL CH STUD SHAFTWALL W/ GYP. BOARD / GYP. BOARD (1-HR RATED; SHEAR)



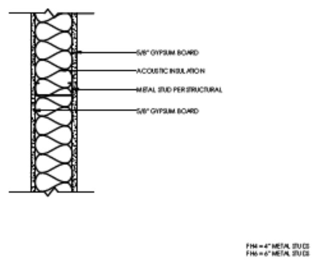
1FHS# INT. METAL STUD W/ GYP. BOARD / GYP. BOARD (1-HR RATED; SHEAR)



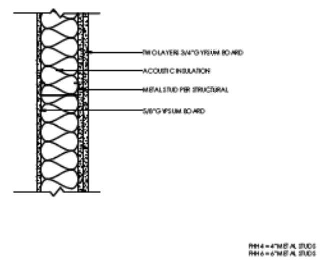
1FHHS# INT. METAL STUD W/ GYP. BOARD / TWO GYP. BOARD (1-HR RATED; SHEAR)



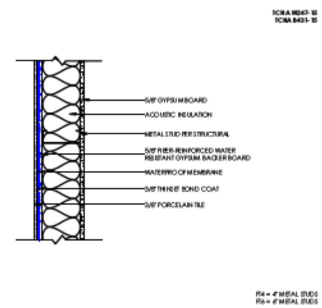
FF# INT. METAL STUD W/ GYP. BOARD ONE SIDE



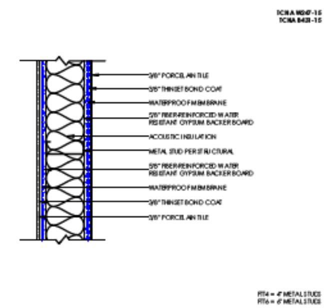
FH# INT. METAL STUD W/ GYP. BOARD / GYP. BOARD



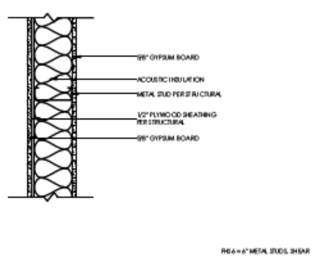
FHH# INT. METAL STUD W/ TWO GYP. BOARD / GYP. BOARD



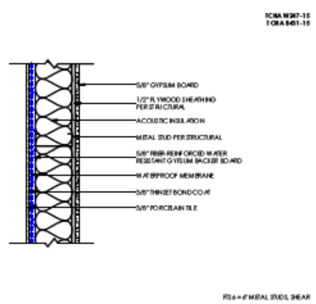
FT# INT. METAL STUD W/ GYP. BOARD / TILE



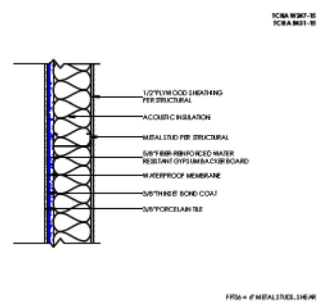
FTT# INT. METAL STUD W/ TILE / TILE



FHS# INT. METAL STUD W/ GYP. BOARD / GYP. BOARD (SHEAR)



FTS# INT. METAL STUD W/ GYP. BOARD / TILE (SHEAR)



FFTS# INT. METAL STUD W/ TILE ONE SIDE (SHEAR)

WALL TYPE NOTES

PARTITION TYPE GENERAL NOTES

THE "PARTITION TYPE TAG", ILLUSTRATED BELOW, REPRESENTS THE COMPLETE EXTENT OF ALL PARTITIONS INDICATED BY THE SYMBOL ON THE FLOOR PLANS, AND OTHER DRAWINGS IN THE PROJECT DOCUMENTS. REFER TO PARTITION TYPE DETAILS INDICATED BY THE "PARTITION TYPE" CHARACTER ON THE TAG. FOR EXAMPLE: DETAIL "TYPE A".

REFER TO THE FIRE RATING LEGEND FOR THE FIRE-RESISTANCE CLASSIFICATION NOTED BY THE "FIRE RATING INDICATION" ON THE TAG. FOR EXAMPLE: "1"= 60 MINUTE FIRE-RESISTANCE RATED ASSEMBLY.

REFER TO METAL STUD SIZE OR CMU WIDTH AS INDICATED BY THE "METAL STUD/CMU WIDTH "CHARACTER ON THE TAG AS SHOWN ON THE PARTITION TYPE DETAILS. FOR EXAMPLE: "4" = 4" METAL STUDS.

REFER TO THE "PARTITION TYPE MODIFIER" NOTES BELOW, WHICH APPLY TO EACH PARTITION WHERE MODIFIERE CHARACTER(S) ARE SHOWN ON THE TAG.

REFER TO THE "PARTITION KEYNOTES" AS INDICATED, WHICH APPLY TO EACH PARTITION WHERE KEYNOTE CHARACTER(S) ARE SHOWN ON THE TAG.

REFER TO STRUCTURAL FOR TYPICAL FRAMING DETAILS

GENERAL NOTES - SEISMIC ZONES IBC D-F
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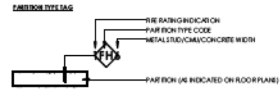

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LH=	LOW HEIGHT
FF=	FULL HEIGHT FURRING
FFTS=	FULL HEIGHT FURRING/TILE, SHEAR
PF =	PARTIAL HEIGHT FURRING
SW=	SHAFT WALL
SWS=	SHAFTWALL, SHEAR
CW=	CHASE WALL
AW=	ACOUSTIC WALL

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LICENSED ARCHITECT
NO. C 24394
1-31-19
STATE OF CALIFORNIA

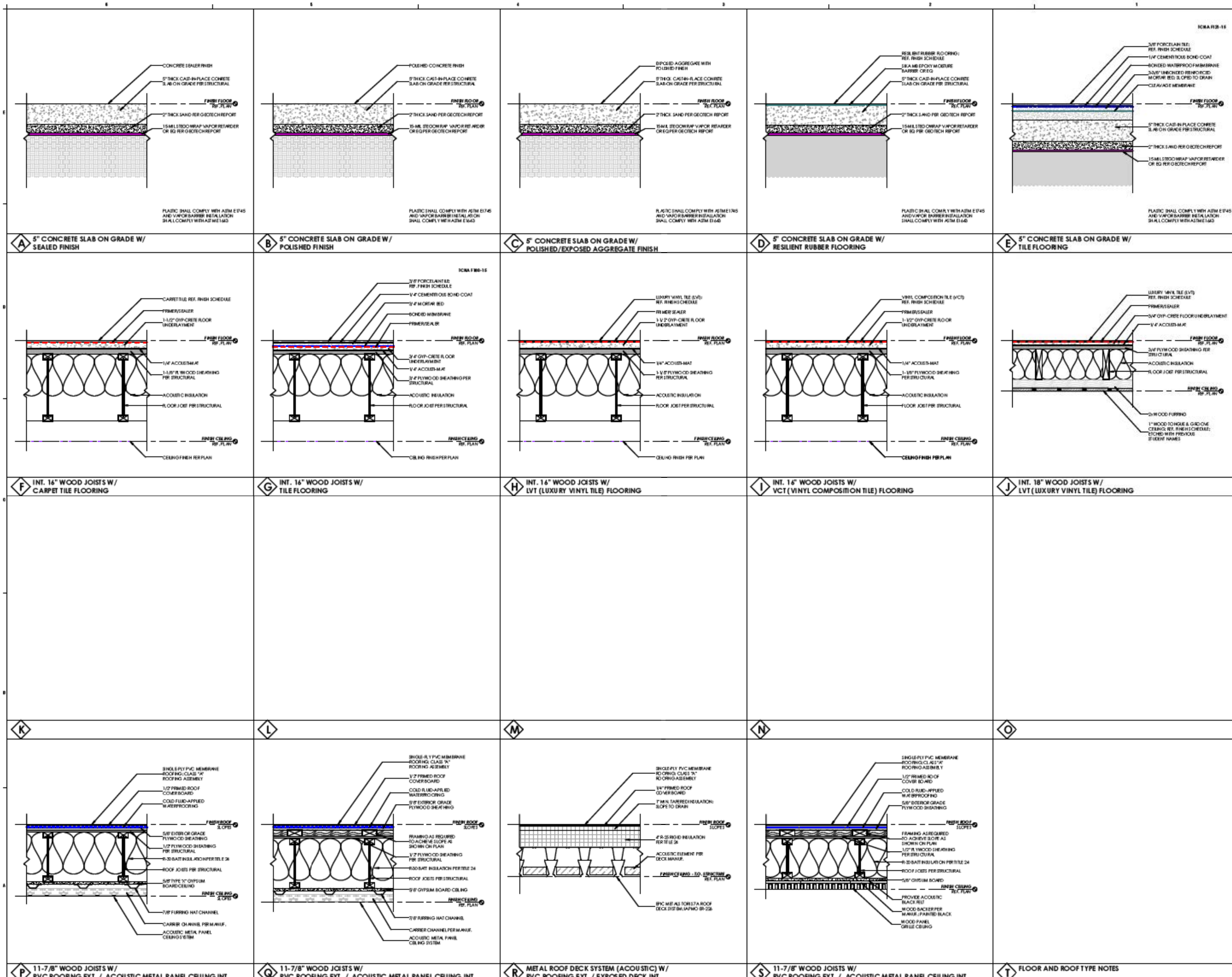
REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: As indicated
SRA Project Number: 1703

PARTITION TYPES - INTERIOR

A702



A — 5" CONCRETE SLAB ON GRADE W/ SEALED FINISH

B — 5" CONCRETE SLAB ON GRADE W/ POLISHED FINISH

C — 5" CONCRETE SLAB ON GRADE W/ POLISHED/EXPOSED AGGREGATE FINISH

D — 5" CONCRETE SLAB ON GRADE W/ RESILIENT RUBBER FLOORING

E — 5" CONCRETE SLAB ON GRADE W/ TILE FLOORING

F — INT. 16" WOOD JOISTS W/ CARPET TILE FLOORING

G — INT. 16" WOOD JOISTS W/ TILE FLOORING

H — INT. 16" WOOD JOISTS W/ LVT (LUXURY VINYL TILE) FLOORING

I — INT. 16" WOOD JOISTS W/ VCT (VINYL COMPOSITION TILE) FLOORING

J — INT. 18" WOOD JOISTS W/ LVT (LUXURY VINYL TILE) FLOORING

K

L

M

N

O

P — 11-7/8" WOOD JOISTS W/ PVC ROOFING EXT. / ACOUSTIC METAL PANEL CEILING INT.

Q — 11-7/8" WOOD JOISTS W/ PVC ROOFING EXT. / ACOUSTIC METAL PANEL CEILING INT.

R — METAL ROOF DECK SYSTEM (ACOUSTIC) W/ PVC ROOFING EXT. / EXPOSED DECK INT.

S — 11-7/8" WOOD JOISTS W/ PVC ROOFING EXT. / ACOUSTIC METAL PANEL CEILING INT.

T — FLOOR AND ROOF TYPE NOTES

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LICENSED ARCHITECT — STATE OF CALIFORNIA — NO. C 24394 — 1-31-19

REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17

Issue Date: 11/15/2017
Scale: 1 1/2" = 1'-0"
SRA Project Number: 1703

FLOOR AND ROOF TYPES

A703

ROOFTOP GAS/ELEC. AIR CONDITIONING UNIT SCHEDULE

TAG	MANUFACTURER & MODEL NO.	SERVES	NOMINAL CAP. @ ARI COND. (TONS)	SEER (EER)	SUPPLY FAN CFM	SUPPLY FAN ESP (IN. W.G.)	SUPPLY FAN OA CFM	SUPPLY FAN NO.	SUPPLY FAN FLA	COMPRESSORS NO.	COMPRESSORS RLA	COMPRESSORS LRA	CONDENSER FANS NO.	CONDENSER FANS HP	CONDENSER FANS FLA	POWER EXHAUST FAN CFM	POWER EXHAUST FAN ESP	POWER EXHAUST FAN NO.	POWER EXHAUST FAN HP	POWER EXHAUST FAN FLA	COMB. FAN NO.	COMB. FAN FLA	UNIT POWER SUPPLY FLA	UNIT POWER SUPPLY MCA	UNIT POWER SUPPLY MOCP	UNIT POWER SUPPLY V	UNIT POWER SUPPLY PH	COOLING TOTAL CAP (MBH)	COOLING SENS. CAP (MBH)	COOLING EAT (°F) DB	COOLING EAT (°F) WB	COOLING AMB. TEMP (°F)	HEATING INPUT (MBH)	HEATING MIN. AFUE (%)	FILTERS QTY	FILTERS SIZE (IN.)	OPER. WEIGHT (LBS.)	REMARKS
AC 1	CARRIER 48HC-20	WEST COURTS	17.5	– (12.0)	7000	1.0	600	1	17.1	2	27.6 25.0	191 164	4	1/4	1.5	7000	0.2	2	2	12.8	1	0.52	76.2	82.6	100	208	3	222.5	168.2	80	67	85	220	81	6 4	20x25x2 16x25x1	3100	1 2 3 4 5 6 7 8 9 10 11 12 13
AC 2	CARRIER 48HC-11	LOBBY/LOUNGE/ RECEPT/MAIN CORRIDOR	10	– (12.0)	4000	1.0	320	1	10.6	2	15.9 15.9	110 110	1	1	7.4	4000	0.2	1	2	5.6	1	0.52	50.3	54.0	60	208	3	120.0	100.0	80	67	85	180	81	4 1	20x20x2 20x24x1	1850	1 2 3 4 5 6 7 8 9 10 11 12 13
AC 3	CARRIER 48HC-24	EAST COURTS	20	– (12.0)	8000	1.0	700	1	17.1	2	28.2 28.2	239 239	4	1/4	1.5	8000	0.2	2	2	12.8	1	0.52	80.0	90.8	100	208	3	261.3	191.8	80	67	85	220	81	9 4	16x25x2 16x25x1	3250	1 2 3 4 5 6 7 8 9 10 11 12 13

1. PROVIDE PRE-FABRICATED VIBRATION ISOLATION CURB. SEE DETAIL 10/M5.1.
2. PROVIDE 2-SPEED, BELT DRIVEN INDOOR FAN MOTOR.
3. PROVIDE FULLY MODULATING ENTHALPY BASED ECONOMIZER.
4. PROVIDE CENTRIFUGAL POWER EXHAUST WITH VFD CAPABLE OF EXHAUSTING 100% SUPPLY AIR, AND ALL REQUIRED ACCESSORIES PER MANUFACTURER RECOMMENDATION FOR PROPER SYSTEM OPERATION. PROVIDE SEPARATE POWER SUPPLY AND DISCONNECT SWITCH.
5. PROVIDE WITH PROGRAMMABLE THERMOSTAT. FOR DETAIL, SEE 6/M5.1.
6. PROVIDE UL900 (CLASS 1 OR 2), 30% EFFICIENT (MERV 8) DISPOSABLE PLEATED FILTERS.
7. PROVIDE WITH DUCT MOUNTED SMOKE DETECTOR IN INTERNALLY LINED SUPPLY PLENUM. SEE FLOOR PLAN FOR LOCATION. SEE ELECTRICAL DWGS. FOR POWER REQUIREMENTS.
8. PROVIDE WITH FLUE DISCHARGE DEFLECTOR.
9. PROVIDE DISCONNECT SWITCH. SEE ELECTRICAL DWGS. CONTROL PER DETAIL 7/M5.1.
10. PROVIDE ALL CONTROL WIRING IN CONDUIT AND ALL ACCESSORIES REQUIRED BY MANUFACTURER FOR A COMPLETE AND OPERATIONAL SYSTEM.
11. FIELD VERIFY EXACT ELECTRICAL REQUIREMENTS WITH MANUFACTURER AND COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO START OF WORK.
12. PROVIDE CABINET AND COIL WITH APPROVED SALT-AIR CORROSION PROTECTIVE COATING.
13. PROVIDE WITH NON-CFC REFRIGERANT BASED SYSTEM.

EXHAUST FAN SCHEDULE

TAG	MANUFACTURER & MODEL NO.	SERVES	CFM	ESP (IN. W.G.)	DRIVE TYPE	RPM	BHP (WATTS)	HP (WATTS)	MAX. SONES	V	PH	FAN TYPE	OPER. WEIGHT (LBS.)	REMARKS
EF 1	COOK ACE-B 195C8B	MAIN RESTROOMS	2700	0.6	BELT	814	0.5	3/4	8.8	120	1	ROOFTOP	200	1 2 5 7 8 9 10
EF 2	AIR KING AK400	BREAK ROOM	380	0.25	DIRECT	978	—	(118)	1.5	120	1	CEILING	40	3 4 5 6 8 9 10
EF 3	AIR KING E1300H	2ND FLOOR RESTROOM	130	0.1	DIRECT	812	—	(37)	0.3	120	1	CEILING	20	3 4 5 6 8 9 10
EF 4	AIR KING E1300H	2ND FLOOR RESTROOM	130	0.1	DIRECT	812	—	(37)	0.3	120	1	CEILING	20	3 4 5 6 8 9 10
EF 5	AIR KING E1300H	1ST FLOOR TRASH	100	0.2	DIRECT	812	—	(37)	0.3	120	1	CEILING	20	3 4 5 6 8 9 10
EF 6	AIR KING E800H	2ND FLOOR JANITOR	80	0.1	DIRECT	812	—	(37)	0.3	120	1	CEILING	20	3 4 5 6 8 9 10

1. PROVIDE WITH MANUFACTURER'S LEVEL PRE-FABRICATED ROOF CURB. FOR DETAIL, SEE 11/M5.1.
2. PROVIDE WITH BACKDRAFT DAMPER.
3. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER AND GRILLE.
4. PROVIDE ALL MOUNTING HARDWARE INCLUDING SEISMIC BRACING. FOR DETAIL, SEE 12/M5.1.
5. PROVIDE THERMAL OVERLOAD PROTECTION ON FAN MOTOR.
6. INTERLOCK WITH WALL SWITCH. FOR DETAIL, SEE 9/M5.1. SEE ELECTRICAL DRAWINGS FOR WALL SWITCH LOCATION.
7. INTERLOCK WITH TIME CLOCK. FOR DETAIL, SEE 9/M5.1. SEE FLOOR PLANS FOR TIME CLOCK LOCATION.
8. PROVIDE WITH DISCONNECT SWITCH.
9. PROVIDE ALL CONTROL WIRING IN CONDUIT AND ALL ACCESSORIES REQUIRED BY MANUFACTURER FOR A COMPLETE AND OPERATIONAL SYSTEM.
10. FIELD VERIFY EXACT ELECTRICAL REQUIREMENTS WITH MANUFACTURER AND COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO START OF WORK.

SUPPLY FAN SCHEDULE

TAG	MANUFACTURER & MODEL NO.	SERVES	CFM	ESP (IN. W.G.)	DRIVE TYPE	RPM	BHP (WATTS)	HP (WATTS)	MAX. SONES	V	PH	FAN TYPE	OPER. WEIGHT (LBS.)	REMARKS
SF 1	COOK GN1000	CLASSROOMS OUTSIDE AIR	870	0.35	BELT	849	0.182	1/2	3.0	120	1	INLINE	175	1 2 3 4 5 6 7 8

1. PROVIDE WITH BACKDRAFT DAMPER.
2. PROVIDE WITH FILTER BANK AND MERV-8 FILTERS.
3. PROVIDE ALL MOUNTING HARDWARE INCLUDING SEISMIC BRACING. FOR DETAIL, SEE 12/M5.1.
4. PROVIDE THERMAL OVERLOAD PROTECTION ON FAN MOTOR.
5. INTERLOCK WITH TIME CLOCK. FOR DETAIL, SEE 9/M5.1. SEE FLOOR PLANS FOR TIME CLOCK LOCATION.
6. PROVIDE WITH DISCONNECT SWITCH.
7. PROVIDE ALL CONTROL WIRING IN CONDUIT AND ALL ACCESSORIES REQUIRED BY MANUFACTURER FOR A COMPLETE AND OPERATIONAL SYSTEM.
8. FIELD VERIFY EXACT ELECTRICAL REQUIREMENTS WITH MANUFACTURER AND COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO START OF WORK.

AIR DEVICE SCHEDULE

TAG	MANUFACTURER & MODEL NO.	TYPE	FRAME STYLE	OBD (YES/NO)	REMARKS
A	TITUS 300RL	DOUBLE DEFLECTION SUPPLY DIFFUSER	BORDER TYPE 1	Y	1 2 4
B	TITUS 350RL	LOUVER FACE RETURN/EXHAUST REGISTER	BORDER TYPE 1	Y	1 2 4
C	TITUS MCD	MODULAR CORE SUPPLY DIFFUSER	BORDER TYPE 1	Y	1 2 3 4
D	TITUS TMRA	ROUND DUCT MOUNTED SUPPLY	BORDER TYPE 1	N	1 2 5
F	TITUS FL-30	LINEAR SUPPLY	BORDER TYPE 1	N	6

1. SQUARE NECK WITH ROUND ADAPTOR.
2. STEEL CONSTRUCTION.
3. 4-WAY DEFLECTION, U.N.O.
4. FOR DETAIL, SEE 1/M5.2.
5. FOR DETAIL, SEE 2/M5.2.
6. FOR DETAIL, SEE 3/M5.2.

HEAT PUMP UNIT SCHEDULE

TAG	MANUFACTURER & MODEL NO.	COOLING NET CAPACITY TOTAL (MBH)	COOLING NET CAPACITY SENS. (MBH)	COOLING NET CAPACITY AMB. (°F)	HEATING CAPACITY SENS. (MBH)	HEATING CAPACITY AMB. (°F)	EER (SEER)	HSPF (COP)	ELECTRICAL COND. NO.	ELECTRICAL FAN HP	ELECTRICAL COMPRESSOR NO.	ELECTRICAL COMPRESSOR RLA	UNITS POWER SUPPLY FLA	UNITS POWER SUPPLY MCA	UNITS POWER SUPPLY MOCP	UNITS POWER SUPPLY V	UNITS POWER SUPPLY PH	OPER. WEIGHT (LBS.)	REMARKS
HP A	AAON CB-B-060-B	60	48	82	60	42	16.7 (13.6)	8.7	1	.33	1	16.9	20	24	40	208	3	300	1 2 3 4 5 6 7 8
HP B	AAON CB-B-060-B	60	48	82	60	42	16.7 (13.6)	8.7	1	.33	1	16.9	20	24	40	208	3	300	1 2 3 4 5 6 7 8

1. PROVIDE REFRIGERANT PIPING AND INSULATION INCLUDING FULL REFRIGERANT CHARGE. SIZE SHALL BE AS PER MFR.'S REQUIREMENT AND FINAL DEVELOPED LENGTH. PROVIDE ALL REFRIGERANT ACCESSORIES AS PER MFR.'S RECOMMENDATION. VERIFY SIZING WITH MFR.'S REP. PRIOR TO INSTALLATION.
2. PROVIDE CABINET AND CONDENSER COIL WITH APPROVED SALT-AIR CORROSION COATING.
3. PROVIDE WITH CRANKCASE HEATER AND LIQUID LINE SOLENOID VALVE FOR LONG LINE APPLICATIONS.
4. PROVIDE WITH EVAPORATOR FREEZE THERMOSTAT, ISOLATION RELAY, LOW-AMBIENT CONTROL KIT AND WINTER START CONTROL KIT FOR LOW-AMBIENT COOLING APPLICATIONS.
5. PROVIDE WITH VIBRATION ISOLATION TYPE NEOPRENE PADS FOR HEAT PUMP. MOUNT ON LEVEL PLATFORM. FOR DETAIL, SEE 5/M5.2.
6. PROVIDE WITH FUSED DISCONNECT. FOR WIRING DETAIL, SEE 8/M5.1.
7. PROVIDE ALL CONTROL WIRING INSIDE CONDUIT AND ALL OTHER ACCESSORIES FOR PROPER OPERATION REQUIRED BY MANUFACTURER.
8. FIELD VERIFY EXACT ELECTRICAL REQUIREMENTS WITH MANUFACTURER AND COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO START OF WORK.

AIR HANDLER UNIT SCHEDULE

TAG	MANUFACTURER & MODEL NO.	SERVES	NOMINAL CAP. @ ARI COND. (TONS)	SEER (EER)	SUPPLY FAN CFM	SUPPLY FAN OA CFM	SUPPLY FAN ESP (IN. W.G.)	SUPPLY FAN NO.	SUPPLY FAN FLA	UNITS POWER SUPPLY FLA	UNITS POWER SUPPLY MCA	UNITS POWER SUPPLY MOCP	UNITS POWER SUPPLY V	UNITS POWER SUPPLY PH	FILTERS QTY	FILTERS SIZE (IN.)	OPER. WEIGHT (LBS.)	REMARKS
AH A	AAON RQ-005-8-J	LOUNGE/LOBBY	5 TONS	15.7	2000	340	1.5	1	7.5	7.5	9.4	20	208	3	4	–	700	1 2 3 4 5 6
AH B	AAON RQ-005-8-J	LOUNGE/LOBBY	5 TONS	15.7	2000	340	1.5	1	7.5	7.5	9.4	20	208	3	4	–	700	1 2 3 4 5 6

1. PROVIDE WITH MFR. LEVEL PRE-FAB ROOF CURB. FOR MOUNTING DETAIL, SEE 4/M5.2.
2. PROVIDE CONDENSATE DRAIN. SEE PLUMB. PLANS.
3. PROVIDE WITH DUCT SMOKE DETECTOR. SEE DETAIL 5/M5.1.
4. PROVIDE WITH FUSED DISCONNECT. FOR WIRING DIAGRAM, SEE DETAIL 8/M5.1.
5. PROVIDE ALL CONTROL WIRING IN CONDUIT AND ALL OTHER ACCESSORIES REQUIRED BY MANUFACTURER FOR A COMPLETE AND OPERATIONAL SYSTEM.
6. FIELD VERIFY EXACT ELECTRICAL REQUIREMENTS WITH MANUFACTURER AND COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO START OF WORK.

NOT FOR CONSTRUCTION

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1340 SPECIALT DR.
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ISTA CA 920 1
TEL 760 560-0100
FAX 760 560-0101
17042
04-11-1

ACCESS YOUTH ACADEMY

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APN: 548-010-13-00

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COMMISSIONING
AXIOM COMMISSIONING GROUP
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REVISIONS

No.	Description	Date
01	100% SD Submittal	04/15/17
02	100% DD Submittal	09/01/17
03	Plan Check Submittal	11/15/17
04	Plan Check Resubmittal	04/12/18

Issue Date: 03/08/2018
Scale: As indicated
SRA Project Number: 1703

MECHANICAL SCHEDULES

M02

GENERAL NOTES

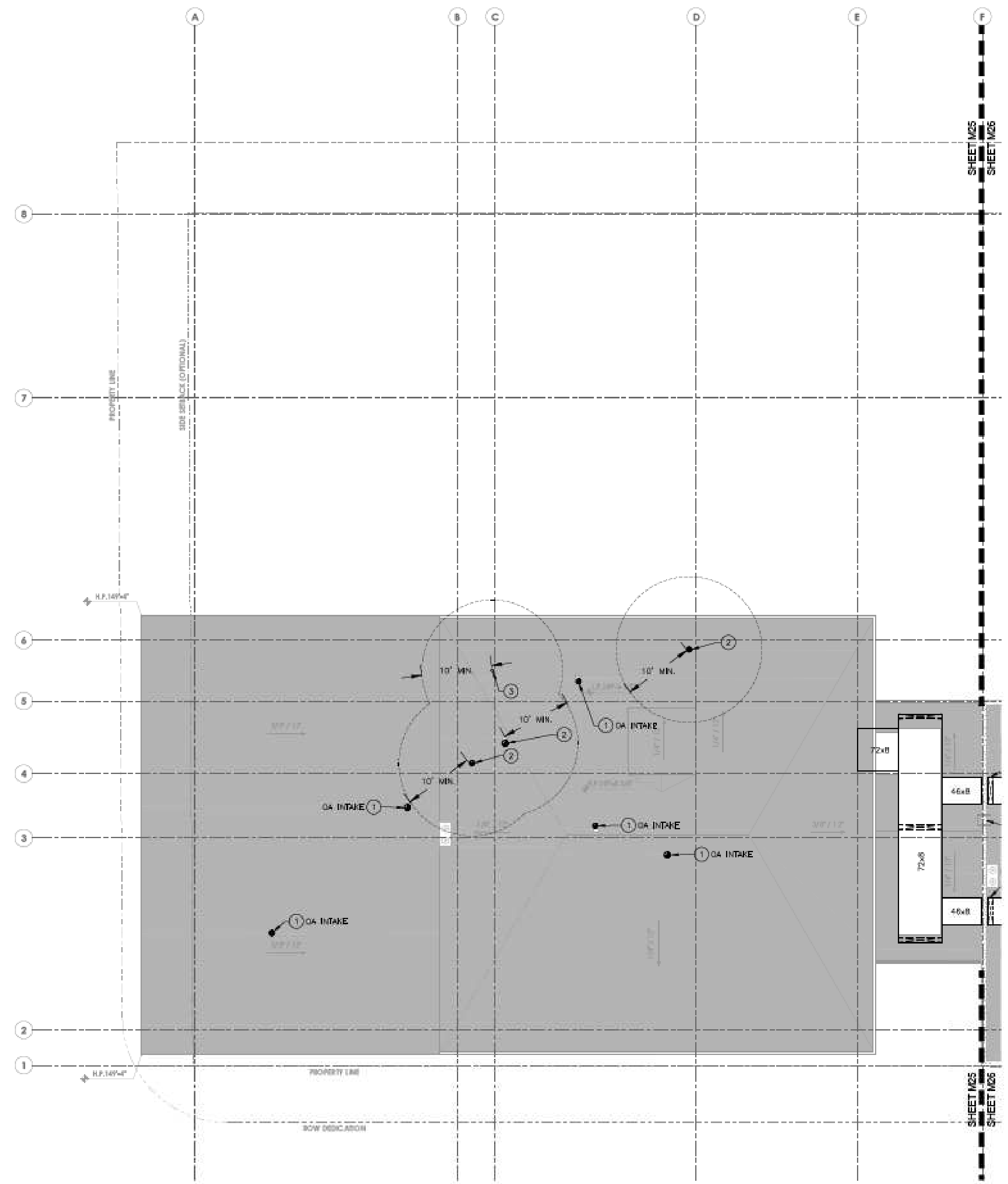
A. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES. IN CASE OF DISCREPANCIES OR ANY POTENTIAL CONFLICTS, INFORM THE ARCHITECT AND ENGINEER IN WRITING PRIOR TO START OF WORK.

B. FOR DUCT SMOKE DETECTOR, SEE DETAIL 5/M51.

C. FOR EXTERIOR DUCTWORK, SEE DETAILS 6 & 7/M52.

KEY NOTES

1. OA ROOF CAP. SEE DETAIL 1/M5.1.
2. EA ROOF CAP. SEE DETAIL 1/M5.1.
3. PLUMBING VENT SHOWN FOR REFERENCE ONLY.



MECHANICAL ROOF PLAN 1

1/4" = 1'-0"

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MECHANICAL ROOF PLAN

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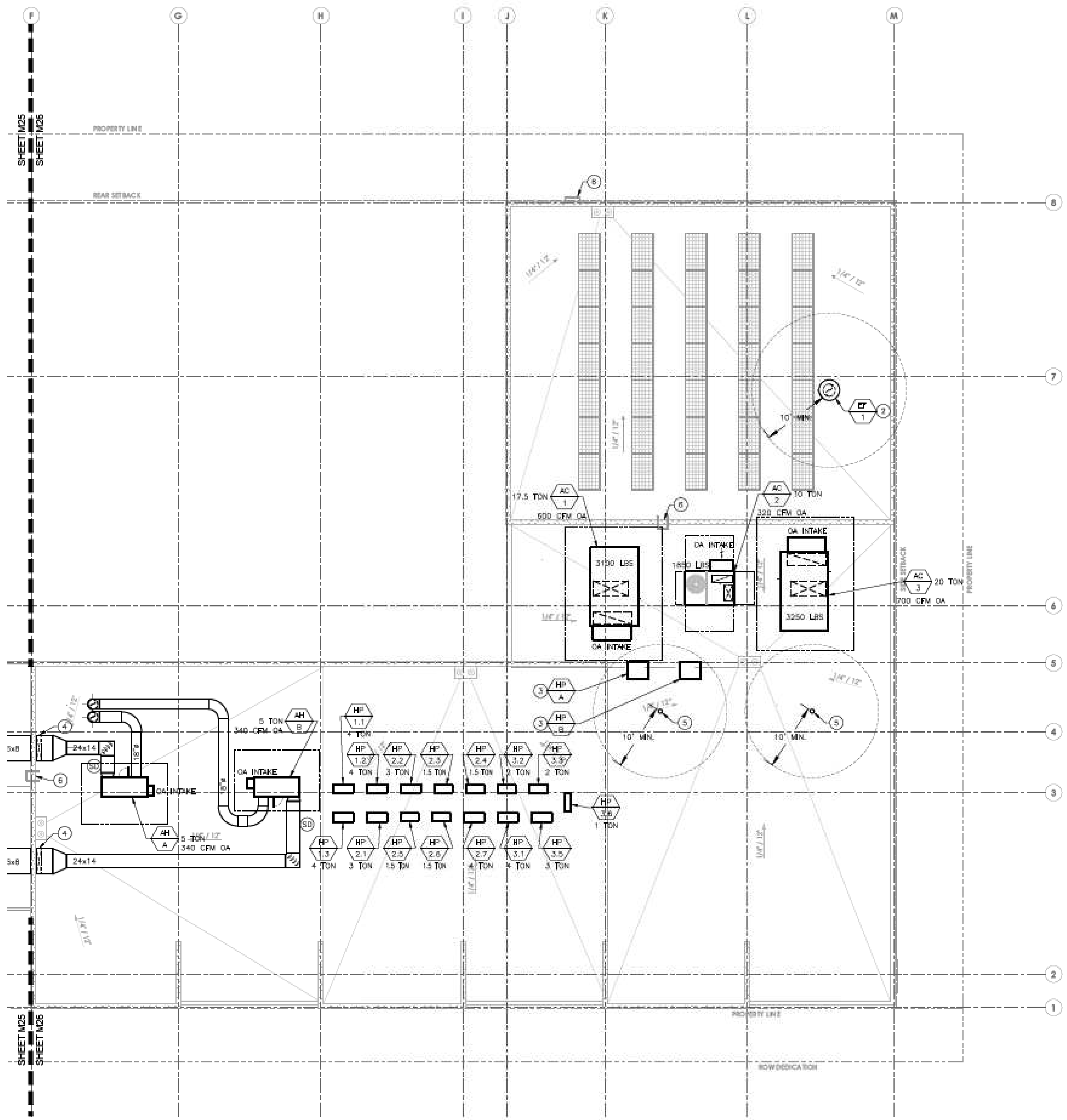
M25



MECHANICAL ROOF PLAN

1

GENERAL NOTES

A. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES. IN CASE OF DISCREPANCIES OR ANY POTENTIAL CONFLICTS, INFORM THE ARCHITECT AND ENGINEER IN WRITING PRIOR TO START OF WORK.

B. FOR DUCT SMOKE DETECTOR, SEE DETAIL 5/M51.

C. FOR EXTERIOR DUCTWORK, SEE DETAILS 6 & 7/M52.

KEY NOTES

1. OA ROOF CAP. SEE DETAIL 1/M5.1.
2. ROOF MOUNTED EXHAUST FAN.
3. CONDENSING UNIT.
4. 46x8 SA DUCT DOWN THRU ROOF.
5. PLUMBING VENT SHOWN FOR REFERENCE ONLY.
6. ROOF ACCESS LADDER SHOWN FOR REFERENCE ONLY. ROOF LADDER ACCESS SHALL COMPLY WITH SECTION 304 CMC.

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04-11-1

M26

APPENDIX B

Pertinent Sections of the City of San Diego Noise Element to the General Plan, Municipal Code, and the Encanto Neighborhoods Community Plan

NE-A.2. Assure the appropriateness of proposed developments relative to existing and future noise levels by consulting the guidelines for noise-compatible land use (shown on Table NE-3) to minimize the effects on noise-sensitive land uses.

NE-A.3. Limit future residential and other noise-sensitive land uses in areas exposed to high levels of noise.

NE-A.4. Require an acoustical study consistent with Acoustical Study Guidelines (Table NE-4) for proposed developments in areas where the existing or future noise level exceeds or would exceed the "compatible" noise level thresholds as indicated on the Land Use - Noise Compatibility Guidelines (Table NE-3), so that noise mitigation measures can be included in the project design to meet the noise guidelines.

NE-A.5. Prepare noise studies to address existing and future noise levels from noise sources that are specific to a community when updating community plans.

TABLE NE-3 Land Use - Noise Compatibility Guidelines

Land Use Category	**Exterior Noise Exposure (dBA CNEL)**				
		60	65	70	75
Parks and Recreational					
Parks, Active and Passive Recreation					
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities					
Agricultural					
Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables					
Residential					
Single Dwelling Units; Mobile Homes		45			
Multiple Dwelling Units **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.*		45	45*		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12Educational Facilities; Libraries; Museums; Child Care Facilities		45			
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities		45	45		
Cemeteries					
Retail Sales					
Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories			50	50	

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	60	65	70	75	
Commercial Services					
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			**50**	**50**	
Visitor Accommodations		**45**	**45**	**45**	
Offices					
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			**50**	**50**	
Vehicle and Vehicular Equipment Sales and Services Use					
Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking					
Wholesale, Distribution, Storage Use Category					
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution					
Industrial					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries					
Research & Development				**50**	

	Compatible	**Indoor Uses**	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section I.
		Outdoor Uses	Activities associated with the land use may be carried out.
45, 50	**Conditionally Compatible**	**Indoor Uses**	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas. Refer to Section I.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated t make the outdoor activities acceptable. Refer to Section I.
	Incompatible	**Indoor Uses**	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Article 9.5: Noise Abatement and Control

Division 4: Limits

("Noise Level Limits, Standards and Control"
added 9–18–1973 by O–11122 N.S.)
(Retitled to "Limits" on 9–22–1976 by O–11916 N.S.)

§59.5.0401 Sound Level Limits

(a) It shall be unlawful for any person to cause noise by any means to the extent that the one–hour average sound level exceeds the applicable limit given in the following table, at any location in the City of San Diego on or beyond the boundaries of the property on which the noise is produced. The noise subject to these limits is that part of the total noise at the specified location that is due solely to the action of said person.

TABLE OF APPLICABLE LIMITS

Land Use	Time of Day	One-Hour Average Sound Level (decibels)
1. Single Family Residential	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45 40
2. Multi-Family Residential (Up to a maximum density of 1/2000)	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50 45
3. All other Residential	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55 50
4. Commercial	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	65 60 60
5. Industrial or Agricultural	any time	75

(b) The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. Permissible construction noise level limits shall be governed by Sections 59.5.0404 of this article.

(c) Fixed–location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of Part A. of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.

(d) This section does not apply to firework displays authorized by permit from the Fire Department.

(e) This section does not apply to noise generated by helicopters at heliports or helistops authorized by a conditional use permit, nor to any roller coaster operated on City–owned parkland.

(Amended 9–11–1989 by O–17337 N.S.)
(Amended 11-28-2005 by O-19446 N.S.; effective 2-9-2006.)

§59.5.0402 Motor Vehicles

(a) Off–Highway

(1) Except as otherwise provided for in this article, it shall be unlawful to operate any motor vehicle of any type on any site, other than on a public street or highway as defined in the California Vehicle Code, in any manner so as to cause noise in excess of those noise levels permitted for on– highway motor vehicles as specified in the table for "45 mile– per–hour or less speed limits" contained in Section 23130 of the California Vehicle Code, and as corrected for distances set forth in subsection A.2. below.

(2) Corrections

The maximum noise level as the off–highway vehicle passes may be measured at a distance of other than fifty (50) feet from the center line of travel, provided the measurement is further adjusted by adding algebraically the applicable correction as follows:

Distance (Feet)	Correction (decibels)
25	-6
28	-5
32	-4
35	-3
40	-2
45	-1
50 (preferred distance)	0
56	+1
63	+2
70	+3
80	+4
90	+5
100	+6

(3) A measured noise level thus corrected shall be deemed in violation of this section if it exceeds the applicable noise–level limit as specified above.

(b) Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations, including the blowing of sirens and/or horns.

("Motor Vehicles" renumbered from Sec. 59.5.0403 on 9–22–1976 by O–11916 N.S.)

§59.5.0403 Watercraft

Violations for excessive noise of watercraft operating in waters under the jurisdiction of The City of San Diego shall be prosecuted under applicable provisions of the California Harbors and Navigation Code. Permits issued by The City of San Diego for the operation of watercraft not in compliance with noise criteria of the Harbors and Navigation Code shall be reviewed and approved by the Administrator prior to issuance.

("Watercraft" renumbered from Sec. 59.5.0407 and amended 9–22–1976 by O–11916 N.S.)

§59.5.0404 Construction Noise

(a) It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator. In granting such permit, the Administrator shall consider whether the construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of different population densities or different neighboring activities; whether obstruction and interference with traffic particularly on streets of major importance, would be less objectionable at night than during the daytime; whether the type of work to be performed emits noises at such a low level as to not cause significant disturbances in the vicinity of the work site; the character and nature of the neighborhood of the proposed work site; whether great economic hardship would occur if the work were spread over a longer time; whether proposed night work is in the general public interest; and he shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise levels as he deems to be required in the public interest.

(b) Except as provided in subsection C. hereof, it shall be unlawful for any person, including The City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12–hour period from 7:00 a.m. to 7:00 p.m.

(c) The provisions of subsection B. of this section shall not apply to construction equipment used in connection with emergency work, provided the Administrator is notified within 48 hours after commencement of work.

(Amended 1–3–1984 by O–16100 N.S.)

§59.5.0406 Refuse Vehicles and Parking Lot Sweepers

No person shall operate or permit to be operated a refuse compacting, processing, or collection vehicle between the hours of 7:00 p.m. to 6:00 a.m. or a parking lot sweeper between the hours of 7:00 p.m. to 7:00 a.m. in any residential area unless a permit has been applied for and granted by the Administrator.

("Refuse Vehicles" added 9–18–1973 by O–11122 N.S.; amended 9–22–1976 by O–11916 N.S.)

(Amended 6-9-2010 by O-19960 N.S.; effective 7-9-2010.)

SDR 2. Based on the City of San Diego interim screening criteria for GHG emission analysis, all new projects will have greenhouse gas emissions (GHG emissions) less than 900 metric tons of CO_2e measure. For projects exceeding 900 metric tons of CO_2e, the greenhouse gas analysis must show how the project will reduce its GHG emissions by 20.5% compared to the business as usual scenario. The reduction measures should include, but are not limited to, onsite recycling, water use reductions, and transportation features such as increased transit accessibility, improved pedestrian networks, and improved bikeability.

a. Prior to adoption of the City of San Diego Climate Action Plan: Projects shall submit a GHG emissions analysis accepted by the City of San Diego showing GHG emissions less than 900 metric tons of CO_2e measure; OR a GHG emissions reduction of 20.5%; OR

b. Upon the adoption of the City of San Diego Climate Action Plan: Projects shall submit a completed Climate Action Plan consistency review checklist.

SDR 3. Any habitable space located within a CNEL of greater than 60 dBA shall require an acoustical study consistent with Table NE-4 (Acoustical Study Guidelines – General Plan). The proposed building, wall, and roof-ceiling assemblies shall be designed to limit intruding noise to the allowable interior noise level with all exterior doors and windows in the closed position. Documentation of the noise attenuation measures shall include building assemblies section including, but not limited to, a wall and roof-ceiling assemblies section. Design of noise attenuation measures shall include the following:

a. For residential, institutional, and visitor accommodation uses: The allowable interior noise level is 45 dBA. Wall and roof-ceiling assemblies making up the building envelope shall attenuate noise to meet applicable building code requirements.

b. For retail and office uses: The allowable interior noise level is 50 dBA. Wall and roof-ceiling assemblies making up the building envelope shall attenuate noise to meet applicable building code requirements.

For mixed-use buildings, residential, institutional, and visitor accommodation spaces must attenuate to (a) and non-residential spaces shall attenuate to (b).

Density Incentives for Transit-Oriented Development

The Community Plan is designed around a strong transit-oriented development (TOD) framework that focuses new higher density and intensity development within a village core in close proximity to major transit services. The plan enables development of complete neighborhoods that include a diverse array of residential, commercial, mixed-use, employment, and recreational opportunities. Higher density development will include urban design guidelines to foster enhancement of the public realm, pedestrian and bicycle movement, and public safety. Density incentives in the Village Districts are summarized in Table 2-6: Standards and Incentives in the Village District. The Urban Design and Recreation elements also detail streetscape and pocket park improvements.

APPENDIX C

Traffic Noise Model (TNM) Data and Results

Eilar Associates, Inc. 14 November 2017
MLO TNM 2.5

INPUT: ROADWAYS
PROJECT/CONTRACT: B71104N1
RUN: Calibration

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway		Points					Flow Control			Segment	
Name	Width	Name	No.	Coordinates (pavement) X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	m			m	m	m		km/h	%		
Guymon Street	10.0	point1	1	745.9	575.8	45.30	Signal	0.00	60	Average	
		point2	2	792.0	574.0	43.40				Average	
		point3	3	836.7	574.0	41.70				Average	
		point4	4	882.0	574.7	41.70				Average	
		point5	5	920.8	576.2	42.20				Average	
		point6	6	940.1	583.0	42.60				Average	
		point7	7	955.5	592.3	42.50				Average	
		point8	8	965.6	602.3	42.40				Average	
		point9	9	996.5	652.5	42.50				Average	
		point10	10	1,007.3	666.5	41.60				Average	
		point11	11	1,018.6	676.3	40.70				Average	
		point12	12	1,029.3	681.2	40.10				Average	
		point13	13	1,041.5	684.7	39.50				Average	
		point14	14	1,058.0	686.0	38.70				Average	
		point15	15	1,113.8	684.8	37.80					
Euclid Avenue	20.0	point27	27	1,129.1	482.9	35.40				Average	
		point28	28	1,129.6	562.2	38.40				Average	
		point29	29	1,130.1	641.4	37.70				Average	
		point30	30	1,130.0	684.6	37.40					
SR-94 Eastbound	17.0	point39	39	419.8	1,299.6	59.10				Average	
		point40	40	490.7	1,289.1	61.50				Average	
		point41	41	598.1	1,283.2	63.10				Average	
		point42	42	809.8	1,280.6	59.90				Average	
		point43	43	1,023.1	1,281.7	56.10				Average	
		point44	44	1,124.7	1,294.9	59.90				Average	

		point45	45	1,194.8	1,313.8	60.00				Average	
		point46	46	1,257.8	1,339.0	61.10				Average	
		point47	47	1,324.2	1,376.8	62.10				Average	
		point48	48	1,386.4	1,426.4	62.70				Average	
		point49	49	1,603.9	1,620.4	60.00					
SR-94 Westbound	16.0	point50	50	1,581.9	1,630.0	61.50				Average	
		point51	51	1,424.8	1,487.1	62.50				Average	
		point52	52	1,341.6	1,418.3	61.70				Average	
		point53	53	1,255.1	1,362.0	60.60				Average	
		point54	54	1,187.9	1,331.7	60.10				Average	
		point55	55	1,121.5	1,315.8	59.20				Average	
		point56	56	1,076.2	1,307.4	58.60				Average	
		point57	57	1,030.0	1,305.7	57.60				Average	
		point58	58	828.3	1,303.1	59.90				Average	
		point59	59	636.8	1,304.1	63.30				Average	
		point60	60	544.2	1,306.2	61.90				Average	
		point61	61	488.6	1,310.5	60.90				Average	
		point62	62	434.6	1,321.6	58.80					
Euclid Avenue-2	20.0	point63	63	1,130.0	684.6	37.40	Signal	0.00	60	Average	
		point31	31	1,130.6	720.6	37.30				Average	
		point32	32	1,131.1	799.8	38.30				Average	
		point33	33	1,131.6	879.0	40.50				Average	
		point34	34	1,132.1	958.2	41.40				Average	
		point35	35	1,132.6	1,037.4	44.50				Average	
		point36	36	1,133.1	1,116.7	50.60				Average	
		point37	37	1,133.7	1,195.9	56.50				Average	
		point38	38	1,134.2	1,275.1	60.40					

Eilar Associates, Inc.				**14 November 2017**									
MLO				**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes													
PROJECT/CONTRACT:	**B71104N1**												
RUN:	**Calibration**												
Roadway	**Points**												
Name	**Name**	**No.**	**Segment**										
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**		
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**	
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	
Guymon Street	point1	1	204	40	0	0	0	0	0	0	0	0	
	point2	2	204	40	0	0	0	0	0	0	0	0	
	point3	3	204	40	0	0	0	0	0	0	0	0	
	point4	4	204	40	0	0	0	0	0	0	0	0	
	point5	5	204	40	0	0	0	0	0	0	0	0	
	point6	6	204	40	0	0	0	0	0	0	0	0	
	point7	7	204	40	0	0	0	0	0	0	0	0	
	point8	8	204	40	0	0	0	0	0	0	0	0	
	point9	9	204	40	0	0	0	0	0	0	0	0	
	point10	10	204	40	0	0	0	0	0	0	0	0	
	point11	11	204	40	0	0	0	0	0	0	0	0	
	point12	12	204	40	0	0	0	0	0	0	0	0	
	point13	13	204	40	0	0	0	0	0	0	0	0	
	point14	14	204	40	0	0	0	0	0	0	0	0	
	point15	15											
Euclid Avenue	point27	27	1770	56	24	56	18	56	0	0	0	0	
	point28	28	1770	56	24	56	18	56	0	0	0	0	
	point29	29	1770	56	24	56	18	56	0	0	0	0	
	point30	30											
SR-94 Eastbound	point39	39	6507	105	192	105	72	105	0	0	0	0	
	point40	40	6507	105	192	105	72	105	0	0	0	0	
	point41	41	6507	105	192	105	72	105	0	0	0	0	
	point42	42	6507	105	192	105	72	105	0	0	0	0	

	point43	43	6507	105	192	105	72	105	0	0	0	0
	point44	44	6507	105	192	105	72	105	0	0	0	0
	point45	45	6507	105	192	105	72	105	0	0	0	0
	point46	46	6507	105	192	105	72	105	0	0	0	0
	point47	47	6507	105	192	105	72	105	0	0	0	0
	point48	48	6507	105	192	105	72	105	0	0	0	0
	point49	49										
SR-94 Westbound	point50	50	6507	105	192	105	72	105	0	0	0	0
	point51	51	6507	105	192	105	72	105	0	0	0	0
	point52	52	6507	105	192	105	72	105	0	0	0	0
	point53	53	6507	105	192	105	72	105	0	0	0	0
	point54	54	6507	105	192	105	72	105	0	0	0	0
	point55	55	6507	105	192	105	72	105	0	0	0	0
	point56	56	6507	105	192	105	72	105	0	0	0	0
	point57	57	6507	105	192	105	72	105	0	0	0	0
	point58	58	6507	105	192	105	72	105	0	0	0	0
	point59	59	6507	105	192	105	72	105	0	0	0	0
	point60	60	6507	105	192	105	72	105	0	0	0	0
	point61	61	6507	105	192	105	72	105	0	0	0	0
	point62	62										
Euclid Avenue-2	point63	63	1770	56	24	56	18	56	0	0	0	0
	point31	31	1770	56	24	56	18	56	0	0	0	0
	point32	32	1770	56	24	56	18	56	0	0	0	0
	point33	33	1770	56	24	56	18	56	0	0	0	0
	point34	34	1770	56	24	56	18	56	0	0	0	0
	point35	35	1770	56	24	56	18	56	0	0	0	0
	point36	36	1770	56	24	56	18	56	0	0	0	0
	point37	37	1770	56	24	56	18	56	0	0	0	0
	point38	38										

Eilar Associates, Inc.						14 November 2017					
MLO						TNM 2.5					
INPUT: RECEIVERS											
PROJECT/CONTRACT:	B71104N1										
RUN:	Calibration										
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'l	Goal	Calc.
			m	m	m	m	dBA	dBA	dB	dB	
NML	1	1	1,112.4	691.7	37.80	1.52	0.00	66	10.0	8.0	Y

Eilar Associates, Inc. **14 November 2017**
MLO **TNM 2.5**

INPUT: BUILDING ROWS
PROJECT/CONTRACT: **B71104N1**
RUN: **Calibration**

Building Row			**Points**			
Name	**Average Height**	**Building Percent**	**No.**	**Coordinates (ground)**		
				X	**Y**	**Z**
	m	%		m	m	m
Building Row 2	4.00	40	23	1,576.9	913.8	71.20
			24	1,487.4	1,001.7	73.30
			25	1,504.3	1,072.1	72.40
			26	1,687.5	1,094.3	59.90
			27	1,675.8	969.9	62.70
			28	1,589.6	915.4	70.20
			29	1,595.4	846.6	69.70
			30	1,648.3	792.6	65.10
			31	1,654.6	673.0	59.20
			32	1,741.4	669.9	57.10
			33	1,726.6	795.8	58.30
			34	1,825.1	821.2	49.80
			35	1,901.3	876.3	43.20
			36	1,920.3	1,046.7	41.60
			37	1,867.4	1,335.6	43.90
			38	1,653.6	1,336.7	59.50
			39	1,489.5	1,335.6	67.00
			40	1,314.9	1,335.6	62.60
			41	1,305.4	1,246.7	63.90
			42	1,270.4	1,248.8	62.10
			43	1,222.8	1,180.0	59.80
			44	1,158.2	1,165.2	56.40
			45	1,155.1	922.8	41.10
			46	1,154.0	713.3	38.70

			47	1,150.8	485.7	35.60
			48	1,272.6	483.6	38.30
			49	1,277.8	529.1	40.50
			50	1,241.9	545.0	40.80
			51	1,245.0	571.4	43.60
			52	1,290.5	616.9	49.70
			53	1,305.4	657.2	54.30
			54	1,394.3	669.9	58.70
			55	1,483.7	749.7	69.80
			56	1,584.6	836.2	70.60
Building Row 1	4.00	40	57	394.1	585.7	40.70
			58	357.1	679.8	41.70
			59	364.6	1,185.5	54.00
			60	515.9	1,183.0	61.30
			61	531.8	974.6	56.40
			62	840.1	973.0	52.80
			63	843.5	1,175.4	56.70
			64	933.4	1,175.4	53.10
			65	932.5	970.4	50.40
			66	1,047.6	969.6	45.30
			67	1,049.3	934.3	44.80
			68	1,012.3	936.8	46.50
			69	1,012.3	847.8	45.50
			70	1,064.4	872.2	43.50
			71	1,115.7	874.7	41.30
			72	1,116.5	797.4	39.30
			73	1,015.7	785.6	44.00
			74	791.4	785.6	49.80
			75	736.8	804.1	51.60
			76	709.1	802.4	52.00
			77	720.8	607.5	47.50
			78	693.1	579.0	46.40
			79	394.2	585.7	40.70

Eilar Associates, Inc.			**14 November 2017**	
MLO			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**B71104N1**			
RUN:	**Calibration**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		m	m	m
Terrain Line1	1	469.4	1,251.6	62.00
	2	421.4	1,254.3	62.00
	3	418.7	1,204.9	62.00
Terrain Line2	4	469.4	1,339.6	60.00
	5	716.1	1,322.3	64.00
	6	970.8	1,323.6	56.00
	7	1,236.4	1,369.1	60.00
	8	1,559.2	1,641.1	63.00
Terrain Line3	9	1,149.2	1,274.1	61.00
	10	1,149.2	1,173.3	56.00
	11	1,147.5	980.1	41.00
	12	1,145.8	835.0	39.00
	13	1,140.8	689.5	37.00
	14	1,142.5	551.7	38.00
	15	1,142.5	491.2	36.00
Terrain Line4	16	446.9	505.7	41.00
	17	515.8	441.9	42.00
Terrain Line5	18	1,545.7	460.3	43.00
	19	1,634.7	460.3	43.00
Terrain Line6	20	1,502.0	929.1	75.00
	21	1,533.9	863.6	75.00
	22	1,475.1	814.8	76.00
Terrain Line7	23	722.7	588.0	47.00
	24	806.0	584.0	44.00
	25	832.7	583.4	42.00
	26	922.7	584.0	43.00
	27	983.4	656.0	43.00
	28	1,020.7	690.0	40.00
Terrain Line8	29	1,072.3	790.5	42.70
	30	1,073.1	784.3	42.70
	31	1,073.0	781.3	42.70
	32	1,072.1	780.4	42.70
	33	1,060.8	777.7	42.70
	34	1,057.8	775.6	42.70
	35	1,059.9	770.1	42.70
	36	1,064.1	764.2	42.70
	37	1,064.1	744.7	42.70

		38	1,062.2	707.5	42.70
		39	1,046.1	703.7	42.70
Pad		40	1,117.2	773.8	37.80
		41	1,074.2	774.2	37.80
		42	1,073.2	694.1	37.80
		43	1,115.8	693.7	37.80
		44	1,117.2	773.8	37.80

Eilar Associates, Inc.						**14 November 2017**						
MLO						**TNM 2.5**						
						Calculated with TNM 2.5						
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		**B71104N1**										
RUN:		**Calibration**										
BARRIER DESIGN:		**INPUT HEIGHTS**					**Average pavement type shall be used unless**					
							a State highway agency substantiates the use					
ATMOSPHERICS:		**20 deg C, 50% RH**					**of a different type with approval of FHWA.**					
Receiver												
Name	**No.**	**#DUs**	**Existing**	**No Barrier**					**With Barrier**			
			LAeq1h	**LAeq1h**		**Increase over existing**		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated**
							Sub'l Inc					**minus**
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
NML	1	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Eilar Associates, Inc. 14 November 2017
MLO TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: B71104N1
RUN: Current

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h
Guymon Street	point1	1	45	40	1	40	0	0	0	0	0	0
	point2	2	45	40	1	40	0	0	0	0	0	0
	point3	3	45	40	1	40	0	0	0	0	0	0
	point4	4	45	40	1	40	0	0	0	0	0	0
	point5	5	45	40	1	40	0	0	0	0	0	0
	point6	6	45	40	1	40	0	0	0	0	0	0
	point7	7	45	40	1	40	0	0	0	0	0	0
	point8	8	45	40	1	40	0	0	0	0	0	0
	point9	9	45	40	1	40	0	0	0	0	0	0
	point10	10	45	40	1	40	0	0	0	0	0	0
	point11	11	45	40	1	40	0	0	0	0	0	0
	point12	12	45	40	1	40	0	0	0	0	0	0
	point13	13	45	40	1	40	0	0	0	0	0	0
	point14	14	45	40	1	40	0	0	0	0	0	0
	point15	15										
Euclid Avenue	point27	27	1614	56	51	56	34	56	0	0	0	0
	point28	28	1614	56	51	56	34	56	0	0	0	0
	point29	29	1614	56	51	56	34	56	0	0	0	0
	point30	30										
SR-94 Eastbound	point39	39	5100	105	151	105	56	105	0	0	0	0
	point40	40	5100	105	151	105	56	105	0	0	0	0
	point41	41	5100	105	151	105	56	105	0	0	0	0
	point42	42	5100	105	151	105	56	105	0	0	0	0

	point43	43	5100	105	151	105	56	105	0	0	0	0
	point44	44	5100	105	151	105	56	105	0	0	0	0
	point45	45	5100	105	151	105	56	105	0	0	0	0
	point46	46	5100	105	151	105	56	105	0	0	0	0
	point47	47	5100	105	151	105	56	105	0	0	0	0
	point48	48	5100	105	151	105	56	105	0	0	0	0
	point49	49										
SR-94 Westbound	point50	50	5100	105	151	105	56	105	0	0	0	0
	point51	51	5100	105	151	105	56	105	0	0	0	0
	point52	52	5100	105	151	105	56	105	0	0	0	0
	point53	53	5100	105	151	105	56	105	0	0	0	0
	point54	54	5100	105	151	105	56	105	0	0	0	0
	point55	55	5100	105	151	105	56	105	0	0	0	0
	point56	56	5100	105	151	105	56	105	0	0	0	0
	point57	57	5100	105	151	105	56	105	0	0	0	0
	point58	58	5100	105	151	105	56	105	0	0	0	0
	point59	59	5100	105	151	105	56	105	0	0	0	0
	point60	60	5100	105	151	105	56	105	0	0	0	0
	point61	61	5100	105	151	105	56	105	0	0	0	0
	point62	62										
Euclid Avenue-2	point63	63	1614	56	51	56	34	56	0	0	0	0
	point31	31	1614	56	51	56	34	56	0	0	0	0
	point32	32	1614	56	51	56	34	56	0	0	0	0
	point33	33	1614	56	51	56	34	56	0	0	0	0
	point34	34	1614	56	51	56	34	56	0	0	0	0
	point35	35	1614	56	51	56	34	56	0	0	0	0
	point36	36	1614	56	51	56	34	56	0	0	0	0
	point37	37	1614	56	51	56	34	56	0	0	0	0
	point38	38										

Eilar Associates, Inc. 14 November 2017
MLO TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: B71104N1
RUN: Current

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Sub'l	NR Goal	Active in Calc.
			m	m	m	m	dBA	dBA	dB	dB	
1	1	1	1,078.0	770.0	37.80	1.52	0.00	66	10.0	8.0	Y
2	3	1	1,084.8	770.0	37.80	1.52	0.00	66	10.0	8.0	Y
3	4	1	1,091.9	769.9	37.80	1.52	0.00	66	10.0	8.0	Y
4	5	1	1,099.0	769.8	37.80	1.52	0.00	66	10.0	8.0	Y
5	6	1	1,105.8	769.7	37.80	1.52	0.00	66	10.0	8.0	Y
6	7	1	1,113.1	769.8	37.80	1.52	0.00	66	10.0	8.0	Y
7	8	1	1,077.8	762.9	37.80	1.52	0.00	66	10.0	8.0	Y
8	9	1	1,085.1	763.0	37.80	1.52	0.00	66	10.0	8.0	Y
9	10	1	1,091.9	762.9	37.80	1.52	0.00	66	10.0	8.0	Y
10	11	1	1,099.0	763.0	37.80	1.52	0.00	66	10.0	8.0	Y
11	12	1	1,106.0	763.0	37.80	1.52	0.00	66	10.0	8.0	Y
12	13	1	1,113.0	763.0	37.80	1.52	0.00	66	10.0	8.0	Y
13	14	1	1,078.1	756.0	37.80	1.52	0.00	66	10.0	8.0	Y
14	15	1	1,084.9	755.8	37.80	1.52	0.00	66	10.0	8.0	Y
15	16	1	1,091.8	756.0	37.80	1.52	0.00	66	10.0	8.0	Y
16	17	1	1,099.2	755.9	37.80	1.52	0.00	66	10.0	8.0	Y
17	18	1	1,105.9	756.1	37.80	1.52	0.00	66	10.0	8.0	Y
18	19	1	1,112.9	756.2	37.80	1.52	0.00	66	10.0	8.0	Y
19	20	1	1,077.9	749.0	37.80	1.52	0.00	66	10.0	8.0	Y
20	21	1	1,084.9	749.0	37.80	1.52	0.00	66	10.0	8.0	Y
21	22	1	1,092.0	749.0	37.80	1.52	0.00	66	10.0	8.0	Y
22	23	1	1,098.9	749.0	37.80	1.52	0.00	66	10.0	8.0	Y

23	24	1	1,105.9	749.1	37.80	1.52	0.00	66	10.0	8.0	Y
24	25	1	1,112.9	749.0	37.80	1.52	0.00	66	10.0	8.0	Y
25	26	1	1,077.9	742.1	37.80	1.52	0.00	66	10.0	8.0	Y
26	27	1	1,084.8	741.9	37.80	1.52	0.00	66	10.0	8.0	Y
27	28	1	1,092.0	741.9	37.80	1.52	0.00	66	10.0	8.0	Y
28	29	1	1,098.9	742.2	37.80	1.52	0.00	66	10.0	8.0	Y
29	30	1	1,105.9	741.9	37.80	1.52	0.00	66	10.0	8.0	Y
30	31	1	1,112.8	742.0	37.80	1.52	0.00	66	10.0	8.0	Y
31	32	1	1,077.9	735.0	37.80	1.52	0.00	66	10.0	8.0	Y
32	33	1	1,084.8	735.0	37.80	1.52	0.00	66	10.0	8.0	Y
33	34	1	1,092.1	735.1	37.80	1.52	0.00	66	10.0	8.0	Y
34	35	1	1,098.9	734.9	37.80	1.52	0.00	66	10.0	8.0	Y
35	36	1	1,106.1	735.1	37.80	1.52	0.00	66	10.0	8.0	Y
36	37	1	1,113.1	735.0	37.80	1.52	0.00	66	10.0	8.0	Y
37	38	1	1,077.8	728.1	37.80	1.52	0.00	66	10.0	8.0	Y
38	39	1	1,084.8	727.9	37.80	1.52	0.00	66	10.0	8.0	Y
39	40	1	1,092.0	728.0	37.80	1.52	0.00	66	10.0	8.0	Y
40	41	1	1,098.9	728.1	37.80	1.52	0.00	66	10.0	8.0	Y
41	42	1	1,105.9	728.0	37.80	1.52	0.00	66	10.0	8.0	Y
42	43	1	1,113.0	728.0	37.80	1.52	0.00	66	10.0	8.0	Y
43	44	1	1,077.9	721.0	37.80	1.52	0.00	66	10.0	8.0	Y
44	45	1	1,084.8	721.1	37.80	1.52	0.00	66	10.0	8.0	Y
45	46	1	1,092.0	721.2	37.80	1.52	0.00	66	10.0	8.0	Y
46	47	1	1,098.9	721.2	37.80	1.52	0.00	66	10.0	8.0	Y
47	48	1	1,105.9	721.0	37.80	1.52	0.00	66	10.0	8.0	Y
48	49	1	1,112.9	721.1	37.80	1.52	0.00	66	10.0	8.0	Y
49	50	1	1,077.8	713.8	37.80	1.52	0.00	66	10.0	8.0	Y
50	51	1	1,085.0	713.9	37.80	1.52	0.00	66	10.0	8.0	Y
51	52	1	1,091.9	714.0	37.80	1.52	0.00	66	10.0	8.0	Y
52	53	1	1,098.8	713.9	37.80	1.52	0.00	66	10.0	8.0	Y
53	54	1	1,105.8	714.0	37.80	1.52	0.00	66	10.0	8.0	Y
54	55	1	1,113.0	714.0	37.80	1.52	0.00	66	10.0	8.0	Y
55	56	1	1,078.0	707.0	37.80	1.52	0.00	66	10.0	8.0	Y
56	57	1	1,085.0	706.9	37.80	1.52	0.00	66	10.0	8.0	Y
57	58	1	1,091.9	706.9	37.80	1.52	0.00	66	10.0	8.0	Y
58	59	1	1,099.0	707.0	37.80	1.52	0.00	66	10.0	8.0	Y

59	60	1	1,106.0	707.0	37.80	1.52	0.00	66	10.0	8.0	Y
60	61	1	1,113.1	707.0	37.80	1.52	0.00	66	10.0	8.0	Y
61	62	1	1,078.2	700.1	37.80	1.52	0.00	66	10.0	8.0	Y
62	63	1	1,085.1	700.0	37.80	1.52	0.00	66	10.0	8.0	Y
63	64	1	1,092.0	699.9	37.80	1.52	0.00	66	10.0	8.0	Y
64	65	1	1,098.7	700.3	37.80	1.52	0.00	66	10.0	8.0	Y
65	66	1	1,106.2	700.0	37.80	1.52	0.00	66	10.0	8.0	Y
66	67	1	1,113.1	700.1	37.80	1.52	0.00	66	10.0	8.0	Y

Eilar Associates, Inc. 14 November 2017
MLO TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: B71104N1
RUN: Current
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 20 deg C, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
1	1	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
2	3	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
3	4	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
4	5	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
5	6	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
6	7	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
7	8	1	0.0	62.8	66	62.8	10	----	62.8	0.0	8	-8.0
8	9	1	0.0	63.9	66	63.9	10	----	63.9	0.0	8	-8.0
9	10	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
10	11	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
11	12	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
12	13	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
13	14	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
14	15	1	0.0	64.1	66	64.1	10	----	64.1	0.0	8	-8.0
15	16	1	0.0	65.1	66	65.1	10	----	65.1	0.0	8	-8.0
16	17	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
17	18	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
18	19	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
19	20	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
20	21	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
21	22	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
22	23	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
23	24	1	0.0	67.6	66	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
24	25	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0

25	26	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
26	27	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
27	28	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
28	29	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
29	30	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
30	31	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
31	32	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
32	33	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
33	34	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
34	35	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
35	36	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0
36	37	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
37	38	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
38	39	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
39	40	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
40	41	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
41	42	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
42	43	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
43	44	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
44	45	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
45	46	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
46	47	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
47	48	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
48	49	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
49	50	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
50	51	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
51	52	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
52	53	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
53	54	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
54	55	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
55	56	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
56	57	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
57	58	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
58	59	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
59	60	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
60	61	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
61	62	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
62	63	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
63	64	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
64	65	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
65	66	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0

66	67	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	66	0.0	0.0	0.0
All Impacted	33	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Eilar Associates, Inc. **14 November 2017**
MLO **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **B71104N1**
RUN: **Future**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h
Guymon Street	point1	1	56	40	1	40	1	40	0	0	0	0
	point2	2	56	40	1	40	1	40	0	0	0	0
	point3	3	56	40	1	40	1	40	0	0	0	0
	point4	4	56	40	1	40	1	40	0	0	0	0
	point5	5	56	40	1	40	1	40	0	0	0	0
	point6	6	56	40	1	40	1	40	0	0	0	0
	point7	7	56	40	1	40	1	40	0	0	0	0
	point8	8	56	40	1	40	1	40	0	0	0	0
	point9	9	56	40	1	40	1	40	0	0	0	0
	point10	10	56	40	1	40	1	40	0	0	0	0
	point11	11	56	40	1	40	1	40	0	0	0	0
	point12	12	56	40	1	40	1	40	0	0	0	0
	point13	13	56	40	1	40	1	40	0	0	0	0
	point14	14	56	40	1	40	1	40	0	0	0	0
	point15	15										
Euclid Avenue	point27	27	1543	56	49	56	32	56	0	0	0	0
	point28	28	1543	56	49	56	32	56	0	0	0	0
	point29	29	1543	56	49	56	32	56	0	0	0	0
	point30	30										
SR-94 Eastbound	point39	39	5262	105	155	105	58	105	0	0	0	0
	point40	40	5262	105	155	105	58	105	0	0	0	0
	point41	41	5262	105	155	105	58	105	0	0	0	0
	point42	42	5262	105	155	105	58	105	0	0	0	0

	point43	43	5262	105	155	105	58	105	0	0	0	0
	point44	44	5262	105	155	105	58	105	0	0	0	0
	point45	45	5262	105	155	105	58	105	0	0	0	0
	point46	46	5262	105	155	105	58	105	0	0	0	0
	point47	47	5262	105	155	105	58	105	0	0	0	0
	point48	48	5262	105	155	105	58	105	0	0	0	0
	point49	49										
SR-94 Westbound	point50	50	5512	105	163	105	61	105	0	0	0	0
	point51	51	5512	105	163	105	61	105	0	0	0	0
	point52	52	5512	105	163	105	61	105	0	0	0	0
	point53	53	5512	105	163	105	61	105	0	0	0	0
	point54	54	5512	105	163	105	61	105	0	0	0	0
	point55	55	5512	105	163	105	61	105	0	0	0	0
	point56	56	5512	105	163	105	61	105	0	0	0	0
	point57	57	5512	105	163	105	61	105	0	0	0	0
	point58	58	5512	105	163	105	61	105	0	0	0	0
	point59	59	5512	105	163	105	61	105	0	0	0	0
	point60	60	5512	105	163	105	61	105	0	0	0	0
	point61	61	5512	105	163	105	61	105	0	0	0	0
	point62	62										
Euclid Avenue-2	point63	63	1543	56	49	56	32	56	0	0	0	0
	point31	31	1543	56	49	56	32	56	0	0	0	0
	point32	32	1543	56	49	56	32	56	0	0	0	0
	point33	33	1543	56	49	56	32	56	0	0	0	0
	point34	34	1543	56	49	56	32	56	0	0	0	0
	point35	35	1543	56	49	56	32	56	0	0	0	0
	point36	36	1543	56	49	56	32	56	0	0	0	0
	point37	37	1543	56	49	56	32	56	0	0	0	0
	point38	38										

Eilar Associates, Inc. 14 November 2017
MLO TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: B71104N1
RUN: Future
BARRIER DESIGN: INPUT HEIGHTS

ATMOSPHERICS: 20 deg C, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
1	1	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0
2	3	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
3	4	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
4	5	1	0.0	65.8	66	65.8	10	----	65.8	0.0	8	-8.0
5	6	1	0.0	67.2	66	67.2	10	Snd Lvl	67.2	0.0	8	-8.0
6	7	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
7	8	1	0.0	62.6	66	62.6	10	----	62.6	0.0	8	-8.0
8	9	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
9	10	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
10	11	1	0.0	65.9	66	65.9	10	----	65.9	0.0	8	-8.0
11	12	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
12	13	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
13	14	1	0.0	62.9	66	62.9	10	----	62.9	0.0	8	-8.0
14	15	1	0.0	63.8	66	63.8	10	----	63.8	0.0	8	-8.0
15	16	1	0.0	64.9	66	64.9	10	----	64.9	0.0	8	-8.0
16	17	1	0.0	66.1	66	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
17	18	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0
18	19	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
19	20	1	0.0	63.1	66	63.1	10	----	63.1	0.0	8	-8.0
20	21	1	0.0	64.0	66	64.0	10	----	64.0	0.0	8	-8.0
21	22	1	0.0	65.0	66	65.0	10	----	65.0	0.0	8	-8.0
22	23	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
23	24	1	0.0	67.4	66	67.4	10	Snd Lvl	67.4	0.0	8	-8.0
24	25	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0

25	26	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
26	27	1	0.0	64.2	66	64.2	10	----	64.2	0.0	8	-8.0
27	28	1	0.0	65.2	66	65.2	10	----	65.2	0.0	8	-8.0
28	29	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
29	30	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
30	31	1	0.0	69.1	66	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
31	32	1	0.0	63.3	66	63.3	10	----	63.3	0.0	8	-8.0
32	33	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
33	34	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
34	35	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
35	36	1	0.0	67.7	66	67.7	10	Snd Lvl	67.7	0.0	8	-8.0
36	37	1	0.0	69.4	66	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
37	38	1	0.0	63.4	66	63.4	10	----	63.4	0.0	8	-8.0
38	39	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
39	40	1	0.0	65.4	66	65.4	10	----	65.4	0.0	8	-8.0
40	41	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
41	42	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
42	43	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
43	44	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
44	45	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0
45	46	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
46	47	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
47	48	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
48	49	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
49	50	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0
50	51	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
51	52	1	0.0	65.5	66	65.5	10	----	65.5	0.0	8	-8.0
52	53	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
53	54	1	0.0	68.1	66	68.1	10	Snd Lvl	68.1	0.0	8	-8.0
54	55	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0
55	56	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
56	57	1	0.0	64.5	66	64.5	10	----	64.5	0.0	8	-8.0
57	58	1	0.0	65.6	66	65.6	10	----	65.6	0.0	8	-8.0
58	59	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0
59	60	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
60	61	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
61	62	1	0.0	63.7	66	63.7	10	----	63.7	0.0	8	-8.0
62	63	1	0.0	64.7	66	64.7	10	----	64.7	0.0	8	-8.0
63	64	1	0.0	65.7	66	65.7	10	----	65.7	0.0	8	-8.0
64	65	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
65	66	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0

66	67	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	66	0.0	0.0	0.0
All Impacted	31	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Eilar Associates, Inc. 14 November 2017
MLO TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: B71104N1
RUN: Facades

Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h	veh/hr	km/h
Guymon Street	point1	1	56	40	1	40	1	40	0	0	0	0
	point2	2	56	40	1	40	1	40	0	0	0	0
	point3	3	56	40	1	40	1	40	0	0	0	0
	point4	4	56	40	1	40	1	40	0	0	0	0
	point5	5	56	40	1	40	1	40	0	0	0	0
	point6	6	56	40	1	40	1	40	0	0	0	0
	point7	7	56	40	1	40	1	40	0	0	0	0
	point8	8	56	40	1	40	1	40	0	0	0	0
	point9	9	56	40	1	40	1	40	0	0	0	0
	point10	10	56	40	1	40	1	40	0	0	0	0
	point11	11	56	40	1	40	1	40	0	0	0	0
	point12	12	56	40	1	40	1	40	0	0	0	0
	point13	13	56	40	1	40	1	40	0	0	0	0
	point14	14	56	40	1	40	1	40	0	0	0	0
	point15	15										
Euclid Avenue	point27	27	1614	56	51	56	34	56	0	0	0	0
	point28	28	1614	56	51	56	34	56	0	0	0	0
	point29	29	1614	56	51	56	34	56	0	0	0	0
	point30	30										
SR-94 Eastbound	point39	39	5262	105	155	105	58	105	0	0	0	0
	point40	40	5262	105	155	105	58	105	0	0	0	0
	point41	41	5262	105	155	105	58	105	0	0	0	0
	point42	42	5262	105	155	105	58	105	0	0	0	0

	point43	43	5262	105	155	105	58	105	0	0	0	0
	point44	44	5262	105	155	105	58	105	0	0	0	0
	point45	45	5262	105	155	105	58	105	0	0	0	0
	point46	46	5262	105	155	105	58	105	0	0	0	0
	point47	47	5262	105	155	105	58	105	0	0	0	0
	point48	48	5262	105	155	105	58	105	0	0	0	0
	point49	49										
SR-94 Westbound	point50	50	5512	105	163	105	61	105	0	0	0	0
	point51	51	5512	105	163	105	61	105	0	0	0	0
	point52	52	5512	105	163	105	61	105	0	0	0	0
	point53	53	5512	105	163	105	61	105	0	0	0	0
	point54	54	5512	105	163	105	61	105	0	0	0	0
	point55	55	5512	105	163	105	61	105	0	0	0	0
	point56	56	5512	105	163	105	61	105	0	0	0	0
	point57	57	5512	105	163	105	61	105	0	0	0	0
	point58	58	5512	105	163	105	61	105	0	0	0	0
	point59	59	5512	105	163	105	61	105	0	0	0	0
	point60	60	5512	105	163	105	61	105	0	0	0	0
	point61	61	5512	105	163	105	61	105	0	0	0	0
	point62	62										
Euclid Avenue-2	point63	63	1614	56	51	56	34	56	0	0	0	0
	point31	31	1614	56	51	56	34	56	0	0	0	0
	point32	32	1614	56	51	56	34	56	0	0	0	0
	point33	33	1614	56	51	56	34	56	0	0	0	0
	point34	34	1614	56	51	56	34	56	0	0	0	0
	point35	35	1614	56	51	56	34	56	0	0	0	0
	point36	36	1614	56	51	56	34	56	0	0	0	0
	point37	37	1614	56	51	56	34	56	0	0	0	0
	point38	38										

Eilar Associates, Inc. 14 November 2017
MLO TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: B71104N1
RUN: Facades

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Sub'l	NR Goal	Active in Calc.
			m	m	m	m	dBA	dBA	dB	dB	
F1-1	69	1	1,103.7	694.8	37.80	1.52	0.00	66	10.0	8.0	Y
F2-1	70	1	1,093.5	703.2	37.80	1.52	0.00	66	10.0	8.0	Y
F3-1	71	1	1,093.6	720.0	37.80	1.52	0.00	66	10.0	8.0	Y
F4-1	72	1	1,097.6	740.4	37.80	1.52	0.00	66	10.0	8.0	Y
F5-1	73	1	1,089.6	751.4	37.80	1.52	0.00	66	10.0	8.0	Y
F6-1	74	1	1,076.3	762.0	37.80	1.52	0.00	66	10.0	8.0	Y
F7-1	75	1	1,086.6	771.7	37.80	1.52	0.00	66	10.0	8.0	Y
F8-1	76	1	1,105.8	771.6	37.80	1.52	0.00	66	10.0	8.0	Y
F9-1	77	1	1,115.5	758.4	37.80	1.52	0.00	66	10.0	8.0	Y
F10-1	78	1	1,115.5	741.3	37.80	1.52	0.00	66	10.0	8.0	Y
F11-1	79	1	1,113.5	721.8	37.80	1.52	0.00	66	10.0	8.0	Y
F12-1	80	1	1,113.3	703.3	37.80	1.52	0.00	66	10.0	8.0	Y
F1-2	81	1	1,103.7	694.8	37.80	5.18	0.00	66	10.0	8.0	Y
F2-2	82	1	1,093.5	703.2	37.80	5.18	0.00	66	10.0	8.0	Y
F3-2	83	1	1,093.6	720.0	37.80	5.18	0.00	66	10.0	8.0	Y
F4-2	84	1	1,097.6	740.4	37.80	5.18	0.00	66	10.0	8.0	Y
F5-2	85	1	1,089.6	751.4	37.80	5.18	0.00	66	10.0	8.0	Y
F6-2	86	1	1,076.3	762.0	37.80	5.18	0.00	66	10.0	8.0	Y
F7-2	87	1	1,086.6	771.7	37.80	5.18	0.00	66	10.0	8.0	Y
F8-2	88	1	1,105.8	771.6	37.80	5.18	0.00	66	10.0	8.0	Y
F9-2	89	1	1,115.5	758.4	37.80	5.18	0.00	66	10.0	8.0	Y
F10-2	90	1	1,115.5	741.3	37.80	5.18	0.00	66	10.0	8.0	Y

F11-2	91	1	1,113.5	721.8	37.80	5.18	0.00	66	10.0	8.0	Y
F12-2	94	1	1,113.3	703.3	37.80	5.18	0.00	66	10.0	8.0	Y

Eilar Associates, Inc. **14 November 2017**
MLO **TNM 2.5**

INPUT: BARRIERS
PROJECT/CONTRACT: **B71104N1**
RUN: **Facades**

Barrier									Points											
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Perturbs Incre-ment	#Up	#Dn	On Struct?	Important Reflec-tions?
		m	m	$/sq m	$/cu m	m	m:m	$/m			m	m	m	m	m				
Building	W	0.00	30.48	0.00				0.00	point26	26	1,078.4	770.3	37.80	7.92	0.00	0	0		
									point27	27	1,114.5	769.7	37.80	7.92	0.00	0	0		
									point28	28	1,114.1	730.8	37.80	7.92	0.00	0	0		
									point29	29	1,111.2	730.8	37.80	7.92	0.00	0	0		
									point30	30	1,111.0	725.4	37.80	7.92	0.00	0	0		
									point31	31	1,112.4	725.4	37.80	7.92	0.00	0	0		
									point32	32	1,112.0	696.9	37.80	7.92	0.00	0	0		
									point33	33	1,095.4	696.9	37.80	7.92	0.00	0	0		
									point34	34	1,095.9	731.1	37.80	7.92	0.00	0	0		
									point35	35	1,098.8	731.1	37.80	7.92	0.00	0	0		
									point36	36	1,098.9	752.5	37.80	7.92	0.00	0	0		
									point37	37	1,078.0	752.8	37.80	7.92	0.00	0	0		
									point38	38	1,078.4	770.3	37.80	7.92					

Eilar Associates, Inc.							**14 November 2017**					
MLO							**TNM 2.5**					
							Calculated with TNM 2.5					
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		**B71104N1**										
RUN:		**Facades**										
BARRIER DESIGN:		**INPUT HEIGHTS**						**Average pavement type shall be used unless**				
								a State highway agency substantiates the use				
ATMOSPHERICS:		**20 deg C, 50% RH**						**of a different type with approval of FHWA.**				

Receiver												
Name	**No.**	**#DUs**	**Existing**	**No Barrier**					**With Barrier**			
			LAeq1h	**LAeq1h**		**Increase over existing**		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated**
							Sub'l Inc					**minus**
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
F1-1	69	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
F2-1	70	1	0.0	51.9	66	51.9	10	----	51.9	0.0	8	-8.0
F3-1	71	1	0.0	46.1	66	46.1	10	----	46.1	0.0	8	-8.0
F4-1	72	1	0.0	42.2	66	42.2	10	----	42.2	0.0	8	-8.0
F5-1	73	1	0.0	41.1	66	41.1	10	----	41.1	0.0	8	-8.0
F6-1	74	1	0.0	45.5	66	45.5	10	----	45.5	0.0	8	-8.0
F7-1	75	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0
F8-1	76	1	0.0	64.6	66	64.6	10	----	64.6	0.0	8	-8.0
F9-1	77	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
F10-1	78	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
F11-1	79	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
F12-1	80	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
F1-2	81	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
F2-2	82	1	0.0	53.1	66	53.1	10	----	53.1	0.0	8	-8.0
F3-2	83	1	0.0	48.4	66	48.4	10	----	48.4	0.0	8	-8.0
F4-2	84	1	0.0	46.2	66	46.2	10	----	46.2	0.0	8	-8.0
F5-2	85	1	0.0	43.1	66	43.1	10	----	43.1	0.0	8	-8.0
F6-2	86	1	0.0	50.4	66	50.4	10	----	50.4	0.0	8	-8.0
F7-2	87	1	0.0	61.2	66	61.2	10	----	61.2	0.0	8	-8.0
F8-2	88	1	0.0	65.3	66	65.3	10	----	65.3	0.0	8	-8.0
F9-2	89	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
F10-2	90	1	0.0	70.3	66	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
F11-2	91	1	0.0	70.2	66	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
F12-2	94	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	24	0.0	0.0	0.0
All Impacted	10	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

APPENDIX D

Manufacturer Data Sheets

Product Data

WeatherMaster®
Packaged Rooftop Units
3 to 12.5 Nominal Tons

48HC Sizes 04 to 14
Packaged Rooftop Units with Gas Heat and Optional EnergyX® Energy Recovery Ventilator

Form 48HC-4-14-06PD

Capacity ratings (cont)

SOUND RATINGS TABLE

48HC UNIT	COOLING STAGES	OUTDOOR SOUND (dB) AT 60 HZ								
		A-WEIGHTED	63	125	250	500	1000	2000	4000	8000
A04	1	76	78.2	78.0	74.2	73.3	70.6	66.0	62.4	56.9
A05	1	78	84.7	83.6	77.1	74.6	72.3	68.3	64.7	60.9
A06	1	77	87.5	82.5	76.1	73.6	71.3	67.1	64.1	60.0
A07	1	82	90.1	82.6	81.0	79.4	77.0	73.0	70.4	66.7
D07	2	82	90.1	82.6	81.0	79.4	77.0	73.0	70.4	66.7
D08	2	82	90.6	84.3	80.2	79.3	77.1	72.2	67.4	63.7
D09	2	82	88.6	85.0	81.6	79.5	77.4	74.1	71.0	66.3
D11	2	87	85.9	87.9	85.6	84.4	82.8	78.5	74.9	72.5
D12	2	87	85.9	87.9	85.6	84.4	82.8	78.5	74.9	72.5
D14	2	83	89.3	86.0	82.9	80.7	78.5	73.6	69.6	64.5

LEGEND

dB — Decibel

NOTES:

1. Outdoor sound data is measured in accordance with AHRI.
2. Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environmental factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.
3. A-weighted sound ratings filter out very high and very low frequencies, to better approximate the response of “average” human ear. A-weighted measurements for Carrier units are taken in accordance with AHRI.

48HC
High Efficiency
Gas Heat/Electric Cooling
Packaged Rooftop with EnergyX® System
15 to 25 Nominal Tons

Carrier
turn to the experts™

Product Data

WeatherMaster®

ENERGYX

C11481

ENERGY STAR

AHRI CERTIFIED™
www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

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ASHRAE 90.1 COMPLIANT

Puron™
the environmentally sound refrigerant

Table 4 – SOUND PERFORMANCE TABLE

MODEL SIZE	COOLING STAGES	Outdoor Sound (dB)									
		A−Wtg.	AHRI 370 Rating	63	125	250	500	1000	2000	4000	8000
17	2	84.1	84	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
20	2	84.1	84	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
24	2	86.5	87	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3
28	2	85.9	86	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3

LEGEND

dB – Decibel

NOTES:

1. Outdoor sound data is measure in accordance with AHRI standard 270−2008.
2. Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environmental factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.
3. A−weighted sound ratings filter out very high and very low frequencies, to better approximate the response of "average" human ear. A−weighted measurements for Carrier units are taken in accordance with AHRI standard 270−2008.

Table 5 – MINIMUM – MAXIMUM AIRFLOW RATINGS – NATURAL GAS & Propane

MODEL SIZE	HEAT SIZE	COOLING		AL HX HEATING		SS HX HEATING	
		MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
17	LOW	4500	7500	3000	8250	3000	8250
	MED			3880	7750	3880	7750
	HIGH			4620	8570	4620	8570
20	LOW	5250	9000	3000	11000	2960	11000
	MED			3880	9300	3880	9300
	HIGH			4620	10000	4620	10000
24	LOW	6000	10000	3000	11000	3000	11000
	MED			3880	11630	3880	11630
	HIGH			4620	10000	4620	10000
28	LOW	7500	12500	3000	16500	2960	16500
	MED			3880	15500	3880	15500
	HIGH			4620	15000	4620	15000

COOK

Compute-A-Fan v9.8 - Fan Selections - ACE

04-29-2018

Model #	Volume (CFM)	SP (inwc)	Power (HP)	Motor (HP)	Fan RPM	OVEL (fpm)	TSPD (fpm)	Static Effic	Wt (lbs)	Relative Cost	Budget Price	Operate Cost/Yr	Payback (Years)
1) 150 ACEB	2700	.6	.692	.75	1490	1832	5851	37%	77	1.00	$990	$136	-
2) 165 ACEB	2700	.6	.577	.75	1180	1515	5097	44%	78	1.00	$990	$113	Immed.
3) 180 ACEB	2700	.6	.522	.75	957	1272	4509	49%	101	1.14	$1,120	$102	3.82
4) 195 ACEB	2700	.6	.446	.5	810	1084	4135	57%	101	1.08	$1,060	$100	1.94
5) 210 ACEB	2700	.6	.442	.5	719	935	3952	58%	209	1.20	$1,190	$99	5.41

ALT(ft) = 125 TEMPERATURE(° F) = 70

	Nom IMPLR(in)	OB1	OB2	OB3	OB4	OB5	OB6	OB7	OB8	LwA	dBA	SONES
1)	15.0	80	83	85	78	73	72	64	59	81	70	18.1
2)	16.5	78	80	83	73	70	67	60	55	77	66	14.8
3)	18.0	75	75	76	70	66	62	56	52	72	61	10.7
4)	19.5	72	73	72	67	63	58	53	49	69	58	8.7
5)	21.0	71	72	70	65	61	56	51	48	67	56	7.9

Notes:

dBA AND SONES AT 5 ft FROM FAN

Relative Cost, Weight and Budget Price (US $) includes Fan, motor and drives ,estimated speed controls if present and does not include accessories. (3/4 hp and

Operating cost (US $) based on 12 hours/day, 250 days/year and $ .07 per kw/h.

Unit Rating

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.268 (SN: 7850304-)

1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

RQ-005-8-J-CA01-000:0000-000-PJC-000-0000000-00-00000000B

Tag: RTU# 1

Job Information

Job Name:	*Eilar*
Job Number:	*Job #75466*
Site Altitude:	*0 ft*
Refrigerant	*R-410A*

Unit Information

Approx. Op./Ship Weights:	*777 / 777 lbs. (±5%)*
Supply CFM/ESP:	*1750 / 0.2 in. wg.*
Final Filter FV / Qty:	*315.00 fpm / 2*
Outside CFM:	*525*
Ambient Temperature:	*95 ºF DB / 75 ºF WB*
Return Temperature:	*75 ºF DB / 62 ºF WB*

Static Pressure

External:	*0.20 in. wg.*	Economizer:	*0.00 in. wg.*
Evaporator:	*0.24 in. wg.*	Heating:	*0.00 in. wg.*
Filters Clean:	*0.12 in. wg.*	Cabinet:	*0.11 in. wg.*
Dirt Allowance	*0.35 in. wg.*	Total:	*1.02 in. wg.*

Cooling Section

	Gross	Net
Total Capacity:	*59.98*	*58.36 MBH*
Sensible Capacity:	*43.01*	*41.39 MBH*
Latent Capacity:	*16.97 MBH*	
Mixed Air Temp:	*80.00 ºF DB*	*67.00 ºF WB*
Entering Air Temp:	*80.00 ºF DB*	*67.00 ºF WB*
Lv Air Temp (Coil):	*56.78 ºF DB*	*55.47 ºF WB*
Lv Air Temp (Unit)	*57.63 ºF DB*	*55.80 ºF WB*
Supply Air Fan:	*1 x RQ185-ECM @ 0.54 BHP*	
SA Fan RPM / Width:	*1247 / 3.000"*	
Evaporator Coil:	*5.3 ft² / 3 Rows / 14 FPI*	
Evaporator Face Velocity:	*333.3 fpm*	

Heating Section

PreHeat Type:	*Std (No Preheat)*
Heating Type:	*No Heat*

Rating Information

Cooling Capacity (MBH):	*58.0*
Cooling SEER:	*13.6*
Cooling EER:	*11.7*

Rated in accordance with AHRI 210/240

Application EER @ Op. Conditions: *11.2*

Electrical Data

Rating:	*208/3/60*	Minimum Circuit Amp:	*29*
Unit FLA:	*25*	Maximum Overcurrent:	*40*

	Qty	**HP**	**VAC**	**Phase**	**RPM**	**FLA**	**RLA**
Compressor 1:	1		208	3			15.6
Condenser Fans:	1	0.33	208	1	1080	2.6	
Supply Fan:	1	1.00	208	1	1750	7	

Cabinet Sound Power Levels*

Octave Bands:	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Discharge LW(dB):	77	78	79	72	67	65	60	55
Return LW(dB):	74	75	70	60	60	57	51	44

**Sound power levels are given for informational purposes only. The sound levels are not guaranteed.*

Packaged Heat Pumps

Precedent™
3-10 Tons - 60 Hz

October 2001
1st Reprint November 2001

PKGP-PRC003-EN

TRANE

Performance Data

Table PD-23— Static Pressure Drops Through Accessories (Inches Water Column)

Tons	Unit Model No.	CFM	Standard Filters[1]	2 inch Pleated Filters	Economizer with OA/RA Dampers[2] Downflow 100% OA	Downflow 100% RA	Horizontal 100%OA	Horizontal 100%RA	Electric Heater Accessory (KW)[3] 5-6	9-15	17-36	54
		960	0.04	0.06	0.05	0.01	0.05	0.00	.013	.016	.019	—
3	WSC036A	1200	0.06	0.09	0.07	0.02	0.07	0.01	.020	.025	.030	—
		1440	0.08	0.12	0.10	0.03	0.10	0.01	.029	.036	.043	—
		1280	0.04	0.06	0.08	0.03	0.01	0.01	.023	.029	.034	—
4	WSC048A	1600	0.05	0.09	0.12	0.04	0.01	0.01	.036	.045	.053	—
		1920	0.08	0.12	0.17	0.06	0.02	0.02	.052	.064	.077	—
		1600	0.05	0.09	0.12	0.04	0.01	0.01	.036	.045	.053	—
5	WSC060A	2000	0.09	0.13	0.18	0.07	0.02	0.02	.056	.070	.083	—
		2400	0.12	0.18	0.26	0.10	0.04	0.04	.081	.100	.120	—
		2000	0.04	0.07	0.10	0.01	0.02	0.06	0.02	0.011	0.021	—
6	WSC072A	2400	0.06	0.09	0.11	0.02	0.02	0.08	0.02	0.020	0.034	—
		2800	0.09	0.12	0.13	0.04	0.04	0.10	0.04	0.033	0.052	—
		2400	0.06	0.09	0.11	0.02	0.02	0.08	0.02	0.020	0.034	—
7½	WSC090A	3000	0.10	0.13	0.14	0.05	0.05	0.12	0.05	0.042	0.063	—
		3600	0.14	0.18	0.21	0.07	0.08	0.25	0.08	0.077	0.102	—
		3200	0.07	0.10	0.17	0.05	0.05	0.14	0.05	0.028	0.036	0.042
10	WSC120A	4000	0.11	0.15	0.26	0.07	0.08	0.03	0.08	0.045	0.056	0.070
		4800	0.16	0.20	0.34	0.09	0.35	0.35	0.10	0.065	0.081	0.106

NOTES:
1. Tested with standard filters (3-5 tons 1", 6-10 tons 2”). Difference in pressure drop should be considered with utilizing optional 2” pleated filters.
2. OA = Outside Air and RA = Return Air.

Table PD-24— Electric Heater Voltage Correction Factors (Applicable to Auxiliary Heat Capacity)

Nominal Voltage	Distribution Voltage	Capacity Multiplier
	208	0.751
240	230	0.918
	240	1.000
	440	0.840
480	460	0.918
	480	1.000
	540	0.810
600	575	0.918
	600	1.000

Table PD-25 — Sound Power Level - dB (ref. 10^{-12} Watts)

Tons	Unit Model No.	Octave Center Frequency 63.	125	250	500	1000	2000	4000	8000	Overall dBA
3	WSC036A	85	82	80	79	77	73	69	68	82
4,5	WSC048,060A	95	88	84	83	80	77	74	70	85
6	WSC072A	92	95	91	88	84	80	75	68	90
7½	WSC090A	91	95	91	88	84	79	75	68	90
10	WSC120A	94	89	87	85	84	78	75	69	88

Note:
Tests follow ARI270-95.

APPENDIX E

Sound Insulation Prediction Results

Sound Insulation Prediction (v9.0.5)

- Key No. 1866

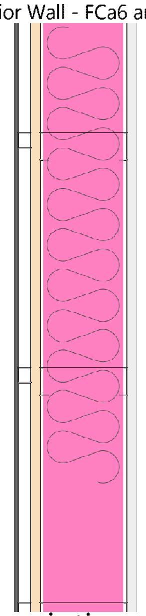
Job Name: Access Youth Academ

Job No.: B71104 Initials:mouwenga

Date:11/7/2017

File Name:Exterior Wall - FCa6 and FCb6.ixl

Notes:Exterior Wall Types FCa6 and FCb6



STC 47

OITC 36

Mass-air-mass resonant frequency = =58 Hz , 224 Hz

Panel Size = 2.7 ft x 4.0 ft

Partition surface mass = 6.43 lb/ft2

System description

Panel 1 : 1 x 0.24 in Fibre Cement

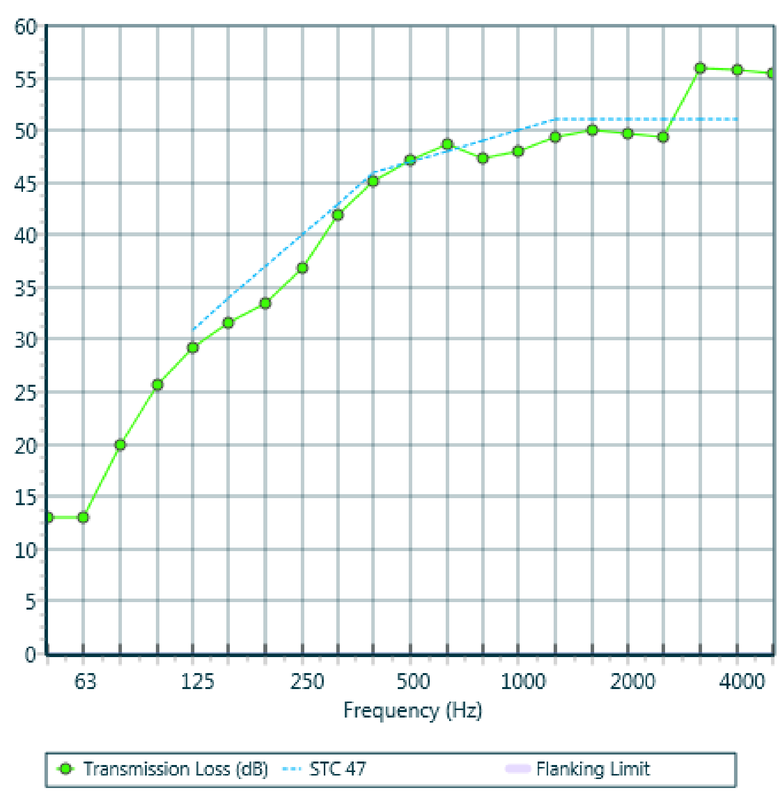
Frame: Steel Stud (16-20g); Cavity Width 0.9 in

Panel 2 + 1 x 0.63 in Plywood

Frame: Steel Stud (16-20g); Cavity Width 6.0 in ,Stud spacing 16 in , 1 x fiberglass (0.6 lb/ft3) Thickness 5.5 in (ρ:10 lbs/ft3, Rf:3500 Rayl/m)

Panel 3 + 1 x 0.63 in Type X Gypsum Board

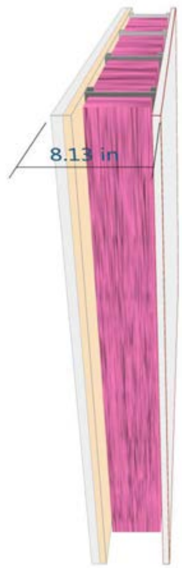
freq.(Hz)	TL(dB)	TL(dB)
50	13	
63	13	14
80	20	
100	26	
125	29	28
160	32	
200	33	
250	37	36
315	42	
400	45	
500	47	47
630	49	
800	47	
1000	48	48
1250	49	
1600	50	
2000	50	50
2500	49	
3150	56	
4000	56	56
5000	56	



Sound Insulation Prediction (v9.0.5)

- Key No. 1866
Job Name: Access Youth Academ
Job No.: B71104 Initials:mouwenga
Date:11/7/2017
File Name:Exterior Wall - CP6.ixl

Notes:Exterior Wall Type CP6



STC 54
OITC 45

Mass-air-mass resonant frequency = =44 Hz

Panel Size = 2.7 ft x 4.0 ft

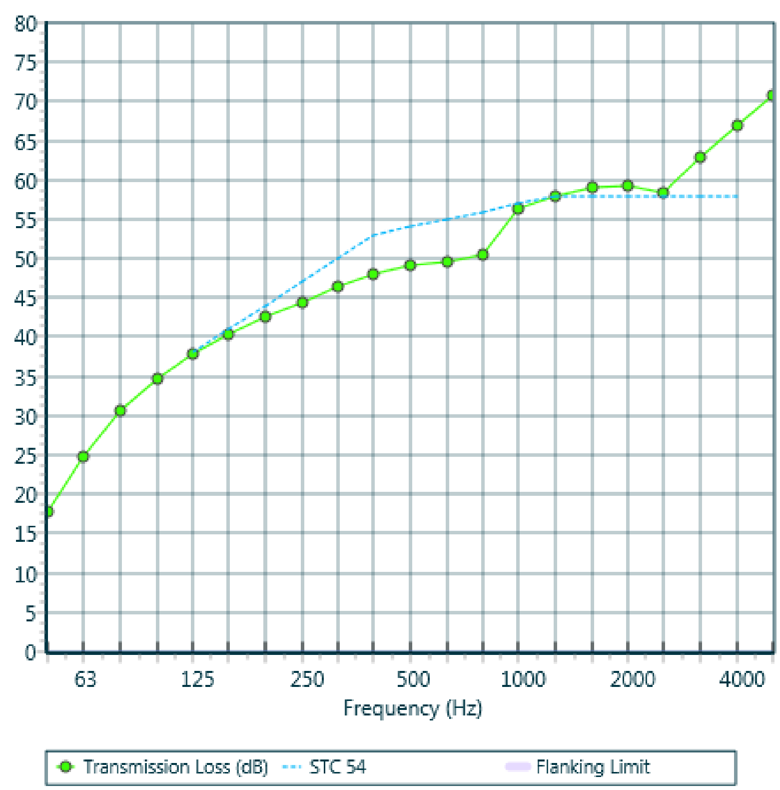
Partition surface mass = 14.3 lb/ft2

System description

Panel 1 : 1 x 0.87 in -Coat Plaster (sand:gypsum =3:1) + 1 x 0.63 in Plywood

Frame: Steel Stud (16-20g); Cavity Width 6.0 in ,Stud spacing 16 in , 1 x fiberglass (0.6 lb/ft3) Thickness 5.5 in (ρ:10 lbs/ft3, Rf:3500 Rayl/m)
Panel 2 + 1 x 0.63 in Type X Gypsum Board

freq.(Hz)	TL(dB)	TL(dB)
50	18	
63	25	22
80	31	
100	35	
125	38	37
160	40	
200	42	
250	44	44
315	46	
400	48	
500	49	49
630	50	
800	51	
1000	56	54
1250	58	
1600	59	
2000	59	59
2500	58	
3150	63	
4000	67	66
5000	71	



Sound Insulation Prediction (v9.0.5)

- Key No. 1866

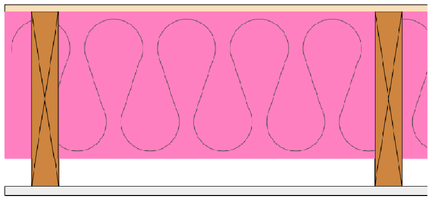
Job Name: Access Youth Academ

Job No.: B71104 Initials:mouwenga

Date:11/7/2017

File Name:Roof - S.ixl

Notes:Roof Type S - Worst Case



STC 42

OITC 23

Mass-air-mass resonant frequency = =46 Hz

Panel Size = 2.7 ft x 4.0 ft

Partition surface mass = 4.24 lb/ft2

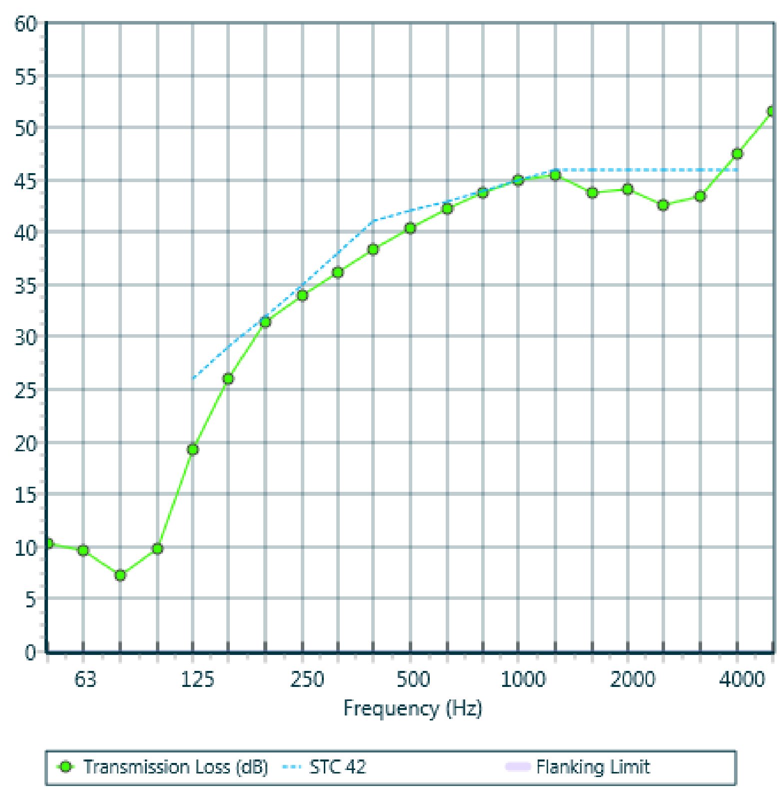
System description

Panel 1 : 1 x 0.50 in Plywood

Frame: Solid Joist; Cavity Width 11.9 in ,Stud spacing 24 in , 1 x fiberglass (0.6 lb/ft3) Thickness 10.0 in (ρ:10 lbs/ft3, Rf:3500 Rayl/m)

Panel 2 + 1 x 0.63 in Type X Gypsum Board

freq.(Hz)	TL(dB)	TL(dB)
50	10	
63	10	9
80	7	
100	10	
125	19	14
160	26	
200	31	
250	34	33
315	36	
400	38	
500	40	40
630	42	
800	44	
1000	45	45
1250	45	
1600	44	
2000	44	43
2500	43	
3150	44	
4000	48	46
5000	51	



Sound Insulation Prediction (v9.0.5)

- Key No. 1866
Job Name: Access Youth Academ
Job No.: B1104N   Initials:mouwenga
Date:11/7/2017
File Name:1-Inch Insulated Glazing.ixl

Notes:1-inch Insulated Glazing

STC 34
OITC 28

Mass-air-mass resonant frequency = =189 Hz

Panel Size = 2.0 ft x 1.5 ft

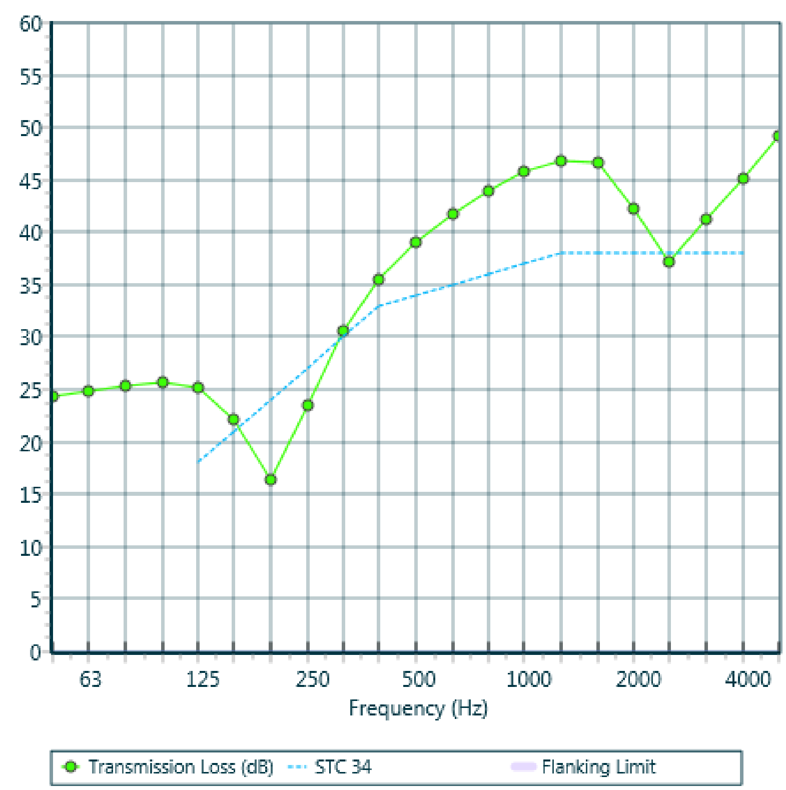
Partition surface mass = 6.44 lb/ft2

System description

Pane 1 + 1 x 0.25 in Glass

air: 0.5 in
Pane 2 + 1 x 0.25 in Glass

freq.(Hz)	TL(dB)	TL(dB)
50	24	
63	25	25
80	25	
100	26	
125	25	24
160	22	
200	16	
250	24	20
315	31	
400	35	
500	39	38
630	42	
800	44	
1000	46	45
1250	47	
1600	47	
2000	42	40
2500	37	
3150	41	
4000	45	44
5000	49	



APPENDIX F

Exterior-to-Interior Noise Analysis

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 101 Lobby / 102 Reception / 103 Parents Lounge

Wall 1 of 3

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	1019	1019	1019	1019	1274	1274	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**50.7**	**CNEL**	34.0	39.5	42.0	46.0	46.0	40.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.5**	**CNEL**	45.1	53.4	55.9	54.4	52.0	46.0	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls CP6 and CP8 - B71104N1	N	49	20	1	243.8	37	44	49	54	59	66
1-Inch Insulated Glass	N	20	2	1	40.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	20	18	1	360.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	17.5	8.7	1	152.3	24	20	38	45	40	44
1-Inch Insulated Glass	N	11	10	1	110.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	6	10	1	60.0	24	20	38	45	40	44
1-Inch Insulated Glass	Y	2	3.5	2	14.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **26** ft

Overall Area: **980** ft²
Volume: **25480** ft³

Number of Impacted Walls: **3**

Windows Open Interior Noise Level:	**42.7**	**CNEL**
Windows Closed Interior Noise Level:	**40.5**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.1	53.4	55.9	54.4	52.0	46.0	: Exterior Wall Noise Exposure
19.9	18.4	21.4	21.4	21.4	21.4	: Transmission Loss
29.9	29.9	29.9	29.9	29.9	29.9	: Wall Surface Area Factor
30.1	30.1	30.1	30.1	31.1	31.1	: Absorption
25.0	34.9	34.4	32.8	29.4	23.4	: Noise Level

39.6 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.1	53.4	55.9	54.4	52.0	46.0	: Exterior Wall Noise Exposure
25.2	21.2	39.1	46.1	41.2	45.2	: Transmission Loss
29.9	29.9	29.9	29.9	29.9	29.9	: Wall Surface Area Factor
30.1	30.1	30.1	30.1	31.1	31.1	: Absorption
19.7	32.0	16.6	8.2	9.6	-0.4	: Noise Level

32.4 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 2 of 3**
Project # : B71104N1
Room Name: 101 Lobby / 102 Reception / 103 Parents Lounge

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.3**	**CNEL**	55.6	61.1	63.6	67.6	67.6	61.6	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.5**	**CNEL**	55.9	61.8	64.3	67.8	67.7	61.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls CP6 and CP8 - B71104N1	N	17.5	20	1	0.0	37	44	49	54	59	66
1-Inch Insulated Glass	N	6	10	1	60.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	11.5	10	1	115.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	17.5	10	1	175.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 350 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.9	61.8	64.3	67.8	67.7	61.7	: Exterior Wall Noise Exposure
24.0	20.0	38.0	45.0	40.0	44.0	: Transmission Loss
25.4	25.4	25.4	25.4	25.4	25.4	: Wall Surface Area Factor
30.1	30.1	30.1	30.1	31.1	31.1	: Absorption
27.3	37.1	21.6	18.1	22.1	12.1	: Noise Level
37.8	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.9	61.8	64.3	67.8	67.7	61.7	: Exterior Wall Noise Exposure
24.0	20.0	38.0	45.0	40.0	44.0	: Transmission Loss
25.4	25.4	25.4	25.4	25.4	25.4	: Wall Surface Area Factor
30.1	30.1	30.1	30.1	31.1	31.1	: Absorption
27.3	37.1	21.6	18.1	22.1	12.1	: Noise Level
37.8	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 3 of 3**
Project # : B71104N1
Room Name: 101 Lobby / 102 Reception / 103 Parents Lounge

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Roof - S	N	130	20	1	2600.0	14	33	40	45	43	46
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 2600 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
34.1	34.1	34.1	34.1	34.1	34.1	: Wall Surface Area Factor
30.1	30.1	30.1	30.1	31.1	31.1	: Absorption
34.8	24.3	19.8	12.8	10.8	1.8	: Noise Level
35.3	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
34.1	34.1	34.1	34.1	34.1	34.1	: Wall Surface Area Factor
30.1	30.1	30.1	30.1	31.1	31.1	: Absorption
34.8	24.3	19.8	12.8	10.8	1.8	: Noise Level
35.3	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 105 Classroom 1

Wall 1 of 2

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	235	235	235	235	294	294	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.0**	**CNEL**	55.3	60.8	63.3	67.3	67.3	61.3	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.3**	**CNEL**	55.7	61.5	64.0	67.5	67.4	61.4	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	25	10	1	162.4	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	7.3	3	87.6	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **23.5** ft **Overall Area:** **250** ft²
Volume: **5875** ft³

Number of Impacted Walls: **2**

Windows Open
Interior Noise Level: 64.6 CNEL

Windows Closed
Interior Noise Level: 38.5 CNEL

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.7	61.5	64.0	67.5	67.4	61.4	: Exterior Wall Noise Exposure
7.5	7.5	7.6	7.6	7.6	7.6	: Transmission Loss
24.0	24.0	24.0	24.0	24.0	24.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.7	24.7	: Absorption
48.4	54.3	56.7	60.2	59.1	53.1	: Noise Level

64.6 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.7	61.5	64.0	67.5	67.4	61.4	: Exterior Wall Noise Exposure
26.2	24.4	41.6	46.7	43.8	48.1	: Transmission Loss
24.0	24.0	24.0	24.0	24.0	24.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.7	24.7	: Absorption
29.8	37.4	22.6	21.1	22.9	12.6	: Noise Level

38.4 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 2 of 2**
Project # : B71104N1
Room Name: 105 Classroom 1

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.0**	**CNEL**	55.3	60.8	63.3	67.3	67.3	61.3	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.3**	**CNEL**	55.7	61.5	64.0	67.5	67.4	61.4	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls CP6 and CP8 - B71104N1	N	6.5	10	1	65.0	37	44	49	54	59	66
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **65** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.7	61.5	64.0	67.5	67.4	61.4	: Exterior Wall Noise Exposure
37.0	44.0	49.0	54.0	59.0	66.0	: Transmission Loss
18.1	18.1	18.1	18.1	18.1	18.1	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.7	24.7	: Absorption
13.1	11.9	9.4	7.9	1.9	-11.1	: Noise Level
17.2	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.7	61.5	64.0	67.5	67.4	61.4	: Exterior Wall Noise Exposure
37.0	44.0	49.0	54.0	59.0	66.0	: Transmission Loss
18.1	18.1	18.1	18.1	18.1	18.1	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.7	24.7	: Absorption
13.1	11.9	9.4	7.9	1.9	-11.1	: Noise Level
17.2	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 106 Classroom 2

Wall 1 of 1

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	235	235	235	235	294	294	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.6**	**CNEL**	55.9	61.4	63.9	67.9	67.9	61.9	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.8**	**CNEL**	56.2	62.0	64.5	68.1	68.0	62.0	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	25	10	1	162.4	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	7.3	3	87.6	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **23.5** ft **Overall Area:** **250** ft²
Volume: **5875** ft³

Number of Impacted Walls: **1**

Windows Open
Interior Noise Level: **65.2** **CNEL**

Windows Closed
Interior Noise Level: **39.0** **CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.2	62.0	64.5	68.1	68.0	62.0	: Exterior Wall Noise Exposure
7.5	7.5	7.6	7.6	7.6	7.6	: Transmission Loss
24.0	24.0	24.0	24.0	24.0	24.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.7	24.7	: Absorption
49.0	54.8	57.2	60.8	59.7	53.7	: Noise Level

65.2 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.2	62.0	64.5	68.1	68.0	62.0	: Exterior Wall Noise Exposure
26.2	24.4	41.6	46.7	43.8	48.1	: Transmission Loss
24.0	24.0	24.0	24.0	24.0	24.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.7	24.7	: Absorption
30.3	37.9	23.1	21.6	23.5	13.2	: Noise Level

39.0 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 108 College Prep Room

Wall 1 of 2

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	408	408	408	408	510	510	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.6**	**CNEL**	55.9	61.4	63.9	67.9	67.9	61.9	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.8**	**CNEL**	56.2	62.0	64.5	68.1	68.0	62.0	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	40	10	1	283.2	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	7.3	4	116.8	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **25.5** ft

Overall Area: **400** ft²
Volume: **10200** ft³

Number of Impacted Walls: **2**

Windows Open
Interior Noise Level: 64.9 CNEL

Windows Closed
Interior Noise Level: 39.0 CNEL

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.2	62.0	64.5	68.1	68.0	62.0	: Exterior Wall Noise Exposure
8.3	8.3	8.4	8.4	8.4	8.4	: Transmission Loss
26.0	26.0	26.0	26.0	26.0	26.0	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
47.8	53.6	56.1	59.6	58.6	52.6	: Noise Level

64.0 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.2	62.0	64.5	68.1	68.0	62.0	: Exterior Wall Noise Exposure
26.4	25.1	42.2	46.9	44.4	48.7	: Transmission Loss
26.0	26.0	26.0	26.0	26.0	26.0	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
29.7	36.8	22.2	21.1	22.5	12.2	: Noise Level

38.0 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 108 College Prep Room

Wall 2 of 2

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.3**	**CNEL**	51.6	57.1	59.6	63.6	63.6	57.6	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.9**	**CNEL**	52.4	58.6	61.1	64.0	63.8	57.8	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	28.4	10	1	218.3	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4.5	7.3	2	65.7	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 284 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.4	58.6	61.1	64.0	63.8	57.8	: Exterior Wall Noise Exposure
9.3	9.3	9.4	9.4	9.4	9.4	: Transmission Loss
24.5	24.5	24.5	24.5	24.5	24.5	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
41.5	47.7	50.2	53.1	51.9	45.9	: Noise Level
57.6	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.4	58.6	61.1	64.0	63.8	57.8	: Exterior Wall Noise Exposure
26.7	26.0	42.8	47.1	45.1	49.5	: Transmission Loss
24.5	24.5	24.5	24.5	24.5	24.5	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
24.1	31.0	16.7	15.4	16.2	5.8	: Noise Level
32.2	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 108 College Prep Room / 109 Classroom 3

Wall 1 of 3

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	807	807	807	807	1008	1008	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.3**	**CNEL**	51.6	57.1	59.6	63.6	63.6	57.6	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.9**	**CNEL**	52.4	58.6	61.1	64.0	63.8	57.8	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	54.5	10	1	413.6	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4.5	7.3	4	131.4	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **37** ft **Overall Area:** **545** ft²
Volume: **20165** ft³

Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**63.2**	**CNEL**
Windows Closed		
Interior Noise Level:	**37.6**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.4	58.6	61.1	64.0	63.8	57.8	: Exterior Wall Noise Exposure
9.1	9.1	9.2	9.2	9.2	9.2	: Transmission Loss
27.4	27.4	27.4	27.4	27.4	27.4	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.0	30.0	: Absorption
41.6	47.8	50.2	53.1	52.0	46.0	: Noise Level
57.6	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.4	58.6	61.1	64.0	63.8	57.8	: Exterior Wall Noise Exposure
26.7	25.8	42.7	47.1	45.0	49.4	: Transmission Loss
27.4	27.4	27.4	27.4	27.4	27.4	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.0	30.0	: Absorption
24.1	31.0	16.7	15.3	16.2	5.8	: Noise Level
32.2	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 108 College Prep Room

Wall 2 of 3

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.6**	**CNEL**	55.9	61.4	63.9	67.9	67.9	61.9	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.8**	**CNEL**	56.2	62.0	64.5	68.1	68.0	62.0	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	41	10	1	278.6	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4.5	7.3	4	131.4	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 410 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.2	62.0	64.5	68.1	68.0	62.0	: Exterior Wall Noise Exposure
7.9	7.9	8.0	8.0	8.0	8.0	: Transmission Loss
26.1	26.1	26.1	26.1	26.1	26.1	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.0	30.0	: Absorption
45.4	51.2	53.6	57.2	56.1	50.1	: Noise Level

61.6 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.2	62.0	64.5	68.1	68.0	62.0	: Exterior Wall Noise Exposure
26.3	24.7	41.9	46.8	44.1	48.4	: Transmission Loss
26.1	26.1	26.1	26.1	26.1	26.1	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.0	30.0	: Absorption
27.0	34.4	19.7	18.3	20.0	9.7	: Noise Level

35.4 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 3 of 3**
Project # : B71104N1
Room Name: 108 College Prep Room / 109 Classroom 3

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**54.0**	**CNEL**	37.3	42.8	45.3	49.3	49.3	43.3	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**61.0**	**CNEL**	45.5	53.6	56.1	55.1	53.1	47.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	130	10	1	1183.2	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	7.3	4	116.8	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **1300** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.5	53.6	56.1	55.1	53.1	47.1	: Exterior Wall Noise Exposure
13.3	13.4	13.5	13.5	13.5	13.5	: Transmission Loss
31.1	31.1	31.1	31.1	31.1	31.1	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.0	30.0	: Absorption
34.2	42.3	44.7	43.7	40.7	34.7	: Noise Level
49.4	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.5	53.6	56.1	55.1	53.1	47.1	: Exterior Wall Noise Exposure
27.4	29.5	44.9	47.6	47.4	52.3	: Transmission Loss
31.1	31.1	31.1	31.1	31.1	31.1	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.0	30.0	: Absorption
20.1	26.2	13.3	9.5	6.8	-4.1	: Noise Level
27.4	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 109 Classroom 3

Wall 1 of 2

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	385	385	385	385	481	481	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.3**	**CNEL**	51.6	57.1	59.6	63.6	63.6	57.6	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.9**	**CNEL**	52.4	58.6	61.1	64.0	63.8	57.8	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	26	10	1	194.3	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4.5	7.3	2	65.7	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **37** ft

Overall Area: **260** ft²
Volume: **9620** ft³

Number of Impacted Walls: **2**

Windows Open		
Interior Noise Level:	**58.5**	**CNEL**
Windows Closed		
Interior Noise Level:	**33.4**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.4	58.6	61.1	64.0	63.8	57.8	: Exterior Wall Noise Exposure
8.9	8.9	9.0	9.0	9.0	9.0	: Transmission Loss
24.1	24.1	24.1	24.1	24.1	24.1	: Wall Surface Area Factor
25.9	25.9	25.9	25.9	26.8	26.8	: Absorption
41.8	48.0	50.4	53.3	52.2	46.2	: Noise Level
57.9	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.4	58.6	61.1	64.0	63.8	57.8	: Exterior Wall Noise Exposure
26.6	25.7	42.6	47.0	44.8	49.2	: Transmission Loss
24.1	24.1	24.1	24.1	24.1	24.1	: Wall Surface Area Factor
25.9	25.9	25.9	25.9	26.8	26.8	: Absorption
24.1	31.2	16.8	15.3	16.3	5.9	: Noise Level
32.3	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 2 of 2**
Project # : B71104N1
Room Name: 109 Classroom 3

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**54.0**	**CNEL**	37.3	42.8	45.3	49.3	49.3	43.3	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**61.0**	**CNEL**	45.5	53.6	56.1	55.1	53.1	47.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	37	10	1	311.6	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	7.3	2	58.4	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 370 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.5	53.6	56.1	55.1	53.1	47.1	: Exterior Wall Noise Exposure
10.9	11.0	11.0	11.0	11.0	11.0	: Transmission Loss
25.7	25.7	25.7	25.7	25.7	25.7	: Wall Surface Area Factor
25.9	25.9	25.9	25.9	26.8	26.8	: Absorption
34.3	42.5	44.9	43.9	40.9	34.9	: Noise Level
49.6	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.5	53.6	56.1	55.1	53.1	47.1	: Exterior Wall Noise Exposure
27.1	27.5	43.8	47.4	46.2	50.8	: Transmission Loss
25.7	25.7	25.7	25.7	25.7	25.7	: Wall Surface Area Factor
25.9	25.9	25.9	25.9	26.8	26.8	: Absorption
18.2	26.0	12.2	7.5	5.8	-4.8	: Noise Level
26.9	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 120 Singles Court 6

Wall 1 of 1

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	511	511	511	511	638	638	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**66.6**	**CNEL**	49.9	55.4	57.9	61.9	61.9	55.9	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**67.5**	**CNEL**	51.1	57.5	60.0	62.5	62.2	56.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	32	19	1	608.0	28	36	47	48	50	56
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **21** ft

Overall Area: **608** ft²
Volume: **12768** ft³

Number of Impacted Walls: **1**

Windows Open
Interior Noise Level: 26.8 CNEL

Windows Closed
Interior Noise Level: 26.8 CNEL

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.1	57.5	60.0	62.5	62.2	56.2	: Exterior Wall Noise Exposure
28.0	36.0	47.0	48.0	50.0	56.0	: Transmission Loss
27.8	27.8	27.8	27.8	27.8	27.8	: Wall Surface Area Factor
27.1	27.1	27.1	27.1	28.1	28.1	: Absorption
23.8	22.2	13.7	15.3	12.0	0.0	: Noise Level

26.8 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.1	57.5	60.0	62.5	62.2	56.2	: Exterior Wall Noise Exposure
28.0	36.0	47.0	48.0	50.0	56.0	: Transmission Loss
27.8	27.8	27.8	27.8	27.8	27.8	: Wall Surface Area Factor
27.1	27.1	27.1	27.1	28.1	28.1	: Absorption
23.8	22.2	13.7	15.3	12.0	0.0	: Noise Level

26.8 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 202 Gallery

Wall 1 of 3

Room Type : **Medium Hard**	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	1.2	1.2	1.2	1.2	1.0	1.0	: Moderately Reflective Room
Room Absorption (Sabins) :	233	233	233	233	291	291	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.2**	**CNEL**	55.5	61.0	63.5	67.5	67.5	61.5	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.5**	**CNEL**	55.9	61.7	64.2	67.7	67.6	61.6	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	23	11	1	154.6	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	7.3	2	58.4	24	20	38	45	40	44
1-Inch Insulated Glass	N	20	2	1	40.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **23** ft   **Overall Area:** **253** ft²
Volume: **5819** ft³
Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**63.1**	**CNEL**
Windows Closed		
Interior Noise Level:	**40.5**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.9	61.7	64.2	67.7	67.6	61.6	: Exterior Wall Noise Exposure
9.3	9.3	9.4	9.4	9.4	9.4	: Transmission Loss
24.0	24.0	24.0	24.0	24.0	24.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.6	24.6	: Absorption
46.9	52.8	55.2	58.7	57.6	51.6	: Noise Level
63.1	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.9	61.7	64.2	67.7	67.6	61.6	: Exterior Wall Noise Exposure
26.0	23.9	41.3	46.6	43.5	47.7	: Transmission Loss
24.0	24.0	24.0	24.0	24.0	24.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.6	24.6	: Absorption
30.2	38.1	23.2	21.5	23.5	13.3	: Noise Level
39.1	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 2 of 3**
Project # : B71104N1
Room Name: 202 Gallery

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.2**	**CNEL**	55.5	61.0	63.5	67.5	67.5	61.5	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.5**	**CNEL**	55.9	61.7	64.2	67.7	67.6	61.6	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls CP6 and CP8 - B71104N1	N	7.2	11	1	79.2	37	44	49	54	59	66
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **79.2** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.9	61.7	64.2	67.7	67.6	61.6	: Exterior Wall Noise Exposure
37.0	44.0	49.0	54.0	59.0	66.0	: Transmission Loss
19.0	19.0	19.0	19.0	19.0	19.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.6	24.6	: Absorption
14.2	13.0	10.5	9.0	2.9	-10.1	: Noise Level
18.3	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.9	61.7	64.2	67.7	67.6	61.6	: Exterior Wall Noise Exposure
37.0	44.0	49.0	54.0	59.0	66.0	: Transmission Loss
19.0	19.0	19.0	19.0	19.0	19.0	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.6	24.6	: Absorption
14.2	13.0	10.5	9.0	2.9	-10.1	: Noise Level
18.3	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 3 of 3**
Project # : B71104N1
Room Name: 202 Gallery

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Roof - S	N	23	23	1	529.0	14	33	40	45	43	46
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 529 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
27.2	27.2	27.2	27.2	27.2	27.2	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.6	24.6	: Absorption
34.3	23.8	19.3	12.3	10.3	1.3	: Noise Level
34.8	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
27.2	27.2	27.2	27.2	27.2	27.2	: Wall Surface Area Factor
23.7	23.7	23.7	23.7	24.6	24.6	: Absorption
34.3	23.8	19.3	12.3	10.3	1.3	: Noise Level
34.8	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 204 Open Office

Wall 1 of 2

Room Type : **Medium Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	813	813	813	813	1016	1016	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.7**	**CNEL**	56.0	61.5	64.0	68.0	68.0	62.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.9**	**CNEL**	56.3	62.1	64.6	68.2	68.1	62.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	56	11	1	378.0	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	8	5	160.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	39	2	1	78.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **22** ft

Overall Area: **616** ft²
Volume: **13552** ft³

Number of Impacted Walls: **2**

Windows Open
Interior Noise Level: 62.5 CNEL

Windows Closed
Interior Noise Level: 39.2 CNEL

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.3	62.1	64.6	68.2	68.1	62.1	: Exterior Wall Noise Exposure
8.8	8.8	8.9	8.9	8.9	8.9	: Transmission Loss
27.9	27.9	27.9	27.9	27.9	27.9	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.1	30.1	: Absorption
46.3	52.1	54.5	58.1	57.0	51.0	: Noise Level

62.5 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.3	62.1	64.6	68.2	68.1	62.1	: Exterior Wall Noise Exposure
26.0	24.0	41.3	46.6	43.5	47.7	: Transmission Loss
27.9	27.9	27.9	27.9	27.9	27.9	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.1	30.1	: Absorption
29.1	36.9	22.1	20.4	22.4	12.2	: Noise Level

37.9 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 2 of 2**
Project # : B71104N1
Room Name: 202 Gallery

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**		**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Roof - S	N	56	22	1	1232.0	14	33	40	45	43	46
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **1232** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
30.9	30.9	30.9	30.9	30.9	30.9	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.1	30.1	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level
33.1	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
30.9	30.9	30.9	30.9	30.9	30.9	: Wall Surface Area Factor
29.1	29.1	29.1	29.1	30.1	30.1	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level
33.1	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 205 Office

Wall 1 of 3

Room Type : **Medium Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	83	83	83	83	104	104	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.7**	**CNEL**	56.0	61.5	64.0	68.0	68.0	62.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.9**	**CNEL**	56.3	62.1	64.6	68.2	68.1	62.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	10.5	11	1	47.5	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	8	1	32.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	2	8	1	16.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	10	2	1	20.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **12** ft **Overall Area:** **115.5** ft²
Volume: **1386** ft³

Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**65.4**	**CNEL**
Windows Closed		
Interior Noise Level:	**44.5**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.3	62.1	64.6	68.2	68.1	62.1	: Exterior Wall Noise Exposure
8.5	8.4	8.6	8.6	8.6	8.6	: Transmission Loss
20.6	20.6	20.6	20.6	20.6	20.6	: Wall Surface Area Factor
19.2	19.2	19.2	19.2	20.2	20.2	: Absorption
49.2	55.1	57.5	61.0	60.0	54.0	: Noise Level

65.4 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.3	62.1	64.6	68.2	68.1	62.1	: Exterior Wall Noise Exposure
25.2	22.2	39.9	46.0	42.0	46.1	: Transmission Loss
20.6	20.6	20.6	20.6	20.6	20.6	: Wall Surface Area Factor
19.2	19.2	19.2	19.2	20.2	20.2	: Absorption
32.5	41.3	26.1	23.6	26.5	16.4	: Noise Level

42.2 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 205 Office

Wall 2 of 3

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.8**	**CNEL**	52.1	57.6	60.1	64.1	64.1	58.1	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**69.3**	**CNEL**	52.8	59.0	61.5	64.5	64.3	58.3	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	12	11	1	45.0	28	36	47	48	50	56
1-Inch Insulated Glass	N	8	8	1	64.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	11.5	2	1	23.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

12 **Overall Area:** **132** ft²

3

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.8	59.0	61.5	64.5	64.3	58.3	: Exterior Wall Noise Exposure
25.0	21.8	39.5	45.8	41.6	45.7	: Transmission Loss
21.2	21.2	21.2	21.2	21.2	21.2	: Wall Surface Area Factor
19.2	19.2	19.2	19.2	20.2	20.2	: Absorption
29.8	39.2	23.9	20.7	23.7	13.7	: Noise Level
40.0	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.8	59.0	61.5	64.5	64.3	58.3	: Exterior Wall Noise Exposure
25.0	21.8	39.5	45.8	41.6	45.7	: Transmission Loss
21.2	21.2	21.2	21.2	21.2	21.2	: Wall Surface Area Factor
19.2	19.2	19.2	19.2	20.2	20.2	: Absorption
29.8	39.2	23.9	20.7	23.7	13.7	: Noise Level
40.0	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 3 of 3**
Project # : B71104N1
Room Name: 205 Office

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Roof - S	N	12	10.5	1	126.0	14	33	40	45	43	46
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 126 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
21.0	21.0	21.0	21.0	21.0	21.0	: Wall Surface Area Factor
19.2	19.2	19.2	19.2	20.2	20.2	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level
33.1	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
21.0	21.0	21.0	21.0	21.0	21.0	: Wall Surface Area Factor
19.2	19.2	19.2	19.2	20.2	20.2	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level
33.1	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 207 Conference Room

Wall 1 of 3

Room Type : **Medium Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	407	407	407	407	508	508	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.8**	**CNEL**	52.1	57.6	60.1	64.1	64.1	58.1	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**69.3**	**CNEL**	52.8	59.0	61.5	64.5	64.3	58.3	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	28	11	1	100.0	28	36	47	48	50	56
1-Inch Insulated Glass	Y	9	8	1	72.0	24	20	38	45	40	44
1-Inch Insulated Glass	Y	5	8	1	40.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	5	8	1	40.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	28	2	1	56.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **22** ft

Overall Area: **308** ft²
Volume: **6776** ft³

Number of Impacted Walls: **3**

Windows Open Interior Noise Level:	**60.8**	**CNEL**
Windows Closed Interior Noise Level:	**38.9**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.8	59.0	61.5	64.5	64.3	58.3	: Exterior Wall Noise Exposure
7.3	7.3	7.4	7.4	7.4	7.4	: Transmission Loss
24.9	24.9	24.9	24.9	24.9	24.9	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
44.3	50.5	52.9	55.9	54.7	48.7	: Noise Level

60.4 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.8	59.0	61.5	64.5	64.3	58.3	: Exterior Wall Noise Exposure
24.9	21.7	39.4	45.8	41.5	45.6	: Transmission Loss
24.9	24.9	24.9	24.9	24.9	24.9	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
26.7	36.1	20.8	17.5	20.6	10.6	: Noise Level

36.9 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 2 of 3**
Project # : B71104N1
Room Name: 207 Conference Room

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**55.2**	**CNEL**	38.5	44.0	46.5	50.5	50.5	44.5	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**61.2**	**CNEL**	45.7	53.7	56.2	55.4	53.6	47.6	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	22	11	1	118.0	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	8	2	64.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	2	8	1	16.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	22	2	1	44.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **242** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.7	53.7	56.2	55.4	53.6	47.6	: Exterior Wall Noise Exposure
8.7	8.7	8.8	8.8	8.8	8.8	: Transmission Loss
23.8	23.8	23.8	23.8	23.8	23.8	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
34.7	42.8	45.2	44.4	41.6	35.6	: Noise Level
50.0	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.7	53.7	56.2	55.4	53.6	47.6	: Exterior Wall Noise Exposure
25.5	22.8	40.4	46.2	42.5	46.7	: Transmission Loss
23.8	23.8	23.8	23.8	23.8	23.8	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
17.9	28.7	13.6	7.0	7.9	-2.2	: Noise Level
29.2	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 3 of 3**
Project # : B71104N1
Room Name: 207 Conference Room

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Roof - S	N	28	22	1	616.0	14	33	40	45	43	46
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **616** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
27.9	27.9	27.9	27.9	27.9	27.9	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level
33.1	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
27.9	27.9	27.9	27.9	27.9	27.9	: Wall Surface Area Factor
26.1	26.1	26.1	26.1	27.1	27.1	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level
33.1	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy
Project # : B71104N1
Room Name: 208 Kitchen

Wall 1 of 2

Room Type : **Medium Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	223	223	223	223	278	278	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**55.2**	**CNEL**	38.5	44.0	46.5	50.5	50.5	44.5	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**61.2**	**CNEL**	45.7	53.7	56.2	55.4	53.6	47.6	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Exterior Walls FCa6 and FCb6 - B71104N1	N	22.5	11	1	159.5	28	36	47	48	50	56
1-Inch Insulated Glass	Y	4	8	2	64.0	24	20	38	45	40	44
1-Inch Insulated Glass	N	12	2	1	24.0	24	20	38	45	40	44
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **15** ft **Overall Area:** **247.5** ft²
Volume: **3713** ft³

Number of Impacted Walls: **2**

Windows Open
Interior Noise Level: **52.7** **CNEL**

Windows Closed
Interior Noise Level: **35.0** **CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.7	53.7	56.2	55.4	53.6	47.6	: Exterior Wall Noise Exposure
8.8	8.8	8.9	8.9	8.9	8.9	: Transmission Loss
23.9	23.9	23.9	23.9	23.9	23.9	: Wall Surface Area Factor
23.5	23.5	23.5	23.5	24.4	24.4	: Absorption
37.3	45.4	47.8	47.0	44.2	38.2	: Noise Level

52.6 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.7	53.7	56.2	55.4	53.6	47.6	: Exterior Wall Noise Exposure
26.1	24.3	41.6	46.7	43.8	48.0	: Transmission Loss
23.9	23.9	23.9	23.9	23.9	23.9	: Wall Surface Area Factor
23.5	23.5	23.5	23.5	24.4	24.4	: Absorption
20.0	29.9	15.1	9.2	9.4	-0.9	: Noise Level

30.5 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Access Youth Academy **Wall 2 of 2**
Project # : B71104N1
Room Name: 208 Kitchen

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	: Traffic Spectrum
Source 2:	**Aircraft**	**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Aircraft Spectrum
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.0**	**CNEL**	44.7	53.2	55.7	53.7	50.7	44.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
Roof - S	N	22.5	15	1	337.5	14	33	40	45	43	46
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **337.5** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
25.3	25.3	25.3	25.3	25.3	25.3	: Wall Surface Area Factor
23.5	23.5	23.5	23.5	24.4	24.4	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level

33.1 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
44.7	53.2	55.7	53.7	50.7	44.7	: Exterior Wall Noise Exposure
14.0	33.0	40.0	45.0	43.0	46.0	: Transmission Loss
25.3	25.3	25.3	25.3	25.3	25.3	: Wall Surface Area Factor
23.5	23.5	23.5	23.5	24.4	24.4	: Absorption
32.5	22.0	17.5	10.5	8.6	-0.4	: Noise Level

33.1 **CNEL** WINDOWS CLOSED

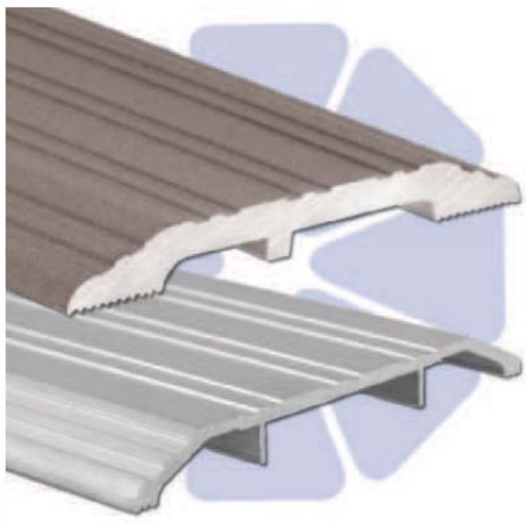
APPENDIX G

Recommended Products

PEMKO
ASSA ABLOY

08 71 00.17/PEM
BuyLine 5043

THRESHOLDS AND GASKETING

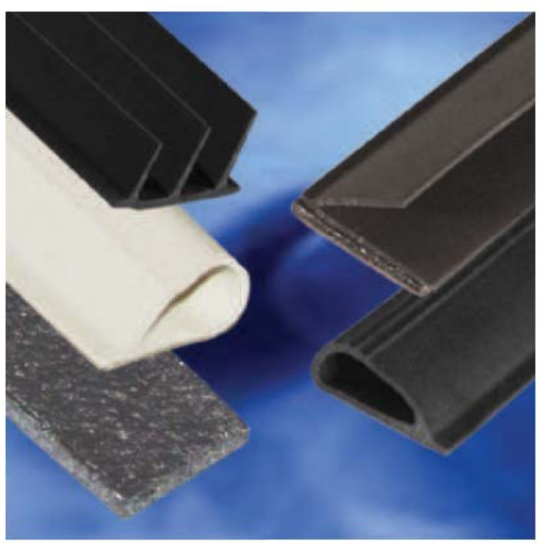


VENTURA, CA (USA)
P.O. Box 3780
Ventura, CA 93006
PH: 800.283.9988
FAX: 800.283.4050

MEMPHIS, TN (USA)
P.O. Box 18966
Memphis, TN 38181
PH: 800.824.3018
FAX: 800.243.3656

VANCOUVER, BC (CANADA)
103-2480 Mt. Lehman Rd.
Abbotsford, BC V2T 6W3 Canada
PH: 877.535.7888
FAX: 877.535.7444

TORONTO, ON (CANADA)
160 Four Valley Rd.
Concord, ON L4K 4T9 Canada
PH: 866.243.9816
FAX: 866.243.9817



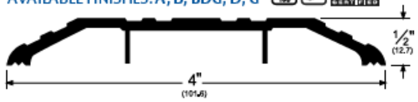
ASSA ABLOY is the global leader in door opening solutions, dedicated to satisfying end-user needs for security, safety and convenience.

COMMERCIAL THRESHOLDS

Saddle Thresholds

170_

AVAILABLE FINISHES: A, B, BDG, D, G



171_

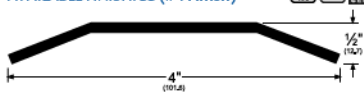
AVAILABLE FINISHES: A, B, BDG, D, G, SN

172_

AVAILABLE FINISHES: A, B, D, G, SN

175SS_

AVAILABLE FINISH: SS (#4 Finish)



270_

AVAILABLE FINISHES: A, B, D, G

271_

AVAILABLE FINISHES: A, B, D, G, SN

272_

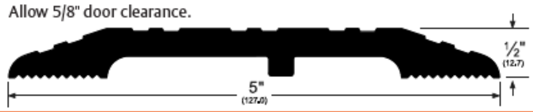
AVAILABLE FINISHES: A, B, D, G, SN

Heavy Duty Thresholds

1715_

AVAILABLE FINISHES: A, AK, D

Allow 5/8" door clearance.



Modular Heavy Duty Thresholds

1716_

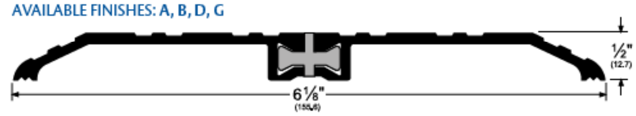
AVAILABLE FINISHES: A, AK, D

Allow 5/8" door clearance.

Thermal Barrier Thresholds

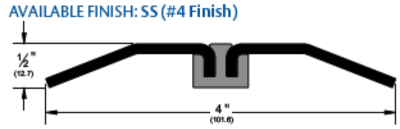
253X3_FG

AVAILABLE FINISHES: A, B, D, G



252SSx2FG_

AVAILABLE FINISH: SS (#4 Finish)



Also Available (Not Shown)

253SSx3FG_

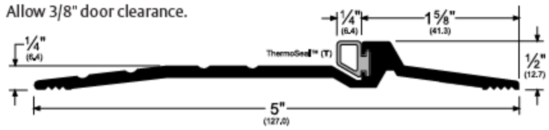
252SSx3FG_

Latching Panic Exit Saddle Thresholds

2005_T

AVAILABLE FINISHES: A, B, D, G

Allow 3/8" door clearance.



179_T

AVAILABLE FINISHES: A, B, D, G

Allow 1/2" door clearance.

ALTERNATE INSERTS

2005_P
179_P

pile (P)

2005_V
179_V

vinyl (V)

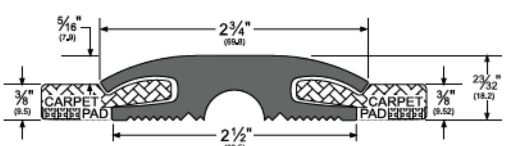
HOSPITALITY PRODUCTS

Vinyl Thresholds

V232_

AVAILABLE COLORS: BL

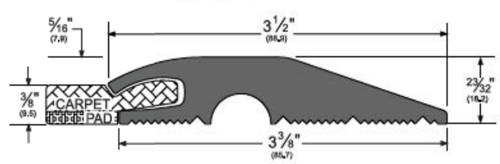
AVAILABLE LENGTHS: 36", 48", 73"



V2320_

AVAILABLE COLORS: BL

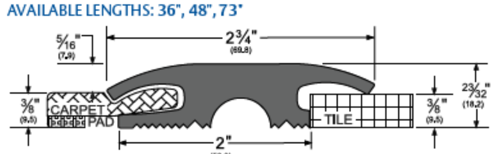
AVAILABLE LENGTHS: 36", 48", 73"



V2325_

AVAILABLE COLORS: BL

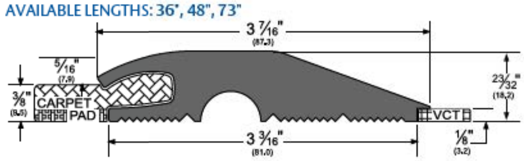
AVAILABLE LENGTHS: 36", 48", 73"



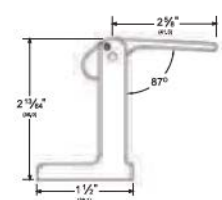
V2322_

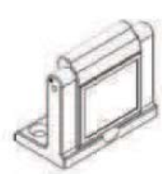
AVAILABLE COLORS: BL

AVAILABLE LENGTHS: 36", 48", 73"



Privacy Door Latch





PDL_

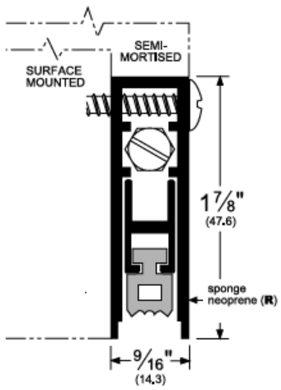
AVAILABLE FINISHES:

US3, 4, 26, 26D/15

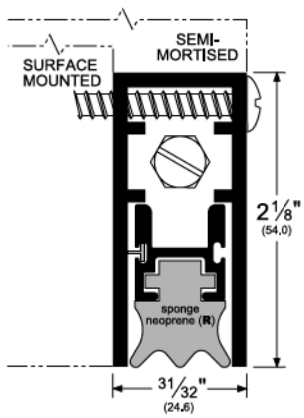
DOOR BOTTOMS

Automatic Door Bottoms

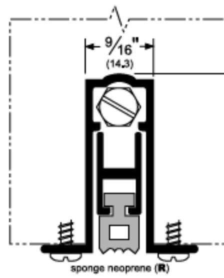
4131_RL
AVAILABLE FINISHES: BDG, C, D, SN



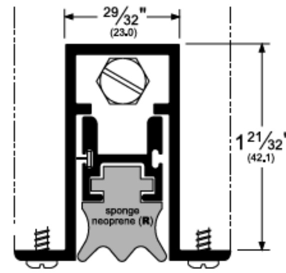
4301_RL
AVAILABLE FINISHES: C, D



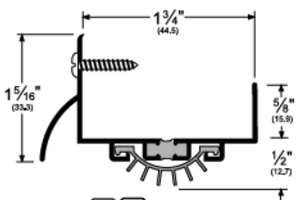
411_RL
AVAILABLE FINISHES: A



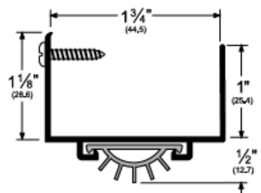
434_RL
AVAILABLE FINISHES: A



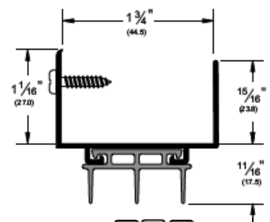
Door Shoes



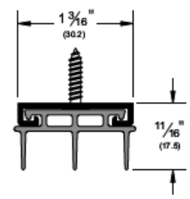
216_V
216_PK
AVAILABLE FINISHES:
A, B, BDG, D, G, PW, SN



217_V
217_PK
AVAILABLE FINISHES:
A, BDG, D, G, PW, SN

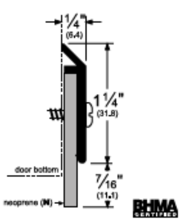


2173_V
AVAILABLE FINISHES:
A, BDG, D, PW
Also available unnotched:
2173_V36UN
2173_V48UN

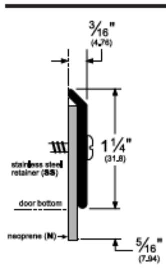


2343_V
AVAILABLE FINISHES:
A, D
Also available unnotched:
2343_V36UN
2343_V48UN

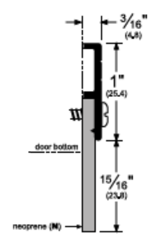
Door Bottom Sweeps



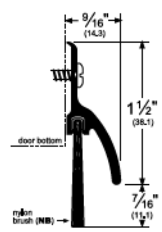
315_N
AVAILABLE FINISHES:
B, C, D, G, SN



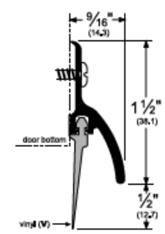
315SSN
AVAILABLE FINISH:
SS (#4 Finish)



321_N
AVAILABLE FINISHES:
C, D, G

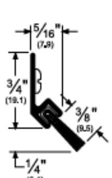


345_NB
AVAILABLE FINISHES:
A, BDG, D, G, PW

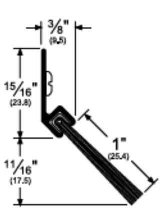


345_V
AVAILABLE FINISHES:
A, BDG, D, G, PW

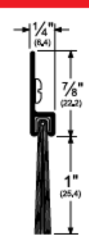
BRUSH GASKETING



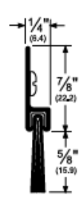
45041_NB
AVAILABLE FINISHES:
C, D, G, SN



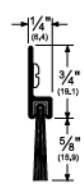
45100_NB
AVAILABLE FINISHES:
C, D, G, SN



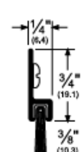
18100_NB
AVAILABLE FINISHES:
C, D, G, PW



18062_NB
AVAILABLE FINISHES:
C, D, G, PW



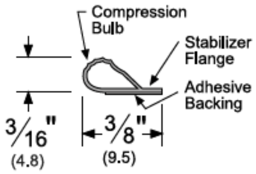
18061_NB
AVAILABLE FINISHES:
C, D, G, SN



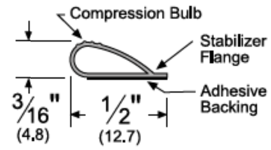
18041_NB
AVAILABLE FINISHES:
C, D, G, SN

NOTE: ALTERNATE INSERTS MAY CARRY DIFFERENT RATINGS. SEE FULL LINE CATALOG OR WEBSITE FOR MORE INFORMATION.

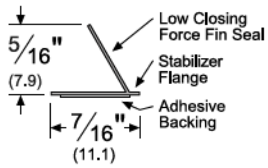
ADHESIVE GASKETING



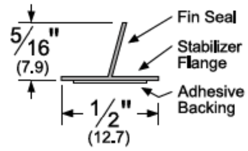
PK33_
AVAILABLE FINISHES:
BL, D, W
AVAILABLE LENGTHS:
17', 18', 20', 21', 25', 510'



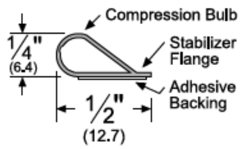
PK55_
AVAILABLE FINISHES:
BL, D, W
AVAILABLE LENGTHS:
17', 18', 20', 21', 25', 510'



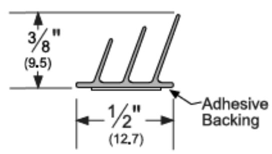
S44_
AVAILABLE FINISHES:
BL, D, W
AVAILABLE LENGTHS:
17', 18', 20', 21', 25', 510'



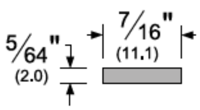
S77_
AVAILABLE FINISHES:
C, D, W
AVAILABLE LENGTHS:
17', 18', 20', 21', 25'



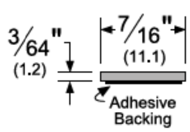
S88_
AVAILABLE FINISHES:
BL, C, D, GR, TAN, W
AVAILABLE LENGTHS:
17', 18', 20', 21', 25', 30', 204', 510'



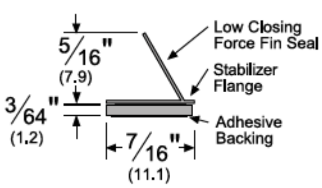
S773_
AVAILABLE FINISHES: D, W
AVAILABLE LENGTHS: 17', 18', 20', 21', 25'



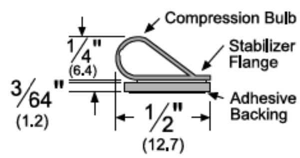
HSS1000_
AVAILABLE FINISHES:
Graphite (no code), W
AVAILABLE LENGTHS:
7', 8', 10', 18', 21', 24'



HSS2000_
AVAILABLE FINISHES:
Graphite (no code), W
AVAILABLE LENGTHS:
7', 8', 10', 18', 21', 24'



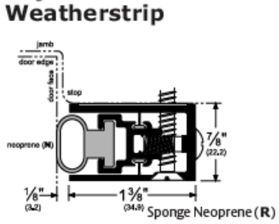
HSS2000xS44_
AVAILABLE FINISHES:
BL, D, W
AVAILABLE LENGTHS:
18', 20', 21', 24'



HSS2000xS88_
AVAILABLE FINISHES:
BL, C, D, GR, TAN, W
AVAILABLE LENGTHS:
18', 20', 21', 24'

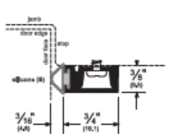
PERIMETER GASKETING

Adjustable Jamb Weatherstrip



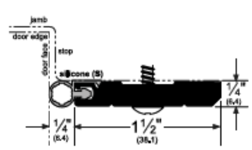
322_SN
AVAILABLE FINISHES: C, D, G

Snap Cover - Concealed Fasteners



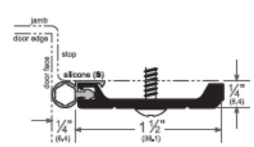
29310_S
AVAILABLE FINISHES: C, D, G
ADDITIONAL INSERTS: P, PK, V

Heavy Duty-Head Section



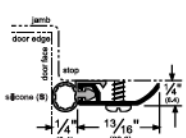
2891_S
AVAILABLE FINISHES: A, D, G
ADDITIONAL INSERTS: PK, V

Heavy Duty-Standard Jamb

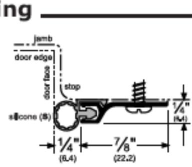


290_S
AVAILABLE FINISHES: A, D, G
ADDITIONAL INSERTS: PK, V

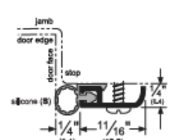
Standard Perimeter Gasketing



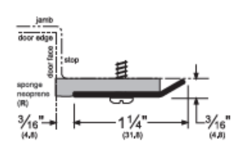
297_S
AVAILABLE FINISHES: A, BDG, D, G, PW, SN
ADDITIONAL INSERTS: PK, V



303_S
AVAILABLE FINISHES: A, BDG, D, G, PW, SN
ADDITIONAL INSERTS: PK, V



316_S
AVAILABLE FINISHES: A, BDG, D, G
ADDITIONAL INSERTS: PK, V

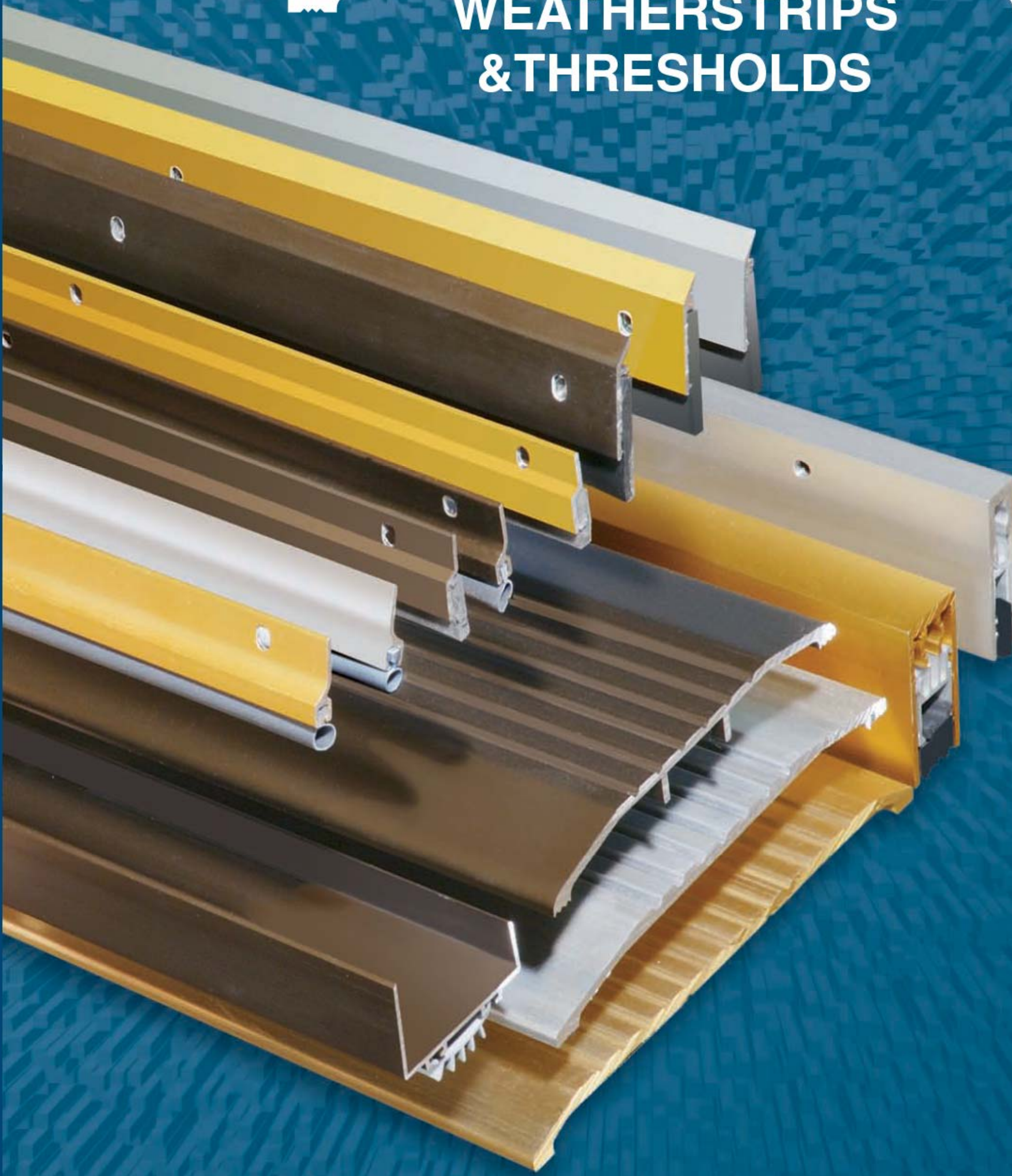


315SSR
AVAILABLE FINISH: SS (#4 Finish)

NOTE: ALTERNATE INSERTS MAY CARRY DIFFERENT RATINGS. SEE FULL LINE CATALOG OR WEBSITE FOR MORE INFORMATION.

Reese

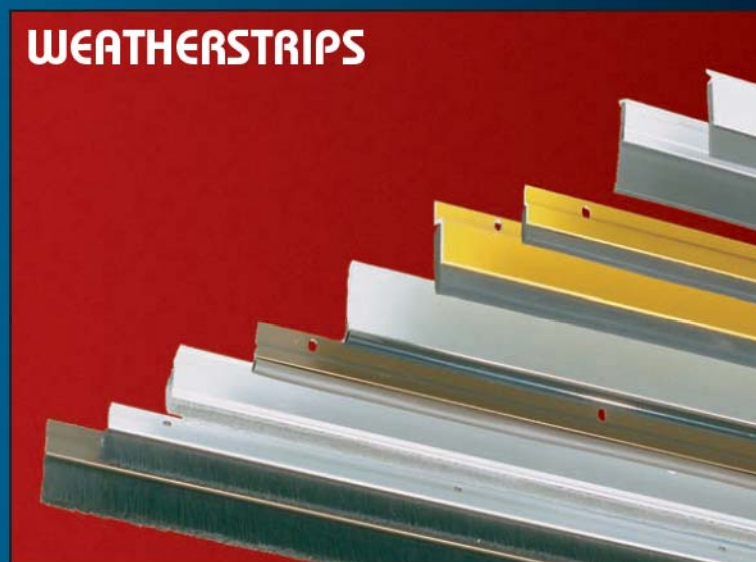
WEATHERSTRIPS &THRESHOLDS

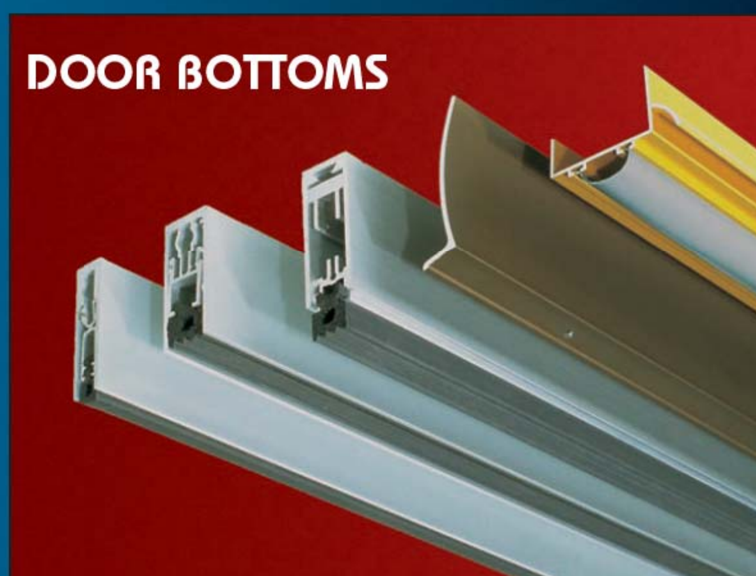


Phone 1-800-328-0953
Fax 1-800-334-8823
www.reeseusa.com

Continuous Service and Quality

Reese Enterprises, Inc. has more than 80 years experience in manufacturing weatherstrips along with many other door & floor products. During that time, we have devoted both time and dollars to product development, research and testing. Our highest valued asset, however, is you — our customer. That's why you'll talk to a pleasant, helpful person when you call Reese. No answering machines or recorded menus. Call us and hear for yourself.





Reese
WEATHERSTRIPS
&THRESHOLDS

TECHNICAL DATA

DRAFT & ACOUSTICAL
SOUND SEALANT

OSI® Greenseries™ Draft & Acoustical Sound Sealant is a non-flammable, latex-based sealant specially designed to reduce sound transmissions and drafts in all types of wall systems where a sound-rated assembly is required. Its primary function is to achieve and maintain the specific STC (Sound Transmission Class) value of the system designed.

The paintable sealant remains flexible and adheres firmly to wood, metal studs, concrete, gypsum board and most other building materials. The easy-to-use sealant cleans up easily with soap and water.

PHYSICAL PROPERTIES

Type	Synthetic Latex Rubber
Color	White
Solids by weight	75%
Toxicity	Toxic only if swallowed. Refer to MSDS.
Flammability	Nonflammable
Flash Point	200°F. TCC (minimum amount of solvent present)
Tooling/Open Time	15 minutes
Tack Free Time	30 minutes
Cure Time	2-7 days
Application Temperature	40°F minimum
Service Temperature	-5°F - 170°F
Freeze-Thaw Stability	3 cycles. Unaffected by freezing after curing
Shelf Life	1 year from date made at 75°F
Sag or Slump	Nil (ASTM D2202)
VOC Level	22g/l or <1% by wt.
Shore "A" Hardness	45 +/-5 (Cured 30 days @ room temp.)
Clean-up	Water and soap before curing
Accelerated Weathering	No cracks, discoloration or chalking: 1000 hrs. in Xenon Arc Weatherometer

FEATURES
- Permanently flexible
- Easy application and cleanup
- UL Classification – R9732; UL 723
- Easy water cleanup
- Low VOC, compliant formula
- Will not harden, crack or separate
- Non-staining & non-migrating
- High degree of adhesive and cohesive strength.

USES

Greenseries™ Draft & Acoustical was developed primarily for commercial construction utilizing light weight cavity walls and floor systems. Draft & Acoustical Sealant is used successfully in office buildings, hotels, apartment complexes, and other types of commercial & residential construction.

The sealant is used for exposed and unexposed applications at perimeter joints, floor and ceiling runners, cut outs in gypsum board, veneer plaster systems and other areas where a sound rated assembly is required. The sealant can also be applied or buttered around all electrical boxes and outlets, cold air returns, heating and air conditioning ducts, and other utility equipment penetrating wall surfaces for increased acoustical performance. Also works well for sealing sill and and base plates in residential construction.

SPECIFICATIONS
- UL Classified – 48S9 (R9732). Tested in accordance with and conforms to UL 723: U.B.C. Standard No. 42-1 Class I.
- ASTM E84: Surface Burning Characteristics of Building Materials.
- ASTM E90-85: Laboratory Measurement of Airborne-Sound Transmission Loss of Building Materials.
- ASTM D217: Testing Standard for Consistency.
- ASTM C919-79: Standard Practice for Use of Sealants in Acoustical Applications.
- SCAQMD Rule 1168 V.O.C.; CARB; and BAAQMD compliant
- GREENGUARD Certified
- Meets LEEDS requirements

LIMITATIONS
- Keep from freezing
- Do not use below 40°F. (5°C.).
- Not recommended for use on mirrors or underwater applications.
- Not recommended for exterior use.

PACKAGING

28 oz. cartridges – 12 per case (Item No. GS79928)

STORAGE

Store at 70°F. +/- 5° (21°C) for long shelf life and easy application. Do not store below 40°F. (5°C.).

COVERAGE

3/8" round bead size: approx. 40 lin. ft. per 28 oz. cartridge.
¼" round bead size: Approx. 89 lin. ft. / 28oz cartridge.

PERFORMANCE CHARACTERISTICS

1. Underwriters Laboratories Inc. Classified 48S9 (R9732) UL 723: Sealant tested for surface burning characteristics

	Applied to organic Reinforced Cement Board*
Flame Spread	5
Smoke Development	5

*Tested as applied in two 1/2in. beads, 8in. on center. The sealant covered 5.6 percent of the exposed sample area.

2. ASTM E90-85: STC Value – Effect of sealing the opening on a test wall partition.

APPLICATION PROCEEDURES

All surfaces must be clean and free of dust, dirt, oil, moisture and other foreign substances which could interfere with the bond of the sealant.

DIRECTIONS

1. Cut spout on tube to desired bead size (3/8" round bead recommended) and puncture seal inside spout.
2. Sealant should be applied as specified in the sound-rated system being installed (either wood or metal studs)

A. Bottom & Top Runners: Apply a continuous 3/8" round bead of sealant on runners before setting gypsum board. Gypsum board shall be set into sealant to form complete contact with adjacent materials. Fill joint on top runners to complete seal. Repeat procedure for double layer applications.

B. Cut-Outs and Perimeter Joints. Backs of electrical boxes, pipes, duct systems and other types of utility equipment penetrating wall surfaces shall be buttered with sealant. Seal all joints at perimeter edges including abutting surfaces and corner joints.

3. Maximum joint size should not exceed ⅝" x ½".
4. Clean tools and excess sealant immediately after application with soap and water.
5. If necessary, sealant can be painted as applicable to meet project requirements after 24 hours.

CAUTION! CONTAINS ETHYLENE GLYCOL , MINERAL SPIRITS and crystalline silica. Avoid eye contact. Do not take internally. If swallowed, may cause abdominal discomfort. Use with adequate ventilation. Refer to MSDS.

WARNING: This product contains a chemical known to the State of California to cause cancer.

KEEP OUT OF REACH OF CHILDREN

FIRST AID

Eye Contact: In case of eye contact, flush with clean water for at least 15 minutes. Skin Contact: Wash skin thoroughly with soap and water. Ingestion: DO NOT induce vomiting. Seek medical attention. If dizziness occurs, remove to fresh air.

NOTICE TO PURCHASER

Henkel Corporation warrants this product when used according to directions. If not satisfied with the product's performance when used as directed, return sales receipt and used container to Henkel Corporation, 32150 Just Imagine Drive, Avon OH, 44011 for product replacement or refund. User shall determine suitability of product for use and assumes all risk.

QUESTIONS?

For commercial use or other questions pertaining to this product, call Henkel Technical Service at 800-321-0253 M-F, 9am – 4pm. or visit our website at www.greenseries.com.

Test partition consisted of metal studs 24" O.C. with double layer gypsum board, Fire code "C" and attached with screws on both sides. Inside of partition was filled with sound insulation. Partition system was erected and shimmed out 4.75 mm (0.1875in.) at top, bottom and edges.

Results: Sound Transmission Class Value

1. Un-sealed partition – Arrows show sound travel around or through partitions.
   a. STC=15
2. Single bead of sealant used at top and bottom runners only – both sides of partition system.
   a. STC=24

Metal Stud Partition   Door/Window frame in a hollow partition

3. Single bead of sealant used at top, bottom and perimeter joints – both sides of system.
   a. STC=45
4. Double bead of sealant used at top, bottom and perimeter joints – both sides of system.
   a. STC=55

OSI® GreenSeries™ Draft & Acoustical Sound Sealant is currently under going tested by GREENGUARD.
The GREENGUARD INDOOR AIR QUALITY CERTIFIED Mark is a registered certification mark used under license through the GREENGUARD Environmental Institute.

Henkel

Henkel Consumer Adhesives
Professional Adhesives & Sealants
32150 Just Imagine Drive
Avon, OH 44011
U.S.A.

Phone: (440) 937-7000
Fax: (440) 937-7092

AC-20 FTR®

Specification Data Sheet

PECORA CORPORATION

(Fire & Temperature Rated) Acoustical & Insulation Sealant

BASIC USES

- AC-20 FTR® fire-rated systems are suitable for applications in schools, hospitals, churches, high-rise office buildings and hotels, prisons, sports arenas, and other public-use buildings to ensure a safe and orderly evacuation in the event of a fire.

2. MANUFACTURER

Pecora Corporation
165 Wambold Road
Harleysville, PA 19438

Phone: 215-723-6051
800-523-6688
Fax: 215-721-0286
Website: www.pecora.com

3. PRODUCT DESCRIPTION

AC-20 FTR® is a unique acrylic latex sealant that is UL® Classified in firestopping systems for expansion joints and through penetrations. When properly installed, these systems effectively contain fire, smoke, toxic fumes, and water within a given area surrounded by firewalls for a two, three, or four hour period, depending on the design specifications.

Other Uses: Excellent adhesive, flexibility and durability qualities make AC-20 FTR® ideal for insulating and weatherproofing around windows, doors, panels, siding, duct work, base plates, etc. It is compatible with all common building materials including specialties such as polystyrene, polyurethane, cork, vinyl, foamed and fibrous glass.

Used as an acoustical sealant, AC-20 FTR® reduces sound transmission in partition systems to achieve specific STC values by sealing spaces around cut-outs and at perimeters of partitions. The sealant cures to a tough rubber to form a long-lasting acoustical seal.

PACKAGING

- 30 fl. oz. (.887 liter) fiber cartridges
- 5-gallon (18.9 liter) pails

COLOR

- White, Beige-Gray
  Special colors available in 250-gallon (946 liter) batches.

4. TECHNICAL DATA

Applicable Standards: ASTM C-834-86 specification for latex sealing compounds.

Fire Rated System: Two-hour Fire and Temperature Rated wall and floor joint systems up to 7" (178mm) wide and four-hour systems up to 4" wide can be designed with AC-20 FTR® in conjunction with Ultra Block fire blocking material in fire-rated walls and floors. Reference: ANSI/UL 263, ASTM E-119, NFPA No. 251.

UL CLASSIFIED

UNDERWRITERS
LABORATORIES INC.®
CLASSIFIED
JOINT TREATMENT MATERIALS
FIRE RESISTANCE
CLASSIFICATION
DESIGNS J900H (FFS 0006) &U900 "O" (WWS 0010), J900Z (FFS 2002), U900Z-009 (WWS 2008), J900Z-007 (FFS 1010), U900Z-015 (WWS 1012)

AC-20 FTR® in conjunction with Ultra Block® achieves a 2-hour fire rating when sealing around steel or copper pipe and electrical metallic tubing or steel conduit in through penetration systems. Reference: ANSI/UL 1479, ASTM E-814.

FILL, VOID OR CAVITY MATERIALS
CLASSIFIED BY
UNDERWRITERS
LABORATORIES INC.
FOR USE IN
THROUGH-PENETRATION
FIRESTOP SYSTEM NO. CAJ 1093

In addition to its fire-blocking value, Ultra Block® is very efficient acoustically, having a noise reduction coefficient of .75 and sound transmission coefficient of .5 (Ultra Block® is a registered trademark of Backer Rod Mfg. and Supply Co., Denver, CO, USA.)

5. INSTALLATION

Surface Preparation: Surfaces must be free of all contamination. Sealant may be applied to damp, porous surfaces. No priming is required.

Application: Refer to Pecora Firestopping Manual 07270 and UL Fire Resistance Directory for installation details on fire-rated joint and through penetration systems. For insulating and weatherproofing purposes, fill all window, door, and panel perimeter joints using a resilient backer rod to control sealant depth to 1/2" (13mm) maximum. For best results, protect sealant from excessive low temperatures and apply above 40°F (4°C). For acoustical purposes, apply continuous

TYPICAL PHYSICAL PROPERTIES

Test Property	Value	Procedure
Modulus @ 100% (psi)	15-20	ASTM D412
Ultimate Tensile (psi)	30-40	ASTM D412
Ultimate Elongation (%)	400-500	ASTM D412
Movement Capability (%)	±7 1/2	ASTM D412
VOC Content	31 g/L	

Since Pecora architectural sealants are applied to varied substrates under diverse environmental conditions and construction situations it is recommended that substrate testing be conducted prior to application.

beads of sealant to seal perimeters of all sound-rated partitions. Apply sealant in the angles formed by metal components or base-layer panels and abutting surfaces. Apply sealant around all openings formed for outlets; electrical, telephone, light fixtures, etc.

Tooling: Tool material flush with surfaces to allow for expected shrinkage and insure good contact and adhesion to the substrate.

Cleaning: Remove excess material with water or a damp cloth before it cures. Sealant may be painted within 30 minutes after application with a good grade of latex paint.

Shelf Life: AC-20 FTR® has a shelf life well in excess of one year when stored in unopened containers below 80° F (27°C).

Precautions: AC-20 FTR® is non-flammable, non-toxic, non-irritating and environmentally safe. However, do not take internally. Refer to Material Safety Data Sheet for additional information.

Ultra Block® is a non-carcinogenic processed continuous filament textile glass fiber that may cause skin, eye and respiratory irritation. When applying, wear long sleeves, gloves, cap, goggles or safety glasses and NIOSH/MSHA-approved dust respirator. After use bathe with soap and warm water. Wash clothes separately and rinse after use. Refer to Material Safety Data Sheet for additional information.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF THE REACH OF CHILDREN.

6. AVAILABILITY AND COST

Pecora products are available from our stocking distributors in all major cities. For the name and telephone number of your nearest representative call one of our locations listed below or visit our website at www.pecora.com.

7. WARRANTY

Pecora Corporation warrants its products to be free of defects. Under this warranty, we will provide, at no charge, replacement materials for, or refund the purchase price of, any product proven to be defective when installed in accordance with our published recommendations and in applications considered by us as suitable from this product. This warranty in lieu of any and all other warranties expressed or implied, and in no case will Pecora be liable for incidental or consequential damages.

8. MAINTENANCE

If the sealant is damaged and the bond is intact, cut out the damaged area and recaulk. No primer is required. If the bond has been affected, remove the sealant, clean and prepare the joint in accordance with instructions under "Installation".

9. TECHNICAL SERVICES

Pecora representatives are available to assist you in selecting an appropriate product and to provide on-site application instructions or to conduct jobsite inspections. For further assistance call our Technical Service Department at 800-523-6688.

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KEMA CERTIFICATE
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APPENDIX H

Cadna Analysis Data and Results

Cadna Noise Model - Sound Levels - HVAC Noise Model													
Name	ID	Type	Oktave Spectrum (dB)										Source
			63	125	250	500	1000	2000	4000	8000	A	lin	
Carrier 48HC-11	AC2	Lw	85.9	87.9	85.6	84.4	82.8	78.5	74.9	72.5	87.3	92.9	Manufacturer
Carrier 48HC-20	AC1	Lw	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4	84.1	93.6	Manufacturer
Carrier 48HC-24	AC3	Lw	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3	86.5	96.9	Manufacturer
Cook ACE-B 195C6B	EF1	Lw	18.5	93.5	94.5	88.5	84.5	80.5	74.5	70.5	91.0	97.9	Manufacturer
AAON RQ-005-8-J	AH	Lw	77.0	78.0	79.0	72.0	67.0	65.0	60.0	55.0	74.9	83.4	Manufacturer
Trane Heat Pump	HP	Lw	94.0	89.0	87.0	85.0	84.0	78.0	75.0	69.0	88.0	96.5	Manufacturer

Cadna Noise Model - Sound Levels - Construction Noise Model													
Name	ID	Type	Oktave Spectrum (dB)										Source
			63	125	250	500	1000	2000	4000	8000	A	lin	
Excavator with Breaker	S1	Lw	119.5	119.5	117.5	120.5	114.5	114.5	111.5	107.5	121.8	126.3	DEFRA
Dump Truck	S2	Lw	116.5	105.5	109.5	104.5	104.5	105.5	98.5	94.5	110.6	118.3	DEFRA
Front Loader	S3	Lw	114.1	114.1	103.1	105.1	101.1	99.1	98.1	90.1	107.6	117.7	DEFRA
Excavator	S4	Lw	108.6	116.6	101.6	104.6	101.6	99.6	94.6	88.6	107.6	117.8	DEFRA
Dozer	S5	Lw	105.2	114.2	109.2	105.2	105.2	101.2	98.2	93.2	109.7	116.7	DEFRA
Vibratory Roller	S6	Lw	119.7	114.7	100.7	99.7	98.7	96.7	93.7	90.7	105.2	121.0	DEFRA
Concrete Mixer Truck	S7	Lw	114.2	105.2	97.2	100.2	101.2	109.2	91.2	86.2	111.2	116.1	DEFRA
Concrete Pump Truck	S8	Lw	115.5	107.5	101.5	102.5	104.5	104.5	97.5	89.5	109.3	117.0	DEFRA
Telescopic Forklift	S9	Lw	116.8	110.8	100.8	98.8	95.8	93.8	87.8	78.8	102.3	118.0	DEFRA
Generator	S10	Lw	110.8	105.8	98.8	95.8	86.8	82.8	76.8	71.8	96.9	112.3	DEFRA
Truck	S11	Lw	116.5	105.5	109.5	104.5	104.5	105.5	98.5	94.5	110.6	118.3	DEFRA

Cadna Noise Model - Point Sources - HVAC Noise Model									
Name	ID	Result. PWL	Lw / Li		Operating Time (min)	Height	Coordinates		
		Day	Type	Value			X	Y	Z
		(dBA)				(m)	(m)	(m)	(m)
AC1		84.1	Lw	AC1		8.92	1095.54	757.33	8.92
AC2		87.3	Lw	AC2		8.92	1095.64	761.84	8.92
AC3		86.5	Lw	AC3		8.92	1095.69	766.00	8.92
EF1		85.3	Lw	EF1		8.92	1086.71	767.10	8.92
AHA		74.9	Lw	AH		8.92	1104.08	735.17	8.92
AHB		74.9	Lw	AH		8.92	1104.16	741.98	8.92
HP-A		74.9	Lw	AH		8.92	1099.20	758.32	8.92
HP-B		74.9	Lw	AH		8.92	1099.20	760.70	8.92

Cadna Noise Model - Point Sources - Construction Noise Model - Phase 1									
Name	ID	Result. PWL	Lw / Li		Operating Time (min)	Height	Coordinates		
		Day	Type	Value			X	Y	Z
		(dBA)				(m)	(m)	(m)	(m)
Excavator with Breaker	S1	121.8	Lw	S1	24	1.52	1094.46	767.66	1.52
Dump Truck	S2	110.6	Lw	S2	24	1.52	1094.46	767.66	1.52
Front Loader	S3	107.6	Lw	S3	24	1.52	1094.46	767.66	1.52

Cadna Noise Model - Point Sources - Construction Noise Model - Phase 2									
Name	ID	Result. PWL	Lw / Li		Operating Time (min)	Height	Coordinates		
		Day	Type	Value			X	Y	Z
		(dBA)				(m)	(m)	(m)	(m)
Dump Truck	S2	110.6	Lw	S2	24	1.52	1094.42	734.22	1.52
Front Loader	S3	107.6	Lw	S3	24	1.52	1094.42	734.22	1.52
Excavator	S4	107.6	Lw	S4	24	1.52	1094.42	734.22	1.52
Dozer	S5	109.7	Lw	S5	24	1.52	1094.42	734.22	1.52
Vibratory Loader	S6	105.2	Lw	S6	12	1.52	1094.42	734.22	1.52

Cadna Noise Model - Point Sources - Construction Noise Model - Phase 3									
Name	ID	Result. PWL	Lw / Li		Operating Time (min)	Height	Coordinates		
		Day	Type	Value			X	Y	Z
		(dBA)				(m)	(m)	(m)	(m)
Concrete Mixer Truck	S7.1	111.2	Lw	S7	24	1.52	1094.42	734.22	1.52
Concrete Mixer Truck	S7.2	111.2	Lw	S7	24	1.52	1094.42	734.22	1.52
Concrete Pump Truck	S8	109.3	Lw	S8	12	1.52	1094.42	734.22	1.52

Cadna Noise Model - Point Sources - Construction Noise Model - Phase 4									
Name	ID	Result. PWL	Lw / Li		Operating Time (min)	Height	Coordinates		
		Day	Type	Value			X	Y	Z
		(dBA)				(m)	(m)	(m)	(m)
Truck	S11	110.6	Lw	S11	24	1.52	1094.42	734.22	1.52
Telescopic Forklift	S9	102.3	Lw	S9	24	1.52	1094.42	734.22	1.52
Generator	S10	96.9	Lw	S10	30	1.52	1094.42	734.22	1.52

Cadna Noise Model - Barriers - HVAC Noise Model					
Name	Absorption	Coordinates			
		X	Y	Z	Height
		(m)	(m)	(m)	(m)
Building	0.37	1078.44	770.34	0.00	7.92
		1114.53	769.67	0.00	7.92
		1114.07	730.84	0.00	7.92
		1111.16	730.78	0.00	7.92
		1110.96	725.42	0.00	7.92
		1112.35	725.42	0.00	7.92
		1112.03	696.86	0.00	7.92
		1095.39	696.91	0.00	7.92
		1095.86	731.14	0.00	7.92
		1098.75	731.09	0.00	7.92
		1098.92	752.47	0.00	7.92
		1078.00	752.76	0.00	7.92

Cadna Noise Model - Barriers - Construction Noise Model					
Name	Absorption	Coordinates			
		X	Y	Z	Height
		(m)	(m)	(m)	(m)
Barrier Wall	0.37	1117.13	774.38	0.00	3.05
		1074.17	774.36	0.00	3.05
		1074.17	774.34	0.00	1.83
		1074.06	740.33	0.00	1.83

Cadna Noise Model - Noise Levels at Receivers - HVAC					
Name	Level Lr	Height	Coordinates		
	Day		X	Y	Z
	(dBA)	(m)	(m)	(m)	(m)
M1	38.1	1.52	1074.67	761.93	1.52
M2	44.1	1.52	1095.80	773.88	1.52
M3	37.9	1.52	1138.85	759.97	1.52
M4	37.2	1.52	1138.85	734.90	1.52

Cadna Noise Model - Noise Levels at Receivers - Construction Noise Model - Phase 1					
Name	Level Lr	Height	Coordinates		
	Day		X	Y	Z
	(dBA)	(m)	(m)	(m)	(m)
R1	73.3	1.52	1073.36	734.39	1.52
R2	**79.6**	1.52	1073.76	767.76	1.52
R3	**89.3**	1.52	1094.39	775.07	1.52
R4	72.0	1.52	1139.11	767.70	1.52
R5	69.8	1.52	1139.39	734.22	1.52

Cadna Noise Model - Noise Levels at Receivers - Construction Noise Model - Phase 2					
Name	Level Lr	Height	Coordinates		
	Day		X	Y	Z
	(dBA)	(m)	(m)	(m)	(m)
R1	72.8	1.52	1073.36	734.39	1.52
R2	60.1	1.52	1073.76	767.76	1.52
R3	52.5	1.52	1094.39	775.07	1.52
R4	63.5	1.52	1139.11	767.70	1.52
R5	65.6	1.52	1139.39	734.22	1.52

Cadna Noise Model - Noise Levels at Receivers - Construction Noise Model - Phase 3					
Name	Level Lr	Height	Coordinates		
	Day		X	Y	Z
	(dBA)	(m)	(m)	(m)	(m)
R1	73.1	1.52	1073.36	734.39	1.52
R2	67.4	1.52	1073.76	767.76	1.52
R3	67.0	1.52	1094.39	775.07	1.52
R4	64.2	1.52	1139.11	767.70	1.52
R5	66.2	1.52	1139.39	734.22	1.52

Cadna Noise Model - Noise Levels at Receivers - Construction Noise Model - Phase 4					
Name	Level Lr	Height	Coordinates		
	Day		X	Y	Z
	(dBA)	(m)	(m)	(m)	(m)
R1	69.0	1.52	1073.36	734.39	1.52
R2	63.1	1.52	1073.76	767.76	1.52
R3	62.7	1.52	1094.39	775.07	1.52
R4	59.7	1.52	1139.11	767.70	1.52
R5	61.8	1.52	1139.39	734.22	1.52

Cadna Noise Model - Noise Levels at Receivers - Construction Noise Model - Phase 1 Mitigated					
Name	Level Lr	Height	Coordinates		
	Day		X	Y	Z
	(dBA)	(m)	(m)	(m)	(m)
R1	73.3	1.52	1073.36	734.39	1.52
R2	71.4	1.52	1073.76	767.76	1.52
R3	72.9	1.52	1094.39	775.07	1.52
R4	72.0	1.52	1139.11	767.70	1.52
R5	69.8	1.52	1139.39	734.22	1.52

AIR QUALITY TECHNICAL REPORT

Access Youth Academy
704 Euclid Avenue
San Diego, California 92114

<u>Prepared For</u>

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Job #B71104A1

April 25, 2018

Air Quality Technical Report

for the

Access Youth Academy Project
San Diego, CA

Submitted To:

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April 25, 2018

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Glossary of Terms and Acronyms

APCD	Air Pollution Control District
ARB	California Air Resources Board
CAA	Clean Air Act (Federal)
CAAQS	California Ambient Air Quality Standard
CALINE4	California Line Source Dispersion Model (Version 4)
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CO	Carbon Monoxide
EPA	United States Environmental Protection Agency
H_2S	Hydrogen Sulfide
mg/m^3	Milligrams per Cubic Meter
$\mu g/m^3$	Micrograms per Cubic Meter
NAAQS	National Ambient Air Quality Standard
NOx	Oxides of Nitrogen
NO_2	Nitrogen Dioxide
O_3	Ozone
$PM_{2.5}$	Fine Particulate Matter (particulate matter with an aerodynamic diameter of 2.5 microns or less
PM_{10}	Respirable Particulate Matter (particulate matter with an aerodynamic diameter of 10 microns or less
ppm	Parts per million
RAQS	San Diego County Regional Air Quality Strategy
ROCs	Reactive Organic Compounds
ROG	Reactive Organic Gases
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego County Air Pollution Control District
SIP	State Implementation Plan
SOx	Oxides of Sulfur
SO_2	Sulfur Dioxide
TACs	Toxic Air Contaminants
T-BACT	Toxics Best Available Control Technology
VOCs	Volatile Organic Compounds

1.0 Introduction

This report presents an assessment of potential air quality impacts associated with the proposed Access Youth Academy Project within the City of San Diego. The project site is located at 704 Euclid Avenue at the intersection with Guymon Street within the Encanto community.

This Air Quality Technical Report includes an evaluation of existing conditions in the project vicinity, an assessment of potential impacts associated with project construction, and an evaluation of project operational impacts.

2.0 Existing Conditions

The site is currently undeveloped and is vegetated with grass and disturbed areas. The site has been used as a sports field. The project site is located next to Horton Elementary School on Guymon Street. As it currently exists, the site is not a source of air emissions.

The following section provides information about the existing air quality regulatory framework, climate, air pollutants and sources, and sensitive receptors in the project area.

<u>2.1 Regulatory Framework</u>

2.1.1 Federal Regulations

Air quality is defined by ambient air concentrations of specific pollutants identified by the United States Environmental Protection Agency (EPA) to be of concern with respect to health and welfare of the general public. The EPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the EPA established both primary and secondary standards for seven pollutants (called "criteria" pollutants). The seven pollutants regulated under the NAAQS are as follows: ozone

(O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), respirable particulate matter (or particulate matter with an aerodynamic diameter of 10 microns or less, PM_{10}), fine particulate matter (or particulate matter with an aerodynamic diameter of 2.5 microns or less, $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere. Areas that do not meet the NAAQS for a particular pollutant are considered to be "non-attainment areas" for that pollutant. The San Diego Air Basin (SDAB) has been designated a marginal non-attainment area for the 8-hour NAAQS for O_3.

The following specific descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on EPA (EPA 2017) and the California Air Resources Board (ARB) (ARB 2008).

Ozone. O_3 is considered a photochemical oxidant, which is a chemical that is formed when reactive organic gases (ROG) and oxides of nitrogen (NOx), both by-products of combustion, react in the presence of ultraviolet light. O_3 is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to O_3.

Carbon Monoxide. CO is a product of combustion, and the main source of CO in the SDAB is from motor vehicle exhaust. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease, and can also affect mental alertness and vision.

Nitrogen Dioxide. NO_2 is also a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide (NO) with oxygen. NO_2 is a respiratory irritant and may affect those with existing respiratory illness, including asthma. NO_2 can also increase the risk of respiratory illness.

Respirable Particulate Matter and Fine Particulate Matter. Respirable particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or $PM_{2.5}$, refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in this size range has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, combustion, tire and brake wear, construction operations and windblown dust. PM_{10} and $PM_{2.5}$ can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. $PM_{2.5}$ is considered to have the potential to lodge deeper in the lungs.

Sulfur dioxide. SO_2 is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Pb in the atmosphere occurs as particulate matter. Pb has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Pb has the potential to cause gastrointestinal, central nervous system, kidney and blood diseases upon prolonged exposure. Pb is also classified as a probable human carcinogen.

2.1.2 State Regulations

California Clean Air Act. The California Clean Air Act was signed into law on September 30, 1988, and became effective on January 1, 1989. The Act requires that local air districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. The California Clean Air Act required the SDAB to achieve a five percent annual reduction in ozone precursor emissions from 1987 until the standards are attained. If this reduction cannot be achieved, all feasible control measures must be implemented.

Furthermore, the California Clean Air Act required local air districts to implement a Best Available Control Technology rule and to require emission offsets for non-attainment pollutants.

The ARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain air quality in the state. The ARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the California Ambient Air Quality Standards (CAAQS). The ARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a non-attainment area to develop its own strategy for achieving the NAAQS and CAAQS. The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The ARB has established the more stringent CAAQS for the six criteria pollutants through the California Clean Air Act of 1988, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. The SDAB is currently classified as a non-attainment area under the CAAQS for O_3, $PM_{10,}$ and $PM_{2.5}$. It should be noted that the ARB does not differentiate between attainment of the 1-hour and 8-hour CAAQS for O_3; therefore, if an air basin records exceedances of either standard the area is considered a non-attainment area for the CAAQS for O_3. The SDAB has recorded exceedances of both the 1-hour and 8-hour CAAQS for O_3. The following specific descriptions of health effects for the additional California criteria air pollutants are based on the ARB (ARB 2001).

Sulfates. Sulfates are the fully oxidized ionic form of sulfur. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide. H_2S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard would result in exposure to a very disagreeable odor. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

Vinyl Chloride. Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants and hazardous waste sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.

Visibility Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The CAAQS is intended to limit the frequency and severity of visibility impairment due to regional haze. A separate standard for visibility-reducing particles that is applicable only in the Lake Tahoe Air Basin is based on reduction in scenic quality.

Table 1 presents a summary of the ambient air quality standards adopted by the federal and California Clean Air Acts.

Table 1
Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1 hour	0.09 ppm (176 µg/m^3)	Ultraviolet Photometry	--	--	Ethylene Chemiluminescence
	8 hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m^3)	--	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm (56 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	--	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 µg/m^3)		0.100 ppm (188 µg/m^3)	--	
Sulfur Dioxide (SO_2)	24 hours	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence	--	--	Pararosaniline
	3 hours	--		--	0.5 ppm (1300 µg/m^3)	
	1 hour	0.25 ppm (655 µg/m^3)		0.075 ppm (196 µg/m^3)	--	
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	150 µg/m^3	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--	--	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12 µg/m^3	--	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 µg/m^3	--	
Sulfates	24 hours	25 µg/m^3	Ion Chromatography	--	--	--
Lead	30-day Average	1.5 µg/m^3	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3	1.5 µg/m^3	
	3-Month Rolling Average	--		0.15 µg/m^3	0.15 µg/m^3	
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride	24 hours	0.010 ppm (26 µg/m^3)	Gas Chromatography	--	--	--

ppm= parts per million; µg/m^3 = micrograms per cubic meter ; mg/m^3= milligrams per cubic meter
Source: California Air Resources Board, www.arb.ca.gov, 2018, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf

Toxic Air Contaminants. In 1983, the California Legislature enacted a program to identify the health effects of Toxic Air Contaminants (TACs) and to reduce exposure to these contaminants to protect the public health (AB 1807: Health and Safety Code sections 39650-39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The State of California has identified diesel particulate matter as a TAC. Diesel particulate matter is emitted from on- and off-road vehicles that utilize diesel as fuel. Following identification of diesel particulate matter as a TAC in 1998, the ARB has worked on developing strategies and regulations aimed at reducing the emissions and associated risk from diesel particulate matter. The overall strategy for achieving these reductions is found in the *Risk Reduction Plan to Reduce Particulate Matter from Diesel-Fueled Engines and Vehicles* (State of California 2000). A stated goal of the plan is to reduce the cancer risk statewide arising from exposure to diesel particulate matter by 75 percent by 2010 and by 85 percent by 2020. The *Risk Reduction Plan* contains the following three components:

- New regulatory standards for all new on-road, off-road and stationary diesel-fueled engines and vehicles to reduce diesel particulate matter emissions by about 90 percent overall from current levels;
- New retrofit requirements for existing on-road, off-road and stationary diesel-fueled engines and vehicles where determined to be technically feasible and cost-effective; and
- New Phase 2 diesel fuel regulations to reduce the sulfur content levels of diesel fuel to no more than 15 ppm to provide the quality of diesel fuel needed by the advanced diesel particulate matter emission controls.

As an ongoing process, the ARB reviews air contaminants and identifies those that are classified as TACs. The ARB also continues to establish new programs and regulations for the control of TACs, including diesel particulate matter, as appropriate.

The local air pollution control district (APCD) has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Diego APCD is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County.

The APCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004, 2009, and most recently in 2016 (APCD 2016). The RAQS outlines APCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS does not address the state air quality standards for PM_{10} or $PM_{2.5}$. The APCD has also developed the air basin's input to the State Implementation Plan (SIP), which is required under the Federal Clean Air Act for areas that are out of attainment of air quality standards. The SIP includes the APCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. The latest SIP update that has been approved by EPA was in 2007. The current SIP is the APCD's *Eight-Hour Ozone Attainment Plan for San Diego County* (hereinafter referred to as the Attainment Plan) (APCD 2007). The Attainment Plan forms the basis for the SIP update, as it contains documentation on emission inventories and trends, the APCD's emission control strategy, and an attainment demonstration that shows that the SDAB will meet the NAAQS for O_3. Emission inventories, projections, and trends in the Attainment Plan are based on the latest O_3 SIP planning emission projections compiled and maintained by ARB. The inventories are based on data submitted by stakeholder agencies, including the San Diego Association of Governments (SANDAG), based on growth projections in municipal General Plans.

Because the ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of General Plans, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS and the Attainment Plan. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS and the Attainment Plan. If a project proposes development that is greater than that anticipated in the general plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality.

2.1.3 Local Regulations

In San Diego County, the San Diego APCD is the regulatory agency that is responsible for maintaining air quality, including implementation and enforcement of state and federal regulations. The project site is located in the City of San Diego. The City of San Diego has adopted a General Plan that includes a Conservation Element that adopts policies to reduce air emissions and improve air quality within the City.

2.2 Climate and Meteorology

The project site is located in the SDAB. The climate of the SDAB is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone, commonly known as smog.

Figure 1 provides a graphic representation of the prevailing winds in the project vicinity, as measured in downtown San Diego, which is the closest meteorological monitoring station to the site.

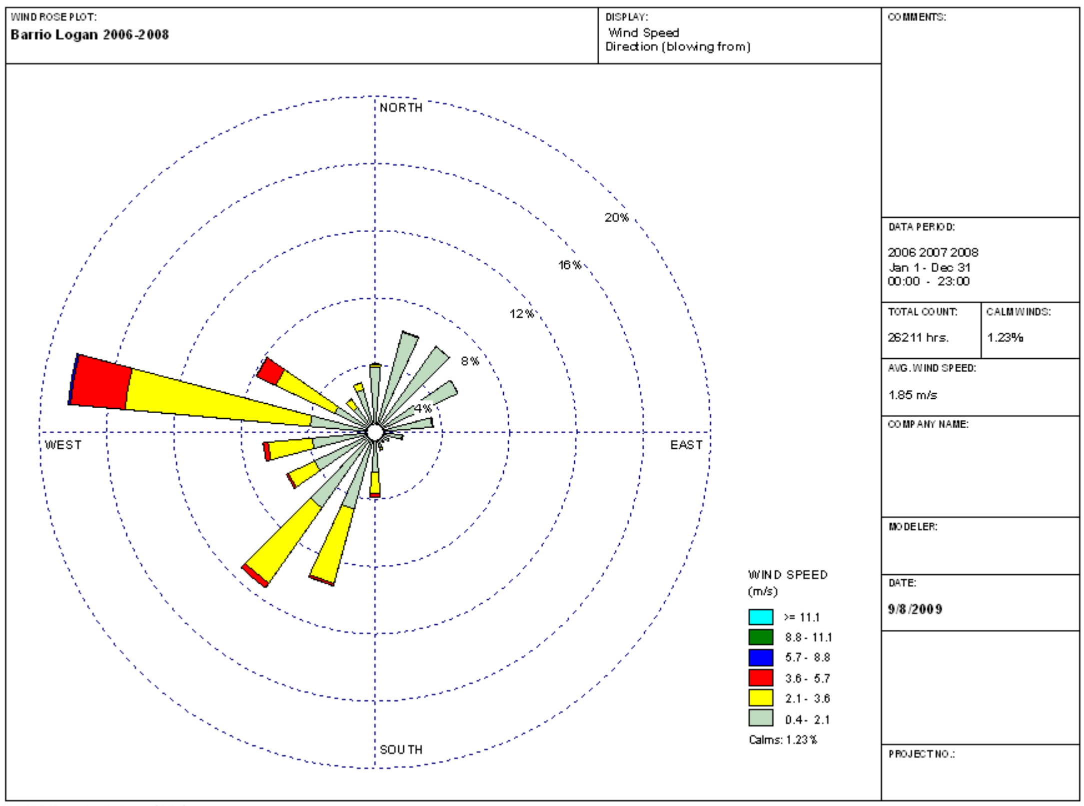

Figure 1. Wind Rose – San Diego

2.3 Background Air Quality

The APCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest ambient monitoring station to the project site is the San Diego monitoring station, which measures O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$. Monitoring for SO_2 is no longer conducted within the SDAB as there have been no exceedances in more than 10 years. Ambient concentrations of pollutants over the last five years are presented in Table 2.

The San Diego monitoring station measured one exceedance of the 8-hour NAAQS in 2014. The annual average PM_{10} concentration exceeded the CAAQS in 2013. While single exceedances of the 24-hour NAAQS for $PM_{2.5}$ were measured at the San Diego monitoring station, the 98^{th} percentile values did not exceed the NAAQS. The data from the monitoring station indicates that air quality is in attainment of all other air quality standards.

Table 2
Ambient Background Concentrations

Air Quality Indicator	2012	2013	2014	2015	2016
Ozone (O_3)					
Peak 1-hour value (ppm)	0.071	0.063	0.093	0.089	0.072
Days above state standard (0.09 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	0.065	0.053	0.072	0.067	0.061
Fourth high 8-hour value (ppm)	0.052	0.052	0.068	0.061	0.058
Days above federal standard (0.070 ppm)[(1)]	0	0	1	0	0
Days above state standard (0.070 ppm)	0	0	1	0	0
Particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$)					
Peak 24-hour value ($\mu g/m^3$)	39.8	37.4	36.7	33.4	34.4
98th percentile 24-hour value ($\mu g/m^3$)	24.1	19.6	24.8	19.6	NA
Days above federal standard (35 $\mu g/m^3$)	1	1	1	0	0
Annual Average value ($\mu g/m^3$)	11.0	10.3	10.1	9.3	9.6
Particulate matter less than or equal to 10 microns in diameter (PM_{10})					
Peak 24-hour value (federal) ($\mu g/m^3$) [(2)]	45	90	40	53	49
Peak 24-hour value (state) ($\mu g/m^3$) [(2)]	47	92	41	54	51
Days above federal standard (150 $\mu g/m^3$)	0	0	0	0	0
Days above state standard (50 $\mu g/m^3$)	0	1	0	0	0
Annual Average value (federal) ($\mu g/m^3$) [(2)]	21.8	24.9	23.3	23.0	21.9
Annual Average value (state) ($\mu g/m^3$) [(2)]	22.2	25.4	23.8	23.2	22.0
Carbon Monoxide (CO)					
Peak 1-hour value (ppm)	2.6	3.0	2.7	2.6	2.2
Days above federal and state standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.9	2.1	1.9	1.9	1.7
Days above federal standard (35 ppm)	0	0	0	0	0
Days above state standard (20 ppm)	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
Peak 1-hour value (ppm)	0.065	0.072	0.075	0.062	0.073
Days above federal standard (0.100 ppm)	0	0	0	0	0
Days above state standard (0.18 ppm)	0	0	0	0	0
Annual Average value (ppm)	0.013	0.014	0.013	0.014	0.011

Notes:

(1) The federal 8-hour O_3 standard was revised downward in 2015 to 0.070 ppm.

(2) State and federal statistics may differ for the following reasons: (1) State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and federal statistics may therefore be based on different samplers. (2) State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; NA = data not available

Source: ARB http://www.arb.ca.gov/adam/topfour/topfourdisplay.php; Five-Year Summary, http://www.sdapcd.org/info/reports/5-year-summary.pdf.

3.0 Thresholds of Significance

The City of San Diego has adopted its Significance Determination Thresholds (City of San Diego 2016) that are based on Appendix G of the State CEQA Guidelines. According to the Significance Determination Thresholds, a project would have a significant environmental impact if the project would result in:

- A conflict with or obstruct the implementation of the applicable air quality plan;
- A violation of any air quality standard or contribute substantially to an existing or projected air quality violation;
- Exposing sensitive receptors to substantial pollutant concentrations;
- Creating objectionable odors affecting a substantial number of people;
- Exceeding 100 pounds per day of particulate matter (PM) (dust); or
- Substantial alteration of air movement in the area of the project.

In their Significance Determination Thresholds, the City of San Diego has adopted emission thresholds based on the thresholds for an Air Quality Impact Assessment in the San Diego Air Pollution Control District's Rule 20.2. These thresholds are shown in Table 3.

Table 3
Significance Criteria for Air Quality Impacts

Pollutant	Emission Rate		
	Lbs/Hr	Lbs/Day	Tons/Year
Carbon Monoxide (CO)	100	550	100
Oxides of Nitrogen (NOx)	25	250	40
Respirable Particulate Matter (PM_{10})	--	100	15
Oxides of Sulfur (SOx)	25	250	40
Lead and Lead Compounds	--	3.2	0.6
Fine Particulate Matter ($PM_{2.5}$)	--	55	10
Volatile Organic Compounds (VOCs)	--	137	15

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as toxic air contaminants (TACs) or Hazardous Air Pollutants (HAPs). If a project has the potential to result in emissions of any TAC or HAP which may expose sensitive receptors to substantial pollutant concentrations, the project would be deemed to have a potentially significant impact. With regard to evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (Preschool-12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality.

With regard to odor impacts, a project that proposes a use which would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of offsite receptors.

Construction and operation emissions of the project were evaluated based on the Federal and State standards as referenced in the City's Significance Determination Thresholds.

4.0 Impacts

The Access Youth Academy Project would result in both construction and operational impacts. Construction impacts include emissions associated with the construction of the project. Operational impacts include emissions associated with the project, including traffic, at full buildout. The following sections present the analysis of air quality impacts based on the City's Significance Determination Thresholds.

4.1 Consistency with the RAQS and SIP

The Proposed Project would have a significant impact if it conflicts with or obstructs implementation of the applicable air quality plans (the RAQS and SIP).

As discussed in Section 2.1, the SIP is the document that sets forth the state's strategies for attaining and maintaining the NAAQS. The APCD is responsible for developing the San Diego portion of the SIP, and has developed an attainment plan for attaining the 8-hour NAAQS for O_3. The RAQS sets forth the plans and programs designed to meet the state air quality standards. Through the RAQS and SIP planning processes, the APCD adopts rules, regulations, and programs designed to achieve attainment of the ambient air quality standards and maintain air quality in the SDAB.

Conformance with the RAQS and SIP determines whether a Project will conflict with or obstruct implementation of the applicable air quality plans. Because the CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the City of San Diego as part of the development of General Plans, projects that propose development that is consistent with the growth anticipated by the general plan would be consistent with the RAQS and SIP. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS and SIP.

The RAQS and SIP address air emissions and impacts from industrial sources, area-wide sources, and mobile sources. The programs also consider transportation control measures and indirect source review. Industrial sources are typically stationary air pollution sources that are subject to APCD rules and regulations, and over which the APCD has regulatory authority. Area-wide sources include sources such as consumer products use, small utility engines, hot water heaters, and furnaces. Both the ARB and the APCD have authority to regulate these sources and have developed plans and programs to reduce emissions from certain types of area-wide sources. Mobile sources are principally emissions from motor vehicles. The ARB establishes emission standards for motor vehicles and establishes regulations for other mobile source activities including off-road vehicles.

Both the RAQS and SIP address emissions of ozone precursors (ROG and NOx), as the SDAB is classified as a basic non-attainment area for the NAAQS and a non-attainment area for the CAAQS. The RAQS and SIP do not address particulate matter. The California CAA requires an air quality strategy to achieve a 5% average annual ozone precursor emission reduction when implemented or, if that is not achievable, an expeditious schedule for adopting every feasible emission control measure under air district purview (California Health and Safety Code (H&SC) Section 40914). The current RAQS represents an expeditious schedule for adopting feasible control measures, since neither San Diego nor any air district in the State has demonstrated sustained 5% average annual ozone precursor reductions.

Most of the control measures adopted in the RAQS apply to industrial sources and specific source categories. SDAPCD Rule 55 would apply to construction of the project, and requires control of fugitive dust during construction. Should the properties include stationary sources such as boilers or emergency generators, these sources would be subject to SDAPCD rules and would be required to obtain a permit to operate.

The City's Program Environmental Impact Report determined that the project would result in a less than significant impact to land use. The site is currently zoned as Neighborhood Mixed-Use Low. The project would not result in more intense development than the site is currently zoned for and therefore would not conflict with the RAQS or SIP. The project would therefore result in a less than significant impact.

4.2 Violation of an Air Quality Standard

The Proposed Project would have a significant impact if it violates any air quality standard or contributes substantially to an existing or projected air quality violation.

To address this significance threshold, an evaluation of emissions associated with both the construction and operational phases of the Project was conducted.

4.2.1 Construction Impacts

Emissions of pollutants such as fugitive dust and heavy equipment exhaust that are generated during construction are generally highest near the construction site. Emissions from the construction of the project were estimated using the CalEEMod Model (SCAQMD 2017), Version 2016.3.2. The CalEEMod Model provides default assumptions regarding horsepower rating, load factors for heavy equipment, and hours of operation per day. Default assumptions within the CalEEMod Model and assumptions for similar projects were used to represent operation of heavy construction equipment. Construction calculations within the CalEEMod Model utilize the number and type of construction equipment to calculate emissions from heavy construction equipment. Fugitive PM_{10} and $PM_{2.5}$ emissions estimates take into account compliance with Rule 55 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

In addition to calculating emissions from heavy construction equipment, the CalEEMod Model contains calculation modules to estimate emissions of fugitive dust, based on the amount of earthmoving or surface disturbance required; emissions from heavy-duty truck trips or vendor trips during construction activities; emissions from construction worker vehicles during daily commutes; and emissions of ROG during application of architectural coatings. As part of the project design features, it was assumed that standard dust control measures (watering three times daily; reducing speeds to 15 mph on unpaved surfaces) and architectural coatings that comply with SDAPCD Rule 67.0.1 (assumed to meet a VOC content of 50 g/l for interior (flat) painting and 100 g/l for exterior (non-flat) painting) would be used during construction.

Based on information from the project applicant, construction would commence in July 2018 and would require 240 days months to complete. The project would be complete by June 2019. Construction would include foundations, building construction, and minor sitework and offsite improvements. The analysis was based on the equipment list provided by the applicant.

Table 4 provides the detailed construction emission estimates as calculated with the CalEEMod Model. Appendix A provides CalEEMod Model outputs showing the construction calculations. As shown in Table 4, emissions of criteria pollutants during construction would be below the thresholds of significance for all project construction phases for all pollutants. Project criteria pollutant emissions during construction would be temporary and are less than significant.

Table 4
Estimated Maximum Daily Construction Emissions
Access Youth Academy

Emission Source	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Foundations						
Fugitive Dust	-	-	-	-	2.36	1.29
Offroad Equipment	4.64	43.89	29.62	0.06	2.37	2.25
Worker Trips	0.14	0.10	1.13	0.003	0.27	0.07
Subtotal	**4.78**	**43.99**	**30.75**	**0.06**	**5.00**	**3.61**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Building Construction - Exterior						
Offroad Equipment	1.99	17.82	13.97	0.02	1.17	1.11
Vendor Trips	0.01	0.26	0.07	0.001	0.02	0.01
Worker Trips	0.02	0.01	0.14	0.001	0.03	0.01
Subtotal	**2.02**	**18.09**	**14.18**	**0.02**	**1.22**	**1.13**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Building Construction - Interior						
Offroad Equipment	0.68	5.68	4.96	0.01	0.39	0.38
Vendor Trips	0.01	0.26	0.07	0.001	0.02	0.01
Worker Trips	0.02	0.01	0.14	0.0004	0.03	0.01
Subtotal	**0.71**	**5.95**	**5.17**	**0.01**	**0.44**	**0.40**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Site Work						
Offroad Equipment	3.45	34.46	20.90	0.04	1.73	1.61
Worker Trips	0.12	0.09	0.96	0.003	0.23	0.06
Subtotal	**3.17**	**34.55**	**21.86**	**0.04**	**1.96**	**1.67**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Offsite Improvements						
Offroad Equipment	3.15	28.74	26.01	0.05	1.52	1.46
Worker Trips	0.13	0.09	1.02	0.003	0.27	0.07
Subtotal	**3.28**	**28.83**	**27.03**	**0.05**	**1.79**	**1.53**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Architectural Coatings Application						
Architectural Coatings	11.77	-	-	-	-	-
Offroad Equipment	0.30	2.01	1.85	0.003	0.15	0.15
Worker Trips	0.004	0.003	0.03	0.00	0.002	0.002
Subtotal	**12.07**	**2.01**	**1.88**	**0.00**	**0.15**	**0.15**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Maximum Daily Emissions[a]	**18.37**	**102.50**	**71.95**	**0.14**	**8.61**	**6.81**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

[a]Maximum emissions of criteria pollutants occur during simultaneous building construction, paving, and architectural coatings application.

4.2.2 Operational Impacts

Operational impacts associated with the Access Youth Academy would include impacts associated with vehicular traffic, as well as area sources and energy use.

Operational impacts associated with vehicular traffic and area sources including energy use, landscaping, and architectural coatings use for maintenance purposes were estimated using the CalEEMod Model, Version 2016.3.2. The CalEEMod Model calculates vehicle emissions based on emission factors from the EMFAC2014 model. It was assumed that the first year of full occupancy would be 2020. Based on the results of the EMFAC2014 model for subsequent years, emissions would decrease on an annual basis from 2020 onward due to phase-out of higher polluting vehicles and implementation of more stringent emission standards that are taken into account in the EMFAC2014 model. Table 5 presents the results of the emission calculations, in lbs/day, for the project.

Based on the estimated emissions associated with Project operations, the emissions of all criteria pollutants are below the significance thresholds for the project. Impacts would be less than significant.

Table 5
Operational Emissions
Access Youth Academy

	ROG	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions						
Summer Day, Lbs/day						
Area Sources	0.23	0.00	0.00	0.00	0.00	0.00
Energy Use	0.003	0.02	0.02	0.00	0.00	0.00
Vehicular Emissions	0.36	1.39	3.68	0.01	0.93	0.26
TOTAL	**0.60**	**1.42**	**3.70**	**0.01**	**0.93**	**0.26**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Winter Day, Lbs/day						
Area Sources	0.23	0.00	0.00	0.00	0.00	0.00
Energy Use	0.003	0.02	0.02	0.00	0.00	0.00
Vehicular Emissions	0.35	1.42	3.70	0.01	0.93	0.26
TOTAL	**0.59**	**1.45**	**3.73**	**0.01**	**0.93**	**0.26**
Significance Criteria	137	250	550	250	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

CO "Hot Spots"

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO "hot spots" was conducted. Project-related traffic would have the potential to result in CO "hot spots" if project-related traffic resulted in a degradation in the level of service at any intersection to LOS E or F.

According to the traffic evaluation for the project (Rick Engineering 2017), based on the estimated trip generation for the proposed facility, the single project access point along Guymon Street can accommodate the project's peak hour trips. Due to the small number of average daily trips generated, the project would not cause a degradation in the LOS and no CO "hot spots" would result.

4.3 Cumulatively Considerable Net Increase of Non-attainment Pollutants

The Proposed Project would have a significant impact if it results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors.

As discussed in Section 2.0, the SDAB is considered a non-attainment area for the 8-hour NAAQS for O_3, and is considered a non-attainment area for the CAAQS for O_3, PM_{10}, and $PM_{2.5}$. An evaluation of emissions of non-attainment pollutants was conducted in Section 4.2. Based on that evaluation, emissions of non-attainment pollutants during construction would be below the significance thresholds for ozone precursors, PM_{10}, and $PM_{2.5}$. Emissions of all pollutants would be below the significance thresholds for operations.

The region surrounding the project is already developed; the project provides infill development. Because operational emissions for development of the project are below the significance thresholds for nonattainment pollutants, they would not result in a cumulatively considerable impact.

4.4 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

The Proposed Project would have a significant impact if it exposes sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, parks, or day-care centers) to substantial pollutant concentrations.

Carbon Monoxide

As discussed in Section 4.2, the project would not result in exposure of sensitive receptors to substantial concentrations of CO, as CO "hot spots" would not result from project-related traffic. Impacts from CO would therefore be less than significant.

Toxic Air Contaminants

The threshold concerns whether the project could expose sensitive receptors to substantial pollutant concentrations of toxic air contaminants (TACs). If a project has the potential to result in emissions of any TAC which result in a cancer risk of greater than 10 in 1 million or substantial non-cancer risk, the project would be deemed to have a potentially significant impact.

The project is an after-school facility with classrooms and recreational facilities. Construction activities are minor and would not generate substantial emissions of TACs. Furthermore, the project is not an operational source of TACs and would therefore not result in emissions of TACs.

Because emissions of all criteria pollutants are below the thresholds set forth in the City's Significance Determination Thresholds, the project would not expose sensitive receptors to substantial pollutant concentrations and impacts from other criteria pollutants would be less than significant.

4.5 Objectionable Odors

The Proposed Project would have a significant impact if it creates objectionable odors affecting a substantial number of people.

Project construction could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust. These compounds would be emitted in various amounts and at various locations during construction. Sensitive receptors located in the vicinity of the construction site include the residences to the south of the site. Odors are highest near the source and would quickly dissipate offsite; any odors associated with construction would be temporary.

The project would not be considered a source of objectionable odors during operations. Thus the potential for odor impacts associated with the project for both construction and operations is less than significant.

5.0 Project Design Features

Standard best management practices to reduce construction emissions will be employed during construction and operation of the project. The Project is subject to the requirements of San Diego APCD Rule 55, which requires that no visible dust be present beyond the site boundaries. Standard dust control measures will be employed during construction. In addition to dust control measures, architectural coatings applied to interior and exterior surfaces will be required to meet the ROG limitations of SDAPCD Rule 67.0.1, which limits the ROG content of most coatings to 100 grams/liter. Coatings will also be applied using high volume, low pressure spray equipment to reduce overspray to the extent possible.

Operational emissions would be below the significance thresholds for all pollutants. Air quality impacts are less than significant and no mitigation measures are required.

6.0 Summary and Conclusions

In summary, the project would result in emissions of air pollutants for both the construction phase and operational phase of the project. The air quality impact analysis evaluated the potential for adverse impacts to the ambient air quality due to construction and operational emissions. Construction emissions would be minor due to the minor improvements required at the site to convert the existing office building to a school. Emissions are less than the significance thresholds for all pollutants during construction. Construction impacts are less than significant and would not be cumulatively considerable.

Operational emissions would include emissions associated with vehicles, energy use, and area sources. As discussed in Section 4.0, the impacts would be below the significance thresholds for all pollutants. Impacts from project-related traffic were evaluated to assess whether impacts would exceed the ambient air quality standards for CO, and it was demonstrated that emissions of CO would not result in a significant air quality impact or a cumulatively considerable impact.

Emissions of TACs or odors would not result in a significant impact to the project, and project emissions of TACs and odors would be less than significant.

7.0 References

California Air Resources Board. 2008. *ARB Fact Sheet: Air Pollution and Health.* November 20.

City of San Diego. 2016. *Significance Determination Thresholds.*

Rick Engineering. 2017. *Access Youth Academy. Traffic/Parking Generation Assessment.* August 3.

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San Diego Air Pollution Control District. 2016. *2016 Regional Air Quality Strategy Revision*. April 22.

South Coast Air Quality Management District. 1999. CEQA Air Quality Handbook. (as updated)

South Coast Air Quality Management District. 2006. Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds. October.

South Coast Air Quality Management District. 2013. SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/ceqa/handbook/signthres.pdf. March.

South Coast Air Quality Management District. 2017. CalEEMod Model, Version 2016.3.2.

U.S. EPA. 2017. *Overview of the Clean Air Act and Air Pollution.* http://www.epa.gov/air/caa/peg/index.html.

Appendix A

CalEEMod Model Output

Access Youth Academy

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	36.00	Student	0.11	4,775.80	0
Racquet Club	5.38	1000sqft	0.12	5,382.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on 8 squash courts and 36-student facility

Construction Phase - Based on anticipated construction schedule

Off-road Equipment - Based on construction equipment list

Off-road Equipment - Based on construction equipment list

Off-road Equipment - Based on construction equipment list

Off-road Equipment -

Off-road Equipment - Based on construction equipment

Off-road Equipment - Based on construction equipment list

Grading - Assuming no import/export required

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - Assuming 2 trips per student; 144 trips for squash courts based on Traffic Memo

Area Coating - Rule 67.0.1 coatings

Construction Off-road Equipment Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	2.00	113.00
tblConstructionPhase	NumDays	5.00	159.00
tblConstructionPhase	NumDays	100.00	133.00
tblConstructionPhase	NumDays	5.00	23.00
tblConstructionPhase	PhaseEndDate	12/13/2018	3/21/2019
tblConstructionPhase	PhaseEndDate	7/26/2018	12/13/2018
tblConstructionPhase	PhaseEndDate	12/20/2018	6/4/2019
tblConstructionPhase	PhaseStartDate	7/27/2018	11/20/2018
tblConstructionPhase	PhaseStartDate	7/25/2018	7/10/2018
tblConstructionPhase	PhaseStartDate	12/14/2018	10/25/2018
tblGrading	AcresOfGrading	0.00	2.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblVehicleTrips	ST_TR	21.35	26.76
tblVehicleTrips	SU_TR	17.40	26.76
tblVehicleTrips	WD_TR	1.71	2.00
tblVehicleTrips	WD_TR	14.03	26.76

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	18.3665	102.4981	71.9493	0.1350	6.6348	5.6649	12.2997	3.4704	5.3630	8.8334	0.0000	13,195.3190	13,195.3190	2.8755	0.0000	13,267.2058
2019	7.2127	65.8196	53.5061	0.1053	0.5475	3.4122	3.9597	0.1455	3.2386	3.3841	0.0000	10,158.6602	10,158.6602	2.1925	0.0000	10,213.4738
Maximum	**18.3665**	**102.4981**	**71.9493**	**0.1350**	**6.6348**	**5.6649**	**12.2997**	**3.4704**	**5.3630**	**8.8334**	**0.0000**	**13,195.3190**	**13,195.3190**	**2.8755**	**0.0000**	**13,267.2058**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	18.3665	102.4981	71.9493	0.1350	2.9498	5.6649	8.6148	1.4499	5.3630	6.8129	0.0000	13,195.3190	13,195.3190	2.8755	0.0000	13,267.2058
2019	7.2127	65.8196	53.5061	0.1053	0.5475	3.4122	3.9597	0.1455	3.2386	3.3841	0.0000	10,158.6602	10,158.6602	2.1925	0.0000	10,213.4737
Maximum	**18.3665**	**102.4981**	**71.9493**	**0.1350**	**2.9498**	**5.6649**	**8.6148**	**1.4499**	**5.3630**	**6.8129**	**0.0000**	**13,195.3190**	**13,195.3190**	**2.8755**	**0.0000**	**13,267.2058**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**51.31**	**0.00**	**22.66**	**55.88**	**0.00**	**16.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397
Mobile	0.3615	1.3910	3.6776	0.0115	0.9192	0.0112	0.9305	0.2457	0.0105	0.2562		1,170.6866	1,170.6866	0.0646		1,172.3017
Total	**0.5981**	**1.4154**	**3.7023**	**0.0117**	**0.9192**	**0.0131**	**0.9323**	**0.2457**	**0.0124**	**0.2581**		**1,199.8620**	**1,199.8620**	**0.0652**	**5.3000e-004**	**1,201.6510**

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Area	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397
Mobile	0.3615	1.3910	3.6776	0.0115	0.9192	0.0112	0.9305	0.2457	0.0105	0.2562		1,170.6866	1,170.6866	0.0646		1,172.3017
Total	**0.5981**	**1.4154**	**3.7023**	**0.0117**	**0.9192**	**0.0131**	**0.9323**	**0.2457**	**0.0124**	**0.2581**		**1,199.8620**	**1,199.8620**	**0.0652**	**5.3000e-004**	**1,201.6510**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Foundations	Grading	7/10/2018	12/13/2018	5	113	
2	Building Construction Exterior	Building Construction	11/20/2018	3/21/2019	5	88	
3	Paving/Sitework	Paving	10/25/2018	6/4/2019	5	159	
4	Architectural Coating	Architectural Coating	12/21/2018	12/27/2018	5	5	
5	Building Construction Interior	Building Construction	12/13/2018	6/17/2019	5	133	
6	Paving Offsite	Paving	3/22/2019	4/23/2019	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 15,237; Non-Residential Outdoor: 5,079; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving/Sitework	Cement and Mortar Mixers	2	8.00	9	0.56
Paving Offsite	Cement and Mortar Mixers	2	8.00	9	0.56
Foundations	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction Exterior	Cranes	1	4.00	231	0.29
Paving/Sitework	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction Interior	Cranes	1	0.00	231	0.29
Paving/Sitework	Pavers	1	0.00	130	0.42
Paving/Sitework	Rollers	1	8.00	80	0.38
Building Construction Interior	Forklifts	1	8.00	89	0.20
Foundations	Rubber Tired Dozers	1	8.00	247	0.40
Paving/Sitework	Off-Highway Trucks	1	8.00	402	0.38
Paving Offsite	Pavers	1	0.00	130	0.42
Foundations	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving/Sitework	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving Offsite	Rollers	1	8.00	80	0.38
Building Construction Interior	Tractors/Loaders/Backhoes	2	0.00	97	0.37
Paving Offsite	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Foundations	Off-Highway Trucks	1	8.00	402	0.38
Foundations	Excavators	1	8.00	158	0.38
Foundations	Cement and Mortar Mixers	2	8.00	9	0.56
Foundations	Plate Compactors	2	8.00	8	0.43
Foundations	Rollers	1	8.00	80	0.38
Foundations	Pumps	1	8.00	84	0.74
Foundations	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Air Compressors	1	8.00	78	0.48
Paving/Sitework	Excavators	1	8.00	158	0.38

Paving/Sitework	Plate Compactors	2	8.00	8	0.43
Paving/Sitework	Generator Sets	1	8.00	84	0.74
Building Construction Interior	Generator Sets	1	8.00	84	0.74
Paving Offsite	Rough Terrain Forklifts	1	8.00	100	0.40
Paving Offsite	Off-Highway Trucks	1	8.00	402	0.38
Paving Offsite	Excavators	1	8.00	158	0.38
Paving Offsite	Concrete/Industrial Saws	1	8.00	81	0.73
Paving Offsite	Pumps	1	8.00	84	0.74
Paving Offsite	Plate Compactors	2	8.00	8	0.43
Paving Offsite	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Forklifts	2	6.00	89	0.20
Building Construction Exterior	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction Interior	5	4.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving Offsite	13	33.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundations	13	33.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Exterior	7	4.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving/Sitework	11	28.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Foundations - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0409	0.0000	6.0409	3.3123	0.0000	3.3123			0.0000			0.0000
Off-Road	4.6419	43.8865	29.6217	0.0561		2.3695	2.3695		2.2482	2.2482		5,457.0826	5,457.0826	1.2292		5,487.8112
Total	**4.6419**	**43.8865**	**29.6217**	**0.0561**	**6.0409**	**2.3695**	**8.4104**	**3.3123**	**2.2482**	**5.5605**		**5,457.0826**	**5,457.0826**	**1.2292**		**5,487.8112**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1405	0.1012	1.1297	2.9700e-003	0.2711	1.9500e-003	0.2730	0.0719	1.8000e-003	0.0737		296.0841	296.0841	0.0101		296.3374
Total	**0.1405**	**0.1012**	**1.1297**	**2.9700e-003**	**0.2711**	**1.9500e-003**	**0.2730**	**0.0719**	**1.8000e-003**	**0.0737**		**296.0841**	**296.0841**	**0.0101**		**296.3374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					2.3559	0.0000	2.3559	1.2918	0.0000	1.2918			0.0000			0.0000
Off-Road	4.6419	43.8865	29.6217	0.0561		2.3695	2.3695		2.2482	2.2482	0.0000	5,457.0826	5,457.0826	1.2292		5,487.8112
Total	**4.6419**	**43.8865**	**29.6217**	**0.0561**	**2.3559**	**2.3695**	**4.7254**	**1.2918**	**2.2482**	**3.5400**	**0.0000**	**5,457.0826**	**5,457.0826**	**1.2292**		**5,487.8112**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1405	0.1012	1.1297	2.9700e-003	0.2711	1.9500e-003	0.2730	0.0719	1.8000e-003	0.0737		296.0841	296.0841	0.0101		296.3374
Total	**0.1405**	**0.1012**	**1.1297**	**2.9700e-003**	**0.2711**	**1.9500e-003**	**0.2730**	**0.0719**	**1.8000e-003**	**0.0737**		**296.0841**	**296.0841**	**0.0101**		**296.3374**

3.3 Building Construction Exterior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9884	17.8193	13.9707	0.0219		1.1715	1.1715		1.1148	1.1148		2,144.8316	2,144.8316	0.4375		2,155.7700
Total	**1.9884**	**17.8193**	**13.9707**	**0.0219**		**1.1715**	**1.1715**		**1.1148**	**1.1148**		**2,144.8316**	**2,144.8316**	**0.4375**		**2,155.7700**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0103	0.2635	0.0698	5.6000e-004	0.0135	2.0600e-003	0.0156	3.9000e-003	1.9700e-003	5.8700e-003		59.6380	59.6380	4.7300e-003		59.7561
Worker	0.0170	0.0123	0.1369	3.6000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		35.8890	35.8890	1.2300e-003		35.9197
Total	**0.0273**	**0.2758**	**0.2067**	**9.2000e-004**	**0.0464**	**2.3000e-003**	**0.0487**	**0.0126**	**2.1900e-003**	**0.0148**		**95.5270**	**95.5270**	**5.9600e-003**		**95.6758**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9884	17.8193	13.9707	0.0219		1.1715	1.1715		1.1148	1.1148	0.0000	2,144.8315	2,144.8315	0.4375		2,155.7700
Total	**1.9884**	**17.8193**	**13.9707**	**0.0219**		**1.1715**	**1.1715**		**1.1148**	**1.1148**	**0.0000**	**2,144.8315**	**2,144.8315**	**0.4375**		**2,155.7700**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0103	0.2635	0.0698	5.6000e-004	0.0135	2.0600e-003	0.0156	3.9000e-003	1.9700e-003	5.8700e-003		59.6380	59.6380	4.7300e-003		59.7561
Worker	0.0170	0.0123	0.1369	3.6000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		35.8890	35.8890	1.2300e-003		35.9197
Total	**0.0273**	**0.2758**	**0.2067**	**9.2000e-004**	**0.0464**	**2.3000e-003**	**0.0487**	**0.0126**	**2.1900e-003**	**0.0148**		**95.5270**	**95.5270**	**5.9600e-003**		**95.6758**

3.3 Building Construction Exterior - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7568	16.0458	13.7214	0.0219		1.0029	1.0029		0.9545	0.9545		2,125.9683	2,125.9683	0.4280		2,136.6669
Total	**1.7568**	**16.0458**	**13.7214**	**0.0219**		**1.0029**	**1.0029**		**0.9545**	**0.9545**		**2,125.9683**	**2,125.9683**	**0.4280**		**2,136.6669**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.2100e-003	0.2480	0.0640	5.5000e-004	0.0135	1.7300e-003	0.0153	3.9000e-003	1.6500e-003	5.5500e-003		59.2033	59.2033	4.5700e-003		59.3176
Worker	0.0157	0.0110	0.1238	3.5000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		34.8080	34.8080	1.1100e-003		34.8358

Total	**0.0249**	**0.2589**	**0.1878**	**9.0000e-004**	**0.0464**	**1.9600e-003**	**0.0484**	**0.0126**	**1.8700e-003**	**0.0145**		**94.0113**	**94.0113**	**5.6800e-003**		**94.1534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7568	16.0458	13.7214	0.0219		1.0029	1.0029		0.9545	0.9545	0.0000	2,125.9683	2,125.9683	0.4280		2,136.6669
Total	**1.7568**	**16.0458**	**13.7214**	**0.0219**		**1.0029**	**1.0029**		**0.9545**	**0.9545**	**0.0000**	**2,125.9683**	**2,125.9683**	**0.4280**		**2,136.6669**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.2100e-003	0.2480	0.0640	5.5000e-004	0.0135	1.7300e-003	0.0153	3.9000e-003	1.6500e-003	5.5500e-003		59.2033	59.2033	4.5700e-003		59.3176
Worker	0.0157	0.0110	0.1238	3.5000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		34.8080	34.8080	1.1100e-003		34.8358
Total	**0.0249**	**0.2589**	**0.1878**	**9.0000e-004**	**0.0464**	**1.9600e-003**	**0.0484**	**0.0126**	**1.8700e-003**	**0.0145**		**94.0113**	**94.0113**	**5.6800e-003**		**94.1534**

3.4 Paving/Sitework - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4473	34.3659	20.8969	0.0416		1.7281	1.7281		1.6147	1.6147		4,078.2219	4,078.2219	1.0853		4,105.3550
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4473**	**34.3659**	**20.8969**	**0.0416**		**1.7281**	**1.7281**		**1.6147**	**1.6147**		**4,078.2219**	**4,078.2219**	**1.0853**		**4,105.3550**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1192	0.0858	0.9585	2.5200e-003	0.2300	1.6600e-003	0.2317	0.0610	1.5300e-003	0.0625		251.2229	251.2229	8.6000e-003		251.4378
Total	**0.1192**	**0.0858**	**0.9585**	**2.5200e-003**	**0.2300**	**1.6600e-003**	**0.2317**	**0.0610**	**1.5300e-003**	**0.0625**		**251.2229**	**251.2229**	**8.6000e-003**		**251.4378**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	3.4473	34.3659	20.8969	0.0416		1.7281	1.7281		1.6147	1.6147	0.0000	4,078.2219	4,078.2219	1.0853		4,105.3550
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4473**	**34.3659**	**20.8969**	**0.0416**		**1.7281**	**1.7281**		**1.6147**	**1.6147**	**0.0000**	**4,078.2219**	**4,078.2219**	**1.0853**		**4,105.3550**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1192	0.0858	0.9585	2.5200e-003	0.2300	1.6600e-003	0.2317	0.0610	1.5300e-003	0.0625		251.2229	251.2229	8.6000e-003		251.4378
Total	**0.1192**	**0.0858**	**0.9585**	**2.5200e-003**	**0.2300**	**1.6600e-003**	**0.2317**	**0.0610**	**1.5300e-003**	**0.0625**		**251.2229**	**251.2229**	**8.6000e-003**		**251.4378**

3.4 Paving/Sitework - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1978	31.4485	20.5008	0.0416		1.5521	1.5521		1.4499	1.4499		4,023.6977	4,023.6977	1.0793		4,050.6793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1978**	**31.4485**	**20.5008**	**0.0416**		**1.5521**	**1.5521**		**1.4499**	**1.4499**		**4,023.6977**	**4,023.6977**	**1.0793**		**4,050.6793**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1099	0.0767	0.8664	2.4500e-003	0.2300	1.6400e-003	0.2317	0.0610	1.5100e-003	0.0625		243.6559	243.6559	7.7800e-003		243.8504
Total	**0.1099**	**0.0767**	**0.8664**	**2.4500e-003**	**0.2300**	**1.6400e-003**	**0.2317**	**0.0610**	**1.5100e-003**	**0.0625**		**243.6559**	**243.6559**	**7.7800e-003**		**243.8504**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1978	31.4485	20.5008	0.0416		1.5521	1.5521		1.4499	1.4499	0.0000	4,023.6977	4,023.6977	1.0793		4,050.6793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1978**	**31.4485**	**20.5008**	**0.0416**		**1.5521**	**1.5521**		**1.4499**	**1.4499**	**0.0000**	**4,023.6977**	**4,023.6977**	**1.0793**		**4,050.6793**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1099	0.0767	0.8664	2.4500e-003	0.2300	1.6400e-003	0.2317	0.0610	1.5100e-003	0.0625		243.6559	243.6559	7.7800e-003		243.8504
Total	**0.1099**	**0.0767**	**0.8664**	**2.4500e-003**	**0.2300**	**1.6400e-003**	**0.2317**	**0.0610**	**1.5100e-003**	**0.0625**		**243.6559**	**243.6559**	**7.7800e-003**		**243.8504**

3.5 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171
Total	**12.0692**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.1171**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	4.2600e-003	3.0700e-003	0.0342	9.0000e-005	8.2100e-003	6.0000e-005	8.2700e-003	2.1800e-003	5.0000e-005	2.2300e-003		8.9723	8.9723	3.1000e-004		8.9799

Total	**4.2600e-003**	**3.0700e-003**	**0.0342**	**9.0000e-005**	**8.2100e-003**	**6.0000e-005**	**8.2700e-003**	**2.1800e-003**	**5.0000e-005**	**2.2300e-003**		**8.9723**	**8.9723**	**3.1000e-004**		**8.9799**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171
Total	**12.0692**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.1171**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	4.2600e-003	3.0700e-003	0.0342	9.0000e-005	8.2100e-003	6.0000e-005	8.2700e-003	2.1800e-003	5.0000e-005	2.2300e-003		8.9723	8.9723	3.1000e-004		8.9799
Total	**4.2600e-003**	**3.0700e-003**	**0.0342**	**9.0000e-005**	**8.2100e-003**	**6.0000e-005**	**8.2700e-003**	**2.1800e-003**	**5.0000e-005**	**2.2300e-003**		**8.9723**	**8.9723**	**3.1000e-004**		**8.9799**

3.6 Building Construction Interior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6835	5.6879	4.9584	8.1000e-003		0.3877	0.3877		0.3776	0.3776		776.8222	776.8222	0.0928		779.1428
Total	**0.6835**	**5.6879**	**4.9584**	**8.1000e-003**		**0.3877**	**0.3877**		**0.3776**	**0.3776**		**776.8222**	**776.8222**	**0.0928**		**779.1428**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0103	0.2635	0.0698	5.6000e-004	0.0135	2.0600e-003	0.0156	3.9000e-003	1.9700e-003	5.8700e-003		59.6380	59.6380	4.7300e-003		59.7561
Worker	0.0170	0.0123	0.1369	3.6000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		35.8890	35.8890	1.2300e-003		35.9197
Total	**0.0273**	**0.2758**	**0.2067**	**9.2000e-004**	**0.0464**	**2.3000e-003**	**0.0487**	**0.0126**	**2.1900e-003**	**0.0148**		**95.5270**	**95.5270**	**5.9600e-003**		**95.6758**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.6835	5.6879	4.9584	8.1000e-003		0.3877	0.3877		0.3776	0.3776	0.0000	776.8222	776.8222	0.0928		779.1428
Total	**0.6835**	**5.6879**	**4.9584**	**8.1000e-003**		**0.3877**	**0.3877**		**0.3776**	**0.3776**	**0.0000**	**776.8222**	**776.8222**	**0.0928**		**779.1428**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0103	0.2635	0.0698	5.6000e-004	0.0135	2.0600e-003	0.0156	3.9000e-003	1.9700e-003	5.8700e-003		59.6380	59.6380	4.7300e-003		59.7561
Worker	0.0170	0.0123	0.1369	3.6000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		35.8890	35.8890	1.2300e-003		35.9197
Total	**0.0273**	**0.2758**	**0.2067**	**9.2000e-004**	**0.0464**	**2.3000e-003**	**0.0487**	**0.0126**	**2.1900e-003**	**0.0148**		**95.5270**	**95.5270**	**5.9600e-003**		**95.6758**

3.6 Building Construction Interior - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6040	5.2062	4.9173	8.1000e-003		0.3365	0.3365		0.3276	0.3276		774.3550	774.3550	0.0873		776.5386
Total	**0.6040**	**5.2062**	**4.9173**	**8.1000e-003**		**0.3365**	**0.3365**		**0.3276**	**0.3276**		**774.3550**	**774.3550**	**0.0873**		**776.5386**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.2100e-003	0.2480	0.0640	5.5000e-004	0.0135	1.7300e-003	0.0153	3.9000e-003	1.6500e-003	5.5500e-003		59.2033	59.2033	4.5700e-003		59.3176
Worker	0.0157	0.0110	0.1238	3.5000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		34.8080	34.8080	1.1100e-003		34.8358
Total	**0.0249**	**0.2589**	**0.1878**	**9.0000e-004**	**0.0464**	**1.9600e-003**	**0.0484**	**0.0126**	**1.8700e-003**	**0.0145**		**94.0113**	**94.0113**	**5.6800e-003**		**94.1534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6040	5.2062	4.9173	8.1000e-003		0.3365	0.3365		0.3276	0.3276	0.0000	774.3550	774.3550	0.0873		776.5386
Total	**0.6040**	**5.2062**	**4.9173**	**8.1000e-003**		**0.3365**	**0.3365**		**0.3276**	**0.3276**	**0.0000**	**774.3550**	**774.3550**	**0.0873**		**776.5386**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.2100e-003	0.2480	0.0640	5.5000e-004	0.0135	1.7300e-003	0.0153	3.9000e-003	1.6500e-003	5.5500e-003		59.2033	59.2033	4.5700e-003		59.3176
Worker	0.0157	0.0110	0.1238	3.5000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		34.8080	34.8080	1.1100e-003		34.8358
Total	**0.0249**	**0.2589**	**0.1878**	**9.0000e-004**	**0.0464**	**1.9600e-003**	**0.0484**	**0.0126**	**1.8700e-003**	**0.0145**		**94.0113**	**94.0113**	**5.6800e-003**		**94.1534**

3.7 Paving Offsite - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1465	28.7388	26.0129	0.0494		1.5181	1.5181		1.4560	1.4560		4,735.7745	4,735.7745	1.0033		4,760.8570
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1465**	**28.7388**	**26.0129**	**0.0494**		**1.5181**	**1.5181**		**1.4560**	**1.4560**		**4,735.7745**	**4,735.7745**	**1.0033**		**4,760.8570**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1296	0.0904	1.0211	2.8800e-003	0.2711	1.9300e-003	0.2730	0.0719	1.7800e-003	0.0737		287.1659	287.1659	9.1700e-003		287.3951

Total	**0.1296**	**0.0904**	**1.0211**	**2.8800e-003**	**0.2711**	**1.9300e-003**	**0.2730**	**0.0719**	**1.7800e-003**	**0.0737**		**287.1659**	**287.1659**	**9.1700e-003**		**287.3951**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1465	28.7388	26.0129	0.0494		1.5181	1.5181		1.4560	1.4560	0.0000	4,735.7745	4,735.7745	1.0033		4,760.8569
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1465**	**28.7388**	**26.0129**	**0.0494**		**1.5181**	**1.5181**		**1.4560**	**1.4560**	**0.0000**	**4,735.7745**	**4,735.7745**	**1.0033**		**4,760.8569**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1296	0.0904	1.0211	2.8800e-003	0.2711	1.9300e-003	0.2730	0.0719	1.7800e-003	0.0737		287.1659	287.1659	9.1700e-003		287.3951
Total	**0.1296**	**0.0904**	**1.0211**	**2.8800e-003**	**0.2711**	**1.9300e-003**	**0.2730**	**0.0719**	**1.7800e-003**	**0.0737**		**287.1659**	**287.1659**	**9.1700e-003**		**287.3951**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3615	1.3910	3.6776	0.0115	0.9192	0.0112	0.9305	0.2457	0.0105	0.2562		1,170.6866	1,170.6866	0.0646		1,172.3017
Unmitigated	0.3615	1.3910	3.6776	0.0115	0.9192	0.0112	0.9305	0.2457	0.0105	0.2562		1,170.6866	1,170.6866	0.0646		1,172.3017

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	72.00	21.96	9.00	146,228	146,228
Racquet Club	144.02	144.02	144.02	244,977	244,977
Total	216.02	165.98	153.02	391,205	391,205

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Racquet Club	9.50	7.30	7.30	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Racquet Club	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397
NaturalGas Unmitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	77.4596	8.4000e-004	7.5900e-003	6.3800e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004		9.1129	9.1129	1.7000e-004	1.7000e-004	9.1670
Racquet Club	170.455	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0535	20.0535	3.8000e-004	3.7000e-004	20.1727
Total		**2.6800e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1664**	**29.1664**	**5.5000e-004**	**5.4000e-004**	**29.3397**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	0.0774596	8.4000e-004	7.5900e-003	6.3800e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004		9.1129	9.1129	1.7000e-004	1.7000e-004	9.1670
Racquet Club	0.170455	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0535	20.0535	3.8000e-004	3.7000e-004	20.1727
Total		**2.6800e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1664**	**29.1664**	**5.5000e-004**	**5.4000e-004**	**29.3397**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Unmitigated	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	lb/day										lb/day					
Architectural Coating	0.0161					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-004	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Total	**0.2339**	**4.0000e-005**	**4.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.0600e-003**	**9.0600e-003**	**2.0000e-005**		**9.6600e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0161					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-004	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Total	**0.2339**	**4.0000e-005**	**4.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.0600e-003**	**9.0600e-003**	**2.0000e-005**		**9.6600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Access Youth Academy

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	36.00	Student	0.11	4,775.80	0
Racquet Club	5.38	1000sqft	0.12	5,382.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on 8 squash courts and 36-student facility

Construction Phase - Based on anticipated construction schedule

Off-road Equipment - Based on construction equipment list

Off-road Equipment - Based on construction equipment list

Off-road Equipment - Based on construction equipment list

Off-road Equipment -

Off-road Equipment - Based on construction equipment

Off-road Equipment - Based on construction equipment list

Grading - Assuming no import/export required

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - Assuming 2 trips per student; 144 trips for squash courts based on Traffic Memo

Area Coating - Rule 67.0.1 coatings

Construction Off-road Equipment Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	2.00	113.00
tblConstructionPhase	NumDays	5.00	159.00
tblConstructionPhase	NumDays	100.00	133.00
tblConstructionPhase	NumDays	5.00	23.00
tblConstructionPhase	PhaseEndDate	12/13/2018	3/21/2019
tblConstructionPhase	PhaseEndDate	7/26/2018	12/13/2018
tblConstructionPhase	PhaseEndDate	12/20/2018	6/4/2019
tblConstructionPhase	PhaseStartDate	7/27/2018	11/20/2018
tblConstructionPhase	PhaseStartDate	7/25/2018	7/10/2018
tblConstructionPhase	PhaseStartDate	12/14/2018	10/25/2018
tblGrading	AcresOfGrading	0.00	2.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblVehicleTrips	ST_TR	21.35	26.76
tblVehicleTrips	SU_TR	17.40	26.76
tblVehicleTrips	WD_TR	1.71	2.00
tblVehicleTrips	WD_TR	14.03	26.76

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	18.3878	102.5250	71.8427	0.1346	6.6348	5.6650	12.2997	3.4704	5.3631	8.8335	0.0000	13,154.4432	13,154.4432	2.8750	0.0000	13,226.3190
2019	7.2465	65.8417	53.4024	0.1049	0.5475	3.4122	3.9597	0.1455	3.2386	3.3842	0.0000	10,122.5211	10,122.5211	2.1919	0.0000	10,177.3187
Maximum	**18.3878**	**102.5250**	**71.8427**	**0.1346**	**6.6348**	**5.6650**	**12.2997**	**3.4704**	**5.3631**	**8.8335**	**0.0000**	**13,154.4432**	**13,154.4432**	**2.8750**	**0.0000**	**13,226.3190**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	18.3878	102.5250	71.8427	0.1346	2.9498	5.6650	8.6148	1.4499	5.3631	6.8130	0.0000	13,154.4431	13,154.4431	2.8750	0.0000	13,226.3190
2019	7.2465	65.8417	53.4024	0.1049	0.5475	3.4122	3.9597	0.1455	3.2386	3.3842	0.0000	10,122.5211	10,122.5211	2.1919	0.0000	10,177.3187
Maximum	**18.3878**	**102.5250**	**71.8427**	**0.1346**	**2.9498**	**5.6650**	**8.6148**	**1.4499**	**5.3631**	**6.8130**	**0.0000**	**13,154.4431**	**13,154.4431**	**2.8750**	**0.0000**	**13,226.3190**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**51.31**	**0.00**	**22.66**	**55.88**	**0.00**	**16.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397
Mobile	0.3514	1.4249	3.7004	0.0109	0.9192	0.0113	0.9306	0.2457	0.0106	0.2563		1,109.2483	1,109.2483	0.0655		1,110.8848
Total	**0.5879**	**1.4493**	**3.7250**	**0.0111**	**0.9192**	**0.0132**	**0.9325**	**0.2457**	**0.0125**	**0.2582**		**1,138.4238**	**1,138.4238**	**0.0660**	**5.3000e-004**	**1,140.2342**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397
Mobile	0.3514	1.4249	3.7004	0.0109	0.9192	0.0113	0.9306	0.2457	0.0106	0.2563		1,109.2483	1,109.2483	0.0655		1,110.8848
Total	**0.5879**	**1.4493**	**3.7250**	**0.0111**	**0.9192**	**0.0132**	**0.9325**	**0.2457**	**0.0125**	**0.2582**		**1,138.4238**	**1,138.4238**	**0.0660**	**5.3000e-004**	**1,140.2342**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

<u>Construction Phase</u>

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Foundations	Grading	7/10/2018	12/13/2018	5	113	
2	Building Construction Exterior	Building Construction	11/20/2018	3/21/2019	5	88	
3	Paving/Sitework	Paving	10/25/2018	6/4/2019	5	159	
4	Architectural Coating	Architectural Coating	12/21/2018	12/27/2018	5	5	
5	Building Construction Interior	Building Construction	12/13/2018	6/17/2019	5	133	
6	Paving Offsite	Paving	3/22/2019	4/23/2019	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 15,237; Non-Residential Outdoor: 5,079; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving/Sitework	Cement and Mortar Mixers	2	8.00	9	0.56
Paving Offsite	Cement and Mortar Mixers	2	8.00	9	0.56
Foundations	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction Exterior	Cranes	1	4.00	231	0.29
Paving/Sitework	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction Interior	Cranes	1	0.00	231	0.29
Paving/Sitework	Pavers	1	0.00	130	0.42
Paving/Sitework	Rollers	1	8.00	80	0.38
Building Construction Interior	Forklifts	1	8.00	89	0.20
Foundations	Rubber Tired Dozers	1	8.00	247	0.40
Paving/Sitework	Off-Highway Trucks	1	8.00	402	0.38
Paving Offsite	Pavers	1	0.00	130	0.42
Foundations	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving/Sitework	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving Offsite	Rollers	1	8.00	80	0.38
Building Construction Interior	Tractors/Loaders/Backhoes	2	0.00	97	0.37
Paving Offsite	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Foundations	Off-Highway Trucks	1	8.00	402	0.38
Foundations	Excavators	1	8.00	158	0.38
Foundations	Cement and Mortar Mixers	2	8.00	9	0.56
Foundations	Plate Compactors	2	8.00	8	0.43
Foundations	Rollers	1	8.00	80	0.38
Foundations	Pumps	1	8.00	84	0.74
Foundations	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Air Compressors	1	8.00	78	0.48
Paving/Sitework	Excavators	1	8.00	158	0.38

Paving/Sitework	Plate Compactors	2	8.00	8	0.43
Paving/Sitework	Generator Sets	1	8.00	84	0.74
Building Construction Interior	Generator Sets	1	8.00	84	0.74
Paving Offsite	Rough Terrain Forklifts	1	8.00	100	0.40
Paving Offsite	Off-Highway Trucks	1	8.00	402	0.38
Paving Offsite	Excavators	1	8.00	158	0.38
Paving Offsite	Concrete/Industrial Saws	1	8.00	81	0.73
Paving Offsite	Pumps	1	8.00	84	0.74
Paving Offsite	Plate Compactors	2	8.00	8	0.43
Paving Offsite	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Forklifts	2	6.00	89	0.20
Building Construction Exterior	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction Interior	5	4.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving Offsite	13	33.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundations	13	33.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Exterior	7	4.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving/Sitework	11	28.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Foundations - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0409	0.0000	6.0409	3.3123	0.0000	3.3123			0.0000			0.0000
Off-Road	4.6419	43.8865	29.6217	0.0561		2.3695	2.3695		2.2482	2.2482		5,457.0826	5,457.0826	1.2292		5,487.8112
Total	**4.6419**	**43.8865**	**29.6217**	**0.0561**	**6.0409**	**2.3695**	**8.4104**	**3.3123**	**2.2482**	**5.5605**		**5,457.0826**	**5,457.0826**	**1.2292**		**5,487.8112**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1587	0.1136	1.0716	2.7900e-003	0.2711	1.9500e-003	0.2730	0.0719	1.8000e-003	0.0737		277.9680	277.9680	9.6300e-003		278.2088
Total	**0.1587**	**0.1136**	**1.0716**	**2.7900e-003**	**0.2711**	**1.9500e-003**	**0.2730**	**0.0719**	**1.8000e-003**	**0.0737**		**277.9680**	**277.9680**	**9.6300e-003**		**278.2088**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					2.3559	0.0000	2.3559	1.2918	0.0000	1.2918			0.0000			0.0000
Off-Road	4.6419	43.8865	29.6217	0.0561		2.3695	2.3695		2.2482	2.2482	0.0000	5,457.0826	5,457.0826	1.2292		5,487.8112
Total	**4.6419**	**43.8865**	**29.6217**	**0.0561**	**2.3559**	**2.3695**	**4.7254**	**1.2918**	**2.2482**	**3.5400**	**0.0000**	**5,457.0826**	**5,457.0826**	**1.2292**		**5,487.8112**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1587	0.1136	1.0716	2.7900e-003	0.2711	1.9500e-003	0.2730	0.0719	1.8000e-003	0.0737		277.9680	277.9680	9.6300e-003		278.2088
Total	**0.1587**	**0.1136**	**1.0716**	**2.7900e-003**	**0.2711**	**1.9500e-003**	**0.2730**	**0.0719**	**1.8000e-003**	**0.0737**		**277.9680**	**277.9680**	**9.6300e-003**		**278.2088**

3.3 Building Construction Exterior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9884	17.8193	13.9707	0.0219		1.1715	1.1715		1.1148	1.1148		2,144.8316	2,144.8316	0.4375		2,155.7700
Total	**1.9884**	**17.8193**	**13.9707**	**0.0219**		**1.1715**	**1.1715**		**1.1148**	**1.1148**		**2,144.8316**	**2,144.8316**	**0.4375**		**2,155.7700**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0108	0.2640	0.0772	5.4000e-004	0.0135	2.1000e-003	0.0156	3.9000e-003	2.0000e-003	5.9000e-003		58.1396	58.1396	5.0300e-003		58.2654
Worker	0.0192	0.0138	0.1299	3.4000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		33.6931	33.6931	1.1700e-003		33.7223
Total	**0.0300**	**0.2777**	**0.2071**	**8.8000e-004**	**0.0464**	**2.3400e-003**	**0.0487**	**0.0126**	**2.2200e-003**	**0.0148**		**91.8327**	**91.8327**	**6.2000e-003**		**91.9876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9884	17.8193	13.9707	0.0219		1.1715	1.1715		1.1148	1.1148	0.0000	2,144.8315	2,144.8315	0.4375		2,155.7700
Total	**1.9884**	**17.8193**	**13.9707**	**0.0219**		**1.1715**	**1.1715**		**1.1148**	**1.1148**	**0.0000**	**2,144.8315**	**2,144.8315**	**0.4375**		**2,155.7700**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0108	0.2640	0.0772	5.4000e-004	0.0135	2.1000e-003	0.0156	3.9000e-003	2.0000e-003	5.9000e-003		58.1396	58.1396	5.0300e-003		58.2654
Worker	0.0192	0.0138	0.1299	3.4000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		33.6931	33.6931	1.1700e-003		33.7223
Total	**0.0300**	**0.2777**	**0.2071**	**8.8000e-004**	**0.0464**	**2.3400e-003**	**0.0487**	**0.0126**	**2.2200e-003**	**0.0148**		**91.8327**	**91.8327**	**6.2000e-003**		**91.9876**

3.3 Building Construction Exterior - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7568	16.0458	13.7214	0.0219		1.0029	1.0029		0.9545	0.9545		2,125.9683	2,125.9683	0.4280		2,136.6669
Total	**1.7568**	**16.0458**	**13.7214**	**0.0219**		**1.0029**	**1.0029**		**0.9545**	**0.9545**		**2,125.9683**	**2,125.9683**	**0.4280**		**2,136.6669**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.6000e-003	0.2482	0.0710	5.4000e-004	0.0135	1.7600e-003	0.0153	3.9000e-003	1.6800e-003	5.5800e-003		57.7001	57.7001	4.8600e-003		57.8216
Worker	0.0178	0.0123	0.1170	3.3000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		32.6766	32.6766	1.0500e-003		32.7029

Total	**0.0274**	**0.2605**	**0.1879**	**8.7000e-004**	**0.0464**	**1.9900e-003**	**0.0484**	**0.0126**	**1.9000e-003**	**0.0145**		**90.3766**	**90.3766**	**5.9100e-003**		**90.5245**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7568	16.0458	13.7214	0.0219		1.0029	1.0029		0.9545	0.9545	0.0000	2,125.9683	2,125.9683	0.4280		2,136.6669
Total	**1.7568**	**16.0458**	**13.7214**	**0.0219**		**1.0029**	**1.0029**		**0.9545**	**0.9545**	**0.0000**	**2,125.9683**	**2,125.9683**	**0.4280**		**2,136.6669**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.6000e-003	0.2482	0.0710	5.4000e-004	0.0135	1.7600e-003	0.0153	3.9000e-003	1.6800e-003	5.5800e-003		57.7001	57.7001	4.8600e-003		57.8216
Worker	0.0178	0.0123	0.1170	3.3000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		32.6766	32.6766	1.0500e-003		32.7029
Total	**0.0274**	**0.2605**	**0.1879**	**8.7000e-004**	**0.0464**	**1.9900e-003**	**0.0484**	**0.0126**	**1.9000e-003**	**0.0145**		**90.3766**	**90.3766**	**5.9100e-003**		**90.5245**

3.4 Paving/Sitework - 2018

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	3.4473	34.3659	20.8969	0.0416		1.7281	1.7281		1.6147	1.6147		4,078.2219	4,078.2219	1.0853		4,105.3550
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4473**	**34.3659**	**20.8969**	**0.0416**		**1.7281**	**1.7281**		**1.6147**	**1.6147**		**4,078.2219**	**4,078.2219**	**1.0853**		**4,105.3550**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1346	0.0964	0.9092	2.3700e-003	0.2300	1.6600e-003	0.2317	0.0610	1.5300e-003	0.0625		235.8516	235.8516	8.1700e-003		236.0560
Total	**0.1346**	**0.0964**	**0.9092**	**2.3700e-003**	**0.2300**	**1.6600e-003**	**0.2317**	**0.0610**	**1.5300e-003**	**0.0625**		**235.8516**	**235.8516**	**8.1700e-003**		**236.0560**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	3.4473	34.3659	20.8969	0.0416		1.7281	1.7281		1.6147	1.6147	0.0000	4,078.2219	4,078.2219	1.0853		4,105.3550
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.4473**	**34.3659**	**20.8969**	**0.0416**		**1.7281**	**1.7281**		**1.6147**	**1.6147**	**0.0000**	**4,078.2219**	**4,078.2219**	**1.0853**		**4,105.3550**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1346	0.0964	0.9092	2.3700e-003	0.2300	1.6600e-003	0.2317	0.0610	1.5300e-003	0.0625		235.8516	235.8516	8.1700e-003		236.0560
Total	**0.1346**	**0.0964**	**0.9092**	**2.3700e-003**	**0.2300**	**1.6600e-003**	**0.2317**	**0.0610**	**1.5300e-003**	**0.0625**		**235.8516**	**235.8516**	**8.1700e-003**		**236.0560**

3.4 Paving/Sitework - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1978	31.4485	20.5008	0.0416		1.5521	1.5521		1.4499	1.4499		4,023.6977	4,023.6977	1.0793		4,050.6793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1978**	**31.4485**	**20.5008**	**0.0416**		**1.5521**	**1.5521**		**1.4499**	**1.4499**		**4,023.6977**	**4,023.6977**	**1.0793**		**4,050.6793**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1243	0.0862	0.8187	2.3000e-003	0.2300	1.6400e-003	0.2317	0.0610	1.5100e-003	0.0625		228.7359	228.7359	7.3800e-003		228.9204
Total	**0.1243**	**0.0862**	**0.8187**	**2.3000e-003**	**0.2300**	**1.6400e-003**	**0.2317**	**0.0610**	**1.5100e-003**	**0.0625**		**228.7359**	**228.7359**	**7.3800e-003**		**228.9204**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1978	31.4485	20.5008	0.0416		1.5521	1.5521		1.4499	1.4499	0.0000	4,023.6977	4,023.6977	1.0793		4,050.6793
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1978**	**31.4485**	**20.5008**	**0.0416**		**1.5521**	**1.5521**		**1.4499**	**1.4499**	**0.0000**	**4,023.6977**	**4,023.6977**	**1.0793**		**4,050.6793**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1243	0.0862	0.8187	2.3000e-003	0.2300	1.6400e-003	0.2317	0.0610	1.5100e-003	0.0625		228.7359	228.7359	7.3800e-003		228.9204
Total	**0.1243**	**0.0862**	**0.8187**	**2.3000e-003**	**0.2300**	**1.6400e-003**	**0.2317**	**0.0610**	**1.5100e-003**	**0.0625**		**228.7359**	**228.7359**	**7.3800e-003**		**228.9204**

3.5 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506		281.4485	281.4485	0.0267		282.1171
Total	**12.0692**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**		**281.4485**	**281.4485**	**0.0267**		**282.1171**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	4.8100e-003	3.4400e-003	0.0325	8.0000e-005	8.2100e-003	6.0000e-005	8.2700e-003	2.1800e-003	5.0000e-005	2.2300e-003		8.4233	8.4233	2.9000e-004		8.4306

Total	**4.8100e-003**	**3.4400e-003**	**0.0325**	**8.0000e-005**	**8.2100e-003**	**6.0000e-005**	**8.2700e-003**	**2.1800e-003**	**5.0000e-005**	**2.2300e-003**		**8.4233**	**8.4233**	**2.9000e-004**		**8.4306**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.7706					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2986	2.0058	1.8542	2.9700e-003		0.1506	0.1506		0.1506	0.1506	0.0000	281.4485	281.4485	0.0267		282.1171
Total	**12.0692**	**2.0058**	**1.8542**	**2.9700e-003**		**0.1506**	**0.1506**		**0.1506**	**0.1506**	**0.0000**	**281.4485**	**281.4485**	**0.0267**		**282.1171**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	4.8100e-003	3.4400e-003	0.0325	8.0000e-005	8.2100e-003	6.0000e-005	8.2700e-003	2.1800e-003	5.0000e-005	2.2300e-003		8.4233	8.4233	2.9000e-004		8.4306
Total	**4.8100e-003**	**3.4400e-003**	**0.0325**	**8.0000e-005**	**8.2100e-003**	**6.0000e-005**	**8.2700e-003**	**2.1800e-003**	**5.0000e-005**	**2.2300e-003**		**8.4233**	**8.4233**	**2.9000e-004**		**8.4306**

3.6 Building Construction Interior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6835	5.6879	4.9584	8.1000e-003		0.3877	0.3877		0.3776	0.3776		776.8222	776.8222	0.0928		779.1428
Total	**0.6835**	**5.6879**	**4.9584**	**8.1000e-003**		**0.3877**	**0.3877**		**0.3776**	**0.3776**		**776.8222**	**776.8222**	**0.0928**		**779.1428**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0108	0.2640	0.0772	5.4000e-004	0.0135	2.1000e-003	0.0156	3.9000e-003	2.0000e-003	5.9000e-003		58.1396	58.1396	5.0300e-003		58.2654
Worker	0.0192	0.0138	0.1299	3.4000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		33.6931	33.6931	1.1700e-003		33.7223
Total	**0.0300**	**0.2777**	**0.2071**	**8.8000e-004**	**0.0464**	**2.3400e-003**	**0.0487**	**0.0126**	**2.2200e-003**	**0.0148**		**91.8327**	**91.8327**	**6.2000e-003**		**91.9876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	0.6835	5.6879	4.9584	8.1000e-003		0.3877	0.3877		0.3776	0.3776	0.0000	776.8222	776.8222	0.0928		779.1428
Total	**0.6835**	**5.6879**	**4.9584**	**8.1000e-003**		**0.3877**	**0.3877**		**0.3776**	**0.3776**	**0.0000**	**776.8222**	**776.8222**	**0.0928**		**779.1428**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0108	0.2640	0.0772	5.4000e-004	0.0135	2.1000e-003	0.0156	3.9000e-003	2.0000e-003	5.9000e-003		58.1396	58.1396	5.0300e-003		58.2654
Worker	0.0192	0.0138	0.1299	3.4000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		33.6931	33.6931	1.1700e-003		33.7223
Total	**0.0300**	**0.2777**	**0.2071**	**8.8000e-004**	**0.0464**	**2.3400e-003**	**0.0487**	**0.0126**	**2.2200e-003**	**0.0148**		**91.8327**	**91.8327**	**6.2000e-003**		**91.9876**

3.6 Building Construction Interior - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6040	5.2062	4.9173	8.1000e-003		0.3365	0.3365		0.3276	0.3276		774.3550	774.3550	0.0873		776.5386
Total	**0.6040**	**5.2062**	**4.9173**	**8.1000e-003**		**0.3365**	**0.3365**		**0.3276**	**0.3276**		**774.3550**	**774.3550**	**0.0873**		**776.5386**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.6000e-003	0.2482	0.0710	5.4000e-004	0.0135	1.7600e-003	0.0153	3.9000e-003	1.6800e-003	5.5800e-003		57.7001	57.7001	4.8600e-003		57.8216
Worker	0.0178	0.0123	0.1170	3.3000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		32.6766	32.6766	1.0500e-003		32.7029
Total	**0.0274**	**0.2605**	**0.1879**	**8.7000e-004**	**0.0464**	**1.9900e-003**	**0.0484**	**0.0126**	**1.9000e-003**	**0.0145**		**90.3766**	**90.3766**	**5.9100e-003**		**90.5245**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6040	5.2062	4.9173	8.1000e-003		0.3365	0.3365		0.3276	0.3276	0.0000	774.3550	774.3550	0.0873		776.5386
Total	**0.6040**	**5.2062**	**4.9173**	**8.1000e-003**		**0.3365**	**0.3365**		**0.3276**	**0.3276**	**0.0000**	**774.3550**	**774.3550**	**0.0873**		**776.5386**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.6000e-003	0.2482	0.0710	5.4000e-004	0.0135	1.7600e-003	0.0153	3.9000e-003	1.6800e-003	5.5800e-003		57.7001	57.7001	4.8600e-003		57.8216
Worker	0.0178	0.0123	0.1170	3.3000e-004	0.0329	2.3000e-004	0.0331	8.7200e-003	2.2000e-004	8.9300e-003		32.6766	32.6766	1.0500e-003		32.7029
Total	**0.0274**	**0.2605**	**0.1879**	**8.7000e-004**	**0.0464**	**1.9900e-003**	**0.0484**	**0.0126**	**1.9000e-003**	**0.0145**		**90.3766**	**90.3766**	**5.9100e-003**		**90.5245**

3.7 Paving Offsite - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1465	28.7388	26.0129	0.0494		1.5181	1.5181		1.4560	1.4560		4,735.7745	4,735.7745	1.0033		4,760.8570
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1465**	**28.7388**	**26.0129**	**0.0494**		**1.5181**	**1.5181**		**1.4560**	**1.4560**		**4,735.7745**	**4,735.7745**	**1.0033**		**4,760.8570**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1466	0.1016	0.9649	2.7100e-003	0.2711	1.9300e-003	0.2730	0.0719	1.7800e-003	0.0737		269.5815	269.5815	8.7000e-003		269.7990

Total	**0.1466**	**0.1016**	**0.9649**	**2.7100e-003**	**0.2711**	**1.9300e-003**	**0.2730**	**0.0719**	**1.7800e-003**	**0.0737**		**269.5815**	**269.5815**	**8.7000e-003**		**269.7990**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1465	28.7388	26.0129	0.0494		1.5181	1.5181		1.4560	1.4560	0.0000	4,735.7745	4,735.7745	1.0033		4,760.8569
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.1465**	**28.7388**	**26.0129**	**0.0494**		**1.5181**	**1.5181**		**1.4560**	**1.4560**	**0.0000**	**4,735.7745**	**4,735.7745**	**1.0033**		**4,760.8569**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1466	0.1016	0.9649	2.7100e-003	0.2711	1.9300e-003	0.2730	0.0719	1.7800e-003	0.0737		269.5815	269.5815	8.7000e-003		269.7990
Total	**0.1466**	**0.1016**	**0.9649**	**2.7100e-003**	**0.2711**	**1.9300e-003**	**0.2730**	**0.0719**	**1.7800e-003**	**0.0737**		**269.5815**	**269.5815**	**8.7000e-003**		**269.7990**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3514	1.4249	3.7004	0.0109	0.9192	0.0113	0.9306	0.2457	0.0106	0.2563		1,109.2483	1,109.2483	0.0655		1,110.8848
Unmitigated	0.3514	1.4249	3.7004	0.0109	0.9192	0.0113	0.9306	0.2457	0.0106	0.2563		1,109.2483	1,109.2483	0.0655		1,110.8848

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	72.00	21.96	9.00	146,228	146,228
Racquet Club	144.02	144.02	144.02	244,977	244,977
Total	216.02	165.98	153.02	391,205	391,205

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Racquet Club	9.50	7.30	7.30	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Racquet Club	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397
NaturalGas Unmitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1664	29.1664	5.6000e-004	5.3000e-004	29.3397

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	77.4596	8.4000e-004	7.5900e-003	6.3800e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004		9.1129	9.1129	1.7000e-004	1.7000e-004	9.1670
Racquet Club	170.455	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0535	20.0535	3.8000e-004	3.7000e-004	20.1727
Total		**2.6800e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1664**	**29.1664**	**5.5000e-004**	**5.4000e-004**	**29.3397**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	0.0774596	8.4000e-004	7.5900e-003	6.3800e-003	5.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004		9.1129	9.1129	1.7000e-004	1.7000e-004	9.1670
Racquet Club	0.170455	1.8400e-003	0.0167	0.0140	1.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003		20.0535	20.0535	3.8000e-004	3.7000e-004	20.1727
Total		**2.6800e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1664**	**29.1664**	**5.5000e-004**	**5.4000e-004**	**29.3397**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Unmitigated	0.2339	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	lb/day										lb/day					
Architectural Coating	0.0161					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-004	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Total	**0.2339**	**4.0000e-005**	**4.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.0600e-003**	**9.0600e-003**	**2.0000e-005**		**9.6600e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0161					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2174					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.0000e-004	4.0000e-005	4.2500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		9.0600e-003	9.0600e-003	2.0000e-005		9.6600e-003
Total	**0.2339**	**4.0000e-005**	**4.2500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**9.0600e-003**	**9.0600e-003**	**2.0000e-005**		**9.6600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Access Youth Academy

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	36.00	Student	0.11	4,775.80	0
Racquet Club	5.38	1000sqft	0.12	5,382.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on 8 squash courts and 36-student facility

Construction Phase - Based on anticipated construction schedule

Off-road Equipment - Based on construction equipment list

Off-road Equipment - Based on construction equipment list

Off-road Equipment - Based on construction equipment list

Off-road Equipment -

Off-road Equipment - Based on construction equipment

Off-road Equipment - Based on construction equipment list

Grading - Assuming no import/export required

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - Assuming 2 trips per student; 144 trips for squash courts based on Traffic Memo

Area Coating - Rule 67.0.1 coatings

Construction Off-road Equipment Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	88.00
tblConstructionPhase	NumDays	2.00	113.00
tblConstructionPhase	NumDays	5.00	159.00
tblConstructionPhase	NumDays	100.00	133.00
tblConstructionPhase	NumDays	5.00	23.00
tblConstructionPhase	PhaseEndDate	12/13/2018	3/21/2019
tblConstructionPhase	PhaseEndDate	7/26/2018	12/13/2018
tblConstructionPhase	PhaseEndDate	12/20/2018	6/4/2019
tblConstructionPhase	PhaseStartDate	7/27/2018	11/20/2018
tblConstructionPhase	PhaseStartDate	7/25/2018	7/10/2018
tblConstructionPhase	PhaseStartDate	12/14/2018	10/25/2018
tblGrading	AcresOfGrading	0.00	2.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblVehicleTrips	ST_TR	21.35	26.76
tblVehicleTrips	SU_TR	17.40	26.76
tblVehicleTrips	WD_TR	1.71	2.00
tblVehicleTrips	WD_TR	14.03	26.76

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.4209	3.6283	2.5084	4.7900e-003	0.3626	0.1960	0.5587	0.1928	0.1855	0.3783	0.0000	424.3161	424.3161	0.0940	0.0000	426.6658
2019	0.3107	2.8829	2.2029	4.2400e-003	0.0195	0.1532	0.1727	5.2200e-003	0.1448	0.1500	0.0000	371.9403	371.9403	0.0818	0.0000	373.9841
Maximum	**0.4209**	**3.6283**	**2.5084**	**4.7900e-003**	**0.3626**	**0.1960**	**0.5587**	**0.1928**	**0.1855**	**0.3783**	**0.0000**	**424.3161**	**424.3161**	**0.0940**	**0.0000**	**426.6658**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.4209	3.6283	2.5084	4.7900e-003	0.1545	0.1960	0.3505	0.0787	0.1855	0.2642	0.0000	424.3156	424.3156	0.0940	0.0000	426.6653
2019	0.3107	2.8829	2.2029	4.2400e-003	0.0195	0.1532	0.1727	5.2200e-003	0.1448	0.1500	0.0000	371.9399	371.9399	0.0818	0.0000	373.9837
Maximum	**0.4209**	**3.6283**	**2.5084**	**4.7900e-003**	**0.1545**	**0.1960**	**0.3505**	**0.0787**	**0.1855**	**0.2642**	**0.0000**	**424.3156**	**424.3156**	**0.0940**	**0.0000**	**426.6653**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.47**	**0.00**	**28.47**	**57.64**	**0.00**	**21.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**7-10-2018**	**10-9-2018**	1.6025	1.6025
2	**10-10-2018**	**1-9-2019**	2.6289	2.6289
3	**1-10-2019**	**4-9-2019**	1.9930	1.9930
4	**4-10-2019**	**7-9-2019**	1.0074	1.0074
		Highest	2.6289	2.6289

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0427	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	27.6236	27.6236	1.0100e-003	2.8000e-004	27.7318
Mobile	0.0570	0.2377	0.6019	1.8200e-003	0.1474	1.8600e-003	0.1493	0.0395	1.7400e-003	0.0412	0.0000	167.2914	167.2914	9.6800e-003	0.0000	167.5334

Waste						0.0000	0.0000		0.0000	0.0000	7.5594	0.0000	7.5594	0.4468	0.0000	18.7281
Water						0.0000	0.0000		0.0000	0.0000	0.1513	4.2175	4.3687	0.0157	4.0000e-004	4.8812
Total	**0.1001**	**0.2421**	**0.6061**	**1.8500e-003**	**0.1474**	**2.2000e-003**	**0.1496**	**0.0395**	**2.0800e-003**	**0.0416**	**7.7106**	**199.1332**	**206.8439**	**0.4732**	**6.8000e-004**	**218.8752**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0427	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	27.6236	27.6236	1.0100e-003	2.8000e-004	27.7318
Mobile	0.0570	0.2377	0.6019	1.8200e-003	0.1474	1.8600e-003	0.1493	0.0395	1.7400e-003	0.0412	0.0000	167.2914	167.2914	9.6800e-003	0.0000	167.5334
Waste						0.0000	0.0000		0.0000	0.0000	3.7797	0.0000	3.7797	0.2234	0.0000	9.3640
Water						0.0000	0.0000		0.0000	0.0000	0.1210	3.6782	3.7992	0.0126	3.2000e-004	4.2102
Total	**0.1001**	**0.2421**	**0.6061**	**1.8500e-003**	**0.1474**	**2.2000e-003**	**0.1496**	**0.0395**	**2.0800e-003**	**0.0416**	**3.9007**	**198.5939**	**202.4946**	**0.2466**	**6.0000e-004**	**208.8402**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**49.41**	**0.27**	**2.10**	**47.87**	**11.76**	**4.58**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Foundations	Grading	7/10/2018	12/13/2018	5	113	
2	Building Construction Exterior	Building Construction	11/20/2018	3/21/2019	5	88	

3	Paving/Sitework	Paving	10/25/2018	6/4/2019	5	159	
4	Architectural Coating	Architectural Coating	12/21/2018	12/27/2018	5	5	
5	Building Construction Interior	Building Construction	12/13/2018	6/17/2019	5	133	
6	Paving Offsite	Paving	3/22/2019	4/23/2019	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 15,237; Non-Residential Outdoor: 5,079; Striped Parking Area: 0

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving/Sitework	Cement and Mortar Mixers	2	8.00	9	0.56
Paving Offsite	Cement and Mortar Mixers	2	8.00	9	0.56
Foundations	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction Exterior	Cranes	1	4.00	231	0.29
Paving/Sitework	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction Interior	Cranes	1	0.00	231	0.29
Paving/Sitework	Pavers	1	0.00	130	0.42
Paving/Sitework	Rollers	1	8.00	80	0.38
Building Construction Interior	Forklifts	1	8.00	89	0.20
Foundations	Rubber Tired Dozers	1	8.00	247	0.40
Paving/Sitework	Off-Highway Trucks	1	8.00	402	0.38
Paving Offsite	Pavers	1	0.00	130	0.42
Foundations	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving/Sitework	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving Offsite	Rollers	1	8.00	80	0.38
Building Construction Interior	Tractors/Loaders/Backhoes	2	0.00	97	0.37
Paving Offsite	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Foundations	Off-Highway Trucks	1	8.00	402	0.38
Foundations	Excavators	1	8.00	158	0.38
Foundations	Cement and Mortar Mixers	2	8.00	9	0.56
Foundations	Plate Compactors	2	8.00	8	0.43
Foundations	Rollers	1	8.00	80	0.38
Foundations	Pumps	1	8.00	84	0.74
Foundations	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Air Compressors	1	8.00	78	0.48
Paving/Sitework	Excavators	1	8.00	158	0.38
Paving/Sitework	Plate Compactors	2	8.00	8	0.43
Paving/Sitework	Generator Sets	1	8.00	84	0.74
Building Construction Interior	Generator Sets	1	8.00	84	0.74
Paving Offsite	Rough Terrain Forklifts	1	8.00	100	0.40
Paving Offsite	Off-Highway Trucks	1	8.00	402	0.38
Paving Offsite	Excavators	1	8.00	158	0.38
Paving Offsite	Concrete/Industrial Saws	1	8.00	81	0.73
Paving Offsite	Pumps	1	8.00	84	0.74
Paving Offsite	Plate Compactors	2	8.00	8	0.43
Paving Offsite	Generator Sets	1	8.00	84	0.74
Building Construction Exterior	Forklifts	2	6.00	89	0.20
Building Construction Exterior	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction Interior	5	4.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving Offsite	13	33.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundations	13	33.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction Exterior	7	4.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Paving/Sitework	11	28.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Foundations - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3413	0.0000	0.3413	0.1871	0.0000	0.1871	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2623	2.4796	1.6736	3.1700e-003		0.1339	0.1339		0.1270	0.1270	0.0000	279.7079	279.7079	0.0630	0.0000	281.2829
Total	**0.2623**	**2.4796**	**1.6736**	**3.1700e-003**	**0.3413**	**0.1339**	**0.4752**	**0.1871**	**0.1270**	**0.3142**	**0.0000**	**279.7079**	**279.7079**	**0.0630**	**0.0000**	**281.2829**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.9700e-003	6.3100e-003	0.0605	1.6000e-004	0.0150	1.1000e-004	0.0151	3.9700e-003	1.0000e-004	4.0700e-003	0.0000	14.3898	14.3898	5.0000e-004	0.0000	14.4022

Total	7.9700e-003	6.3100e-003	0.0605	1.6000e-004	0.0150	1.1000e-004	0.0151	3.9700e-003	1.0000e-004	4.0700e-003	0.0000	14.3898	14.3898	5.0000e-004	0.0000	14.4022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1331	0.0000	0.1331	0.0730	0.0000	0.0730	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2623	2.4796	1.6736	3.1700e-003		0.1339	0.1339		0.1270	0.1270	0.0000	279.7076	279.7076	0.0630	0.0000	281.2826
Total	**0.2623**	**2.4796**	**1.6736**	**3.1700e-003**	**0.1331**	**0.1339**	**0.2670**	**0.0730**	**0.1270**	**0.2000**	**0.0000**	**279.7076**	**279.7076**	**0.0630**	**0.0000**	**281.2826**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.9700e-003	6.3100e-003	0.0605	1.6000e-004	0.0150	1.1000e-004	0.0151	3.9700e-003	1.0000e-004	4.0700e-003	0.0000	14.3898	14.3898	5.0000e-004	0.0000	14.4022
Total	**7.9700e-003**	**6.3100e-003**	**0.0605**	**1.6000e-004**	**0.0150**	**1.1000e-004**	**0.0151**	**3.9700e-003**	**1.0000e-004**	**4.0700e-003**	**0.0000**	**14.3898**	**14.3898**	**5.0000e-004**	**0.0000**	**14.4022**

3.3 Building Construction Exterior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0298	0.2673	0.2096	3.3000e-004		0.0176	0.0176		0.0167	0.0167	0.0000	29.1864	29.1864	5.9500e-003	0.0000	29.3352
Total	**0.0298**	**0.2673**	**0.2096**	**3.3000e-004**		**0.0176**	**0.0176**		**0.0167**	**0.0167**	**0.0000**	**29.1864**	**29.1864**	**5.9500e-003**	**0.0000**	**29.3352**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.0000e-003	1.1000e-003	1.0000e-005	2.0000e-004	3.0000e-005	2.3000e-004	6.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.8030	0.8030	7.0000e-005	0.0000	0.8046
Worker	2.6000e-004	2.0000e-004	1.9500e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4631	0.4631	2.0000e-005	0.0000	0.4635
Total	**4.2000e-004**	**4.2000e-003**	**3.0500e-003**	**2.0000e-005**	**6.8000e-004**	**3.0000e-005**	**7.1000e-004**	**1.9000e-004**	**3.0000e-005**	**2.2000e-004**	**0.0000**	**1.2661**	**1.2661**	**9.0000e-005**	**0.0000**	**1.2681**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.0298	0.2673	0.2096	3.3000e-004		0.0176	0.0176		0.0167	0.0167	0.0000	29.1863	29.1863	5.9500e-003	0.0000	29.3352
Total	**0.0298**	**0.2673**	**0.2096**	**3.3000e-004**		**0.0176**	**0.0176**		**0.0167**	**0.0167**	**0.0000**	**29.1863**	**29.1863**	**5.9500e-003**	**0.0000**	**29.3352**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	4.0000e-003	1.1000e-003	1.0000e-005	2.0000e-004	3.0000e-005	2.3000e-004	6.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.8030	0.8030	7.0000e-005	0.0000	0.8046
Worker	2.6000e-004	2.0000e-004	1.9500e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4631	0.4631	2.0000e-005	0.0000	0.4635
Total	**4.2000e-004**	**4.2000e-003**	**3.0500e-003**	**2.0000e-005**	**6.8000e-004**	**3.0000e-005**	**7.1000e-004**	**1.9000e-004**	**3.0000e-005**	**2.2000e-004**	**0.0000**	**1.2661**	**1.2661**	**9.0000e-005**	**0.0000**	**1.2681**

3.3 Building Construction Exterior - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0510	0.4653	0.3979	6.4000e-004		0.0291	0.0291		0.0277	0.0277	0.0000	55.9307	55.9307	0.0113	0.0000	56.2122
Total	**0.0510**	**0.4653**	**0.3979**	**6.4000e-004**		**0.0291**	**0.0291**		**0.0277**	**0.0277**	**0.0000**	**55.9307**	**55.9307**	**0.0113**	**0.0000**	**56.2122**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	7.2800e-003	1.9600e-003	2.0000e-005	3.8000e-004	5.0000e-005	4.4000e-004	1.1000e-004	5.0000e-005	1.6000e-004	0.0000	1.5409	1.5409	1.2000e-004	0.0000	1.5440
Worker	4.6000e-004	3.5000e-004	3.3900e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.4000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8683	0.8683	3.0000e-005	0.0000	0.8690
Total	**7.3000e-004**	**7.6300e-003**	**5.3500e-003**	**3.0000e-005**	**1.3100e-003**	**6.0000e-005**	**1.3800e-003**	**3.6000e-004**	**6.0000e-005**	**4.1000e-004**	**0.0000**	**2.4092**	**2.4092**	**1.5000e-004**	**0.0000**	**2.4130**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0510	0.4653	0.3979	6.4000e-004		0.0291	0.0291		0.0277	0.0277	0.0000	55.9307	55.9307	0.0113	0.0000	56.2121
Total	**0.0510**	**0.4653**	**0.3979**	**6.4000e-004**		**0.0291**	**0.0291**		**0.0277**	**0.0277**	**0.0000**	**55.9307**	**55.9307**	**0.0113**	**0.0000**	**56.2121**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	7.2800e-003	1.9600e-003	2.0000e-005	3.8000e-004	5.0000e-005	4.4000e-004	1.1000e-004	5.0000e-005	1.6000e-004	0.0000	1.5409	1.5409	1.2000e-004	0.0000	1.5440
Worker	4.6000e-004	3.5000e-004	3.3900e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.4000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8683	0.8683	3.0000e-005	0.0000	0.8690
Total	**7.3000e-004**	**7.6300e-003**	**5.3500e-003**	**3.0000e-005**	**1.3100e-003**	**6.0000e-005**	**1.3800e-003**	**3.6000e-004**	**6.0000e-005**	**4.1000e-004**	**0.0000**	**2.4092**	**2.4092**	**1.5000e-004**	**0.0000**	**2.4130**

3.4 Paving/Sitework - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0827	0.8248	0.5015	1.0000e-003		0.0415	0.0415		0.0388	0.0388	0.0000	88.7928	88.7928	0.0236	0.0000	89.3836
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0827**	**0.8248**	**0.5015**	**1.0000e-003**		**0.0415**	**0.0415**		**0.0388**	**0.0388**	**0.0000**	**88.7928**	**88.7928**	**0.0236**	**0.0000**	**89.3836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8700e-003	2.2700e-003	0.0218	6.0000e-005	5.3900e-003	4.0000e-005	5.4300e-003	1.4300e-003	4.0000e-005	1.4700e-003	0.0000	5.1863	5.1863	1.8000e-004	0.0000	5.1908

Total	**2.8700e-003**	**2.2700e-003**	**0.0218**	**6.0000e-005**	**5.3900e-003**	**4.0000e-005**	**5.4300e-003**	**1.4300e-003**	**4.0000e-005**	**1.4700e-003**	**0.0000**	**5.1863**	**5.1863**	**1.8000e-004**	**0.0000**	**5.1908**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0827	0.8248	0.5015	1.0000e-003		0.0415	0.0415		0.0388	0.0388	0.0000	88.7927	88.7927	0.0236	0.0000	89.3835
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0827**	**0.8248**	**0.5015**	**1.0000e-003**		**0.0415**	**0.0415**		**0.0388**	**0.0388**	**0.0000**	**88.7927**	**88.7927**	**0.0236**	**0.0000**	**89.3835**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8700e-003	2.2700e-003	0.0218	6.0000e-005	5.3900e-003	4.0000e-005	5.4300e-003	1.4300e-003	4.0000e-005	1.4700e-003	0.0000	5.1863	5.1863	1.8000e-004	0.0000	5.1908
Total	**2.8700e-003**	**2.2700e-003**	**0.0218**	**6.0000e-005**	**5.3900e-003**	**4.0000e-005**	**5.4300e-003**	**1.4300e-003**	**4.0000e-005**	**1.4700e-003**	**0.0000**	**5.1863**	**5.1863**	**1.8000e-004**	**0.0000**	**5.1908**

3.4 Paving/Sitework - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1775	1.7454	1.1378	2.3100e-003		0.0861	0.0861		0.0805	0.0805	0.0000	202.5882	202.5882	0.0543	0.0000	203.9467
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1775**	**1.7454**	**1.1378**	**2.3100e-003**		**0.0861**	**0.0861**		**0.0805**	**0.0805**	**0.0000**	**202.5882**	**202.5882**	**0.0543**	**0.0000**	**203.9467**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1300e-003	4.7000e-003	0.0455	1.3000e-004	0.0125	9.0000e-005	0.0126	3.3100e-003	8.0000e-005	3.4000e-003	0.0000	11.6316	11.6316	3.7000e-004	0.0000	11.6410
Total	**6.1300e-003**	**4.7000e-003**	**0.0455**	**1.3000e-004**	**0.0125**	**9.0000e-005**	**0.0126**	**3.3100e-003**	**8.0000e-005**	**3.4000e-003**	**0.0000**	**11.6316**	**11.6316**	**3.7000e-004**	**0.0000**	**11.6410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.1775	1.7454	1.1378	2.3100e-003		0.0861	0.0861		0.0805	0.0805	0.0000	202.5879	202.5879	0.0543	0.0000	203.9464
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1775**	**1.7454**	**1.1378**	**2.3100e-003**		**0.0861**	**0.0861**		**0.0805**	**0.0805**	**0.0000**	**202.5879**	**202.5879**	**0.0543**	**0.0000**	**203.9464**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1300e-003	4.7000e-003	0.0455	1.3000e-004	0.0125	9.0000e-005	0.0126	3.3100e-003	8.0000e-005	3.4000e-003	0.0000	11.6316	11.6316	3.7000e-004	0.0000	11.6410
Total	**6.1300e-003**	**4.7000e-003**	**0.0455**	**1.3000e-004**	**0.0125**	**9.0000e-005**	**0.0126**	**3.3100e-003**	**8.0000e-005**	**3.4000e-003**	**0.0000**	**11.6316**	**11.6316**	**3.7000e-004**	**0.0000**	**11.6410**

3.5 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0294					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5000e-004	5.0100e-003	4.6400e-003	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	0.6383	0.6383	6.0000e-005	0.0000	0.6398
Total	**0.0302**	**5.0100e-003**	**4.6400e-003**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**6.0000e-005**	**0.0000**	**0.6398**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0193	0.0193	0.0000	0.0000	0.0193
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0193**	**0.0193**	**0.0000**	**0.0000**	**0.0193**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0294					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5000e-004	5.0100e-003	4.6400e-003	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	0.6383	0.6383	6.0000e-005	0.0000	0.6398
Total	**0.0302**	**5.0100e-003**	**4.6400e-003**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**6.0000e-005**	**0.0000**	**0.6398**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	8.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0193	0.0193	0.0000	0.0000	0.0193
Total	**1.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0193**	**0.0193**	**0.0000**	**0.0000**	**0.0193**

3.6 Building Construction Interior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4400e-003	0.0370	0.0322	5.0000e-005		2.5200e-003	2.5200e-003		2.4500e-003	2.4500e-003	0.0000	4.5807	4.5807	5.5000e-004	0.0000	4.5944
Total	**4.4400e-003**	**0.0370**	**0.0322**	**5.0000e-005**		**2.5200e-003**	**2.5200e-003**		**2.4500e-003**	**2.4500e-003**	**0.0000**	**4.5807**	**4.5807**	**5.5000e-004**	**0.0000**	**4.5944**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	1.7400e-003	4.8000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3480	0.3480	3.0000e-005	0.0000	0.3487
Worker	1.1000e-004	9.0000e-005	8.4000e-004	0.0000	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2007	0.2007	1.0000e-005	0.0000	0.2008

Total	**1.8000e-004**	**1.8300e-003**	**1.3200e-003**	**0.0000**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**8.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5486**	**0.5486**	**4.0000e-005**	**0.0000**	**0.5495**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4400e-003	0.0370	0.0322	5.0000e-005		2.5200e-003	2.5200e-003		2.4500e-003	2.4500e-003	0.0000	4.5807	4.5807	5.5000e-004	0.0000	4.5944
Total	**4.4400e-003**	**0.0370**	**0.0322**	**5.0000e-005**		**2.5200e-003**	**2.5200e-003**		**2.4500e-003**	**2.4500e-003**	**0.0000**	**4.5807**	**4.5807**	**5.5000e-004**	**0.0000**	**4.5944**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	1.7400e-003	4.8000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3480	0.3480	3.0000e-005	0.0000	0.3487
Worker	1.1000e-004	9.0000e-005	8.4000e-004	0.0000	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2007	0.2007	1.0000e-005	0.0000	0.2008
Total	**1.8000e-004**	**1.8300e-003**	**1.3200e-003**	**0.0000**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**8.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5486**	**0.5486**	**4.0000e-005**	**0.0000**	**0.5495**

3.6 Building Construction Interior - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0362	0.3124	0.2950	4.9000e-004		0.0202	0.0202		0.0197	0.0197	0.0000	42.1490	42.1490	4.7500e-003	0.0000	42.2678
Total	**0.0362**	**0.3124**	**0.2950**	**4.9000e-004**		**0.0202**	**0.0202**		**0.0197**	**0.0197**	**0.0000**	**42.1490**	**42.1490**	**4.7500e-003**	**0.0000**	**42.2678**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.6000e-004	0.0151	4.0500e-003	3.0000e-005	8.0000e-004	1.0000e-004	9.0000e-004	2.3000e-004	1.0000e-004	3.3000e-004	0.0000	3.1881	3.1881	2.6000e-004	0.0000	3.1945
Worker	9.5000e-004	7.3000e-004	7.0200e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.7964	1.7964	6.0000e-005	0.0000	1.7978
Total	**1.5100e-003**	**0.0158**	**0.0111**	**5.0000e-005**	**2.7200e-003**	**1.1000e-004**	**2.8400e-003**	**7.4000e-004**	**1.1000e-004**	**8.5000e-004**	**0.0000**	**4.9845**	**4.9845**	**3.2000e-004**	**0.0000**	**4.9924**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.0362	0.3124	0.2950	4.9000e-004		0.0202	0.0202		0.0197	0.0197	0.0000	42.1489	42.1489	4.7500e-003	0.0000	42.2678
Total	**0.0362**	**0.3124**	**0.2950**	**4.9000e-004**		**0.0202**	**0.0202**		**0.0197**	**0.0197**	**0.0000**	**42.1489**	**42.1489**	**4.7500e-003**	**0.0000**	**42.2678**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.6000e-004	0.0151	4.0500e-003	3.0000e-005	8.0000e-004	1.0000e-004	9.0000e-004	2.3000e-004	1.0000e-004	3.3000e-004	0.0000	3.1881	3.1881	2.6000e-004	0.0000	3.1945
Worker	9.5000e-004	7.3000e-004	7.0200e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.7964	1.7964	6.0000e-005	0.0000	1.7978
Total	**1.5100e-003**	**0.0158**	**0.0111**	**5.0000e-005**	**2.7200e-003**	**1.1000e-004**	**2.8400e-003**	**7.4000e-004**	**1.1000e-004**	**8.5000e-004**	**0.0000**	**4.9845**	**4.9845**	**3.2000e-004**	**0.0000**	**4.9924**

3.7 Paving Offsite - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0362	0.3305	0.2992	5.7000e-004		0.0175	0.0175		0.0167	0.0167	0.0000	49.4066	49.4066	0.0105	0.0000	49.6682
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0362**	**0.3305**	**0.2992**	**5.7000e-004**		**0.0175**	**0.0175**		**0.0167**	**0.0167**	**0.0000**	**49.4066**	**49.4066**	**0.0105**	**0.0000**	**49.6682**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-003	1.1500e-003	0.0111	3.0000e-005	3.0400e-003	2.0000e-005	3.0700e-003	8.1000e-004	2.0000e-005	8.3000e-004	0.0000	2.8405	2.8405	9.0000e-005	0.0000	2.8428
Total	**1.5000e-003**	**1.1500e-003**	**0.0111**	**3.0000e-005**	**3.0400e-003**	**2.0000e-005**	**3.0700e-003**	**8.1000e-004**	**2.0000e-005**	**8.3000e-004**	**0.0000**	**2.8405**	**2.8405**	**9.0000e-005**	**0.0000**	**2.8428**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0362	0.3305	0.2992	5.7000e-004		0.0175	0.0175		0.0167	0.0167	0.0000	49.4065	49.4065	0.0105	0.0000	49.6682
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0362**	**0.3305**	**0.2992**	**5.7000e-004**		**0.0175**	**0.0175**		**0.0167**	**0.0167**	**0.0000**	**49.4065**	**49.4065**	**0.0105**	**0.0000**	**49.6682**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-003	1.1500e-003	0.0111	3.0000e-005	3.0400e-003	2.0000e-005	3.0700e-003	8.1000e-004	2.0000e-005	8.3000e-004	0.0000	2.8405	2.8405	9.0000e-005	0.0000	2.8428
Total	**1.5000e-003**	**1.1500e-003**	**0.0111**	**3.0000e-005**	**3.0400e-003**	**2.0000e-005**	**3.0700e-003**	**8.1000e-004**	**2.0000e-005**	**8.3000e-004**	**0.0000**	**2.8405**	**2.8405**	**9.0000e-005**	**0.0000**	**2.8428**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0570	0.2377	0.6019	1.8200e-003	0.1474	1.8600e-003	0.1493	0.0395	1.7400e-003	0.0412	0.0000	167.2914	167.2914	9.6800e-003	0.0000	167.5334
Unmitigated	0.0570	0.2377	0.6019	1.8200e-003	0.1474	1.8600e-003	0.1493	0.0395	1.7400e-003	0.0412	0.0000	167.2914	167.2914	9.6800e-003	0.0000	167.5334

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	72.00	21.96	9.00	146,228	146,228
Racquet Club	144.02	144.02	144.02	244,977	244,977
Total	216.02	165.98	153.02	391,205	391,205

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Racquet Club	9.50	7.30	7.30	11.50	69.50	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Racquet Club	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.7948	22.7948	9.2000e-004	1.9000e-004	22.8743
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22.7948	22.7948	9.2000e-004	1.9000e-004	22.8743
NaturalGas Mitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8288	4.8288	9.0000e-005	9.0000e-005	4.8575
NaturalGas Unmitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8288	4.8288	9.0000e-005	9.0000e-005	4.8575

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High School	28272.7	1.5000e-004	1.3900e-003	1.1600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5087	1.5087	3.0000e-005	3.0000e-005	1.5177
Racquet Club	62215.9	3.4000e-004	3.0500e-003	2.5600e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3201	3.3201	6.0000e-005	6.0000e-005	3.3398
Total		**4.9000e-004**	**4.4400e-003**	**3.7200e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8288**	**4.8288**	**9.0000e-005**	**9.0000e-005**	**4.8575**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High School	28272.7	1.5000e-004	1.3900e-003	1.1600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5087	1.5087	3.0000e-005	3.0000e-005	1.5177
Racquet Club	62215.9	3.4000e-004	3.0500e-003	2.5600e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3201	3.3201	6.0000e-005	6.0000e-005	3.3398
Total		**4.9000e-004**	**4.4400e-003**	**3.7200e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8288**	**4.8288**	**9.0000e-005**	**9.0000e-005**	**4.8575**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	25025.2	8.1785	3.3000e-004	7.0000e-005	8.2070
Racquet Club	44724.4	14.6163	5.9000e-004	1.2000e-004	14.6673

Total		22.7948	9.2000e-004	1.9000e-004	22.8743

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	25025.2	8.1785	3.3000e-004	7.0000e-005	8.2070
Racquet Club	44724.4	14.6163	5.9000e-004	1.2000e-004	14.6673
Total		**22.7948**	**9.2000e-004**	**1.9000e-004**	**22.8743**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0427	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Unmitigated	0.0427	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.9400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0397					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Total	**0.0427**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.9000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.9400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0397					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Total	**0.0427**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.7992	0.0126	3.2000e-004	4.2102
Unmitigated	4.3687	0.0157	4.0000e-004	4.8812

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	0.158579 / 0.407773	2.2057	5.2500e-003	1.4000e-004	2.3787
Racquet Club	0.31819 / 0.19502	2.1631	0.0105	2.6000e-004	2.5024
Total		**4.3687**	**0.0157**	**4.0000e-004**	**4.8812**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	0.126863 / 0.382899	1.9703	4.2100e-003	1.1000e-004	2.1095
Racquet Club	0.254552 / 0.183124	1.8289	8.3600e-003	2.1000e-004	2.1007
Total		**3.7992**	**0.0126**	**3.2000e-004**	**4.2102**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.7797	0.2234	0.0000	9.3640
Unmitigated	7.5594	0.4468	0.0000	18.7281

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e

Land Use	tons	MT/yr			
High School	6.57	1.3337	0.0788	0.0000	3.3041
Racquet Club	30.67	6.2257	0.3679	0.0000	15.4240
Total		**7.5594**	**0.4468**	**0.0000**	**18.7281**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	3.285	0.6668	0.0394	0.0000	1.6520
Racquet Club	15.335	3.1129	0.1840	0.0000	7.7120
Total		**3.7797**	**0.2234**	**0.0000**	**9.3640**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST INTRODUCTION

In December 2015, the City adopted a Climate Action Plan (CAP) that outlines the actions that City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions. The purpose of the Climate Action Plan Consistency Checklist (Checklist) is to, in conjunction with the CAP, provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).[1]

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

This Checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this Checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law.

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[1] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

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CAP CONSISTENCY CHECKLIST SUBMITTAL APPLICATION

- ❖ The Checklist is required only for projects subject to CEQA review.[2]
- ❖ If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- ❖ The requirements in the Checklist will be included in the project's conditions of approval.
- ❖ The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: 585636 / ACCESS YOUTH ACADEMY

Property Address: 704 EUCLID AVENUE SAN DIEGO, CA 92114

Applicant Name/Co.: DAVID LAM / SAFDIE RABINES ARCHITECTS

Contact Phone: 619-297-6153 Contact Email: DAVID@SAFDIERABINES.COM

Was a consultant retained to complete this checklist? ☐ Yes ☐ No If Yes, complete the following

Consultant Name: ______ Contact Phone: ______

Company Name: ______ Contact Email: ______

Project Information

1. What is the size of the project (acres)? 0.785 ACRES (AFTER R.O.W. DEDICATION)
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units):
   - ☐ Residential (indicate # of multi-family units):
   - ■ Commercial (total square footage): 21,630 SF
   - ☐ Industrial (total square footage):
   - ☐ Other (describe):
3. Is the project or a portion of the project located in a Transit Priority Area? ■ Yes ☐ No
4. Provide a brief description of the project proposed:

NEW 2-STORY COMMERCIAL MIXED-USE BUILDING WITH CLASSROOMS (AFTER SCHOOL TUTORING), OFFICES, SQUASH COURTS, AND SUPPORT SPACES. SITE WILL BE DEVELOPED WITH LANDSCAPING AND SURFACE PARKING SPACES.

[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency		
Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
A. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR, B. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment, would the proposed amendment result in an increased density within a Transit Priority Area (TPA)[4] and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?; OR, C. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?	☑	☐

If "***Yes***," proceed to Step 2 of the Checklist. For question B above, complete Step 3. For question C above, provide estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation.

If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.

The Land Use Element of the Encanto Community Plan identifies the site within an area designated for Neighborhood Mixed-Use-Low (ranging from 15-29 dwelling units per acre) and zoned CN-1-3 within the Village District. The underlying base zone, CN-1-3, allows for Educational Facilities K-12, Commercial Services - Business Support, Commercial - Instructional Studios, Commercial - Personal Services, Private Clubs/Lodges/Fraternal Organizations, and Offices - Business & Professional. The project site is within the Village District of the

The proposed project is a mixed-use building with tutoring, recreational, and administrative offices. The tutoring and administrative offices aspects of the project fall into the Business & Professional Offices (this is similar to a Sylvan learning center). The recreational (squash courts) portion of the facility would fall into Assembly & Entertainment, Instructional Studios, or Personal Services.

The project is consistent with the area designated for "Multiple Use" development by the General Plan and the land use designation of the Community Plan and is consistent with the existing underlying zone.

[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

[4] This category applies to all projects that answered in the affirmative to question 3 on the previous page: Is the project or a portion of the project located in a transit priority area.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[5] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs*. • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component. The project proposes to use the Johns Manville thermoplastic roofing membrane (JM PVC ES - 80 mil) in white to achieve the requirements. This product has the following measurements: Reflectivity - Initial=0.86, 3-Year Aged=0.70; Emissivity - Initial=0.86, 3-Year Aged=0.82; and SRI - Initial=108, 3-Year Aged=84.	☑	☐	☐

[5] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits or other permits that do not result in the expansion or enlargement of a building (e.g., decks, garages, etc.), and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

2. *Plumbing fixtures and fittings* With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following: Residential buildings: • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? Nonresidential buildings: • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and • Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)? Check "N/A" only if the project does not include any plumbing fixtures or fittings. THE FOLLOWING FIXTURES AND FLOW RATES ARE USED ON THE PROJECT AND MEET THE REQUIREMENTS. SHOWERHEADS = 1.6 AND 1.75 GPM LAVATORY FAUCETS = 0.35 GPM KITCHEN FAUCETS = 1.5 GPM WATER CLOSETS = 1.1 GPF URINALS = 1 GPF / 72 HOUR CYCLE	☑	☐	☐

Strategy 3: Bicycling, Walking, Transit & Land Use			
3. *Electric Vehicle Charging* • Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? • Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents? • Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use? Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces. CALGREEN MANDATORY MEASURES REQUIRES THAT TWO EVCS SPACES BE AVAILABLE FOR FUTURE INSTALLATION. CALGREEN TIER 2 VOLUNTARY MEASURE REQUIRES THAT FOUR EVCS SPACES BE AVAILABLE FOR FUTURE INSTALLATION. THE CLIENT HAS REQUESTED TO PROVIDE THE FOUR SPACES. THE PROJECT WILL PROVIDE ALL FOUR SPACES WITH EV CHARGING STATIONS READY FOR USE.	☑	☐	☐
Strategy 3: Bicycling, Walking, Transit & Land Use (Complete this section if project includes non-residential or mixed uses)			
4. *Bicycle Parking Spaces* Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6] Check "N/A" only if the project is a residential project. PER SDMC 142.0530(e)(1)(A), THE PROJECT REQUIRES 3 SHORT-TERM SPACES. WE HAVE 6 SPACES PROVIDED. PER SDMC 142.0530(e)(2)(A), THE PROJECT REQUIRES ZERO LONG-TERM SPACES BECAUSE THERE IS LESS THAN 10 FULL-TIME EMPLOYEES, BUT WE HAVE PROVIDED 2 LONG-TERM SPACES.	☑	☐	☐

[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

5. *Shower facilities*

If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below?

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

☑ ☐ ☐

Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).

THE PROJECT DOES NOT HAVE MORE THAN 10 EMPLOYEES, BUT THE FACILITY INCLUDES 8 SHOWER STALLS WITH LOCKER/CHANGING AREA. THERE IS ALSO 64 TWO-TIER LOCKERS IN THE MAIN CORRIDOR OF THE SQUASH WING.

6. *Designated Parking Spaces*

If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.

☑ ☐ ☐

THE PROJECT INCLUDES THE RQUIRED NUMBER OF DESIGNATED PARKING SPACES FOR LOW-EMITTING, FUEL-EFFICIENT, AND CARPOOL/VANPOOL VEHICLES. THERE ARE THREE SPOTS PROVIDED BASED OFF OF REQUIRED PARKING SPACES.

7. *Transportation Demand Management Program* If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes: At least one of the following components: • Parking cash out program • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools • Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development And at least three of the following components: • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees • On-site carsharing vehicle(s) or bikesharing • Flexible or alternative work hours • Telework program • Transit, carpool, and vanpool subsidies • Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use? Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees). PROJECT DOES NOT CONTAIN/ACCOMMODATE OVER 50 TENANT-OCCUPANTS (EMPLOYEES).	☐	☐	☐

Step 3: Project CAP Conformance Evaluation (if applicable)

The third step of the CAP consistency review only applies if Step 1 is answered in the affirmative under option B. The purpose of this step is to determine whether a project that is located in a TPA but that includes a land use plan and/or zoning designation amendment is nevertheless consistent with the assumptions in the CAP because it would implement CAP Strategy 3 actions. In general, a project that would result in a reduction in density inside a TPA would not be consistent with Strategy 3.The following questions must each be answered in the affirmative and fully explained.

1. **Would the proposed project implement the General Plan's City of Villages strategy in an identified Transit Priority Area (TPA) that will result in an increase in the capacity for transit-supportive residential and/or employment densities?**

   Considerations for this question:
   - Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?
   - Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA?
   - Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?

2. **Would the proposed project implement the General Plan's Mobility Element in Transit Priority Areas to increase the use of transit?**

   Considerations for this question:
   - Does the proposed project support/incorporate identified transit routes and stops/stations?
   - Does the project include transit priority measures?

3. **Would the proposed project implement pedestrian improvements in Transit Priority Areas to increase walking opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?
   - Does the proposed project urban design include features for walkability to promote a transit supportive environment?

4. **Would the proposed project implement the City of San Diego's Bicycle Master Plan to increase bicycling opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?
   - Does the overall project circulation system provide a balanced, multimodal, "complete streets" approach to accommodate mobility needs of all users?

5. **Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?**

   Considerations for this question:
   - Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?
   - Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?
   - Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

6. **Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?**

   Considerations for this question:
   - Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?
   - Does the proposed project include policies or strategies for preserving existing trees?
   - Does the proposed project incorporate tree planting that will contribute to the City's 20% urban canopy tree coverage goal?

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST
ATTACHMENT A

This attachment provides performance standards for applicable Climate Action Pan (CAP) Consistency Checklist measures.

Table 1	**Roof Design Values for Question 1: Cool/Green Roofs supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**			
Land Use Type	Roof Slope	Minimum 3-Year Aged Solar Reflectance	Thermal Emittance	Solar Reflective Index
Low-Rise Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
High-Rise Residential Buildings, Hotels and Motels	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
Non-Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 residential and non-residential voluntary measures shown in Tables A4.106.5.1 and A5.106.11.2.2, respectively. Roof installation and verification shall occur in accordance with the CALGreen Code.

CALGreen does not include recommended values for low-rise residential buildings with roof slopes of ≤ 2:12 for San Diego's climate zones (7 and 10). Therefore, the values for climate zone 15 that covers Imperial County are adapted here.

Solar Reflectance Index (SRI) equal to or greater than the values specified in this table may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance.

Table 2	Fixture Flow Rates for Non-Residential Buildings related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan
Fixture Type	**Maximum Flow Rate**
Showerheads	1.8 gpm @ 80 psi
Lavatory Faucets	0.35 gpm @60 psi
Kitchen Faucets	1.6 gpm @ 60 psi
Wash Fountains	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering Faucets	0.18 gallons/cycle
Metering Faucets for Wash Fountains	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity Tank-type Water Closets	1.12 gallons/flush
Flushometer Tank Water Closets	1.12 gallons/flush
Flushometer Valve Water Closets	1.12 gallons/flush
Electromechanical Hydraulic Water Closets	1.12 gallons/flush
Urinals	0.5 gallons/flush

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Tables A5.303.2.3.1 and A5.106.11.2.2, respectively. See the California Plumbing Code for definitions of each fixture type.

Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

Acronyms:
gpm = gallons per minute
psi = pounds per square inch (unit of pressure)
in. = inch

Table 3	Standards for Appliances and Fixtures for Commercial Application related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan	
Appliance/Fixture Type	**Standard**	
Clothes Washers	Maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations.*	
Conveyor-type Dishwashers	0.70 maximum gallons per rack (2.6 L) (High-Temperature)	0.62 maximum gallons per rack (4.4 L) (Chemical)
Door-type Dishwashers	0.95 maximum gallons per rack (3.6 L) (High-Temperature)	1.16 maximum gallons per rack (2.6 L) (Chemical)
Undercounter-type Dishwashers	0.90 maximum gallons per rack (3.4 L) (High-Temperature)	0.98 maximum gallons per rack (3.7 L) (Chemical)
Combination Ovens	Consume no more than 10 gallons per hour (38 L/h) in the full operational mode.	
Commercial Pre-rinse Spray Valves (manufactured on or after January 1, 2006)	Function at equal to or less than 1.6 gallons per minute (0.10 L/s) at 60 psi (414 kPa) and • Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate. • Be equipped with an integral automatic shutoff. • Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gallons per minute (0.08 L/s) or less.	

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Section A5.303.3. See the California Plumbing Code for definitions of each appliance/fixture type.

Acronyms:
L = liter
L/h = liters per hour
L/s = liters per second
psi = pounds per square inch (unit of pressure)
kPa = kilopascal (unit of pressure)

RICK
ENGINEERING COMPANY

August 23, 2017
Revised: December 7, 2017
Revised: April 17, 2018

Mr. Renato Paiva
Access Youth Academy
9370 Waples Street, Suite 101
San Diego, California 92121

SUBJECT: DRAINAGE STUDY FOR ACCESS YOUTH ACADEMY
PTS #572129 DWG #40306-D
(RICK ENGINEERING COMPANY JOB NUMBER 13284-FFF)

Dear Mr. Paiva:

This drainage letter report represents a revision to the December 7th, 2017 report in addition to a revision to the August 23, 2017 report pursuant to the first review cycle from the City of San Diego dated 9/22/17. Hydraulic and hydrologic calculations have been revised in accordance with the latest site layout. The project's pre- and post-project drainage exhibits have also been revised to reflect the latest site layout. The 100-year flow rate and flow velocity at the project's discharge point have been provided per the City's request. The 100-year flow velocity was calculated using the Federal Highway Administration's Hydraulic Toolbox software. The backup calculations are included in Attachment 1.

This letter has been prepared in support of the on-site drainage for Access Youth Academy (herein referred to as the "project"). The address of the project is: 704 Euclid Avenue, San Diego, CA and is located adjacent to Horton Elementary School, on the corner of Euclid Avenue and Guymon Street. The project is proposed on what is currently a previously graded lot that features a recreational sports field over the majority of the site and a small parking lot in the northern portion of the project site. The project will drain toward an existing public storm drain system and construction activity does not impact any jurisdictional waters or wetlands. As such it is anticipated that the project will not be subject to requirements under the Federal Clean Water Act (CWA) Section 401 or 404.

The following narrative addresses drainage characteristics for the project for both the pre-project site condition and the post-project site condition.

Drainage Characteristics based on the Pre-Project Site Condition:

In the pre-project condition, the project site has been divided into two (2) drainage basins, for a total area of 0.9 acres. Basin 1 consists of the western half of the project site, and is 0.6 acres in area. Runoff from Basin 1 drains in a south-easterly direction to an existing catch basin on the southeast corner of the project site. Basin 2 consists of the eastern half of the project site, and totals 0.3 acres in area. Runoff from Basin 2 also drains in a south-easterly direction towards the street gutters on Euclid Avenue, where it is then directed towards the same existing catch basin on the southeast corner of the project site.

Based on the drainage patterns and runoff coefficients, the peak flow rate for the 100-year storm event for the pre-project condition is 2.1 cubic feet per second (cfs). Hydrologic calculations for the pre-project condition have been presented in Attachment 1. See Table 1 for a comparison of the pre- and post-project 100-yr runoff rates.

Drainage Characteristics based on the Post-Project Site Condition:

The site layout for the post-project condition maintains similar drainage characteristics as compared with the pre-project condition. In the post-project condition, the project site has been divided into three (3) drainage basins for a total area of 0.9 acres. Basin 1 is 0.6 acres in area, consisting of the northern project area and also encompassing some of the western project boundary. Runoff from Basin 1 is proposed to flow in a western direction towards a proposed biofiltration basin on the western project site boundary for water quality and HMP purposes. Flows in excess of HMP will be conveyed via a grate inlet and 12” PVC pipe to an existing catch basin located at the southeast corner of the project site.

Basin 2 is 0.1 acres in size, and encompasses the southwest corner of the project site. Runoff from Basin 2 flows in an easterly direction towards proposed on-site drainage structures that will convey the runoff towards a proposed biofiltration basin near the southeastern boundary of the project site. Overflow from the proposed filtration basin will be conveyed via a grate inlet and 18” RCP towards the existing catch basin at the southeast corner of the project site.

Basin 3 is 0.2 acres in size, and encompasses the southeast corner of the project site. Runoff from Basin 3 is mostly directed in a southerly direction towards the same proposed biofiltration basin on the southeastern project boundary via proposed on-site drainage structures. Overflow from the proposed filtration basin will be conveyed via a grate inlet and 18” RCP to the existing catch basin on the south eastern project boundary.

Based on the drainage patterns and runoff coefficients, the peak flow rate for the 100-Year storm event from for the project site was calculated to be 3.5 cubic feet per second (cfs) in the post-project condition. While there is an increase in the 100-year runoff between the pre- and post-project conditions, the downstream drainage facilities are subject to inundation in a 100-year event from the nearby Chollas Creek and therefore detention has not been provided. Detaining post-project runoff to the pre-project runoff condition would not alleviate the downstream drainage facilities from inundation. Hydrologic calculations for the post-project condition have been presented in Attachment 1. See Table 1 for a comparison of the pre- and post-project runoff rates generated onsite.

Table 1: Summary of the 100-Yr Flow Rates in the Pre- and Post-Project Conditions

	Area (AC.)	**Runoff Coefficient (C)**	**Q (cfs)**
Pre-Project	0.9	0.56	2.1
Post-Project	0.9	0.86	3.4

Table 2: Summary of the 100-Yr Flow Rate and Flow Velocity at the Project Discharge Point (Post-Project Condition)

100-Yr Flow Rate & Flow Velocity at the Project Discharge Point				
POI ID	**Tributary Area (AC.)**	**Intensity (in/hr) 100-Yr**	**Q_{100} (cfs)**	**V_{100} (fps)**
1	0.9	4.40	3.4	5.3

Offsite Drainage Characteristics

In addition to the analysis of pre- and post- project peak runoff rates generated onsite, an offsite drainage analysis was conducted for the total drainage area tributary to the existing inlet that Access Youth Academy is proposing to connect into. This existing catch basin then discharges through the existing 18" RCP underneath Guymon Street. The findings are as follows: there are approximately 12.2 acres tributary to the 18" pipe, (including offsite and onsite area). In the pre-project condition, the approximate peak flow rate to the inlet/pipe is 27.2 cfs, whereas in the post-project condition the peak flow rate is approximately 28.0 cfs. Therefore, the increase in peak runoff from the pre- to post-project condition is 0.8 cfs when onsite and offsite tributary areas are both considered. The existing 18-inch RCP has a capacity equal to approximately 11 cfs assuming the pipe is not inundated from the nearby creek. This increase of 0.8 cfs does not reflect incidental detention and flow attenuation that will also occur within the proposed biofiltration BMPs onsite. Based on this information, and since the inundation of the intersection will remain similar in the pre-project and post-project condition due to the larger creek system, we are not proposing any additional offsite improvements or onsite detention. Hydrologic calculations for the offsite area in the pre- and post- project conditions are included in Attachment 1.

Hydraulics

Pipe Sizing

On-site pipe sizing was completed using normal depth methods to provide an estimation of storm drain size required to convey runoff from a 100-year storm event; pipe sizing calculations have been included in Attachment 2.

Grate Inlet Sizing

Based on weir flow calculations, two Type-I grate inlets have been sized for the purpose of draining overflow from the proposed biofiltration basins. Grate Inlet sizing calculations have been included in Attachment 2.

Conclusion:

This letter report has been prepared in support of the on-site drainage configuration for Access Youth Academy. Based on the findings of this report, drainage characteristics are expected to change slightly from pre-project conditions, the expected result being an increase in runoff flows due to the addition of impervious areas in the post-project condition. As shown above, the increase is approximately 1.4 cfs when only onsite tributary area is considered or 0.8 cfs when offsite tributary area is also accounted for. The actual increase, however, will be less as a result of incidental flow attenuation that each of the biofiltration basins will provide. Therefore, the minor increase is not anticipated to result in any significant adverse impacts for the downstream drainage facilities. While there is an increase in the 100-year runoff between the pre- and post-, it is also worth noting that the adjacent intersection is subject to inundation in a 100-year event from the nearby South Las Chollas Creek. Detaining post-project runoff to the pre-project runoff condition would not alleviate the downstream drainage facilities from inundation.

Please feel free to contact Ian Cohan or myself if you have any questions and/or concerns at (619) 291-0707.

Sincerely,

RICK ENGINEERING COMPANY

Brendan Hastie
RCE #65809, Exp. 9/19
Associate Principal

REGISTERED PROFESSIONAL ENGINEER
BRENDAN CRAIG HASTIE
NO. 65809
EXP. 9/30/19
CIVIL
STATE OF CALIFORNIA

BH:IC:vs/files/Report/.009

Enclosure

ATTACHMENT 1

Hydrology Calculations

Rational Method for Access Youth Academy (Pre Project Condition)							
Drainage Basin ID	**Area (Ac)**	**Pervious Area (Ac)**	**Impervious Area (Ac)**	**% Impervious**	**Weighted Runoff Coefficient**	**Intensity (in/hr) 100-Yr**	**Q_{100} (cfs)**
1	0.6	0.5	0.1	10%	0.50	4.40	1.3
2	0.3	0.2	0.1	37%	0.62	4.40	0.8
Total	0.9	0.7	0.2	19%	0.56		2.1

1. Weighted Runoff Coefficients were calculated based on guidance from the City of San Diego Drainage Design Manual, dated January 2017.
2. Intensity was calculated using the City of San Diego Drainage Design Manual, dated January 2017.
3. Time of Concentration (T_c) was assumed to be 5 minutes for the pre project condition.

Rational Method for Access Youth Academy (Post Project Condition)							
Drainage Basin ID	**Area (Ac)**	**Pervious Area (Ac)**	**Impervious Area (Ac)**	**% Impervious**	**Weighted Runoff Coefficient**	**Intensity (in/hr) 100-Yr**	**Q_{100} (cfs)**
1	0.6	0.1	0.5	80%	0.85	4.40	2.2
2	0.1	0.02	0.1	83%	0.88	4.40	0.4
3	0.2	0.03	0.2	85%	0.90	4.40	0.8
Total	0.9	0.2	0.7	81%	0.86		3.4

1. Weighted Runoff Coefficients were calculated based on guidance from the City of San Diego Drainage Design Manual, dated January 2017.
2. Intensity was calculated using the City of San Diego Drainage Design Manual, dated January 2017.
3. Time of Concentration (T_c) was assumed to be 5 minutes for the post project condition.

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Date 08/20/2018
Job No. J-13284FFF
Page 1 of
Done By L.C.
Checked By

Rational Method for Drainage Area Tributary to 18" RCP Culvert under Guymon Street

Onsite Tributary Area = 0.9 acres, Offsite Tributary Area = 11.3 acres

· Pre-Project

A = 11.3 acres (offsite) + 0.9 acres (onsite) = 12.2 acres
Assume T_c = 10 min ⟶ Intensity ≃ 3.48 in/hr
Assume 60% impervious ⟶ C = 0.64

$$Q = 0.64\,(3.48\text{ in/hr})(12.2\text{ acres}) = \boxed{27.2\text{ cfs}}$$

· Post-Project

A = 12.2 acres
Assume T_c = 10 min ⟶ Intensity ≃ 3.48 in/hr
Onsite % Impervious = 81%
Offsite % Impervious (assumed) = 60%
Total % Impervious = 62% ⟶ C = 0.66 $Q = 0.66\,(3.48\text{ in/hr})(12.2\text{ acres}) = \boxed{28.0\text{ cfs}}$

ΔQ_{100} Pre-Project to Post-Project = 0.8 cfs

2.9% Increase

ATTACHMENT 2

Hydraulic Calculations

Access Youth Academy
13284FFF
08/09/2017

Grate Inlet Sizing (Weir vs. Orifice)

Weir coefficient, C_w	3.0
Orifice coefficient, C_o	0.60
Available head, h (feet)	0.50

Inlet Type	Capacity based on Weir Equation[3, 4], Q_{cap} (cfs[5])	Capacity based on Orifice Equation[3, 4], Q_{cap} (cfs[5])	Governing Equation
1212 Series - 12"x12" Catch Basin[1]	2.26	1.90	Orifice
1218 Series - 12"x18" Catch Basin[1]	2.61	2.54	Orifice
1818 Series - 18"x18" Catch Basin[1]	2.96	3.22	Weir
2424 Series - 24"x24" Catch Basin[1]	3.83	5.39	Weir
3636 Series - 36"x36" Catch Basin[1]	5.59	11.26	Weir

Type 'I' Catch Basin[2]	4.89	8.27	Weir

Note:

1. Based on Brooks Products, Inc. - H 20-44 Traffic, Steel Grate, not Parkway, Cast-iron grate
2. Based on Drawing Number D-13 & D-15 in the City of San Diego Regional Standard Drawings, dated April 2003
3. A reduction factor of 50% assumed for clogging.
4. Weir equation, $Q = C_w L_e (h)^{3/2}$; Orifice equation, $Q = C_o A_e (2gh)^{1/2}$
5. "cfs" = cubic feet per second

[File]

Preliminary Storm Drain Size

The purpose of this table is to provide an estimated pipe size to convey the 100-year flow rates with a sizing factor.

Manning's n: 0.013

Sizing Factor (%): 30

Slope at:		0.5%		1.0%		2.4%		3.0%	
Q_{100} (cfs[1])	Q_{100} with Sizing Factor (cfs[1])	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size [2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)
2.0	2.6	1.01	12"	0.89	12"	0.75	10"	0.72	10"
5.0	6.5	1.43	18"	1.25	18"	1.06	18"	1.02	18"
7.5	9.8	1.66	24"	1.46	18"	1.24	18"	1.19	18"
10.0	13.0	1.85	24"	1.62	24"	1.38	18"	1.32	18"
16.9	22.0	2.25	30"	1.98	24"	1.68	24"	1.61	24"
20.0	26.0	2.40	30"	2.11	30"	1.79	24"	1.71	24"
24.6	31.9	2.59	36"	2.27	30"	1.93	24"	1.85	24"
30.0	39.0	2.79	36"	2.45	30"	2.08	30"	1.99	24"
35.0	45.5	2.96	36"	2.60	36"	2.20	30"	2.11	30"
40.0	52.0	3.11	42"	2.73	36"	2.32	30"	2.22	30"
50.0	65.0	3.38	42"	2.97	36"	2.52	36"	2.42	30"
60.0	78.0	3.62	48"	3.18	42"	2.70	36"	2.59	36"
70.0	91.0	3.83	48"	3.37	42"	2.86	36"	2.74	36"
80.0	104.0	4.03	54"	3.54	48"	3.00	36"	2.88	36"
90.0	117.0	4.21	54"	3.70	48"	3.14	42"	3.01	42"
110.0	143.0	4.54	60"	3.99	48"	3.39	42"	3.25	42"
145.0	188.5	5.04	72"	4.42	54"	3.75	48"	3.60	48"
170.0	221.0	5.35	72"	4.70	60"	3.99	48"	3.82	48"
240.0	312.0	6.09	84"	5.35	72"	4.54	60"	4.35	54"
350.0	455.0	7.01	96"	6.16	84"	5.23	72"	5.01	72"

Note:

1. "cfs" = cubic feet per second.

2. Minimum pipe sizes are calculated using the Manning's equation and are based on the flow rates with 30% factor.

Hydraulic Analysis Report

Project Data

Project Title: Access Youth Academy - 100-Yr Flow Velocity at Project Discharge Point

Designer:

Project Date: Tuesday, May 01, 2018

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.5000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow: 3.4000 cfs

Result Parameters

Depth: 0.5869 ft

Area of Flow: 0.6409 ft^2

Wetted Perimeter: 2.0275 ft

Hydraulic Radius: 0.3161 ft

Average Velocity: 5.3048 ft/s

Top Width: 1.4641 ft

Froude Number: 1.4129

Critical Depth: 0.7031 ft

Critical Velocity: 4.1805 ft/s

Critical Slope: 0.0052 ft/ft

Critical Top Width: 1.50 ft

Calculated Max Shear Stress: 0.3663 lb/ft^2

Calculated Avg Shear Stress: 0.1973 lb/ft^2

MAP POCKET 1

Drainage Study Exhibit
For
Access Youth Academy
[Pre-project]

DRAINAGE EXHIBIT FOR ACCESS YOUTH ACADEMY (PRE PROJECT)

J-13284FFF

Date: August 23, 2017
Revised: December 7,2017
Revised: April 17, 2018

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619-291-0707
(FAX) 619-291-4165
rickengineering.com
Riverside · Orange · Sacramento · San Luis Obispo · Phoenix · Tucson · Denver

J-13284-FFF

NOT FOR CONSTRUCTION - EXHIBIT FOR DRAINAGE STUDY ONLY

MAP POCKET 2

Drainage Study Exhibit
For
Access Youth Academy
[Post-project]

DRAINAGE EXHIBIT FOR ACCESS YOUTH ACADEMY (POST PROJECT)

J-13284FFF

Date: August 23, 2017
Revised: December 7,2017
Revised: April 17, 2018

NOT FOR CONSTRUCTION - EXHIBIT FOR DRAINAGE STUDY ONLY

5 -

Federal Emergency Management Agency

Washington, D.C. 20472

January 18, 2018

THE HONORABLE KEVIN FAULCONER
MAYOR, CITY OF SAN DIEGO
202 C STREET, 11TH FLOOR

SAN DIEGO, CA 92101

CASE NO.: 18-09-0561C
COMMUNITY: CITY OF SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA
COMMUNITY NO.: 060295

DEAR MR. FAULCONER:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Conditional Letter of Map Revision based on Fill (CLOMR-F) Comment Document. This comment document provides additional information regarding the effective NFIP map, the legal description of the property and our comments regarding this proposed project.

Additional documents are enclosed which provide information regarding the subject property and CLOMR-Fs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Sincerely,

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:

CLOMR-F COMMENT DOCUMENT

cc: Mr. Brendan Hastie

Page 1 of 2		Date: January 18, 2018	Case No.: 18-09-0561C	CLOMR-F

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION BASED ON FILL COMMENT DOCUMENT

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA	Proposed Access Youth Academy, shown as Parcel 1, on Parcel Map No. 2407 recorded as File No. 74-052713, in the Office of the Recorder, San Diego County, California
	COMMUNITY NO.: 060295	
AFFECTED MAP PANEL	NUMBER: 06073C1904G	
	DATE: 5/16/2012	
FLOODING SOURCE: SOUTH LAS CHOLLAS CREEK		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:32.712830, -117.085334 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

COMMENT TABLE REGARDING THE PROPOSED PROPERTY (PLEASE NOTE THAT THIS IS NOT A FINAL DETERMINATION. A FINAL DETERMINATION WILL BE MADE UPON RECEIPT OF AS-BUILT INFORMATION REGARDING THIS PROPERTY.)

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT WOULD BE REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
Parcel 1	--	Parcel Map No. 2407	704 Euclid Avenue	Structure	X (shaded)	124.2 feet	124.2 feet	--

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

PORTIONS REMAIN IN THE SFHA
CONDITIONAL LOMR-F DETERMINATION
REVISED BY LETTER OF MAP REVISION

This document provides the Federal Emergency Management Agency's comment regarding a request for a Conditional Letter of Map Revision based on Fill for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the proposed structure(s) on the property(ies) would not be located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) if built as proposed. Our final determination will be made upon receipt of a copy of this document, as-built elevations, and a completed Community Acknowledgement form. Proper completion of this form certifies the subject property is reasonably safe from flooding in accordance with Part 65.5(a)(4) of our regulations. Further guidance on determining if the subject property is reasonably safe from flooding may be found in FEMA Technical Bulletin 10-01. A copy of this bulletin can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at http://www.fema.gov/mit/tb1001.pdf. This document is not a final determination; it only provides our comment on the proposed project in relation to the SFHA shown on the effective NFIP map.

This comment document is based on the flood data presently available. The enclosed documents provide additional information regarding this request. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION BASED ON FILL COMMENT DOCUMENT

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

CONDITIONAL LOMR-F DETERMINATION (This Additional Consideration applies to the preceding 1 Property.)

Comments regarding this conditional request are based on the flood data presently available. Our final determination will be made upon receipt of this Comment Document, certified as-built elevations and/or certified as-built survey. Since this request is for a Conditional Letter of Map Revision based on Fill, we will also require the applicable processing fee, and the "Community Acknowledgement" form. Please note that additional items may be required before a final as-built determination is issued.

This letter does not relieve Federal agencies of the need to comply with Executive Order 11988 on Floodplain Management in carrying out their responsibilities and providing Federally undertaken, financed, or assisted construction and improvements, or in their regulating or licensing activities.

REVISED BY LETTER OF MAP REVISION (This Additional Consideration applies to the preceding 1 Property.)

The effective National Flood Insurance Program map for the subject property, has since been revised by a Letter of Map Revision (LOMR) dated 5/17/2012. The 5/17/2012 LOMR has been used in making the determination/comment for the subject property.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

RICK
ENGINEERING COMPANY

September 12, 2018

Mr. Louis Schultz
Senior Civil Engineer
City of San Diego – Development Services Department
1222 First Avenue, MS 301
San Diego, California 92101-4101

SUBJECT: NO-RISE CERTIFICATION FOR ACCESS YOUTH ACADEMY
(RICK ENGINEERING COMPANY JOB NUMBER 13284-FFF)

Dear Mr. Schultz:

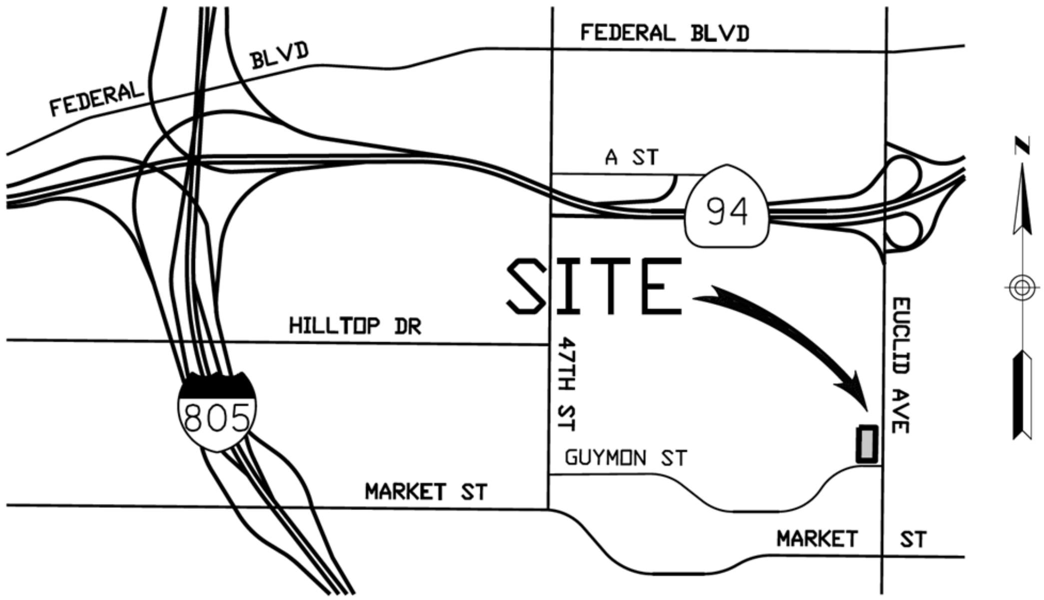
This is a No-Rise Certification for the proposed Access Youth Academy Project (project) in the City of San Diego, California; APN: 548-010-13. The project proposes construction activities within the Federal Emergency Management Agency (FEMA) defined floodplain for South Las Chollas Creek, between FEMA cross sections Y and Z, as shown on the FEMA Flood Insurance Rate Map (FIRM) map number 06073C1904G, effective May 16, 2012. FEMA has designated this portion of South Las Chollas Creek as Zone AE and Zone X. The limits of this project are within the City of San Diego, California, community number 060295. Please refer to the vicinity map on the following page. A Conditional Letter of Map Revision based on Fill (CLOMR-F) has already been processed through the City of San Diego and FEMA, a copy of the determination letter is included in Attachment 2.

The project is located at 704 Euclid Avenue at the northwest corner of the intersection of Guymon Street and Euclid Avenue. The approximately 0.8 acre site is currently a vacant lot with a parking lot along the northern property boundary. The proposed project includes the construction of the proposed Access Youth Academy building, a parking lot, and landscaped areas.

FIRM panel 06073C1904G has been revised by Letter of Map Revision (LOMR) FEMA Case No. 12-09-1287P, original LOMR Case No. 11-09-0120P, effective on May 17, 2012. An additional LOMR completed by RICK, LOMR Case No. 17-09-1780P, is now effective as of September 6, 2018. The modeling for South Las Chollas Creek completed by LOMR 17-09-1780P encompasses the reach of the creek that the Access Youth Academy project is adjacent to. Consequently, the no-rise certification completed for the project utilizes the LOMR 17-09-1780P model as the modeling basis.

A summary of the modeling completed in this study is included in the following sections. An electronic copy of the executable HEC-RAS models is included in Attachment 8. All of the modeling completed as part of this study was executed using HEC-RAS version 5.0.3 and all elevations are on the NGVD-29 vertical datum unless noted otherwise. A copy of LOMR 17-09-1780P is included in Attachment 3 and excerpts from the LOMR 17-09-1780P report are included in Attachment 4.

Vicinity Map



Plan: DE

This plan includes the HEC-RAS model for LOMR 17-09-1780P copied exactly from the HEC-RAS files for the LOMR in order to create a duplicate effective model. As shown in Table 1, following, the water surface elevations (WSELs) calculated in the duplicate effective model match exactly with the effective model confirming the correct effective model is being used for this comparison.

Plan: CE

This plan is based off of the duplicate effective model discussed above with the following revisions to create the corrected effective model:

1. The model was truncated to include only the reach in the vicinity of the proposed project to simplify comparisons between the models.
2. Updated the cross section data for cross sections 1731, 1745, and 1750 to include detailed site specific topography and updated Manning's n-values as required. The revisions were made from the cross section start to the north edge of Guymon Street for cross section 1731 and from the start to the east curb line of Euclid Avenue for cross sections 1745 and 1750.

Plan: PR

This plan is based off of the corrected effective condition model discussed above with the following revisions to create the proposed condition model:

1. The proposed grading for the project was added to the left bank of cross sections 1731 through 1750.

RICK
ENGINEERING COMPANY

Table 1: 100-Year Storm Event Water Surface Elevations Comparison Table

Job Name: Access Youth Academy
Job Number: 13284-FFF
Date: 9/12/2018

All WSEL's on the NGVD-29 Vertical Datum,
NAVD-88 elevations are 2.1 feet above NGVD-29 elevations.
FP=Floodplain FW=Floodway

FEMA LOMR 17-09-1780P Data			Effective			Duplicate Effective		Corrected Effective		Proposed		Duplicate FP - Effective FP	Corrected FP - Duplicate FP	Proposed FP - Corrected FP	Proposed FW - Corrected FW
Section	FP	FW	Section	FP	FW	FP	FW	FP	FW	FP	FW				
	[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[5]-[3]	[7]-[5]	[9]-[7]	[10]-[8]
			1718	114.29	114.29	114.29	114.29	114.29	114.29	114.29	114.29	0.00	0.00	0.00	0.00
			1719	114.39	114.39	114.39	114.39	114.39	114.39	114.39	114.39	0.00	0.00	0.00	0.00
			1720	114.42	114.42	114.42	114.42	114.42	114.42	114.42	114.42	0.00	0.00	0.00	0.00
			1722	115.76	115.81	115.76	115.81	115.76	115.81	115.76	115.81	0.00	0.00	0.00	0.00
			1723	115.96	115.95	115.96	115.95	115.96	115.95	115.96	115.95	0.00	0.00	0.00	0.00
			1728	116.80	116.80	116.80	116.80	116.80	116.80	116.80	116.80	0.00	0.00	0.00	0.00
			1731	116.92	116.91	116.92	116.91	116.92	116.91	116.92	116.91	0.00	0.00	0.00	0.00
			1735	118.43	118.48	118.43	118.48	118.43	118.48	118.43	118.48	0.00	0.00	0.00	0.00
			1740	Culvert		Culvert		Culvert		Culvert		--	--	--	--
			1745	120.56	121.52	120.56	121.52	120.64	121.52	120.64	121.52	0.00	0.08	0.00	0.00
Z	121.1	121.1	1750	121.05	121.10	121.05	121.10	121.33	121.10	121.33	121.10	0.00	0.28	0.00	0.00
			1762	121.89	121.68	121.89	121.68	121.89	121.68	121.89	121.68	0.00	0.00	0.00	0.00
AA	126.3	126.9	1797	126.31	126.87	126.31	126.87	126.31	126.87	126.31	126.87	0.00	0.00	0.00	0.00
			1827	130.29	130.31	130.29	130.31	130.29	130.31	130.29	130.31	0.00	0.00	0.00	0.00
			1846	132.95	133.10	132.95	133.10	132.95	133.10	132.95	133.10	0.00	0.00	0.00	0.00
			1856	135.51	135.74	135.51	135.74	135.51	135.74	135.51	135.74	0.00	0.00	0.00	0.00

Conclusion

As shown in Table 1, the proposed Access Youth Academy project results in no increase to the base flood elevations (100-year flood), floodway elevations, or floodway widths of South Las Chollas Creek at cross sections published in the Flood Insurance Study or unpublished cross-sections in the vicinity of the proposed development. The water surface elevation in this portion of South Las Chollas Creek appears to be driven primarily by backwater from the undersized culvert under Euclid Avenue. The proposed grading is on the fringe of the floodplain and in combination with the proposed walls adjacent to the structure providing cut to balance out conveyance pre- and post-project as well as with Manning's n-values being reduced with more concrete sidewalks and walls in the proposed condition, no increase in water surface elevations is calculated.

The No-Rise Certification for the project is included in Attachment 1. Summary output from the duplicate effective, corrected effective, and proposed models are included in Attachments 5, 6, and 7 respectively. A workmap for the corrected effective and proposed conditions models is included in Attachment 8. A reduced size copy of the proposed grading plan is included in Attachment 9 and a full size copy is included with the electronic files in Attachment 10.

Attachments

Attachment 1: No-Rise Certification
Attachment 2: CLOMR-F Determination Letter
Attachment 3: LOMR 17-09-1780P Letter
Attachment 4: Effective LOMR 17-09-1780P Report Excerpts
Attachment 5: Duplicate Effective HEC-RAS Output
Attachment 6: Corrected Effective HEC-RAS Output
Attachment 7: Proposed HEC-RAS Output
Attachment 8: Proposed HEC-RAS Workmap
Attachment 9: Proposed Grading Plan
Attachment 10: Electronic Files

If you have any questions or require additional information to aid in your review of the enclosed documents, please contact either David Montgomery at (916) 934-5191 or by email at dmontgomery@rickengineering.com or myself at (619) 291-0707 or by email at bhastie@rickengineering.com.

Sincerely,

RICK ENGINEERING COMPANY

Brendan Hastie

REGISTERED PROFESSIONAL ENGINEER
BRENDAN CRAIG HASTIE
NO. 65809
EXP. 9/30/19
CIVIL
STATE OF CALIFORNIA

Brendan Hastie
R.C.E. #65809, Exp. 9/19
Associate Principal

BH:DM:es:k/files/Report/13284-FFF.011

cc: Sean Torres

Attachment 1

No-Rise Certification

NATIONAL FLOOD INSURANCE PROGRAM
ENGINEERING "NO-RISE" CERTIFICATE

Community: City of San Diego County: San Diego State: CA Date: 09/12/2018

Applicant:	Access Youth Academy	Engineer:	Brendan Hastie
Address:	7310 Miramar Road,	Address:	Rick Engineering Company
	Suite 405		5620 Friars Road
	San Diego, CA 92126		San Diego, CA 92110-2596
Telephone:	(858) 860-5688	Telephone:	(619) 291-0707

Site Information
Location: Latitude: 32.71284° Longitude: -117.08542°
Site Address: 704 Euclid Avenue, San Diego, California 92114
Panel(s) of NFIP map(s) affected: 06073C1904G

Type of Development: Fill _X_ Grading _X_ Excavation _X_ Minor Improvement _X_
Substantial Improv ____ New Construction _X_ Other ___

Description of Development: This No-Rise Certification is for the proposed Access Youth Academy Project located at 704 Euclid Avenue in San Diego, California; APN: 548-010-13. The project site is at the northwest corner of the intersection of Euclid Avenue and Guymon Streets. The project proposes construction activities within the Federal Emergency Management Agency (FEMA) defined floodplain for South Las Chollas Creek, between FEMA cross sections Y and Z, as shown on the FEMA Flood Insurance Rate Map (FIRM) map number 06073C1904G, effective May 16, 2012.The approximately 0.8 acre site is currently a vacant lot with a parking lot along the northern property boundary. The proposed project includes the construction of the proposed Access Youth Academy building, a parking lot, and landscaped areas.

Name of Flooding Source: South Las Chollas Creek

Comments: The proposed condition hydraulic model in this No-Rise Certification is based on the proposed grading dated May 25, 2018. If the grading is constructed as proposed, Rick Engineering's hydraulic calculations show that there will be no cumulative increase in the 100-year base flood elevations in the proposed condition model when compared to the corrected effective model 100-year base flood elevations.

Certification:
This is to certify that I am a duly qualified Professional Engineer licensed to practice in the State of California. I further certify that the attached engineering data supports the fact the proposed project grading in the areas and configurations described above will not create any increase in the base flood elevations (100-year flood) above the corrected effective condition at published or unpublished cross sections listed in the Flood Insurance Study for the above community dated April 5, 2016 in the vicinity of the proposed development.

Brendan Hastie
NAME

Rick Engineering Company
COMPANY NAME

Associate Principal
TITLE

Brendan Hastie 9/13/18
SIGNATURE DATE

(SEAL)

REGISTERED PROFESSIONAL ENGINEER
BRENDAN CRAIG HASTIE
NO. 65809
EXP. 9/30/19
CIVIL
STATE OF CALIFORNIA

Attachment 2

CLOMR-F Determination

 | Date: January 18, 2018 | Case No.: 18-09-0561C | CLOMR-F

Federal Emergency Management Agency
Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION BASED ON FILL COMMENT DOCUMENT

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA	Proposed Access Youth Academy, shown as Parcel 1, on Parcel Map No. 2407 recorded as File No. 74-052713, in the Office of the Recorder, San Diego County, California
	COMMUNITY NO.: 060295	
AFFECTED MAP PANEL	NUMBER: 06073C1904G	
	DATE: 5/16/2012	
FLOODING SOURCE: SOUTH LAS CHOLLAS CREEK		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:32.712830, -117.085334 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

COMMENT TABLE REGARDING THE PROPOSED PROPERTY (PLEASE NOTE THAT THIS IS NOT A FINAL DETERMINATION. A FINAL DETERMINATION WILL BE MADE UPON RECEIPT OF AS-BUILT INFORMATION REGARDING THIS PROPERTY.)

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT WOULD BE REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
Parcel 1	--	Parcel Map No. 2407	704 Euclid Avenue	Structure	X (shaded)	124.2 feet	124.2 feet	--

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

PORTIONS REMAIN IN THE SFHA
CONDITIONAL LOMR-F DETERMINATION
REVISED BY LETTER OF MAP REVISION

This document provides the Federal Emergency Management Agency's comment regarding a request for a Conditional Letter of Map Revision based on Fill for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the proposed structure(s) on the property(ies) would not be located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) if built as proposed. Our final determination will be made upon receipt of a copy of this document, as-built elevations, and a completed Community Acknowledgement form. Proper completion of this form certifies the subject property is reasonably safe from flooding in accordance with Part 65.5(a)(4) of our regulations. Further guidance on determining if the subject property is reasonably safe from flooding may be found in FEMA Technical Bulletin 10-01. A copy of this bulletin can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at http://www.fema.gov/mit/tb1001.pdf. This document is not a final determination; it only provides our comment on the proposed project in relation to the SFHA shown on the effective NFIP map.

This comment document is based on the flood data presently available. The enclosed documents provide additional information regarding this request. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION BASED ON FILL COMMENT DOCUMENT

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

CONDITIONAL LOMR-F DETERMINATION (This Additional Consideration applies to the preceding 1 Property.)

Comments regarding this conditional request are based on the flood data presently available. Our final determination will be made upon receipt of this Comment Document, certified as-built elevations and/or certified as-built survey. Since this request is for a Conditional Letter of Map Revision based on Fill, we will also require the applicable processing fee, and the “Community Acknowledgement” form. Please note that additional items may be required before a final as-built determination is issued.

This letter does not relieve Federal agencies of the need to comply with Executive Order 11988 on Floodplain Management in carrying out their responsibilities and providing Federally undertaken, financed, or assisted construction and improvements, or in their regulating or licensing activities.

REVISED BY LETTER OF MAP REVISION (This Additional Consideration applies to the preceding 1 Property.)

The effective National Flood Insurance Program map for the subject property, has since been revised by a Letter of Map Revision (LOMR) dated 5/17/2012. The 5/17/2012 LOMR has been used in making the determination/comment for the subject property.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Attachment 3

LOMR 17-09-1780P Letter

Page 1 of 4	Issue Date: April 25, 2018	Effective Date: September 6, 2018	Case No.: 17-09-1780P	LOMR-APP

Follows Conditional Case No.: 14-09-1146R

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of San Diego San Diego County California COMMUNITY NO.: 060295	CHANNELIZATION DROP STRUCTURE RETAINING WALL	FLOODWAY HYDRAULIC ANALYSIS UPDATED TOPOGRAPHIC DATA
IDENTIFIER	Northwest Village Creek	APPROXIMATE LATITUDE & LONGITUDE: 32.712, -117.088 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 06073C1904G DATE: May 16, 2012	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: April 05, 2016 PROFILE: 455P FLOODWAY DATA TABLE: 13

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map

FLOODING SOURCE & REVISED REACHE

South Las Chollas Creek - from just downstream of Market Street to approximately 250 feet upstream of North Euclid Avenue

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
South Las Chollas Creek	Zone AE	Zone AE	YES	YES
	BFEs*	BFEs	YES	YES
	Floodway	Floodway	YES	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Patrick “Rick” F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Juliette Hayes
Director, Mitigation Division
Federal Emergency Management Agency, Region IX
1111 Broadway Street, Suite 1200
Oakland, CA 94607-4052
(510) 627-7175

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/fhm/bfe_status/bfe_main.asp

LOCAL NEWSPAPER

Name: *The San Diego Daily Transcript*
Dates: May 2, 2018 and May 9, 2018

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Las Chollas Creek								
A-H	__2	__2	__2	__2	__2	__2	__2	__2
I	5,410	57	468	11.3	27.6	27.6	28.6	1.0
J	6,000	45	441	12.0	31.9	31.9	32.5	0.6
K	6,950	64	762	7.0	37.9	37.9	38.9	1.0
L	7,200	86	741	7.6	37.9	37.9	38.9	1.0
M	8,200	65	420	12.6	41.2	41.2	41.3	0.1
N	9,030	90	822	6.5	51.9	51.9	51.9	0.0
O	9,280	89	751	7.1	52.3	52.3	52.3	0.0
P	10,080	83	573	9.3	57.3	57.3	57.3	0.0
Q	10,880	164	1,273	4.2	60.2	60.2	60.2	0.0
R	11,580	101	829	6.4	71.7	71.7	71.9	0.2
S	12,330	81	611	8.7	72.6	72.6	73.1	0.5
T	13,380	62	666	4.6	83.3	83.3	83.8	0.5
U	13,690	217	1,157	4.6	85.5	85.5	86.3	0.8
V	14,330	169	929	5.7	88.9	88.9	89.5	0.6
W	15,232	150	1,099	4.8	96.8	96.8	96.8	0.0
X	16,284	59	396	4.8	109.7	109.7	109.7	0.0
Y	16,683	69	459	4.1	113.5	113.5	114.3	0.8
Z	17,480	42	169	11.3	123.2	123.2	123.2	0.0
AA	17,949	27	152	12.5	128.4	128.4	129.0	0.6
AB-AC	__2	__2	__2	__2	__2	__2	__2	__2
AD	19,930	36	203	9.3	155.9	155.9	156.7	0.8
AE	20,670	38	183	10.4	168.8	168.8	169.4	0.6
AF	21,350	23	122	12.3	182.2	182.2	182.9	0.7
AG	22,510	20	119	12.6	201.7	201.7	201.7	0.0
AH	23,550	61	177	8.5	218.8	218.8	219.6	0.8
AI	24,650	53	210	7.1	238.3	238.3	239.3	1.0
AJ	25,680	30	129	11.6	253.9	253.9	254.6	0.7
AK-AM	__2	__2	__2	__2	__2	__2	__2	__2

[1] Feet above Mouth
[2] Data Not Available

REVISED TO REFLECT LOMR EFFECTIVE: MAY 17, 2012

REVISED DATA

REVISED TO REFLECT LOMR EFFECTIVE: MAY 17, 2012

TABLE 13

FEDERAL EMERGENCY MANAGEMENT AGENCY

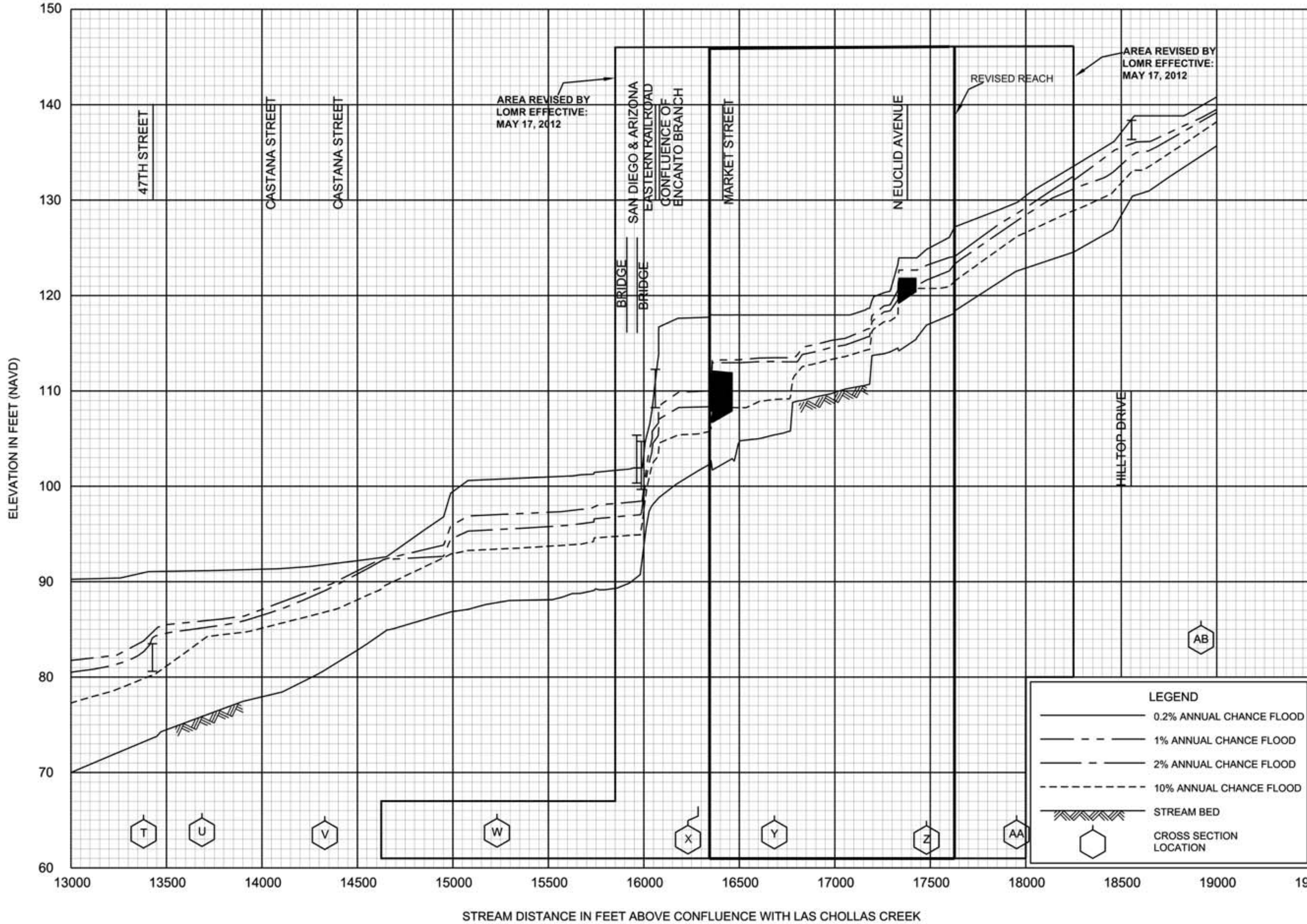
SAN DIEGO COUNTY, CA

AND INCORPORATED AREAS

FLOODWAY DATA

REVISED TO REFLECT LOMR EFFECTIVE: September 6, 2018

SOUTH LAS CHOLLAS CREEK



REVISED TO REFLECT LOMR EFFECTIVE: September 6, 2018

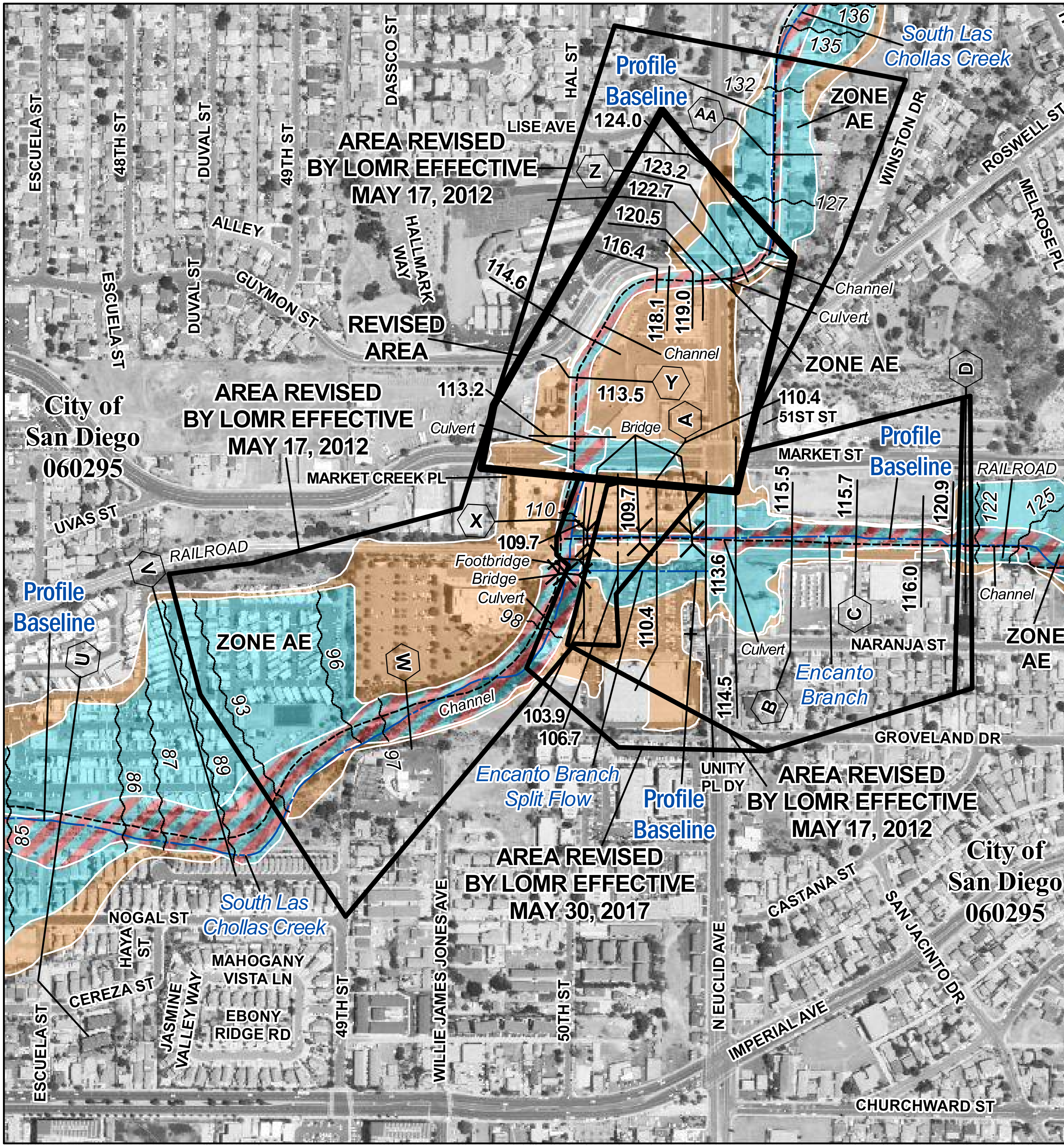
FLOOD PROFILES

SOUTH LAS CHOLLAS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SAN DIEGO COUNTY, CA

AND INCORPORATED AREAS



SPECIAL FLOOD HAZARD AREAS	
	Without Base Flood Elevation (BFE) *Zone A,V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD	
	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*

SCALE

Map Projection:
NAD 1983 UTM Zone 11N;
Western Hemisphere; Vertical Datum: NAVD 88

N

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA
and Incorporated Areas

PANEL **1904** OF **2375**

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
NATIONAL CITY, CITY OF	060293	1904	G
SAN DIEGO, CITY OF	060295	1904	G

REVISED TO REFLECT LOMR EFFECTIVE: September 6, 2018

VERSION NUMBER
1.1.1.0

MAP NUMBER
06073C1904G

EFFECTIVE DATE
MAY 16, 2012

Attachment 4

Effective LOMR 17-09-1780P Report Excerpts

REQUEST FOR A LETTER OF MAP REVISION (LOMR)
AS A FOLLOW-UP TO CLOMR FEMA CASE NO.: 14-09-1146R
FOR SOUTH LAS CHOLLAS CREEK
FOR THE NORTHWEST VILLAGE CREEK DEVELOPMENT
IN THE CITY OF SAN DIEGO, CALIFORNIA

Job Number 13284-II

March 28, 2017
Revised: September 1, 2017
Revised: November 20, 2017

Rick

RICK ENGINEERING COMPANY

RICK
ENGINEERING COMPANY

rickengineering.com

REQUEST FOR A LETTER OF MAP REVISION AS A FOLLOW-UP TO CLOMR FEMA CASE NO.: 14-09-1146R FOR SOUTH LAS CHOLLAS CREEK FOR THE NORTHWEST VILLAGE CREEK DEVELOPEMENT IN THE CITY OF SAN DIEGO, CALIFORNIA

Job Number 13284-II

REGISTERED PROFESSIONAL ENGINEER
BRENDAN CRAIG HASTIE
NO. 65809
EXP. 9/30/19
CIVIL
STATE OF CALIFORNIA

Brendan Hastie
R.C.E #65809, Exp. 09/2019

Prepared for:

Northwest Village, LLC
404 N. Euclid Avenue
San Diego, California 92114

Prepared By:

Rick Engineering Company
Water Resources Department
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March 28, 2017
Revised: September 1, 2017
Revised: November 20, 2017

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- (B) Floodplain and Floodway

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- (B) Floodplain and Floodway

Appendix 9: Proposed Condition HEC-RAS Workmap

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- (B) Floodplain and Floodway

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As-Built Condition HEC-RAS Model

(A) Multiple Profile

(B) Floodplain and Floodway

HEC-RAS Plan: As-Built River: RIVER-1 Reach: Reach-1

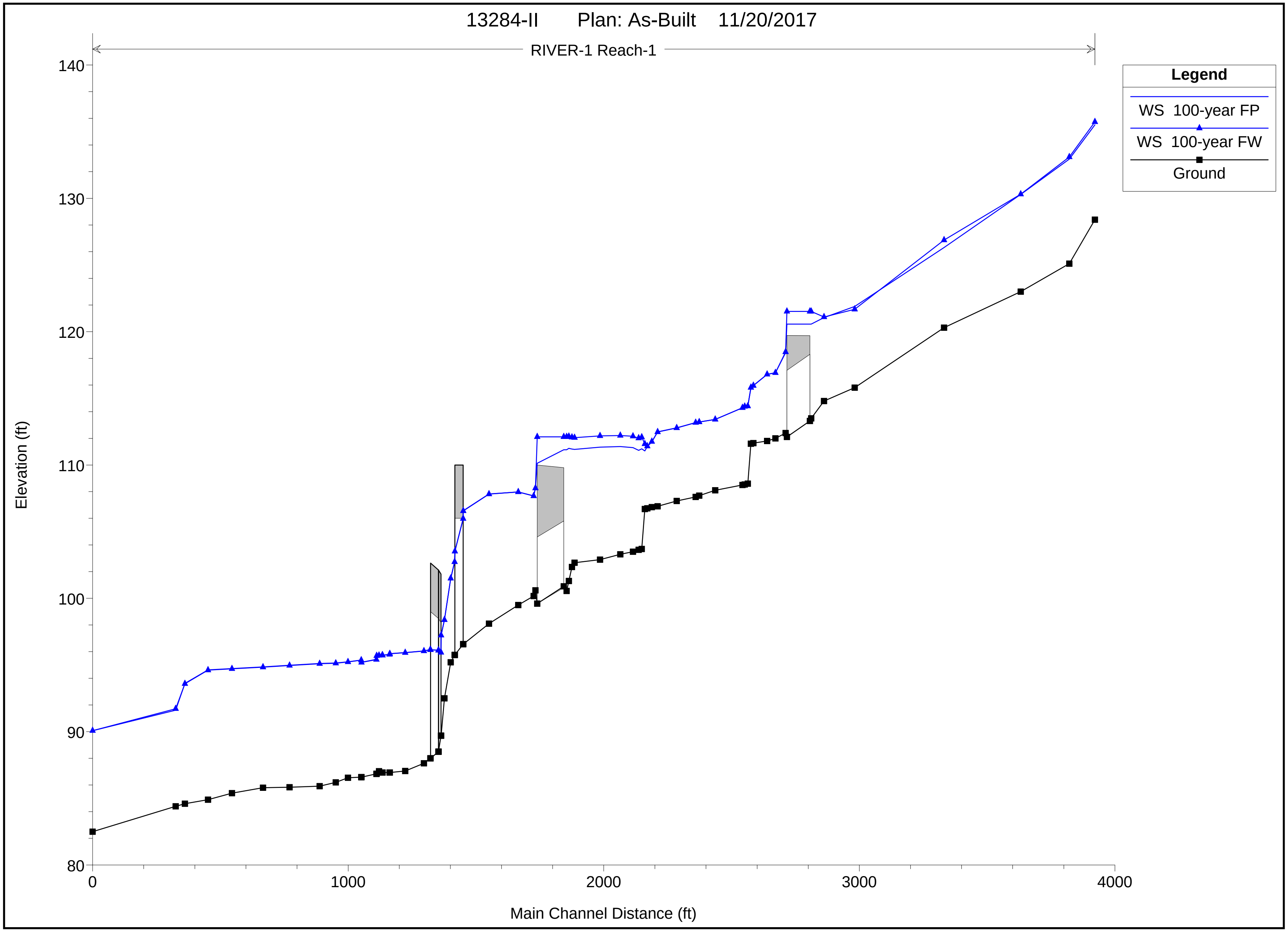
Reach	River Sta	Profile	W.S. Elev	Prof Delta WS	E.G. Elev	Top Wdth Act	Q Left	Q Channel	Q Right	Enc Sta L	Ch Sta L	Ch Sta R	Enc Sta R
			(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)
Reach-1	1463	100-year FP	90.07		90.14	909.98	4038.62	1102.43	158.94		2948.00	3007.00	
Reach-1	1463	100-year FW	90.07	0.00	90.80	207.00	2754.05	2545.95		2800.00	2948.00	3007.00	3007.00
Reach-1	1493	100-year FP	91.61		94.43	80.68	353.05	4488.49	458.46		58.50	104.10	
Reach-1	1493	100-year FW	91.72	0.11	94.43	80.49	359.51	4471.73	468.76	43.97	58.50	104.10	124.46
Reach-1	1510	100-year FP	93.62		94.80	98.61	383.16	4592.20	324.64		61.80	119.10	
Reach-1	1510	100-year FW	93.59	-0.03	94.78	98.35	382.37	4593.78	323.86	42.00	61.80	119.10	140.39
Reach-1	1512	100-year FP	94.64		95.04	146.50	286.45	4720.18	293.38		63.90	159.60	
Reach-1	1512	100-year FW	94.62	-0.02	95.02	146.28	286.02	4720.87	293.12	37.76	63.90	159.60	184.04
Reach-1	1513	100-year FP	94.73		95.15	149.77	356.27	4471.62	472.11		65.80	154.50	
Reach-1	1513	100-year FW	94.71	-0.02	95.13	149.56	355.82	4472.35	471.83	36.07	65.80	154.50	185.63
Reach-1	1514	100-year FP	94.85		95.31	145.35	294.74	4566.91	438.34		29.40	118.80	
Reach-1	1514	100-year FW	94.84	-0.02	95.29	145.13	294.42	4567.44	438.14	3.44	29.40	118.80	148.57
Reach-1	1515	100-year FP	94.98		95.45	145.64	298.10	4649.72	352.18		29.80	121.10	
Reach-1	1515	100-year FW	94.96	-0.02	95.43	145.42	297.76	4650.32	351.93	3.26	29.80	121.10	148.68
Reach-1	1516	100-year FP	95.11		95.63	142.21	374.48	4634.61	290.91		32.50	121.60	
Reach-1	1516	100-year FW	95.10	-0.02	95.61	142.00	374.22	4635.10	290.67	4.19	32.50	121.60	146.19
Reach-1	1517	100-year FP	95.15		95.76	129.99	478.33	4695.48	126.19		34.90	120.40	
Reach-1	1517	100-year FW	95.13	-0.02	95.75	129.78	478.10	4695.80	126.09	4.02	34.90	120.40	133.80
Reach-1	1518	100-year FP	95.24		95.85	142.89	389.77	4814.95	95.29		31.60	120.60	
Reach-1	1518	100-year FW	95.22	-0.01	95.84	142.67	389.59	4815.76	94.64	4.05	31.60	120.60	146.72
Reach-1	1519	100-year FP	95.37		95.94	140.54	333.48	4776.29	190.23		29.30	120.80	
Reach-1	1519	100-year FW	95.36	-0.01	95.93	140.34	333.46	4777.42	189.13	4.86	29.30	120.80	145.20
Reach-1	1519.1	100-year FP	95.20		96.02	140.00	457.77	4573.45	268.78		29.30	120.80	
Reach-1	1519.1	100-year FW	95.19	-0.02	96.01	139.79	458.05	4574.63	267.32	5.41	29.30	120.80	145.20
Reach-1	1520	100-year FP	95.42		96.23	143.73	401.39	4609.92	288.69		28.90	120.60	
Reach-1	1520	100-year FW	95.41	-0.01	96.22	142.98	401.58	4610.52	287.90	6.09	28.90	120.60	151.63
Reach-1	1520.1	100-year FP	95.70		96.25	146.68	296.72	4816.42	186.85		28.90	120.60	
Reach-1	1520.1	100-year FW	95.69	-0.01	96.24	146.48	296.77	4817.09	186.13	5.21	28.90	120.60	151.69
Reach-1	1530	100-year FP	95.73		96.27	146.80	359.83	4686.10	254.07		30.50	120.30	
Reach-1	1530	100-year FW	95.72	-0.01	96.26	146.60	359.91	4686.75	253.34	4.91	30.50	120.30	151.51
Reach-1	1540	100-year FP	95.75		96.29	145.33	392.42	4658.45	249.13		32.00	120.90	
Reach-1	1540	100-year FW	95.74	-0.01	96.28	145.13	392.49	4658.70	248.81	5.17	32.00	120.90	150.30
Reach-1	1541	100-year FP	95.73		96.30	140.77	418.50	4715.58	165.93		32.00	120.00	
Reach-1	1541	100-year FW	95.72	-0.01	96.29	140.57	418.56	4715.87	165.58	5.23	32.00	120.00	150.30
Reach-1	1542	100-year FP	95.80		96.35	135.88	419.63	4696.29	184.08		32.00	120.00	
Reach-1	1542	100-year FW	95.79	-0.01	96.34	135.68	419.68	4696.35	183.97	5.04	32.00	120.00	145.22
Reach-1	1543	100-year FP	95.85		96.36	140.67	386.75	4604.55	308.70		32.00	120.90	
Reach-1	1543	100-year FW	95.84	-0.01	96.35	140.46	386.86	4604.38	308.77	4.90	32.00	120.90	145.36
Reach-1	1550	100-year FP	95.93		96.46	140.84	378.55	4529.13	392.32		31.70	119.00	
Reach-1	1550	100-year FW	95.92	-0.01	96.45	140.40	379.28	4527.66	393.06	5.07	31.70	119.00	145.47
Reach-1	1560	100-year FP	96.06		96.60	144.12	292.36	4681.38	326.27		26.70	121.80	
Reach-1	1560	100-year FW	96.05	-0.01	96.59	143.81	291.90	4681.06	327.04	0.19	26.70	121.80	144.00
Reach-1	1561	100-year FP	96.16		96.66	152.00	409.10	4338.84	552.06		27.00	123.00	
Reach-1	1561	100-year FW	96.15	-0.01	96.66	151.80	408.78	4339.63	551.60	0.10	27.00	123.00	151.90
Reach-1	1563 BR D	100-year FP	96.14		96.69	144.00	512.93	4094.12	692.95		27.00	123.00	
Reach-1	1563 BR D	100-year FW	96.13	-0.01	96.68	143.80	518.17	4074.89	706.94	0.10	27.00	123.00	151.90
Reach-1	1563 BR U	100-year FP	96.11		97.01	127.00	680.94	4060.80	558.27		29.00	107.00	
Reach-1	1563 BR U	100-year FW	96.10	-0.01	97.00	126.80	688.47	4053.32	558.20	0.10	29.00	107.00	134.90
Reach-1	1565	100-year FP	96.11		97.01	127.00	680.95	4060.76	558.28		29.00	107.00	
Reach-1	1565	100-year FW	96.10	-0.01	97.00	126.80	688.49	4053.29	558.22	0.10	29.00	107.00	134.90
Reach-1	1567 BR D	100-year FP	96.11		97.01	127.00	680.96	4060.75	558.29		29.00	107.00	
Reach-1	1567 BR D	100-year FW	96.10	-0.01	97.00	126.80	688.51	4053.27	558.23	0.10	29.00	107.00	134.90
Reach-1	1567 BR U	100-year FP	95.94		97.93	117.75	1118.51	3924.53	256.96		39.00	105.00	
Reach-1	1567 BR U	100-year FW	95.94	0.00	97.92	117.66	1128.99	3914.60	256.42	0.10	39.00	105.00	134.90
Reach-1	1570	100-year FP	97.24		98.23	130.00	1043.35	3833.48	423.18		39.00	105.00	
Reach-1	1570	100-year FW	97.23	-0.01	98.22	129.90	1041.87	3835.89	422.24	0.10	39.00	105.00	130.00
Reach-1	1572	100-year FP	98.39		100.32	125.16	1112.42	3820.97	366.61		42.50	104.00	
Reach-1	1572	100-year FW	98.38	0.00	100.32	125.05	1112.94	3820.62	366.44	0.10	42.50	104.00	134.90
Reach-1	1575	100-year FP	101.49		104.20	73.50	493.95	4198.44	607.61		26.00	75.00	
Reach-1	1575	100-year FW	101.49	0.00	104.30	73.50	444.04	4318.61	537.35	14.00	26.00	75.00	87.50

HEC-RAS Plan: As-Built River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	W.S. Elev	Prof Delta WS	E.G. Elev	Top Wdth Act	Q Left	Q Channel	Q Right	Enc Sta L	Ch Sta L	Ch Sta R	Enc Sta R
			(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)
Reach-1	1580	100-year FP	102.74		105.85	70.73	88.19	4770.68	441.14		22.00	72.00	
Reach-1	1580	100-year FW	102.74	0.00	105.85	70.70	88.19	4770.79	441.02	11.50	22.00	72.00	87.50
Reach-1	1585.5 BR D	100-year FP	103.53		106.31	69.50	175.80	4414.08	710.12		22.00	72.00	
Reach-1	1585.5 BR D	100-year FW	103.53	0.00	106.31	69.50	175.80	4414.08	710.12	11.50	22.00	72.00	87.50
Reach-1	1585.5 BR U	100-year FP	105.97		107.68	69.60	495.68	4356.76	447.56		23.00	73.70	
Reach-1	1585.5 BR U	100-year FW	105.98	0.01	107.66	69.40	524.68	4265.08	510.25	9.10	23.00	73.70	84.50
Reach-1	1590	100-year FP	106.57		107.88	75.60	347.58	4647.21	305.21		23.00	73.70	
Reach-1	1590	100-year FW	106.56	-0.01	107.87	75.40	346.16	4650.78	303.07	9.10	23.00	73.70	84.50
Reach-1	1600	100-year FP	107.82		108.25	59.81	207.29	1486.82	205.89		32.70	59.90	
Reach-1	1600	100-year FW	107.82	0.00	108.25	58.84	208.86	1484.31	206.83	15.55	32.70	59.90	74.39
Reach-1	1610	100-year FP	107.98		108.41	70.61	404.82	1422.80	72.38		49.30	79.80	
Reach-1	1610	100-year FW	107.98	-0.01	108.40	69.58	406.79	1420.33	72.88	19.44	49.30	79.80	89.02
Reach-1	1620	100-year FP	107.68		108.75	50.05	282.53	1490.51	126.97		49.60	72.40	
Reach-1	1620	100-year FW	107.68	0.00	108.74	48.86	285.16	1486.72	128.12	33.37	49.60	72.40	82.23
Reach-1	1638	100-year FP	108.28		108.90	82.48	613.89	1189.38	96.73		2989.50	3010.50	
Reach-1	1638	100-year FW	108.26	-0.02	108.89	75.79	619.90	1184.39	95.71	2949.00	2989.50	3010.50	3030.00
Reach-1	1643.5		Culvert										
Reach-1	1650	100-year FP	111.15		111.49	45.60	230.21	1377.68	292.11		2988.17	3013.29	
Reach-1	1650	100-year FW	112.11	0.96	112.31	133.55	207.54	1221.33	471.13	2978.10	2988.17	3013.29	3111.65
Reach-1	1651	100-year FP	111.25		111.52	55.70	133.98	1328.14	437.88		2985.93	3019.60	
Reach-1	1651	100-year FW	112.14	0.89	112.32	93.06	133.88	1265.72	500.40	2978.70	2985.93	3019.60	3071.76
Reach-1	1652	100-year FP	111.19		111.56	56.80	152.25	860.54	887.21		2988.00	3011.00	
Reach-1	1652	100-year FW	112.07	0.88	112.36	56.80	160.88	843.46	895.66	2979.50	2988.00	3011.00	3036.30
Reach-1	1653	100-year FP	111.17		111.58	57.30	93.97	882.14	923.90		2988.00	3011.00	
Reach-1	1653	100-year FW	112.05	0.88	112.38	57.30	100.86	864.24	934.90	2979.40	2988.00	3011.00	3036.70
Reach-1	1663	100-year FP	111.34		111.67	66.00	132.54	876.24	891.22		2988.00	3011.00	
Reach-1	1663	100-year FW	112.18	0.84	112.44	66.00	143.97	847.37	908.66	2978.00	2988.00	3011.00	3044.00
Reach-1	1673	100-year FP	111.38		111.74	69.27	120.36	906.05	873.59		2987.60	3011.60	
Reach-1	1673	100-year FW	112.21	0.83	112.48	69.24	138.85	870.57	890.57	2975.90	2987.60	3011.60	3045.14
Reach-1	1679	100-year FP	111.31		111.84	61.95	84.93	1256.18	558.90		2986.17	3013.00	
Reach-1	1679	100-year FW	112.15	0.85	112.55	61.88	100.50	1206.34	593.16	2974.62	2986.17	3013.00	3036.50
Reach-1	1681	100-year FP	111.10		111.98	55.53	115.57	1619.12	165.31		2986.67	3014.52	
Reach-1	1681	100-year FW	112.01	0.91	112.65	55.45	137.99	1562.75	199.25	2975.06	2986.67	3014.52	3030.51
Reach-1	1682	100-year FP	111.21		112.02	55.55	125.20	1605.64	169.16		2986.32	3015.28	
Reach-1	1682	100-year FW	112.08	0.87	112.67	55.47	149.05	1546.29	204.66	2975.01	2986.32	3015.28	3030.48
Reach-1	1684	100-year FP	111.05		112.87	52.73	58.32	1748.53	93.15		2982.44	3019.05	
Reach-1	1684	100-year FW	111.58	0.53	112.95	52.73	70.55	1713.49	115.96	2976.24	2982.44	3019.05	3028.97
Reach-1	1685	100-year FP	111.39		113.17	52.67	50.41	1318.99	530.60		2985.97	3014.00	
Reach-1	1685	100-year FW	111.41	0.02	113.17	52.67	51.08	1316.37	532.55	2979.16	2985.97	3014.00	3031.83
Reach-1	1686	100-year FP	111.72		113.50	51.38	52.99	1155.52	691.49		2988.00	3011.00	
Reach-1	1686	100-year FW	111.75	0.03	113.50	51.38	53.91	1152.61	693.49	2982.24	2988.00	3011.00	3033.62
Reach-1	1687	100-year FP	112.48		113.69	54.56	70.77	1092.11	737.12		2988.00	3011.00	
Reach-1	1687	100-year FW	112.48	-0.01	113.69	54.53	70.57	1092.63	736.80	2980.83	2988.00	3011.00	3035.39
Reach-1	1695	100-year FP	112.78		114.07	53.74	68.86	1110.30	720.84		2988.00	3011.00	
Reach-1	1695	100-year FW	112.78	0.00	114.07	53.72	68.74	1110.62	720.64	2981.03	2988.00	3011.00	3034.77
Reach-1	1701	100-year FP	113.18		114.44	53.50	72.29	1116.78	710.92		2988.00	3011.00	
Reach-1	1701	100-year FW	113.18	0.00	114.44	53.49	72.25	1116.90	710.85	2980.84	2988.00	3011.00	3034.33
Reach-1	1702	100-year FP	113.23		114.52	53.30	70.33	1120.36	709.31		2988.00	3011.00	
Reach-1	1702	100-year FW	113.22	0.00	114.52	53.29	70.28	1120.49	709.23	2980.99	2988.00	3011.00	3034.29
Reach-1	1708	100-year FP	113.42		114.89	52.56	41.22	1149.36	709.42		2988.00	3011.00	
Reach-1	1708	100-year FW	113.41	0.00	114.89	52.56	41.20	1149.44	709.36	2981.37	2988.00	3011.00	3033.93
Reach-1	1718	100-year FP	114.29		115.43	55.27	112.45	1145.42	642.13		2987.70	3011.00	
Reach-1	1718	100-year FW	114.29	0.00	115.43	55.26	112.46	1145.40	642.14	2977.55	2987.70	3011.00	3032.81
Reach-1	1719	100-year FP	114.39		115.46	56.46	133.94	1145.83	620.24		2987.41	3011.00	
Reach-1	1719	100-year FW	114.39	0.00	115.46	56.46	133.93	1145.80	620.27	2976.14	2987.41	3011.00	3032.60
Reach-1	1720	100-year FP	114.42		115.54	56.78	189.38	1253.79	456.84		2986.96	3011.00	
Reach-1	1720	100-year FW	114.42	0.00	115.54	56.78	189.38	1253.77	456.85	2974.91	2986.96	3011.00	3031.69
Reach-1	1722	100-year FP	115.76		117.35	62.51	296.48	1270.85	332.67		2986.00	3014.44	
Reach-1	1722	100-year FW	115.81	0.05	117.34	62.51	298.99	1265.40	335.62	2969.96	2986.00	3014.44	3032.47
Reach-1	1723	100-year FP	115.96		117.48	64.03	518.43	834.76	546.81		2989.00	3011.00	

HEC-RAS Plan: As-Built River: RIVER-1 Reach: Reach-1 (Continued)

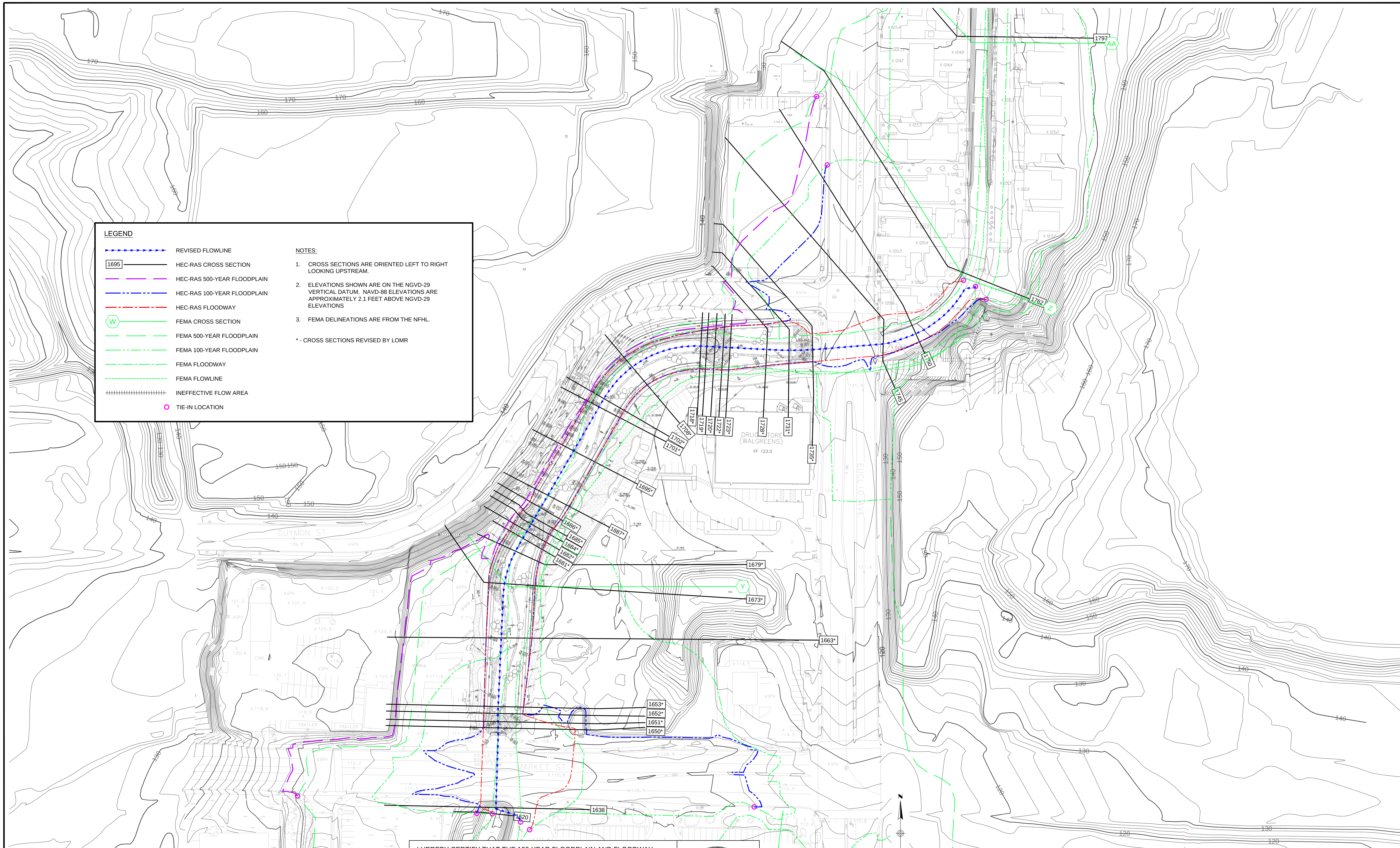
Reach	River Sta	Profile	W.S. Elev	Prof Delta WS	E.G. Elev	Top Wdth Act	Q Left	Q Channel	Q Right	Enc Sta L	Ch Sta L	Ch Sta R	Enc Sta R
			(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)
Reach-1	1723	100-year FW	115.95	-0.01	117.48	64.00	517.99	835.67	546.34	2968.51	2989.00	3011.00	3032.54
Reach-1	1728	100-year FP	116.80		117.88	64.15	715.18	901.79	283.03		2989.00	3011.00	
Reach-1	1728	100-year FW	116.80	-0.01	117.88	64.13	714.95	902.17	282.88	2961.15	2989.00	3011.00	3025.30
Reach-1	1731	100-year FP	116.92		118.05	64.71	796.48	980.20	123.32		2988.00	3011.50	
Reach-1	1731	100-year FW	116.91	0.00	118.05	64.69	796.20	980.59	123.21	2955.73	2988.00	3011.50	3020.44
Reach-1	1735	100-year FP	118.43		120.69	40.72	156.65	1657.57	85.78		2991.00	3013.10	
Reach-1	1735	100-year FW	118.48	0.05	120.69	40.71	158.73	1654.04	87.23	2980.47	2991.00	3013.10	3021.18
Reach-1	1740		Culvert										
Reach-1	1745	100-year FP	120.56		121.72	221.60	297.69	1601.81	0.50		2987.30	3011.50	
Reach-1	1745	100-year FW	121.52	0.96	122.90	56.90	37.33	1853.69	8.97	2965.00	2987.30	3011.50	3024.30
Reach-1	1750	100-year FP	121.05		121.95	214.25	549.96	1348.71	1.33		2987.40	3012.00	
Reach-1	1750	100-year FW	121.10	0.05	123.42	42.39	22.14	1876.00	1.87	2970.00	2987.40	3012.00	3015.00
Reach-1	1762	100-year FP	121.89		124.00	69.44	108.60	1789.66	1.75		2987.80	3012.70	
Reach-1	1762	100-year FW	121.68	-0.21	124.20	38.00	43.72	1854.63	1.65	2975.00	2987.80	3012.70	3013.00
Reach-1	1797	100-year FP	126.31		127.39	295.69	288.47	1049.06	562.47		2992.00	3008.00	
Reach-1	1797	100-year FW	126.87	0.57	129.66	27.00	23.52	1506.61	369.87	2991.00	2992.00	3008.00	3018.00
Reach-1	1827	100-year FP	130.29		131.79	134.74	259.33	1081.22	559.44		2994.00	3006.00	
Reach-1	1827	100-year FW	130.31	0.02	132.76	37.00	117.97	1271.69	510.35	2991.00	2994.00	3006.00	3028.00
Reach-1	1846	100-year FP	132.95		134.27	249.33	338.35	1266.62	295.03		2992.00	3007.00	
Reach-1	1846	100-year FW	133.10	0.15	135.59	36.00		1617.84	282.17	2992.00	2992.00	3007.00	3028.00
Reach-1	1856	100-year FP	135.51		136.61	282.77	7.17	1390.80	502.03		2990.00	3010.00	
Reach-1	1856	100-year FW	135.74	0.22	137.91	76.00		1788.06	111.95	2990.00	2990.00	3010.00	3066.00



13284-II Plan: As-Built 11/20/2017
RIVER-1 Reach-1
Legend
WS 100-year FP
WS 100-year FW
Ground
Elevation (ft)
140
130
120
110
100
90
80
0
1000
2000
3000
4000
Main Channel Distance (ft)

APPENDIX 11

As-Built Condition HEC-RAS Workmap



I HEREBY CERTIFY THAT THE 100-YEAR FLOODPLAIN AND FLOODWAY BOUNDARY IS ACCURATELY PLOTTED ON THE TOPOGRAPHIC WORKMAP

BRENDAN HASTIE
R.C.E. #65809, EXP. 09/2017

REGISTERED PROFESSIONAL ENGINEER
BRENDAN CRAIG HASTIE
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60 30 0 60 120 180

GRAPHIC SCALE: 1" = 60'

AS-BUILT CONDITION HEC-RAS WORKMAP FOR THE NORTHWEST VILLAGE CREEK LOMR

SOUTH LAS CHOLLAS CREEK

SHEET 1 OF 1

J-13284-II
DATE: AUGUST 23, 2017

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REC_NCS-2.ctb

Attachment 5

Duplicate Effective HEC-RAS Output

HEC-RAS Plan: DE River: RIVER-1 Reach: Reach-1

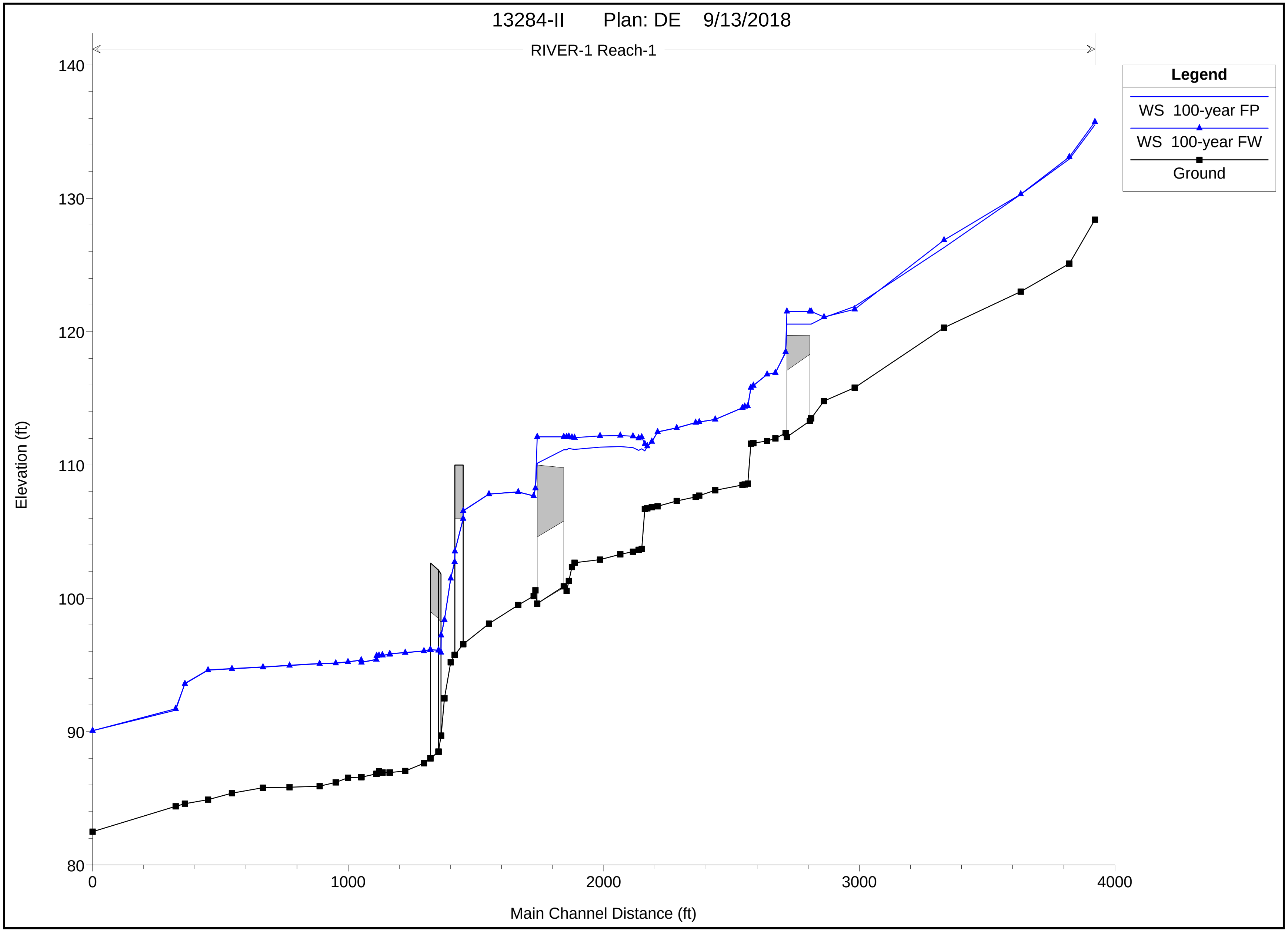
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1463	100-year FP	5300.00	82.50	90.07	90.00	90.14	0.000884	3.33	2811.88	909.98	0.25
Reach-1	1463	100-year FW	5300.00	82.50	90.07	90.00	90.80	0.005805	7.68	794.59	207.00	0.57
Reach-1	1493	100-year FP	5300.00	84.40	91.61	91.61	94.43	0.011479	14.35	431.39	97.29	0.97
Reach-1	1493	100-year FW	5300.00	84.40	91.72	91.72	94.43	0.010822	14.08	439.97	80.49	0.94
Reach-1	1510	100-year FP	5300.00	84.60	93.62		94.80	0.003457	9.23	665.25	111.30	0.55
Reach-1	1510	100-year FW	5300.00	84.60	93.59		94.78	0.003498	9.26	662.41	98.35	0.55
Reach-1	1512	100-year FP	5300.00	84.90	94.64		95.04	0.001071	5.35	1110.59	146.50	0.31
Reach-1	1512	100-year FW	5300.00	84.90	94.62		95.02	0.001079	5.36	1107.74	146.28	0.31
Reach-1	1513	100-year FP	5300.00	85.39	94.73		95.15	0.001167	5.53	1101.86	149.77	0.32
Reach-1	1513	100-year FW	5300.00	85.39	94.71		95.13	0.001175	5.55	1099.06	149.56	0.32
Reach-1	1514	100-year FP	5300.00	85.80	94.85		95.31	0.001264	5.70	1059.38	145.35	0.34
Reach-1	1514	100-year FW	5300.00	85.80	94.84		95.29	0.001272	5.71	1056.81	145.13	0.34
Reach-1	1515	100-year FP	5300.00	85.83	94.98		95.45	0.001313	5.76	1042.42	145.64	0.34
Reach-1	1515	100-year FW	5300.00	85.83	94.96		95.43	0.001322	5.77	1039.98	145.42	0.34
Reach-1	1516	100-year FP	5300.00	85.91	95.11		95.63	0.001506	6.05	992.48	142.21	0.36
Reach-1	1516	100-year FW	5300.00	85.91	95.10		95.61	0.001516	6.06	990.24	142.00	0.36
Reach-1	1517	100-year FP	5300.00	86.20	95.15		95.76	0.001849	6.57	902.54	129.99	0.40
Reach-1	1517	100-year FW	5300.00	86.20	95.13		95.75	0.001861	6.59	900.55	129.78	0.40
Reach-1	1518	100-year FP	5300.00	86.54	95.24		95.85	0.001810	6.49	912.92	142.89	0.40
Reach-1	1518	100-year FW	5300.00	86.54	95.22		95.84	0.001821	6.51	910.81	142.67	0.40
Reach-1	1519	100-year FP	5300.00	86.59	95.37		95.94	0.001728	6.31	944.35	140.54	0.39
Reach-1	1519	100-year FW	5300.00	86.59	95.36		95.93	0.001739	6.32	942.16	140.34	0.39
Reach-1	1519.1	100-year FP	5300.00	86.59	95.20		96.02	0.003604	7.61	779.70	140.00	0.52
Reach-1	1519.1	100-year FW	5300.00	86.59	95.19		96.01	0.003634	7.63	777.33	139.79	0.53
Reach-1	1520	100-year FP	5300.00	86.84	95.42		96.23	0.003497	7.54	785.44	143.73	0.52
Reach-1	1520	100-year FW	5300.00	86.84	95.41		96.22	0.003521	7.56	783.60	142.98	0.52
Reach-1	1520.1	100-year FP	5300.00	86.84	95.70		96.25	0.001606	6.19	968.02	146.68	0.37
Reach-1	1520.1	100-year FW	5300.00	86.84	95.69		96.24	0.001613	6.20	966.40	146.48	0.38
Reach-1	1530	100-year FP	5300.00	87.03	95.73		96.27	0.001608	6.18	981.77	146.80	0.37
Reach-1	1530	100-year FW	5300.00	87.03	95.72		96.26	0.001615	6.19	980.18	146.60	0.38
Reach-1	1540	100-year FP	5300.00	86.93	95.75		96.29	0.001625	6.16	981.41	145.33	0.37
Reach-1	1540	100-year FW	5300.00	86.93	95.74		96.28	0.001632	6.17	979.86	145.13	0.37
Reach-1	1541	100-year FP	5300.00	86.93	95.73		96.30	0.001870	6.31	948.66	140.77	0.38
Reach-1	1541	100-year FW	5300.00	86.93	95.72		96.29	0.001878	6.32	947.15	140.57	0.38
Reach-1	1542	100-year FP	5300.00	86.93	95.80		96.35	0.001810	6.24	954.69	135.88	0.38
Reach-1	1542	100-year FW	5300.00	86.93	95.79		96.34	0.001817	6.25	953.30	135.68	0.38
Reach-1	1543	100-year FP	5300.00	86.93	95.85		96.36	0.001492	6.02	995.52	140.67	0.36
Reach-1	1543	100-year FW	5300.00	86.93	95.84		96.35	0.001498	6.03	994.11	140.46	0.36
Reach-1	1550	100-year FP	5300.00	87.05	95.93		96.46	0.001627	6.18	975.05	140.84	0.38
Reach-1	1550	100-year FW	5300.00	87.05	95.92		96.45	0.001632	6.19	973.70	140.40	0.38
Reach-1	1560	100-year FP	5300.00	87.63	96.06		96.60	0.002150	6.13	940.80	144.12	0.38
Reach-1	1560	100-year FW	5300.00	87.63	96.05		96.59	0.002158	6.14	939.42	143.81	0.38
Reach-1	1561	100-year FP	5300.00	88.00	96.16		96.66	0.002240	6.00	963.92	152.00	0.39
Reach-1	1561	100-year FW	5300.00	88.00	96.15		96.66	0.002250	6.01	962.31	151.80	0.39
Reach-1	1563		Bridge									
Reach-1	1565	100-year FP	5300.00	88.50	96.11	94.13	97.01	0.006221	8.07	718.27	127.00	0.49
Reach-1	1565	100-year FW	5300.00	88.50	96.10	94.13	97.00	0.006224	8.07	716.98	126.80	0.49
Reach-1	1567		Bridge									
Reach-1	1570	100-year FP	5300.00	89.70	97.24	95.70	98.23	0.005391	8.64	693.89	130.00	0.59
Reach-1	1570	100-year FW	5300.00	89.70	97.23	95.70	98.22	0.005430	8.66	692.15	129.90	0.59

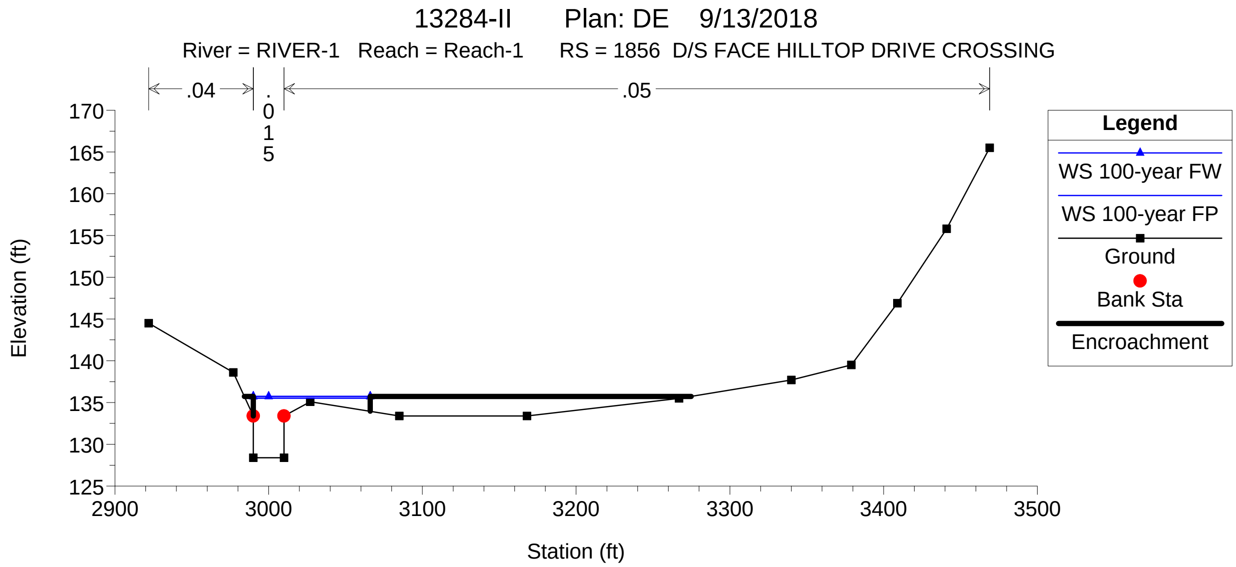
HEC-RAS Plan: DE River: RIVER-1 Reach: Reach-1 (Continued)

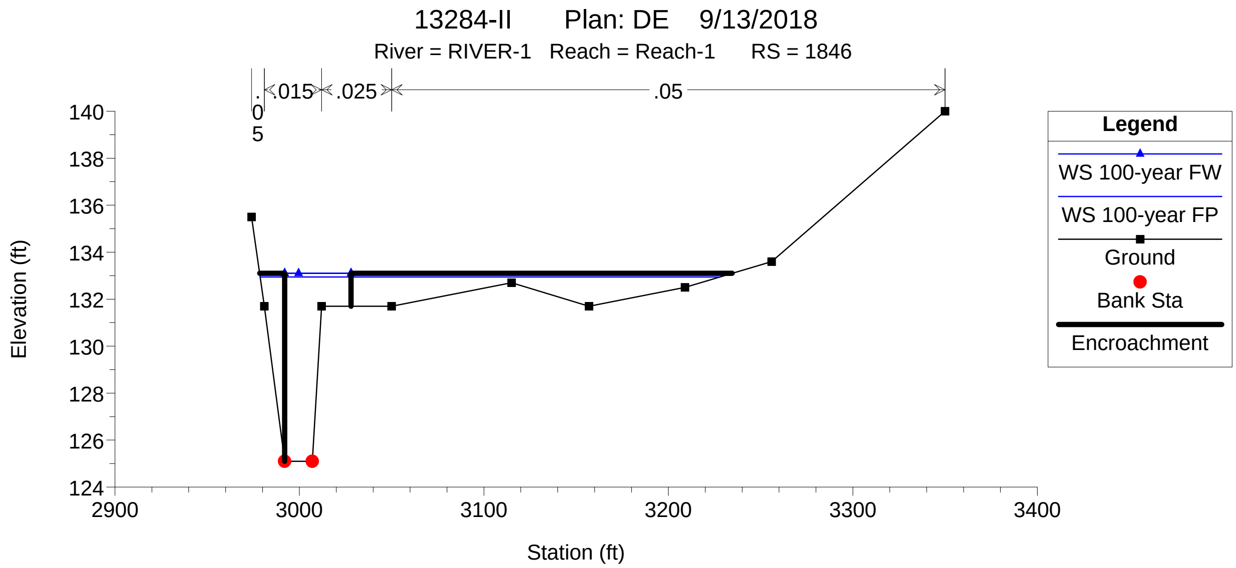
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1572	100-year FP	5300.00	92.50	98.39	98.39	100.32	0.015150	12.10	497.85	125.16	0.94
Reach-1	1572	100-year FW	5300.00	92.50	98.38	98.38	100.32	0.015161	12.10	497.64	125.05	0.94
Reach-1	1575	100-year FP	5300.00	95.20	101.49	101.49	104.20	0.015350	13.80	408.31	92.20	0.98
Reach-1	1575	100-year FW	5300.00	95.20	101.49	101.49	104.30	0.016216	14.19	408.53	73.50	1.00
Reach-1	1580	100-year FP	5300.00	95.75	102.74	102.74	105.85	0.016215	14.63	389.03	70.73	1.01
Reach-1	1580	100-year FW	5300.00	95.75	102.74	102.74	105.85	0.016235	14.64	388.87	70.70	1.01
Reach-1	1585.5		Bridge									
Reach-1	1590	100-year FP	5300.00	96.56	106.57	103.67	107.88	0.004218	9.62	610.25	75.60	0.55
Reach-1	1590	100-year FW	5300.00	96.56	106.56	103.68	107.87	0.004246	9.65	608.54	75.40	0.55
Reach-1	1600	100-year FP	1900.00	98.10	107.82		108.25	0.001210	5.78	412.57	59.81	0.33
Reach-1	1600	100-year FW	1900.00	98.10	107.82		108.25	0.001208	5.77	412.14	58.84	0.33
Reach-1	1610	100-year FP	1900.00	99.50	107.98		108.41	0.001561	5.82	408.76	70.61	0.36
Reach-1	1610	100-year FW	1900.00	99.50	107.98		108.40	0.001559	5.82	408.26	69.58	0.36
Reach-1	1620	100-year FP	1900.00	100.17	107.68		108.75	0.004312	9.07	260.92	50.05	0.60
Reach-1	1620	100-year FW	1900.00	100.17	107.68		108.74	0.004296	9.05	260.59	48.86	0.59
Reach-1	1638	100-year FP	1900.00	100.60	108.28	106.94	108.90	0.002814	7.38	340.87	82.48	0.47
Reach-1	1638	100-year FW	1900.00	100.60	108.26	106.93	108.89	0.002811	7.36	334.19	75.79	0.47
Reach-1	1643.5		Culvert									
Reach-1	1650	100-year FP	1900.00	100.55	111.15	105.55	111.49	0.000866	5.21	431.43	127.32	0.28
Reach-1	1650	100-year FW	1900.00	100.55	112.11	105.55	112.31	0.000508	4.23	605.56	133.55	0.22
Reach-1	1651	100-year FP	1900.00	101.30	111.25	106.22	111.52	0.000657	4.18	456.94	143.29	0.24
Reach-1	1651	100-year FW	1900.00	101.30	112.14	106.22	112.32	0.000442	3.64	552.27	93.06	0.20
Reach-1	1652	100-year FP	1900.00	102.35	111.19	107.24	111.56	0.000825	4.36	401.09	106.95	0.26
Reach-1	1652	100-year FW	1900.00	102.35	112.07	107.24	112.36	0.000572	3.88	450.96	56.80	0.22
Reach-1	1653	100-year FP	1900.00	102.67	111.17	107.55	111.58	0.000994	4.66	385.68	85.19	0.29
Reach-1	1653	100-year FW	1900.00	102.67	112.05	107.55	112.38	0.000679	4.12	436.37	57.30	0.24
Reach-1	1663	100-year FP	1900.00	102.90	111.34	107.63	111.67	0.000703	4.66	412.99	66.00	0.29
Reach-1	1663	100-year FW	1900.00	102.90	112.18	107.63	112.44	0.000474	4.09	468.52	66.00	0.24
Reach-1	1673	100-year FP	1900.00	103.30	111.38		111.74	0.000789	4.83	402.03	69.27	0.30
Reach-1	1673	100-year FW	1900.00	103.30	112.21		112.48	0.000521	4.19	459.38	69.24	0.25
Reach-1	1679	100-year FP	1900.00	103.50	111.31		111.84	0.001308	6.18	338.55	61.95	0.40
Reach-1	1679	100-year FW	1900.00	103.50	112.15		112.55	0.000847	5.33	390.96	61.88	0.32
Reach-1	1681	100-year FP	1900.00	103.64	111.10		111.98	0.002381	8.05	281.62	55.53	0.53
Reach-1	1681	100-year FW	1900.00	103.64	112.01		112.65	0.001491	6.89	332.31	55.45	0.43
Reach-1	1682	100-year FP	1900.00	103.70	111.21		112.02	0.003175	7.68	283.72	55.55	0.50
Reach-1	1682	100-year FW	1900.00	103.70	112.08		112.67	0.002015	6.60	332.02	55.47	0.41
Reach-1	1684	100-year FP	1900.00	106.70	111.05	111.05	112.87	0.013181	11.16	183.47	52.73	0.95
Reach-1	1684	100-year FW	1900.00	106.70	111.58		112.95	0.008582	9.73	211.38	52.73	0.78
Reach-1	1685	100-year FP	1900.00	106.75	111.39	111.39	113.17	0.011200	10.51	181.93	52.67	0.88
Reach-1	1685	100-year FW	1900.00	106.75	111.41	111.39	113.17	0.010959	10.43	183.19	52.67	0.87
Reach-1	1686	100-year FP	1900.00	106.84	111.72	111.72	113.50	0.008207	10.89	179.40	51.38	0.89
Reach-1	1686	100-year FW	1900.00	106.84	111.75	111.75	113.50	0.007997	10.80	180.88	51.38	0.88
Reach-1	1687	100-year FP	1900.00	106.90	112.48	111.76	113.69	0.004576	8.94	218.16	54.56	0.68
Reach-1	1687	100-year FW	1900.00	106.90	112.48	111.76	113.69	0.004603	8.95	217.73	54.53	0.69
Reach-1	1695	100-year FP	1900.00	107.30	112.78		114.07	0.005039	9.26	210.88	53.74	0.72
Reach-1	1695	100-year FW	1900.00	107.30	112.78		114.07	0.005057	9.27	210.62	53.72	0.72
Reach-1	1701	100-year FP	1900.00	107.60	113.18		114.44	0.004792	9.14	213.83	53.50	0.70
Reach-1	1701	100-year FW	1900.00	107.60	113.18		114.44	0.004798	9.15	213.73	53.49	0.70
Reach-1	1702	100-year FP	1900.00	107.70	113.23		114.52	0.004996	9.27	210.90	53.30	0.71
Reach-1	1702	100-year FW	1900.00	107.70	113.22		114.52	0.005003	9.27	210.81	53.29	0.71

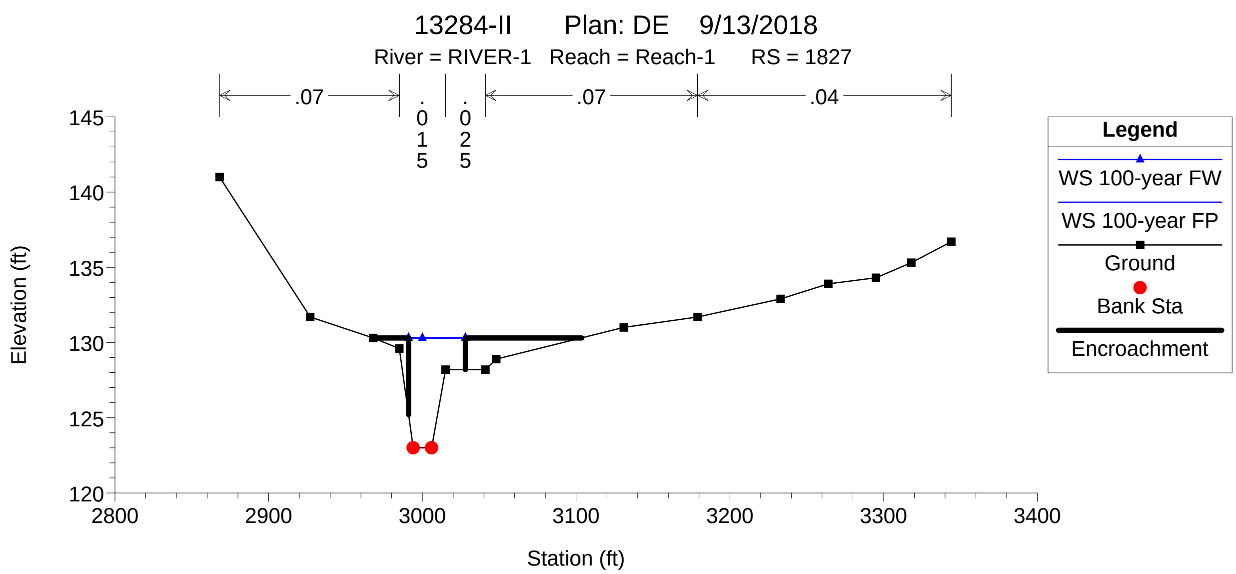
HEC-RAS Plan: DE River: RIVER-1 Reach: Reach-1 (Continued)

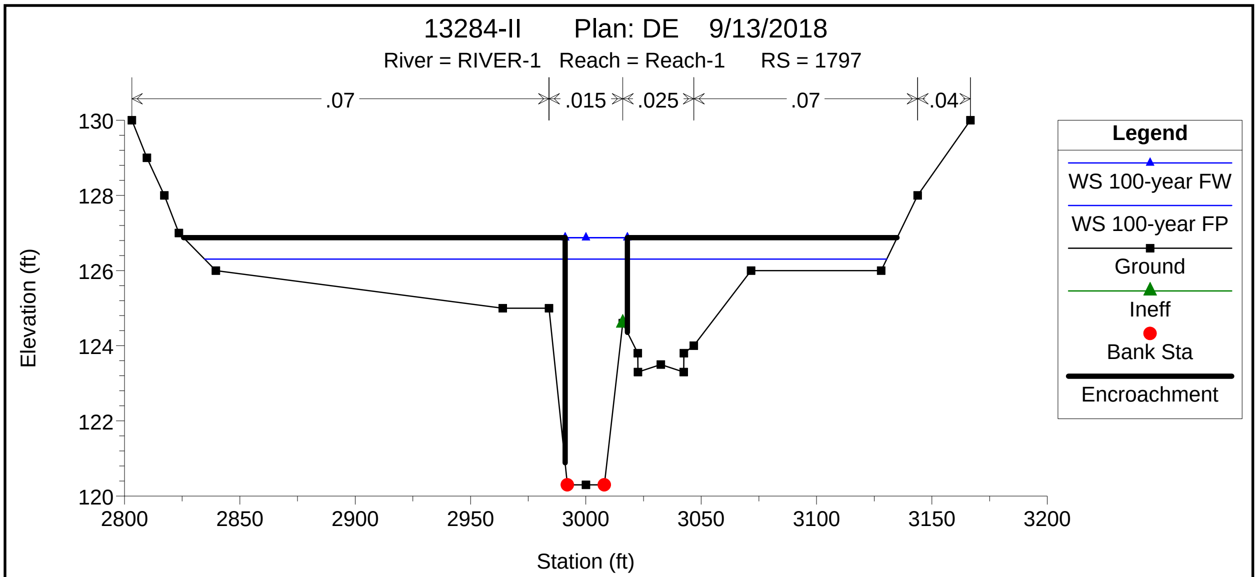
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1708	100-year FP	1900.00	108.10	113.42	113.02	114.89	0.006028	9.91	199.93	52.56	0.78
Reach-1	1708	100-year FW	1900.00	108.10	113.41	113.01	114.89	0.006033	9.91	199.87	52.56	0.78
Reach-1	1718	100-year FP	1900.00	108.50	114.29		115.43	0.004200	8.86	227.85	55.27	0.66
Reach-1	1718	100-year FW	1900.00	108.50	114.29		115.43	0.004200	8.86	227.85	55.26	0.66
Reach-1	1719	100-year FP	1900.00	108.54	114.39		115.46	0.003958	8.66	234.64	56.46	0.64
Reach-1	1719	100-year FW	1900.00	108.54	114.39		115.46	0.003958	8.66	234.64	56.46	0.64
Reach-1	1720	100-year FP	1900.00	108.60	114.42		115.54	0.006615	9.36	233.35	56.78	0.70
Reach-1	1720	100-year FW	1900.00	108.60	114.42		115.54	0.006614	9.36	233.36	56.78	0.70
Reach-1	1722	100-year FP	1900.00	111.60	115.76	115.76	117.35	0.014046	11.12	195.96	62.51	0.98
Reach-1	1722	100-year FW	1900.00	111.60	115.81	115.81	117.34	0.013316	10.92	199.36	62.51	0.95
Reach-1	1723	100-year FP	1900.00	111.64	115.96	115.96	117.48	0.009767	9.23	192.77	64.03	0.80
Reach-1	1723	100-year FW	1900.00	111.64	115.95	115.95	117.48	0.009862	9.26	192.19	64.00	0.81
Reach-1	1728	100-year FP	1900.00	111.80	116.80	116.21	117.88	0.004679	8.55	228.46	64.15	0.69
Reach-1	1728	100-year FW	1900.00	111.80	116.80	116.21	117.88	0.004699	8.56	228.13	64.13	0.69
Reach-1	1731	100-year FP	1900.00	112.00	116.92	116.42	118.05	0.005011	8.82	223.93	64.71	0.72
Reach-1	1731	100-year FW	1900.00	112.00	116.91	116.42	118.05	0.005031	8.84	223.63	64.69	0.72
Reach-1	1735	100-year FP	1900.00	112.40	118.43	118.43	120.69	0.006635	12.69	170.28	40.72	0.92
Reach-1	1735	100-year FW	1900.00	112.40	118.48	118.48	120.69	0.006428	12.56	172.27	40.71	0.91
Reach-1	1740		Culvert									
Reach-1	1745	100-year FP	1900.00	113.50	120.56	120.56	121.72	0.000660	9.37	361.54	221.60	0.62
Reach-1	1745	100-year FW	1900.00	113.50	121.52	119.27	122.90	0.000579	9.55	236.09	56.90	0.59
Reach-1	1750	100-year FP	1900.00	114.80	121.05	121.05	121.95	0.001131	8.91	389.13	284.55	0.63
Reach-1	1750	100-year FW	1900.00	114.80	121.10	120.59	123.42	0.002132	12.30	168.89	42.39	0.87
Reach-1	1762	100-year FP	1900.00	115.80	121.89	121.89	124.00	0.002113	11.99	197.51	297.73	0.86
Reach-1	1762	100-year FW	1900.00	115.80	121.68	121.68	124.20	0.002559	12.89	164.95	38.00	0.94
Reach-1	1797	100-year FP	1900.00	120.30	126.31	126.31	127.39	0.001113	10.92	415.21	295.69	0.79
Reach-1	1797	100-year FW	1900.00	120.30	126.87	126.87	129.66	0.001698	14.32	151.63	27.00	0.99
Reach-1	1827	100-year FP	1900.00	123.00	130.29	130.29	131.79	0.001101	12.36	276.19	134.74	0.81
Reach-1	1827	100-year FW	1900.00	123.00	130.31	130.31	132.76	0.001512	14.50	176.03	37.00	0.95
Reach-1	1846	100-year FP	1900.00	125.10	132.95	132.95	134.27	0.000757	10.76	367.13	249.33	0.68
Reach-1	1846	100-year FW	1900.00	125.10	133.10	133.10	135.59	0.002049	13.49	165.82	36.00	0.84
Reach-1	1856	100-year FP	1900.00	128.40	135.51	135.51	136.61	0.001222	9.77	523.67	282.77	0.65
Reach-1	1856	100-year FW	1900.00	128.40	135.74	135.74	137.91	0.002015	12.19	219.04	76.00	0.79

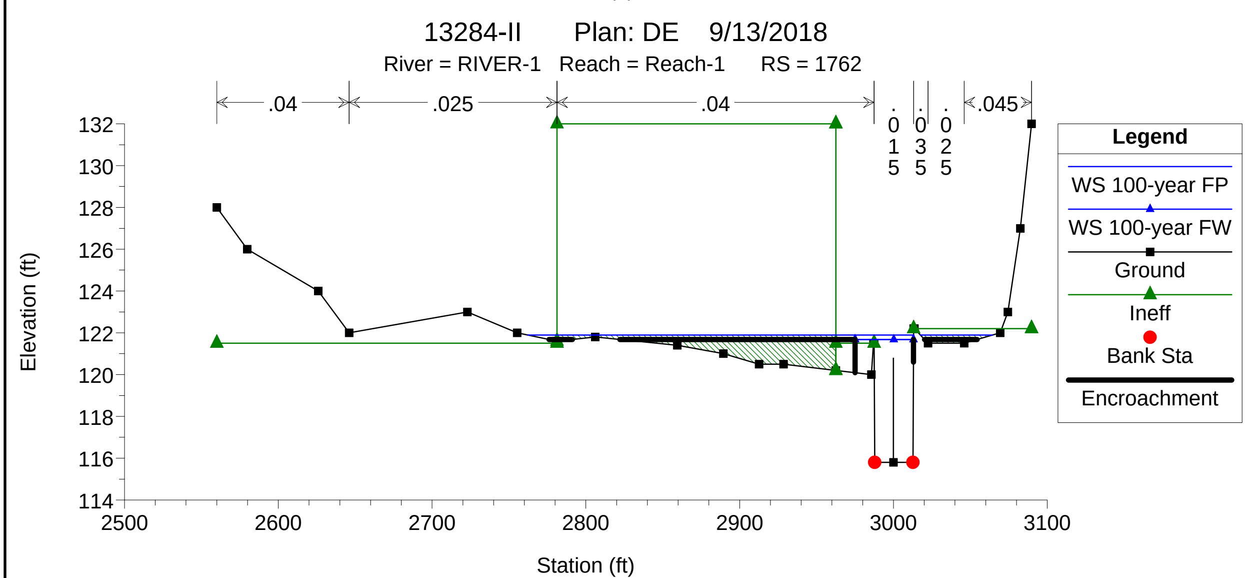

13284-II Plan: DE 9/13/2018
RIVER-1 Reach-1
Legend
WS 100-year FP
WS 100-year FW
Ground
Elevation (ft)
Main Channel Distance (ft)
140
130
120
110
100
90
80
0
1000
2000
3000
4000

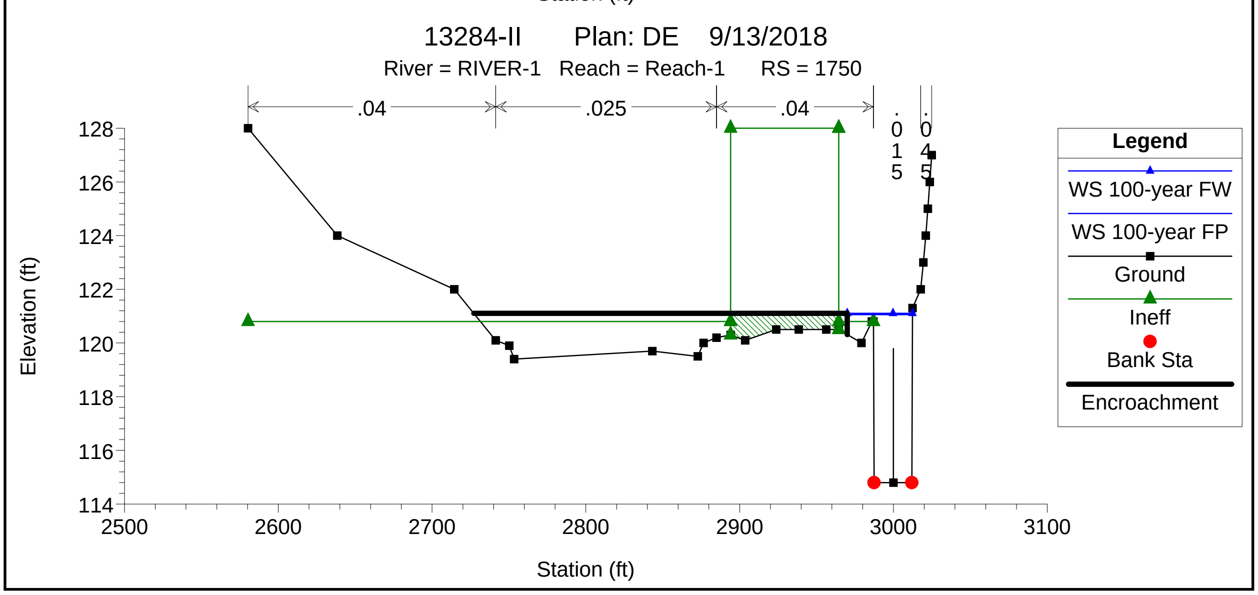

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1856 D/S FACE HILLTOP DRIVE CROSSING
.04
.015
.05
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

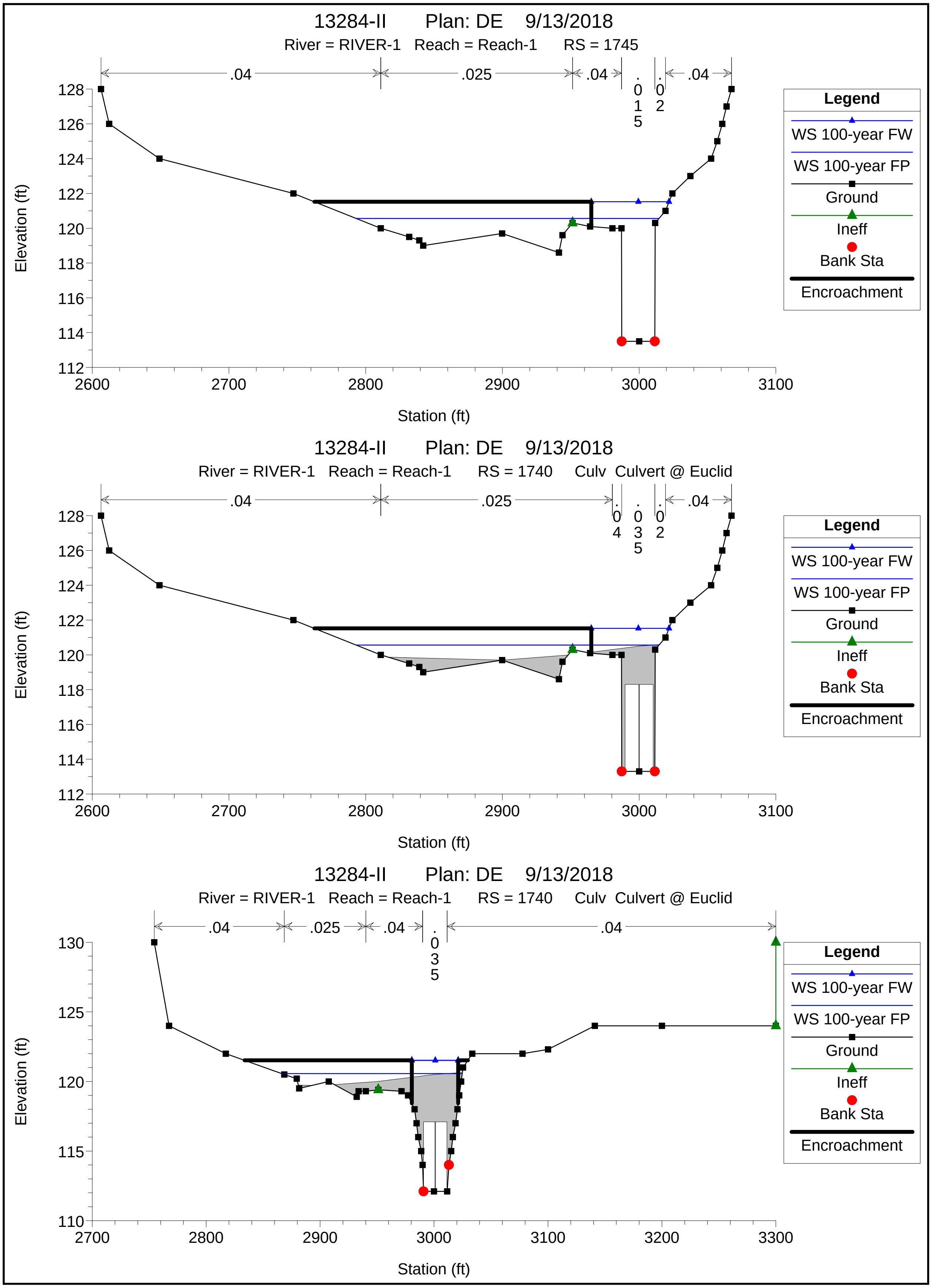

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1846
.05
.015
.025
.05
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

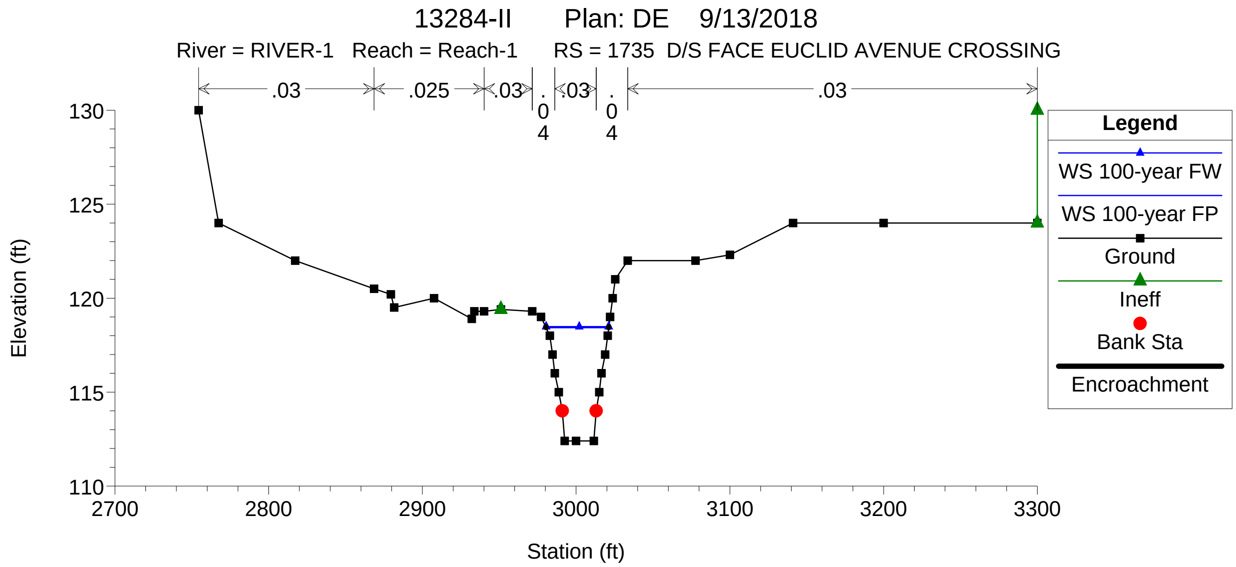

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1827
.07
.015
.025
.07
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

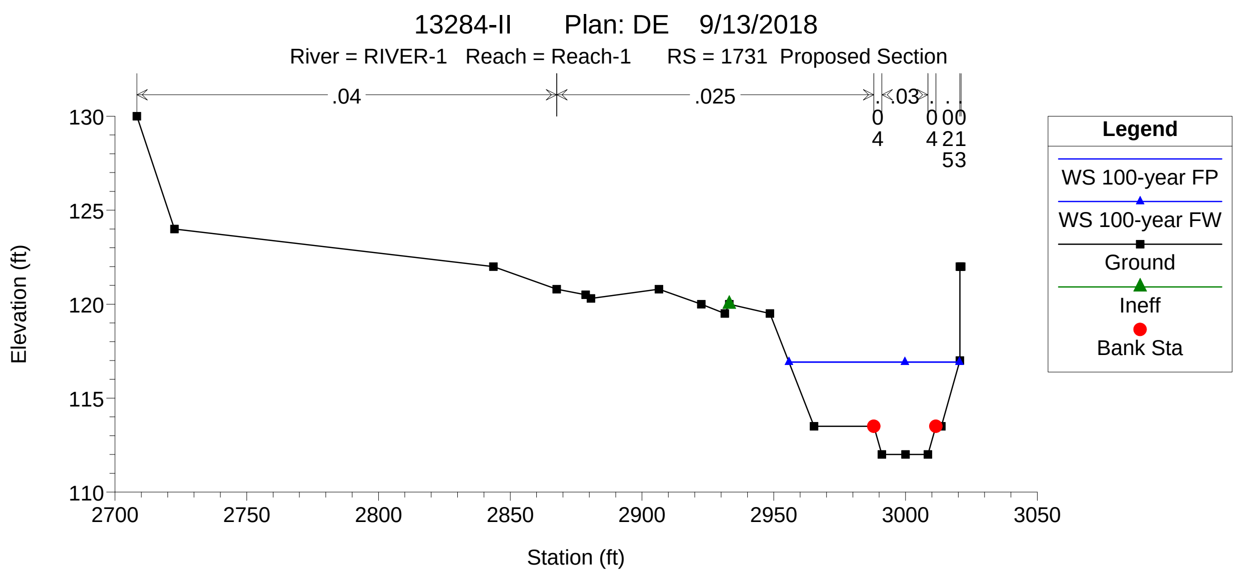

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1797
.07
.015
.025
.07
.04
Elevation (ft)
130
128
126
124
122
120
2800
2850
2900
2950
3000
3050
3100
3150
3200
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

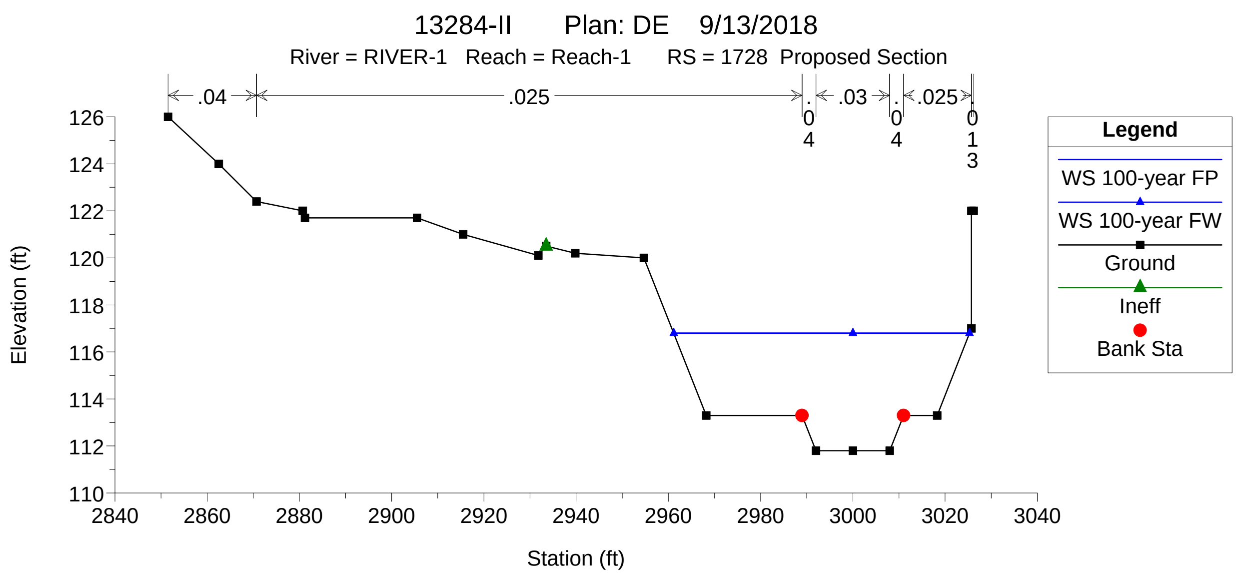

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1762
.04
.025
.04
.015
.035
.025
.045
Elevation (ft)
132
130
128
126
124
122
120
118
116
114
2500
2600
2700
2800
2900
3000
3100
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta
Encroachment

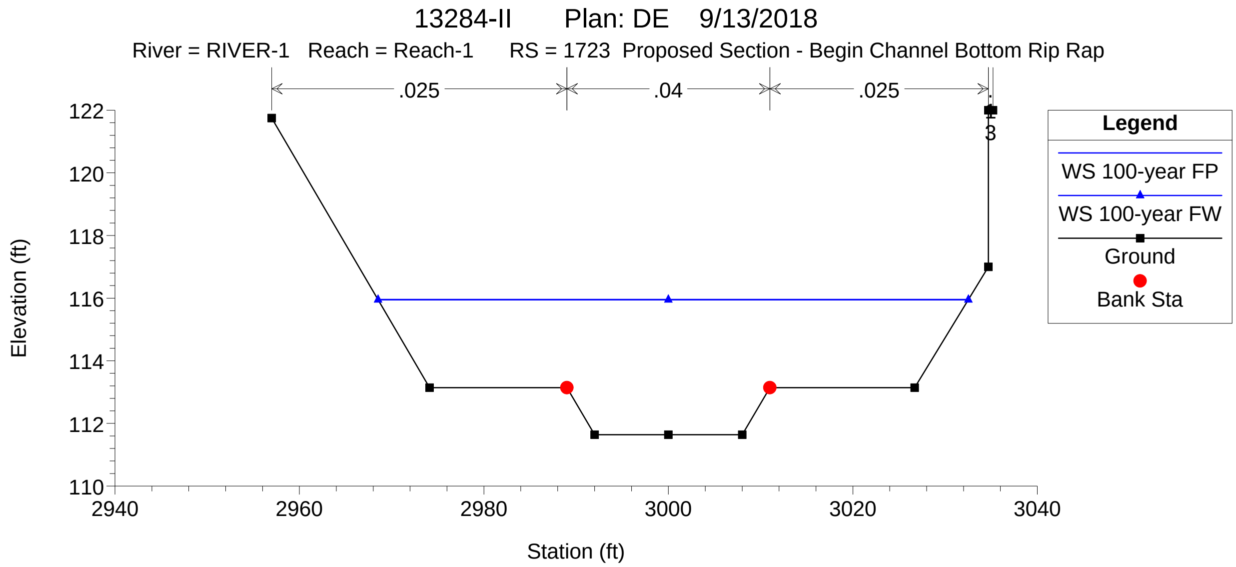

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1750
.04
.025
.04
.015
.045
Elevation (ft)
128
126
124
122
120
118
116
114
2500
2600
2700
2800
2900
3000
3100
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment


13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1745
.04
.025
.04
.015
.02
.04
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1740 Culv Culvert @ Euclid
.04
.025
.04
.035
.02
.04
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1740 Culv Culvert @ Euclid
.04
.025
.04
.035
.04
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

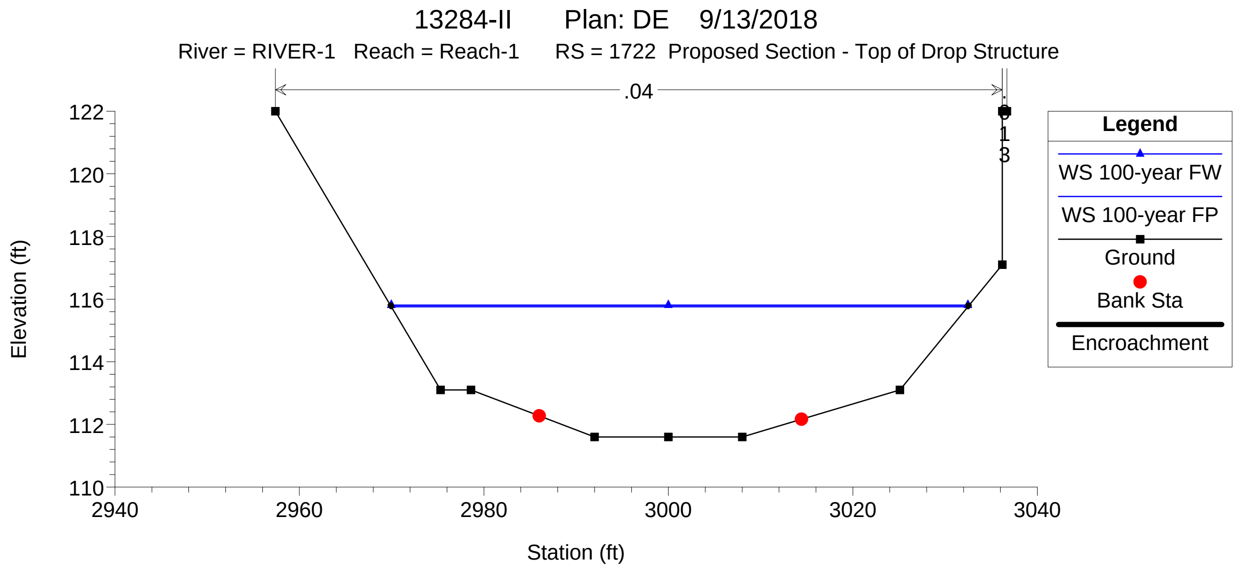

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1735 D/S FACE EUCLID AVENUE CROSSING
.03
.025
.03
.04
.03
.04
.03
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment


13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1731 Proposed Section
.04
.025
.03
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta

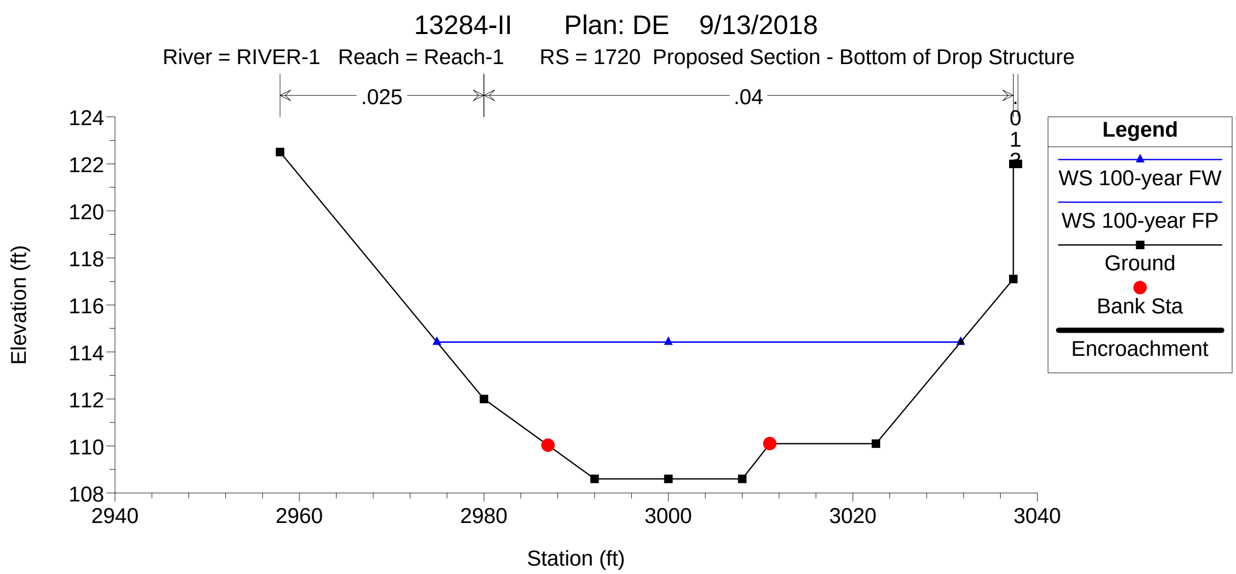

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1728 Proposed Section
.04
.025
.03
.025
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta



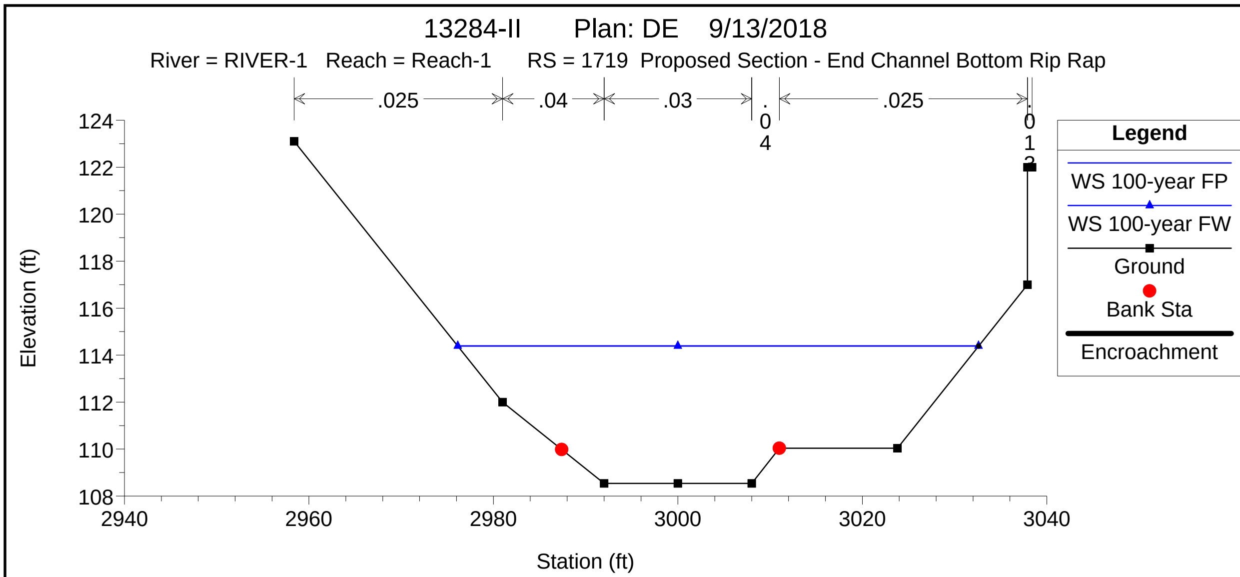
13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1723 Proposed Section - Begin Channel Bottom Rip Rap
.025
.04
.025
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta

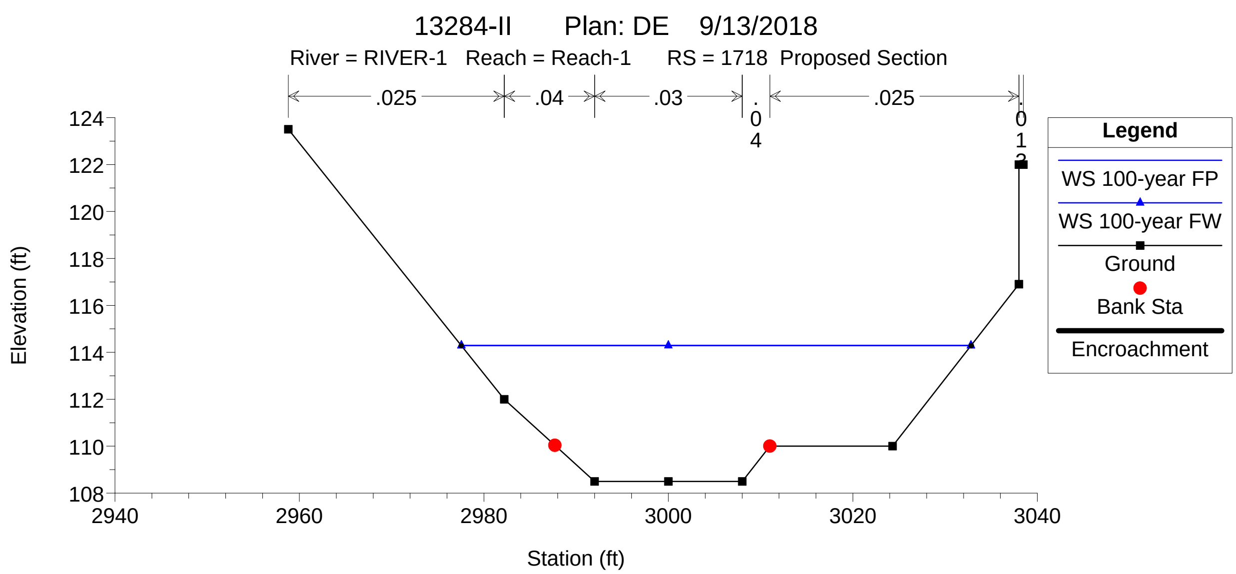


13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1722 Proposed Section - Top of Drop Structure
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment



13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1720 Proposed Section - Bottom of Drop Structure
.025
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment


13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1719 Proposed Section - End Channel Bottom Rip Rap
.025
.04
.03
.04
.025
.012
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta
Encroachment

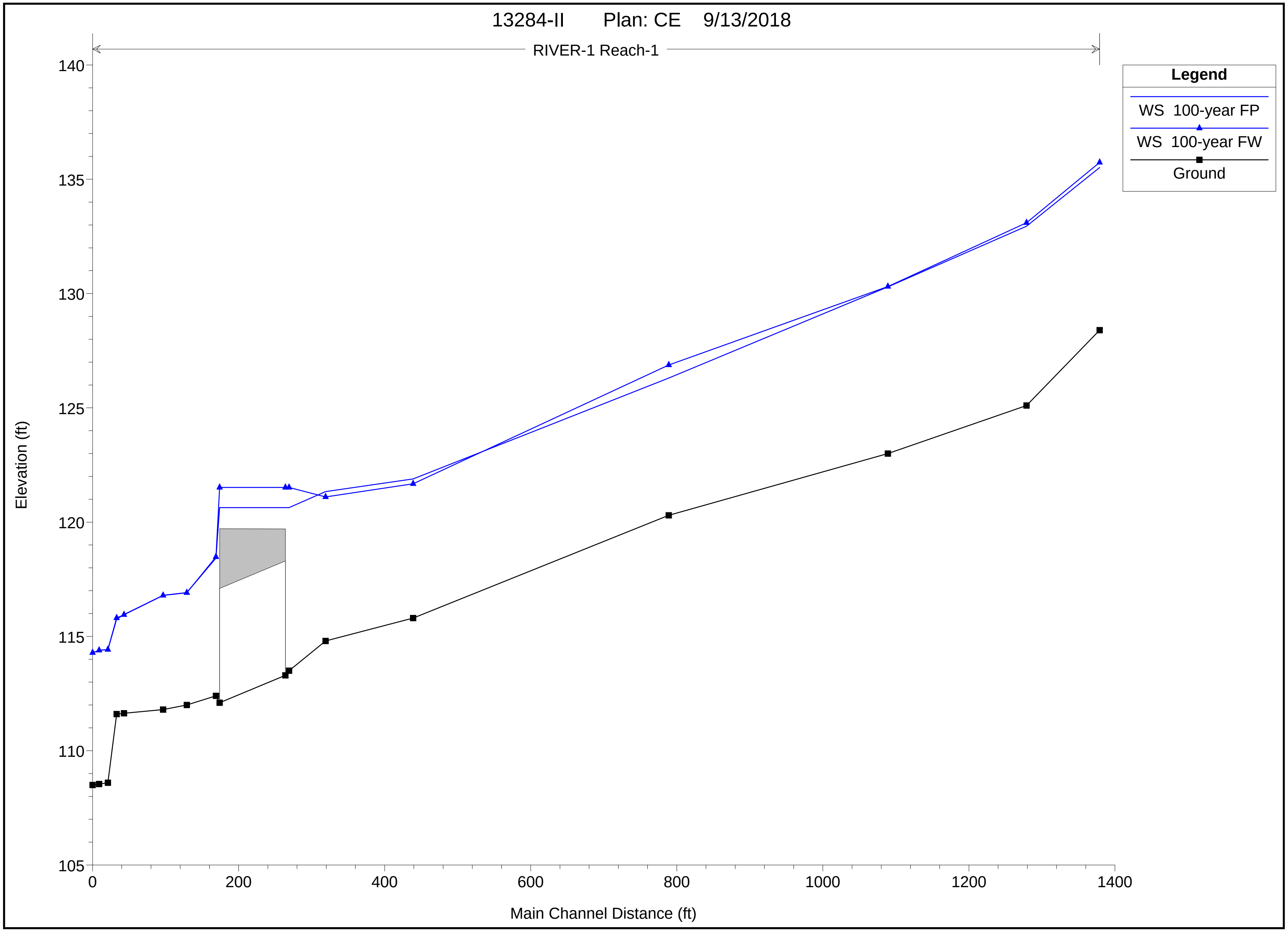

13284-II Plan: DE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1718 Proposed Section
.025
.04
.03
.04
.025
.012
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta
Encroachment

Attachment 6

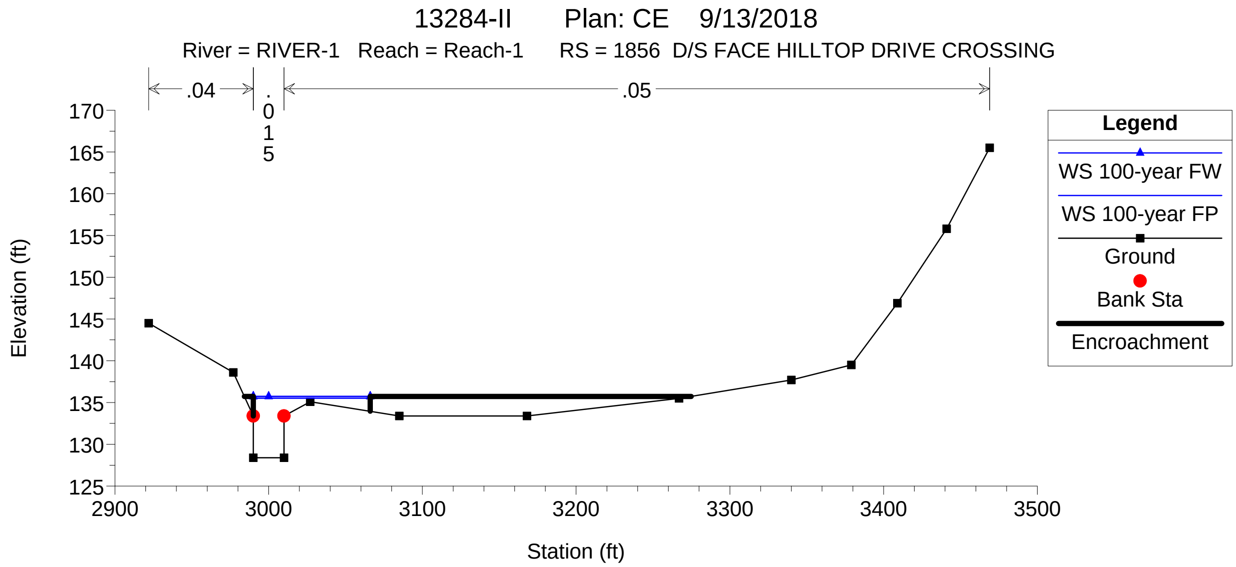
Corrected Effective HEC-RAS Output

HEC-RAS Plan: CE River: RIVER-1 Reach: Reach-1

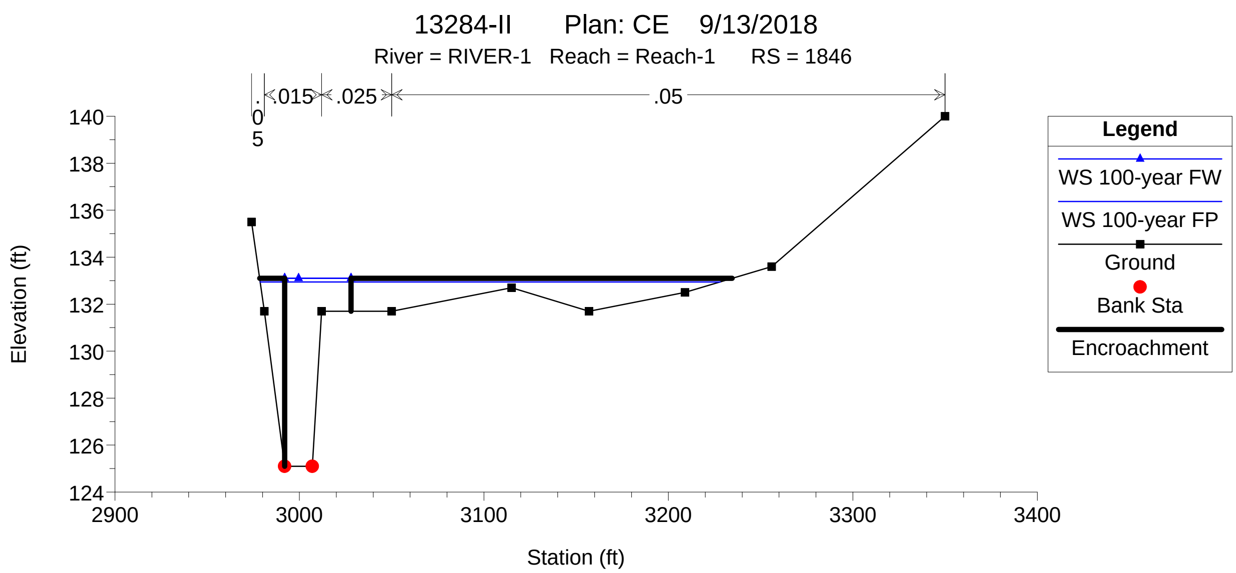
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1718	100-year FP	1900.00	108.50	114.29	113.43	115.43	0.004191	8.85	228.01	55.28	0.66
Reach-1	1718	100-year FW	1900.00	108.50	114.29	113.43	115.43	0.004190	8.85	228.01	55.26	0.66
Reach-1	1719	100-year FP	1900.00	108.54	114.39		115.47	0.003941	8.65	234.97	56.49	0.64
Reach-1	1719	100-year FW	1900.00	108.54	114.39		115.47	0.003941	8.65	234.97	56.46	0.64
Reach-1	1720	100-year FP	1900.00	108.60	114.42		115.54	0.006588	9.34	233.67	56.80	0.70
Reach-1	1720	100-year FW	1900.00	108.60	114.42		115.54	0.006586	9.34	233.68	56.78	0.70
Reach-1	1722	100-year FP	1900.00	111.60	115.76	115.76	117.35	0.014046	11.12	195.96	62.51	0.98
Reach-1	1722	100-year FW	1900.00	111.60	115.81	115.81	117.34	0.013316	10.92	199.36	62.51	0.95
Reach-1	1723	100-year FP	1900.00	111.64	115.96	115.96	117.48	0.009767	9.23	192.77	64.03	0.80
Reach-1	1723	100-year FW	1900.00	111.64	115.95	115.95	117.48	0.009862	9.26	192.19	64.00	0.81
Reach-1	1728	100-year FP	1900.00	111.80	116.80	116.21	117.88	0.004679	8.55	228.46	64.15	0.69
Reach-1	1728	100-year FW	1900.00	111.80	116.80	116.21	117.88	0.004699	8.56	228.13	64.13	0.69
Reach-1	1731	100-year FP	1900.00	112.00	116.92	116.42	118.05	0.005011	8.82	223.93	64.71	0.72
Reach-1	1731	100-year FW	1900.00	112.00	116.91	116.42	118.05	0.005031	8.84	223.63	64.69	0.72
Reach-1	1735	100-year FP	1900.00	112.40	118.43	118.43	120.69	0.006635	12.69	170.28	40.72	0.92
Reach-1	1735	100-year FW	1900.00	112.40	118.48	118.48	120.69	0.006428	12.56	172.27	40.71	0.91
Reach-1	1740		Culvert									
Reach-1	1745	100-year FP	1900.00	113.50	120.64	120.64	121.86	0.000674	9.53	346.57	218.61	0.63
Reach-1	1745	100-year FW	1900.00	113.50	121.52	119.27	122.90	0.000579	9.55	236.09	56.90	0.59
Reach-1	1750	100-year FP	1900.00	114.80	121.33	121.33	122.26	0.001060	8.89	391.40	289.05	0.62
Reach-1	1750	100-year FW	1900.00	114.80	121.10	120.59	123.42	0.002132	12.30	168.89	42.39	0.87
Reach-1	1762	100-year FP	1900.00	115.80	121.89	121.89	124.00	0.002113	11.99	197.51	297.73	0.86
Reach-1	1762	100-year FW	1900.00	115.80	121.68	121.68	124.20	0.002559	12.89	164.95	38.00	0.94
Reach-1	1797	100-year FP	1900.00	120.30	126.31	126.31	127.39	0.001113	10.92	415.21	295.69	0.79
Reach-1	1797	100-year FW	1900.00	120.30	126.87	126.87	129.66	0.001698	14.32	151.63	27.00	0.99
Reach-1	1827	100-year FP	1900.00	123.00	130.29	130.29	131.79	0.001101	12.36	276.19	134.74	0.81
Reach-1	1827	100-year FW	1900.00	123.00	130.31	130.31	132.76	0.001512	14.50	176.03	37.00	0.95
Reach-1	1846	100-year FP	1900.00	125.10	132.95	132.95	134.27	0.000757	10.76	367.13	249.33	0.68
Reach-1	1846	100-year FW	1900.00	125.10	133.10	133.10	135.59	0.002049	13.49	165.82	36.00	0.84
Reach-1	1856	100-year FP	1900.00	128.40	135.51	135.51	136.61	0.001222	9.77	523.67	282.77	0.65
Reach-1	1856	100-year FW	1900.00	128.40	135.74	135.74	137.91	0.002015	12.19	219.04	76.00	0.79



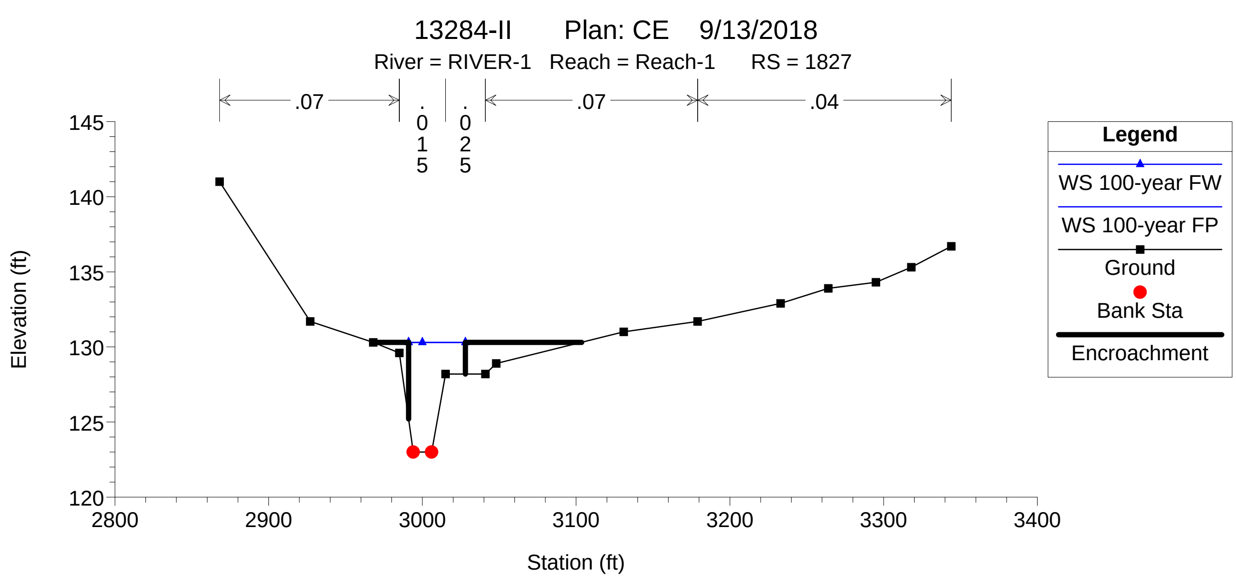
13284-II Plan: CE 9/13/2018
RIVER-1 Reach-1
Legend
WS 100-year FP
WS 100-year FW
Ground
Elevation (ft)
140
135
130
125
120
115
110
105
0
200
400
600
800
1000
1200
1400
Main Channel Distance (ft)



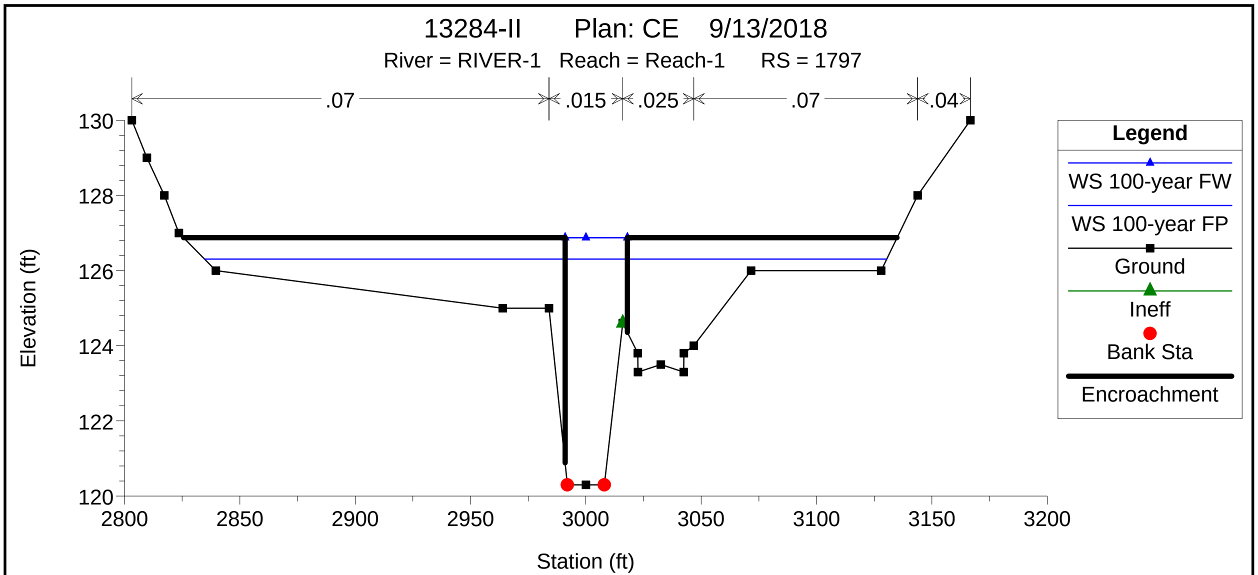
13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1856 D/S FACE HILLTOP DRIVE CROSSING
.04
.015
.05
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

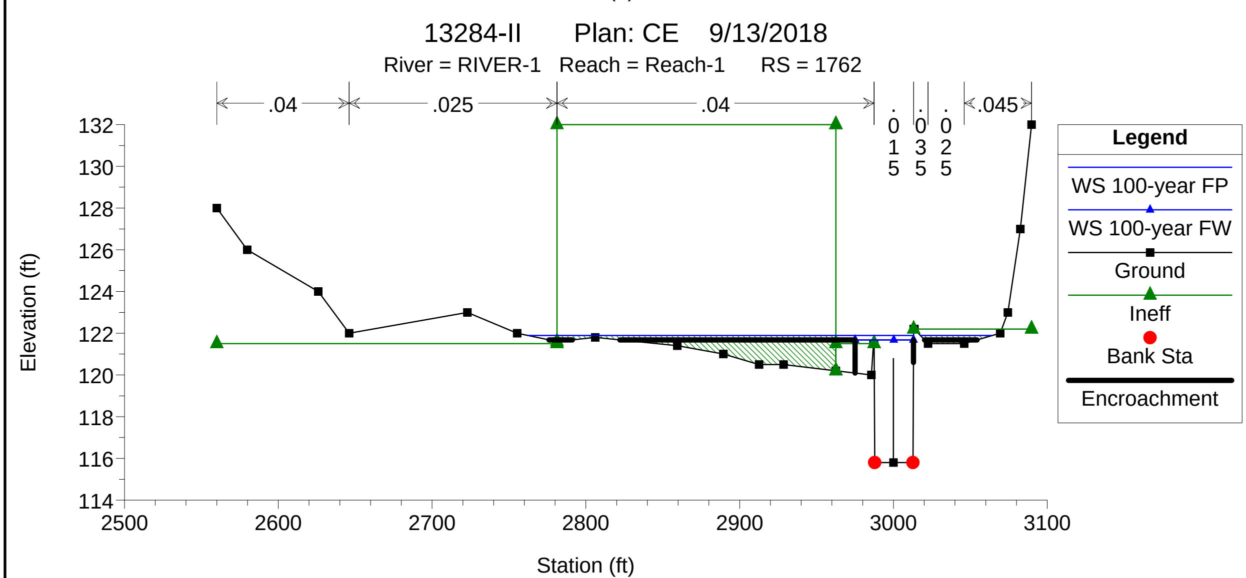


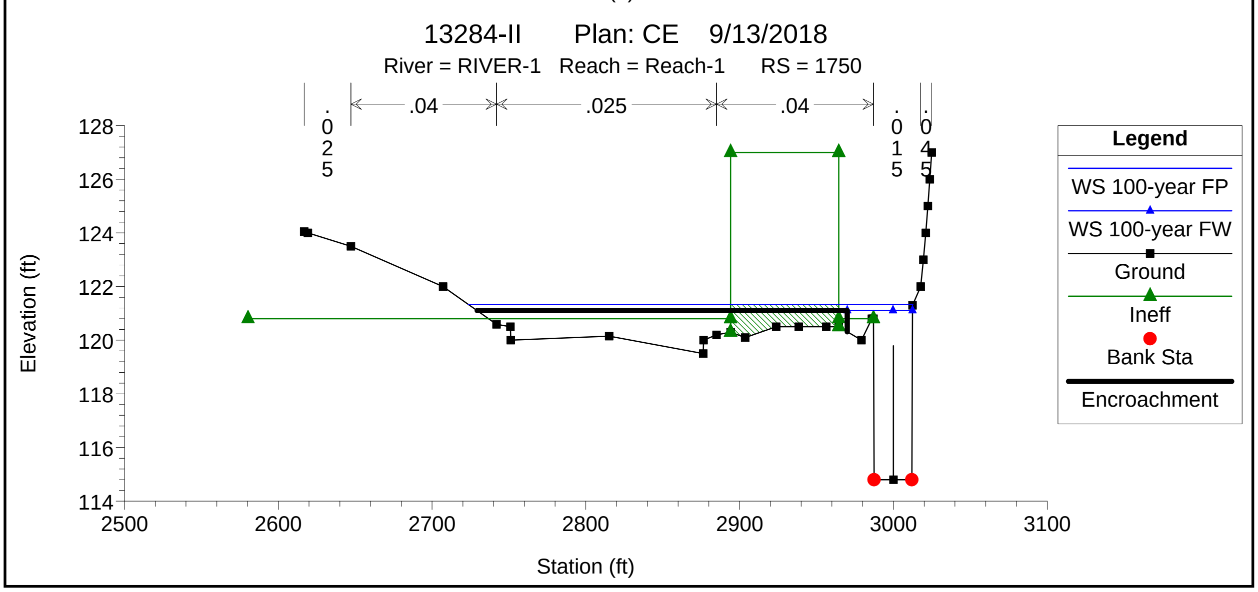
13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1846
.05
.015
.025
.05
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

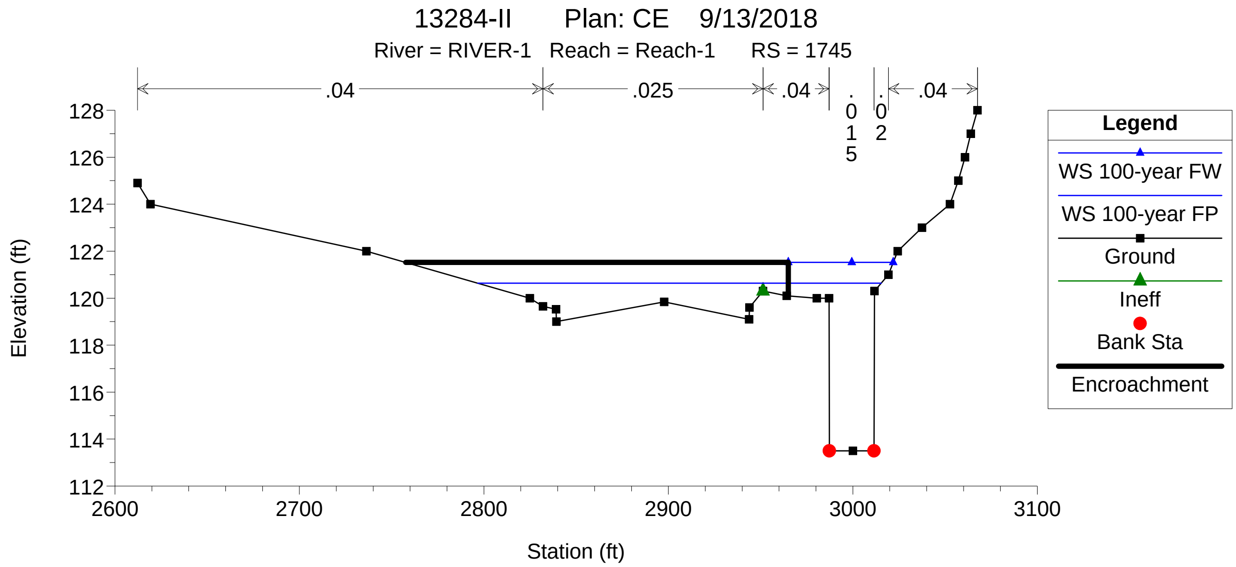


13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1827
.07
.015
.025
.07
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

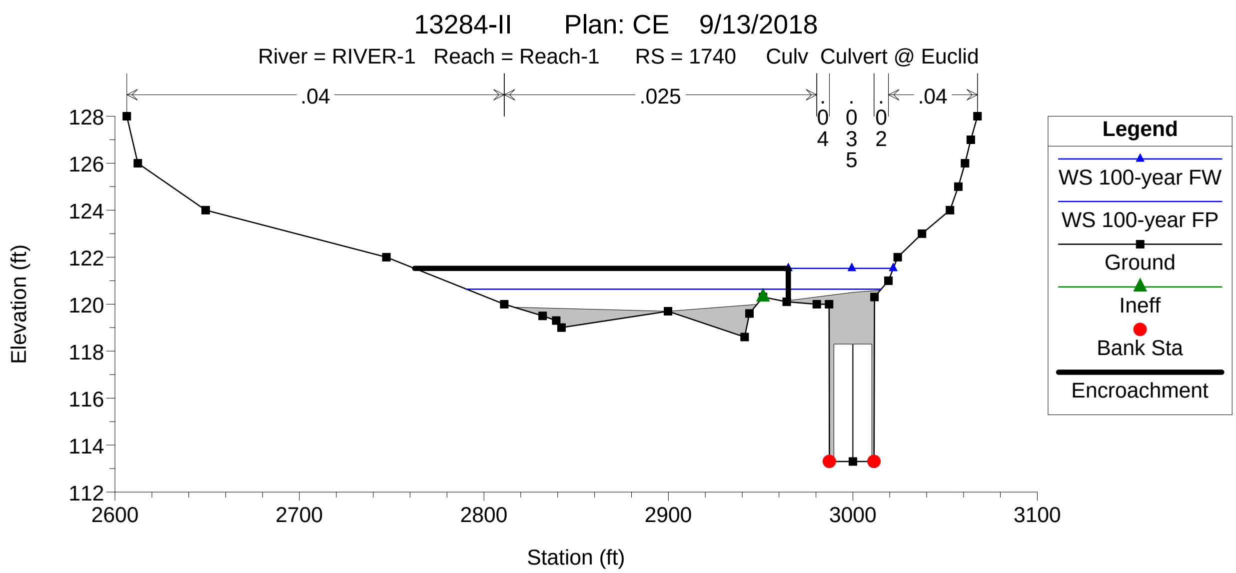

13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1797
.07
.015
.025
.07
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment


13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1762
.04
.025
.04
.015
.035
.025
.045
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta
Encroachment

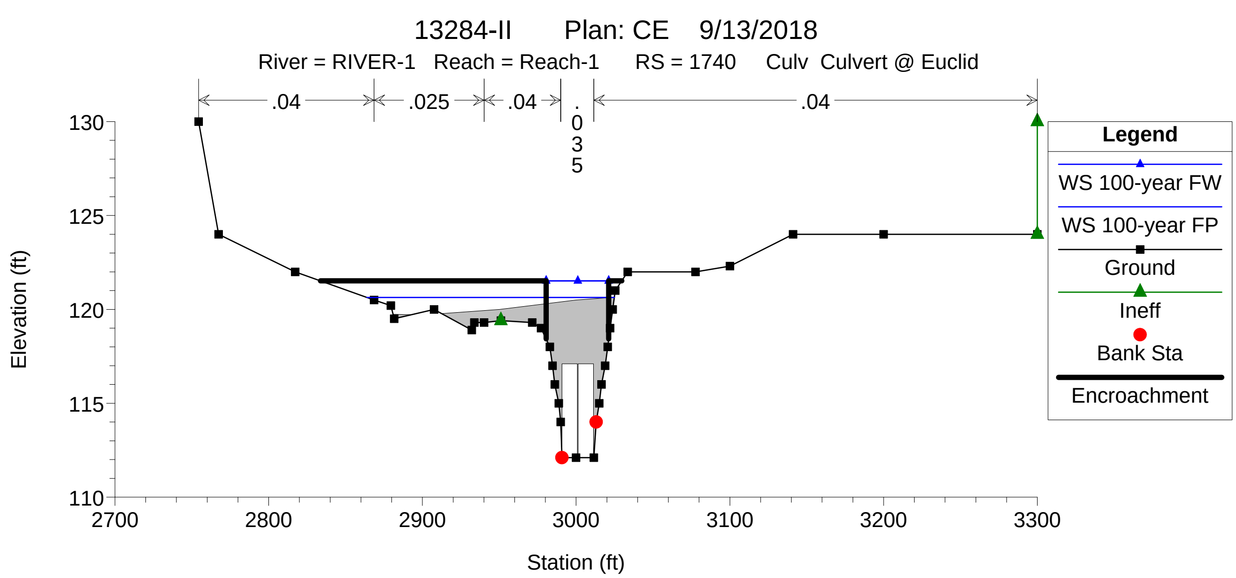

13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1750
.025
.04
.025
.04
.015
.045
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta
Encroachment



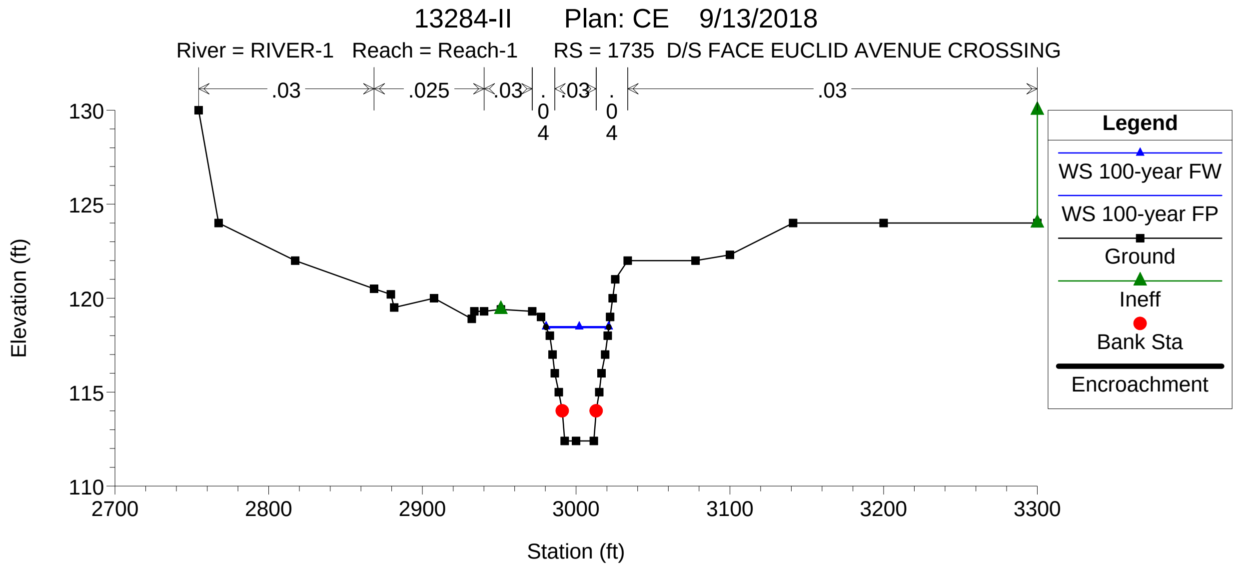
13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1745
.04
.025
.04
.015
.02
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

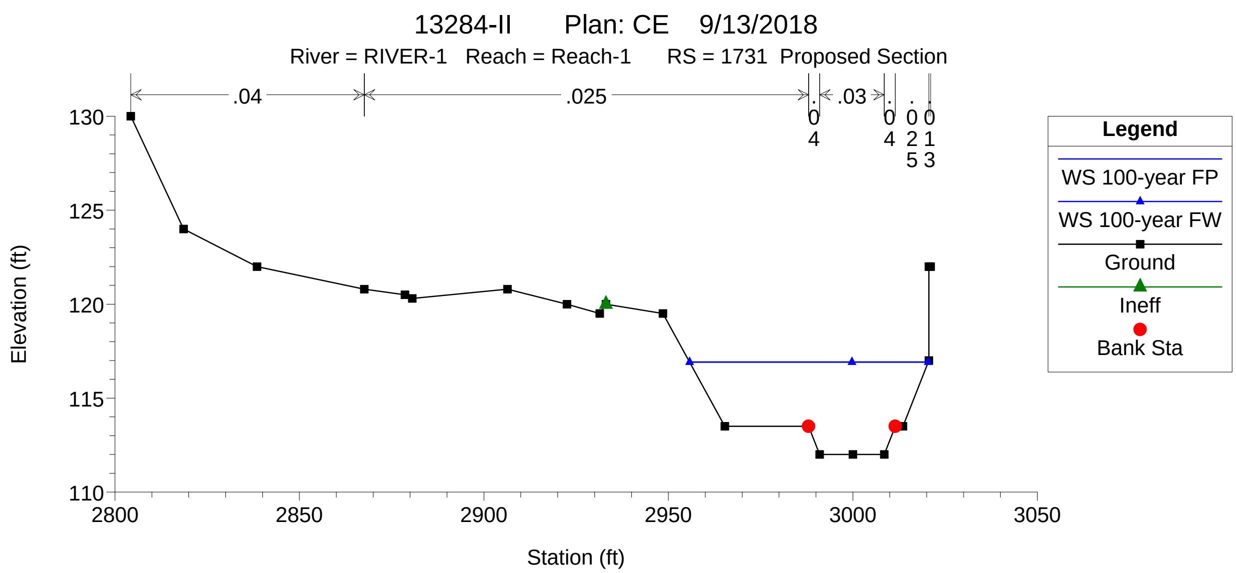


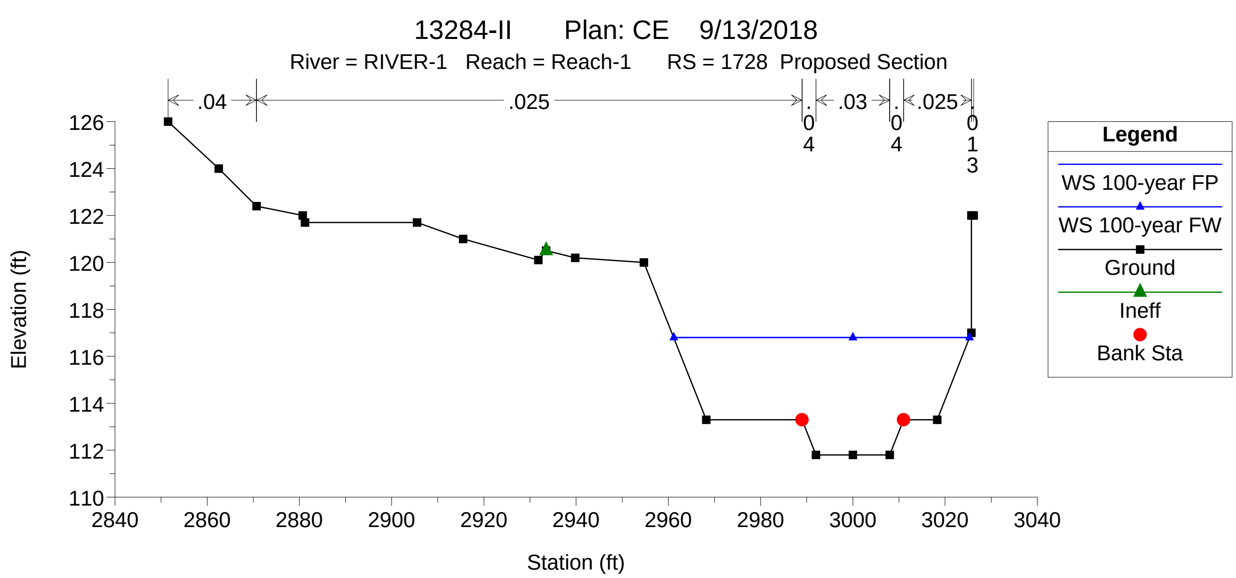
13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1740 Culv Culvert @ Euclid
.04
.025
.04
.035
.02
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

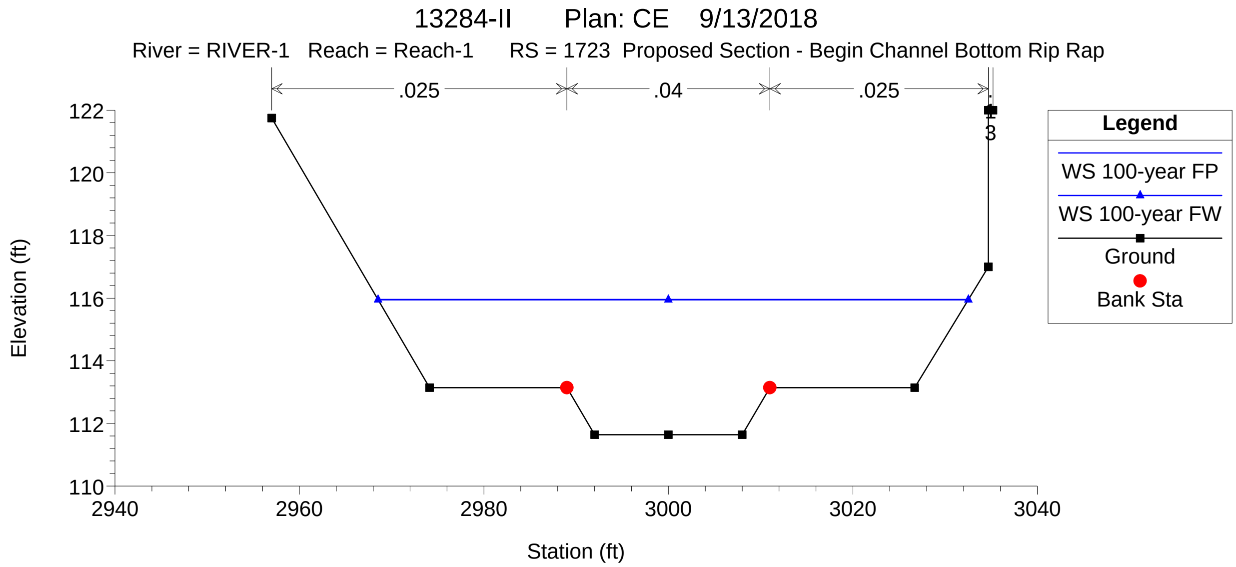


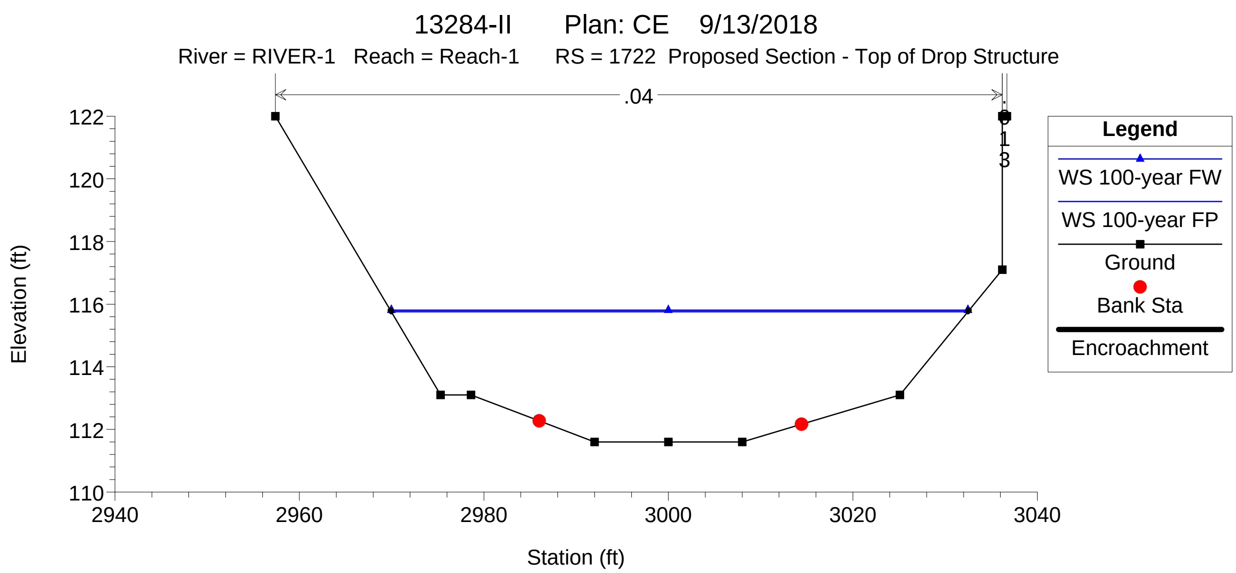
13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1740 Culv Culvert @ Euclid
.04
.025
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

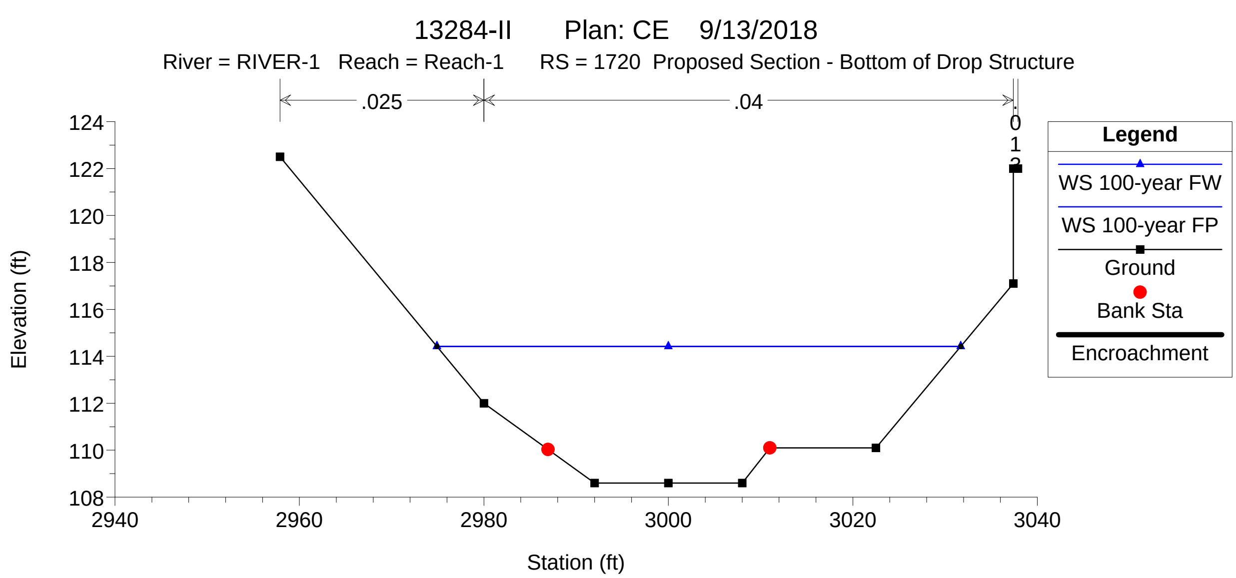

13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1735 D/S FACE EUCLID AVENUE CROSSING
.03
.025
.03
.04
.03
.04
.03
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

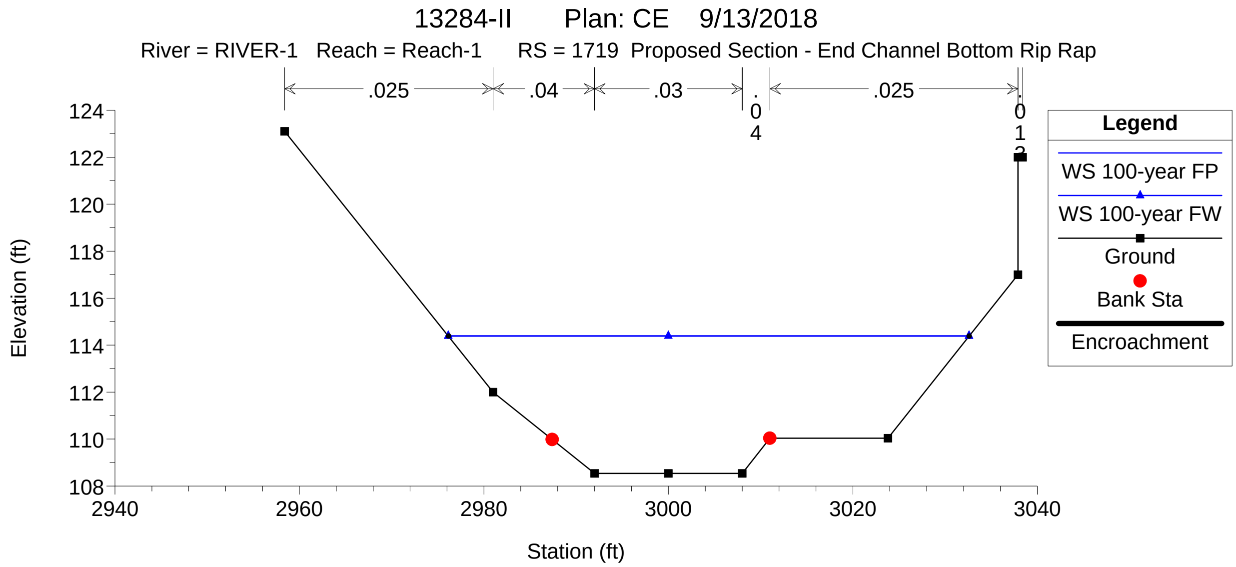

13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1731 Proposed Section
.04
.025
.04
.03
.04
.025
.013
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta

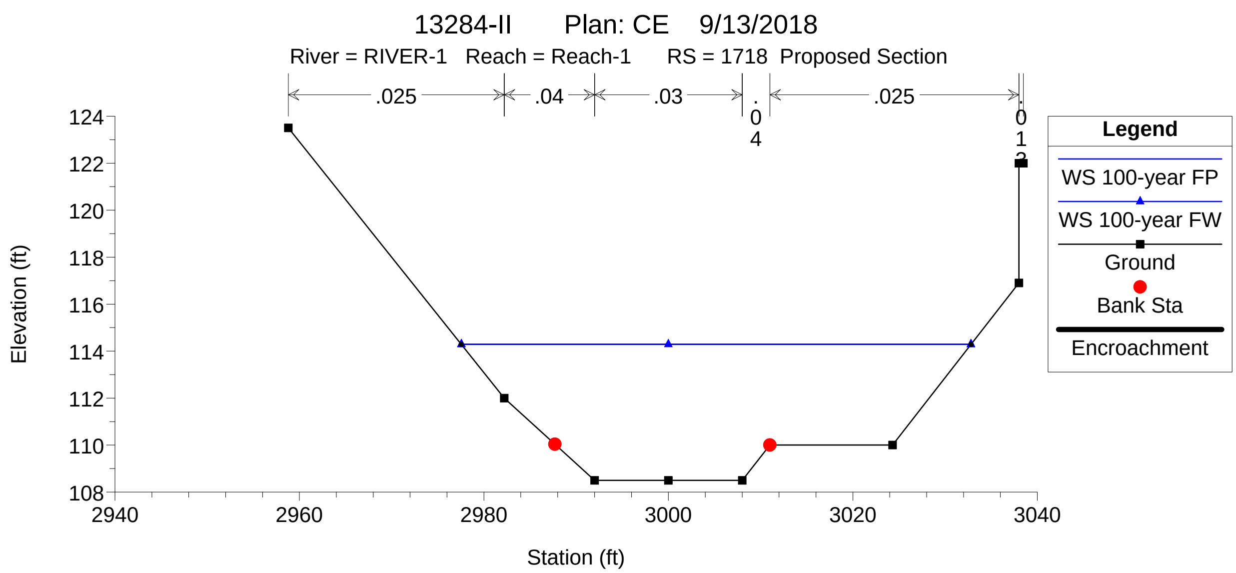

13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1728 Proposed Section
.04
.025
.04
.03
.04
.025
.013
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta


13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1723 Proposed Section - Begin Channel Bottom Rip Rap
.025
.04
.025
Elevation (ft)
110
112
114
116
118
120
122
2940
2960
2980
3000
3020
3040
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta


13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1722 Proposed Section - Top of Drop Structure
.04
Elevation (ft)
110
112
114
116
118
120
122
2940
2960
2980
3000
3020
3040
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment


13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1720 Proposed Section - Bottom of Drop Structure
.025
.04
Elevation (ft)
108
110
112
114
116
118
120
122
124
2940
2960
2980
3000
3020
3040
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment


13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1719 Proposed Section - End Channel Bottom Rip Rap
.025
.04
.03
.04
.025
.012
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta
Encroachment
Elevation (ft)
124
122
120
118
116
114
112
110
108
2940
2960
2980
3000
3020
3040
Station (ft)

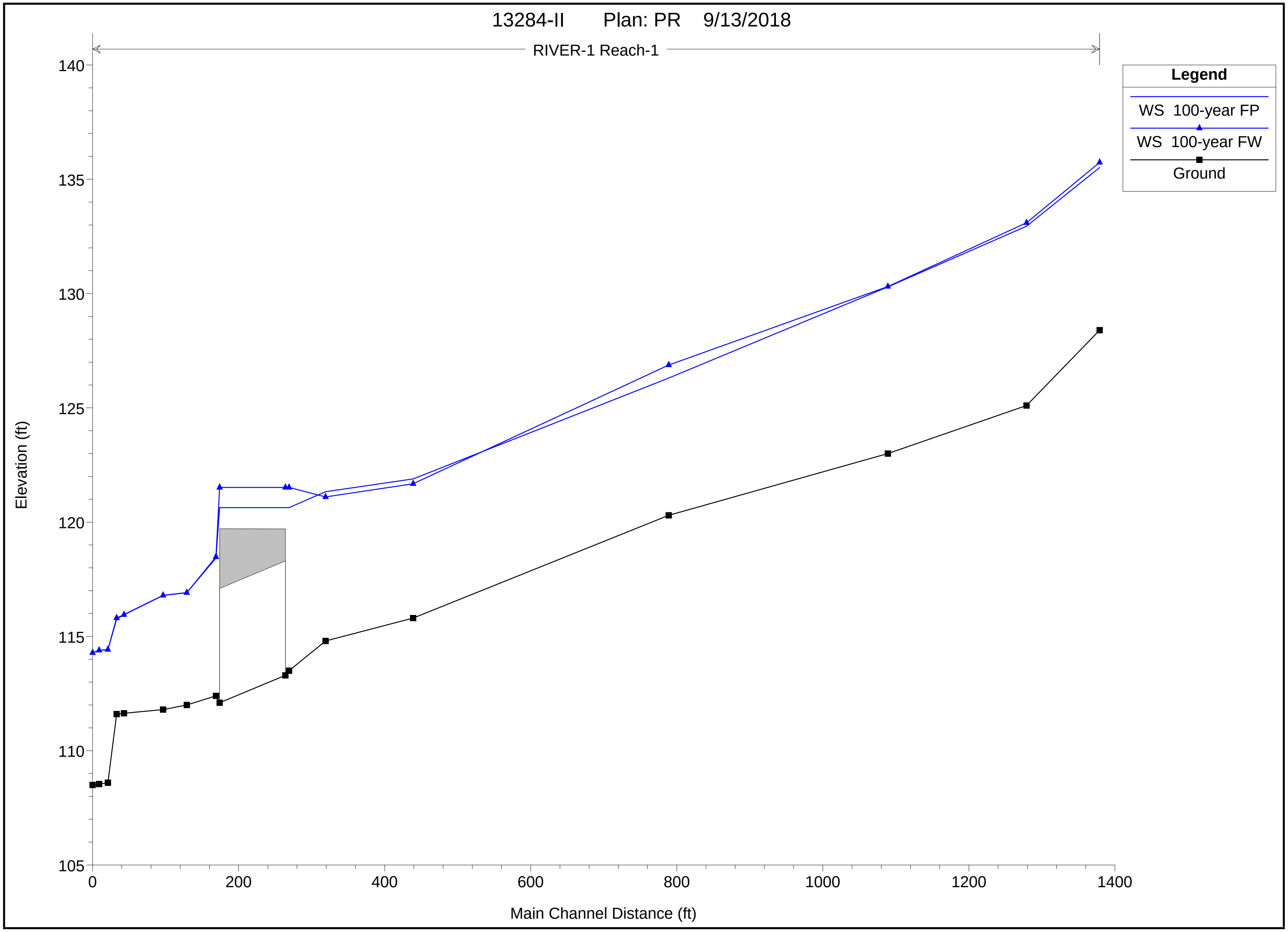

13284-II Plan: CE 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1718 Proposed Section
.025
.04
.03
.04
.025
.012
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta
Encroachment
Elevation (ft)
124
122
120
118
116
114
112
110
108
2940
2960
2980
3000
3020
3040
Station (ft)

Attachment 7

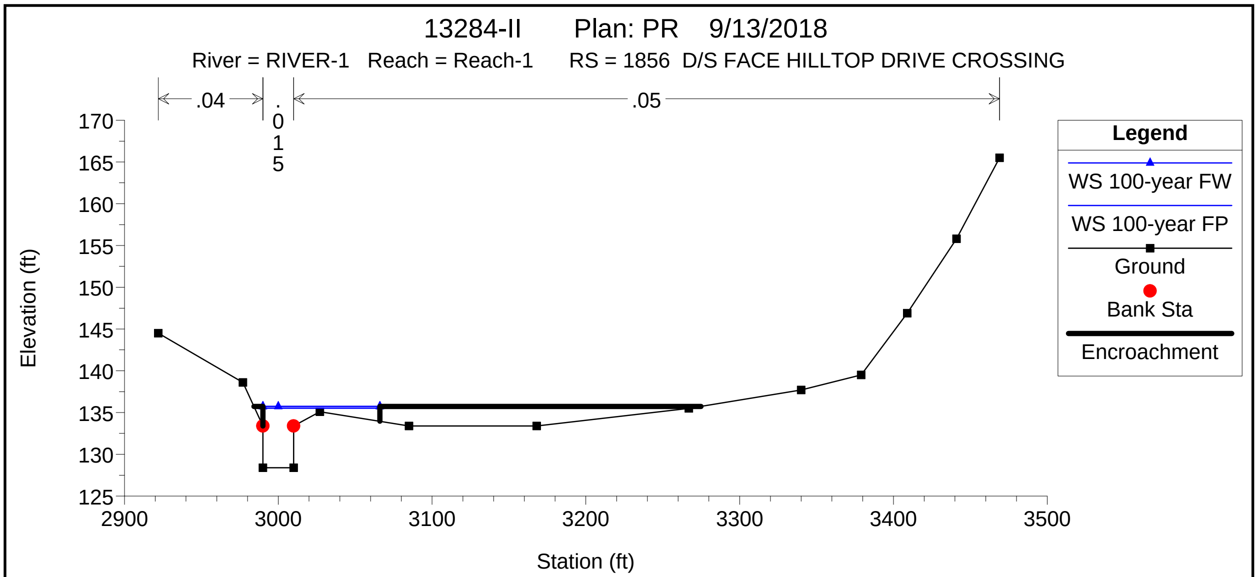
Proposed HEC-RAS Output

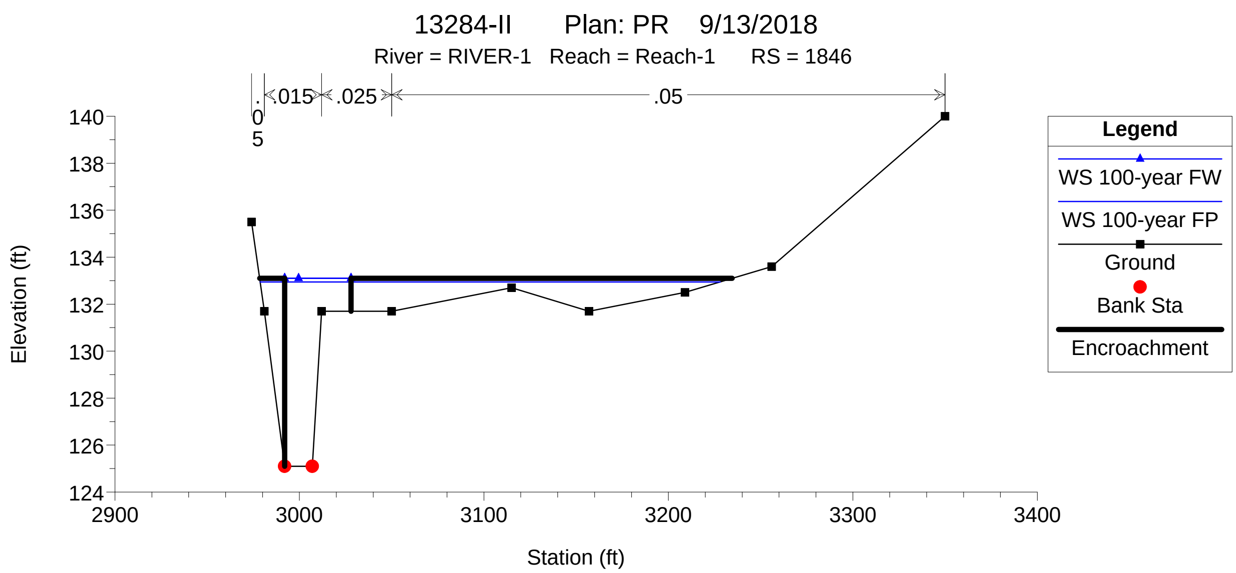
HEC-RAS Plan: PR River: RIVER-1 Reach: Reach-1

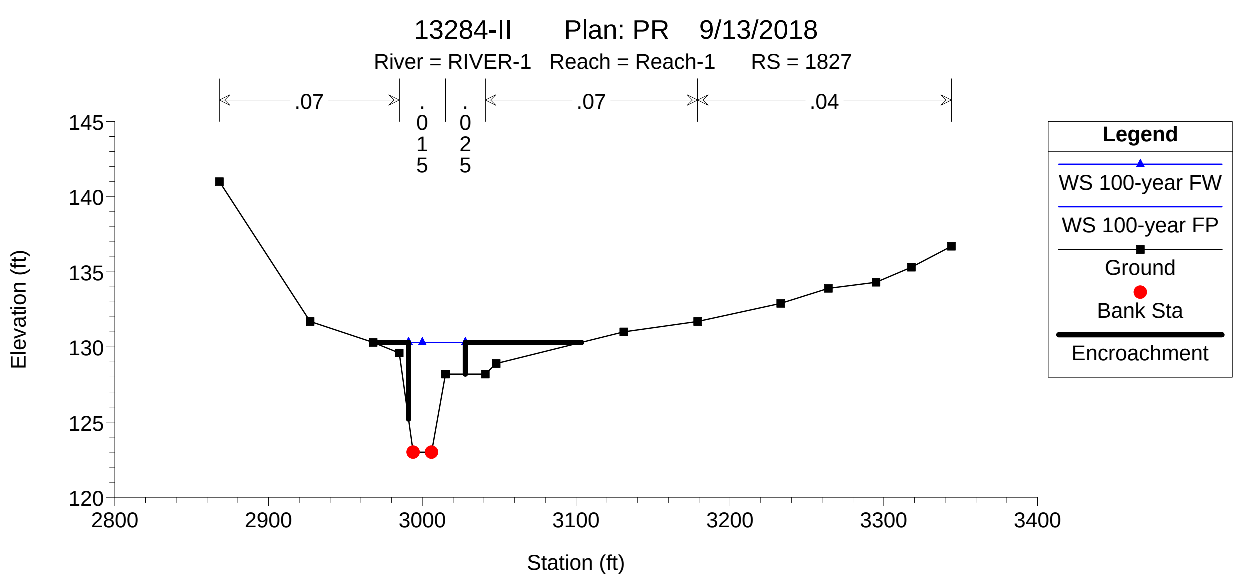
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1718	100-year FP	1900.00	108.50	114.29	113.43	115.43	0.004191	8.85	228.01	55.28	0.66
Reach-1	1718	100-year FW	1900.00	108.50	114.29	113.43	115.43	0.004190	8.85	228.01	55.26	0.66
Reach-1	1719	100-year FP	1900.00	108.54	114.39		115.47	0.003941	8.65	234.97	56.49	0.64
Reach-1	1719	100-year FW	1900.00	108.54	114.39		115.47	0.003941	8.65	234.97	56.46	0.64
Reach-1	1720	100-year FP	1900.00	108.60	114.42		115.54	0.006588	9.34	233.67	56.80	0.70
Reach-1	1720	100-year FW	1900.00	108.60	114.42		115.54	0.006586	9.34	233.68	56.78	0.70
Reach-1	1722	100-year FP	1900.00	111.60	115.76	115.76	117.35	0.014046	11.12	195.96	62.51	0.98
Reach-1	1722	100-year FW	1900.00	111.60	115.81	115.81	117.34	0.013316	10.92	199.36	62.51	0.95
Reach-1	1723	100-year FP	1900.00	111.64	115.96	115.96	117.48	0.009767	9.23	192.77	64.03	0.80
Reach-1	1723	100-year FW	1900.00	111.64	115.95	115.95	117.48	0.009862	9.26	192.19	64.00	0.81
Reach-1	1728	100-year FP	1900.00	111.80	116.80	116.21	117.88	0.004679	8.55	228.46	64.15	0.69
Reach-1	1728	100-year FW	1900.00	111.80	116.80	116.21	117.88	0.004699	8.56	228.13	64.13	0.69
Reach-1	1731	100-year FP	1900.00	112.00	116.92	116.42	118.05	0.005011	8.82	223.93	64.71	0.72
Reach-1	1731	100-year FW	1900.00	112.00	116.91	116.42	118.05	0.005031	8.84	223.63	64.69	0.72
Reach-1	1735	100-year FP	1900.00	112.40	118.43	118.43	120.69	0.006635	12.69	170.28	40.72	0.92
Reach-1	1735	100-year FW	1900.00	112.40	118.48	118.48	120.69	0.006428	12.56	172.27	40.71	0.91
Reach-1	1740		Culvert									
Reach-1	1745	100-year FP	1900.00	113.50	120.64	120.64	121.84	0.000663	9.46	349.87	204.65	0.62
Reach-1	1745	100-year FW	1900.00	113.50	121.52	119.27	122.90	0.000579	9.55	236.09	56.90	0.59
Reach-1	1750	100-year FP	1900.00	114.80	121.33	121.33	122.26	0.001066	8.91	386.56	277.49	0.62
Reach-1	1750	100-year FW	1900.00	114.80	121.10	120.59	123.42	0.002132	12.30	168.89	42.39	0.87
Reach-1	1762	100-year FP	1900.00	115.80	121.89	121.89	124.00	0.002113	11.99	197.51	297.73	0.86
Reach-1	1762	100-year FW	1900.00	115.80	121.68	121.68	124.20	0.002559	12.89	164.95	38.00	0.94
Reach-1	1797	100-year FP	1900.00	120.30	126.31	126.31	127.39	0.001113	10.92	415.21	295.69	0.79
Reach-1	1797	100-year FW	1900.00	120.30	126.87	126.87	129.66	0.001698	14.32	151.63	27.00	0.99
Reach-1	1827	100-year FP	1900.00	123.00	130.29	130.29	131.79	0.001101	12.36	276.19	134.74	0.81
Reach-1	1827	100-year FW	1900.00	123.00	130.31	130.31	132.76	0.001512	14.50	176.03	37.00	0.95
Reach-1	1846	100-year FP	1900.00	125.10	132.95	132.95	134.27	0.000757	10.76	367.13	249.33	0.68
Reach-1	1846	100-year FW	1900.00	125.10	133.10	133.10	135.59	0.002049	13.49	165.82	36.00	0.84
Reach-1	1856	100-year FP	1900.00	128.40	135.51	135.51	136.61	0.001222	9.77	523.67	282.77	0.65
Reach-1	1856	100-year FW	1900.00	128.40	135.74	135.74	137.91	0.002015	12.19	219.04	76.00	0.79

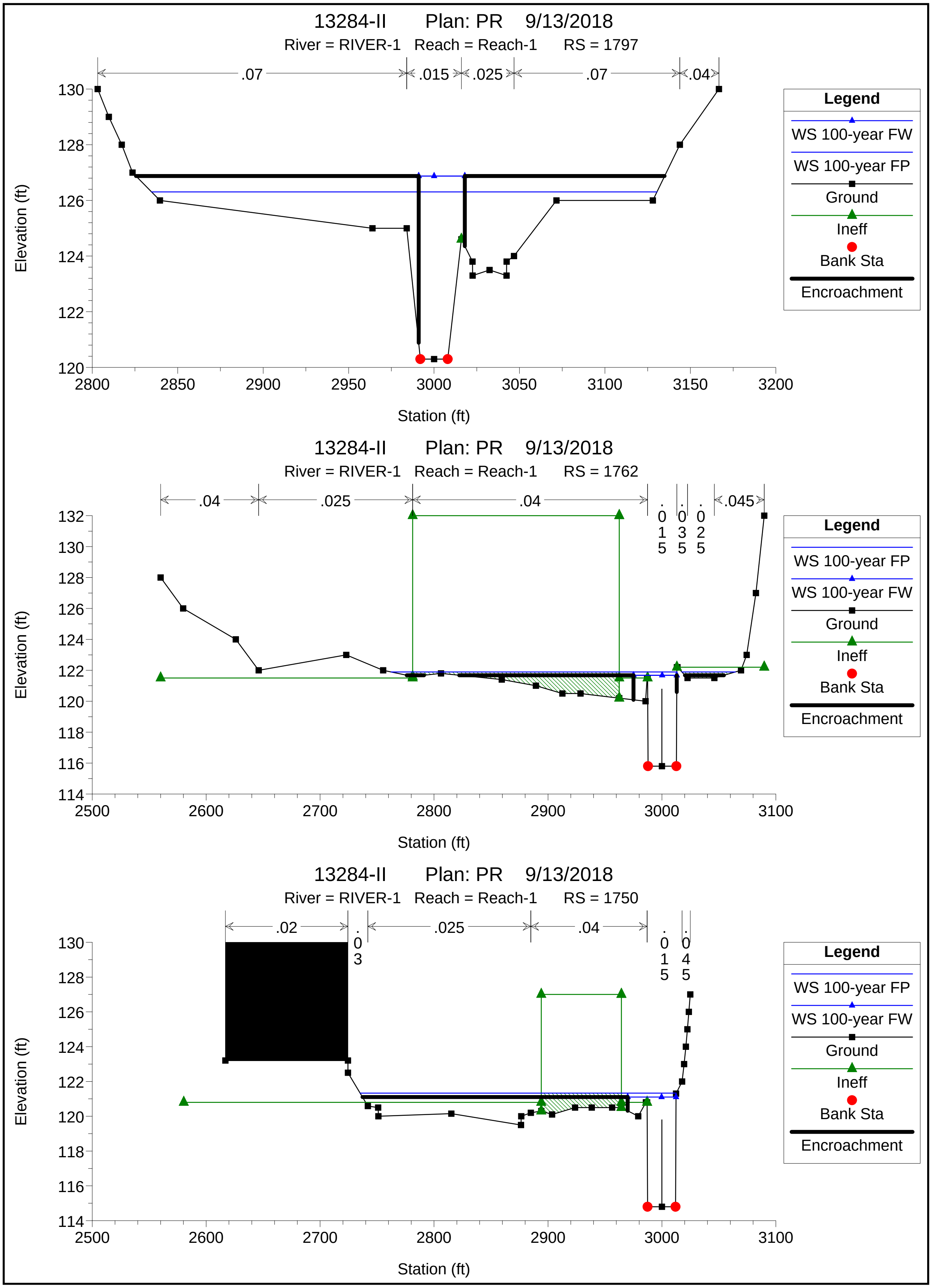


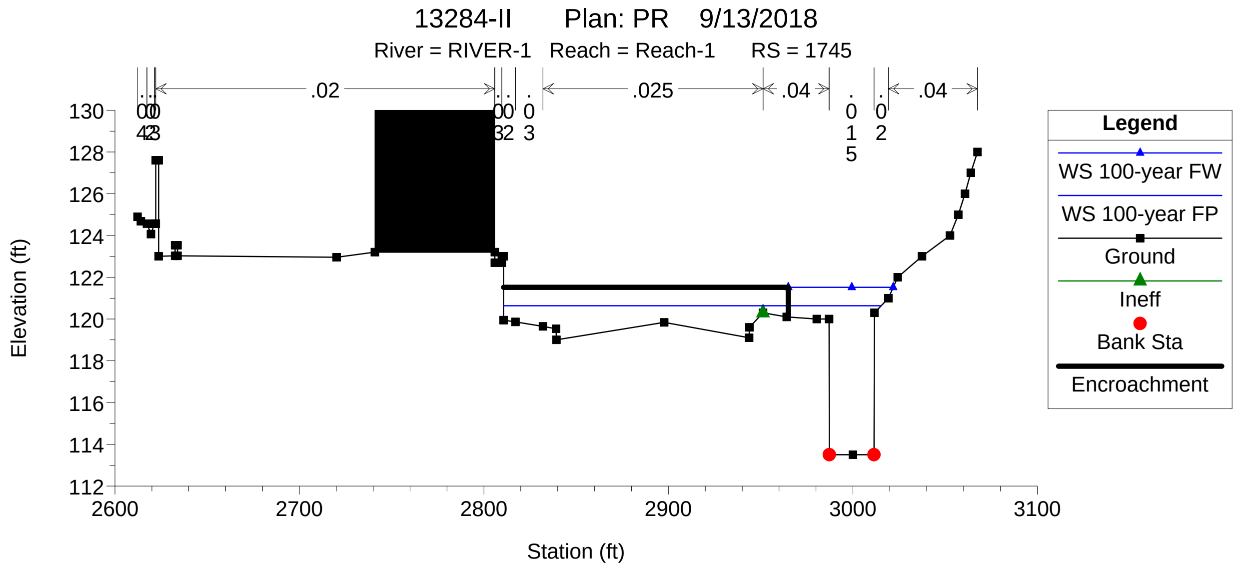
13284-II Plan: PR 9/13/2018
RIVER-1 Reach-1
Legend
WS 100-year FP
WS 100-year FW
Ground
Elevation (ft)
140
135
130
125
120
115
110
105
0
200
400
600
800
1000
1200
1400
Main Channel Distance (ft)

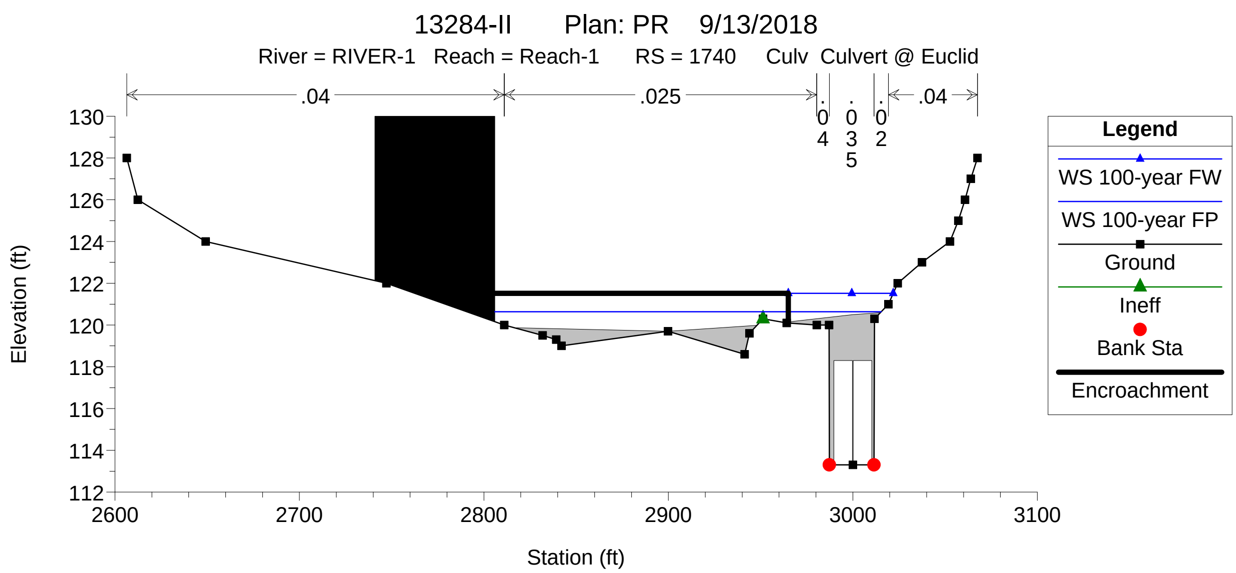

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1856 D/S FACE HILLTOP DRIVE CROSSING
.04
.015
.05
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

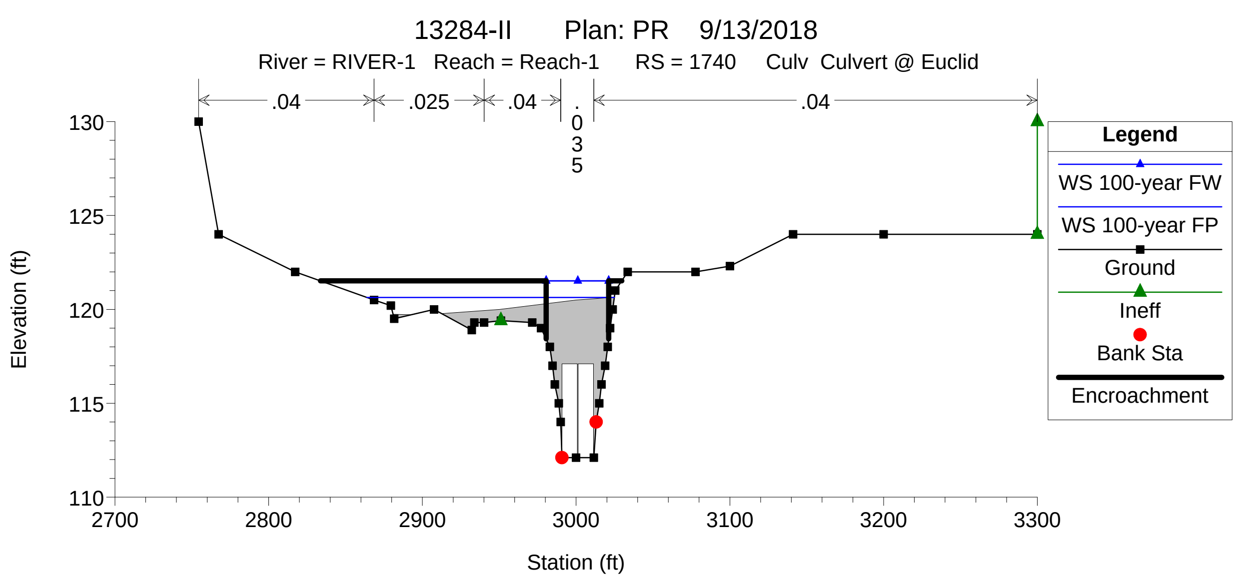

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1846
.05
.015
.025
.05
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

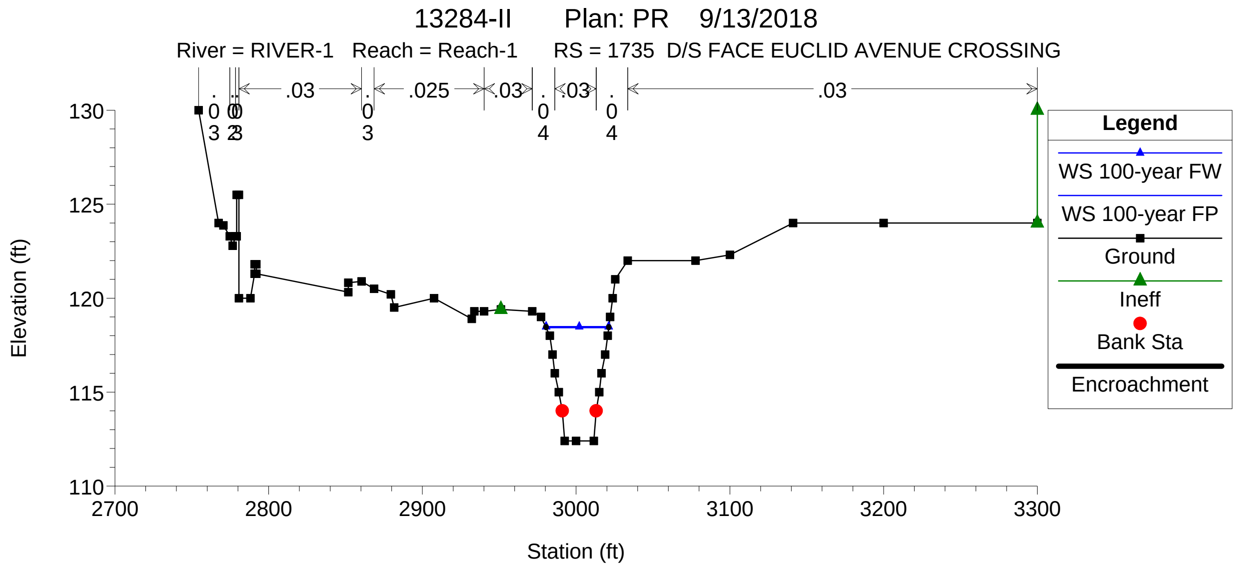

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1827
.07
.015
.025
.07
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment

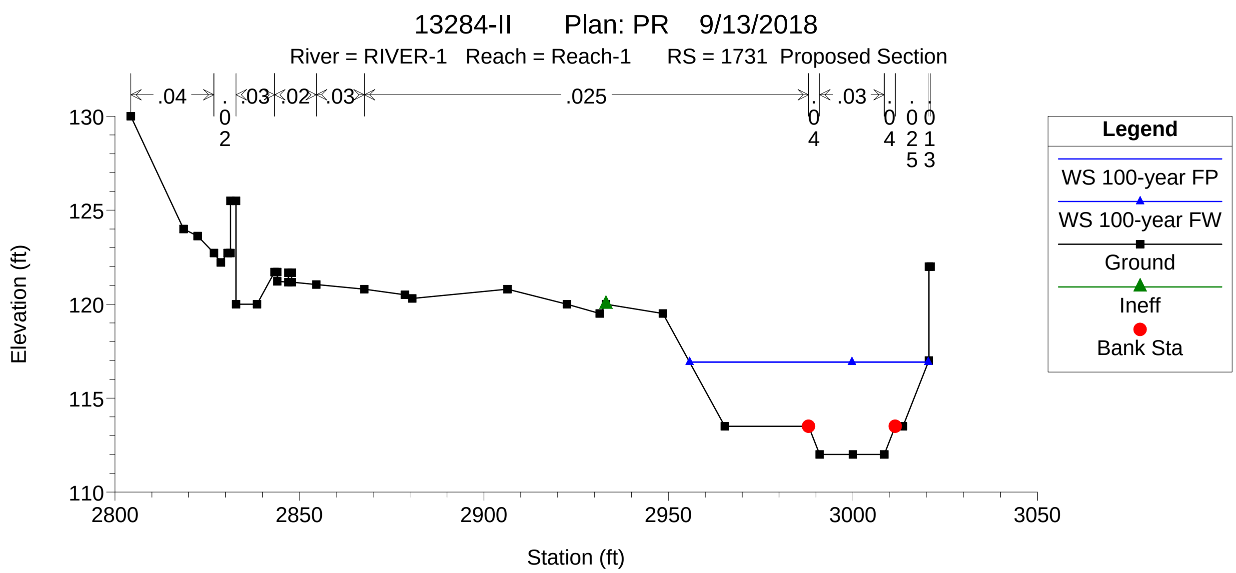

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1797
.07 .015 .025 .07 .04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment
13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1762
.04 .025 .04 .015 .035 .025 .045
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta
Encroachment
13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1750
.02 .03 .025 .04 .015 .045
Elevation (ft)
Station (ft)
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta
Encroachment

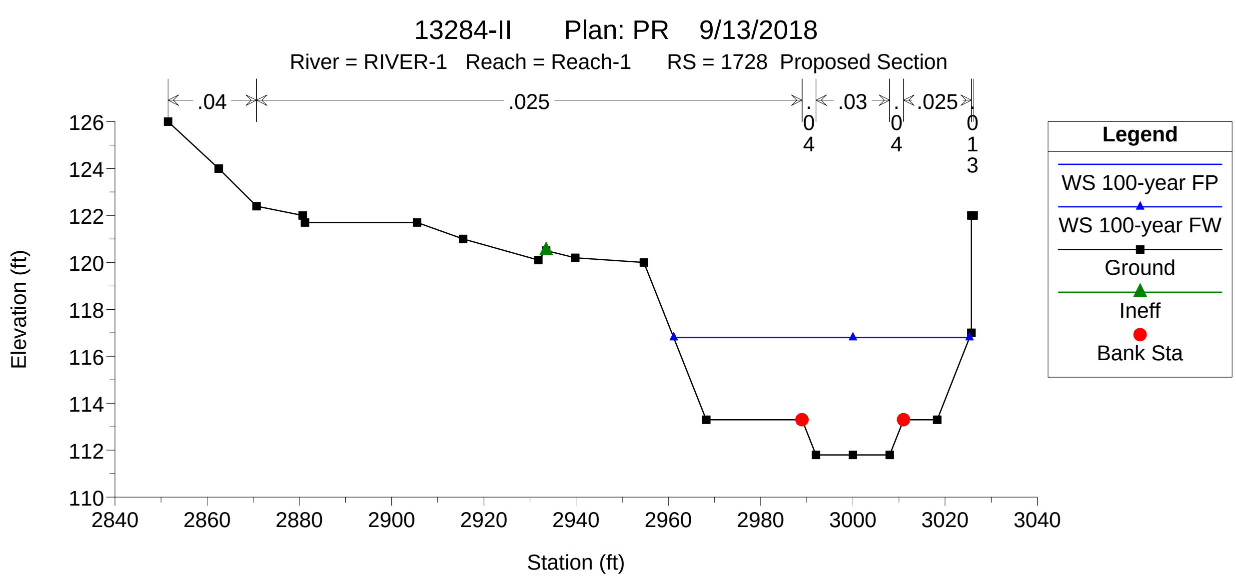

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1745
.02
.025
.04
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

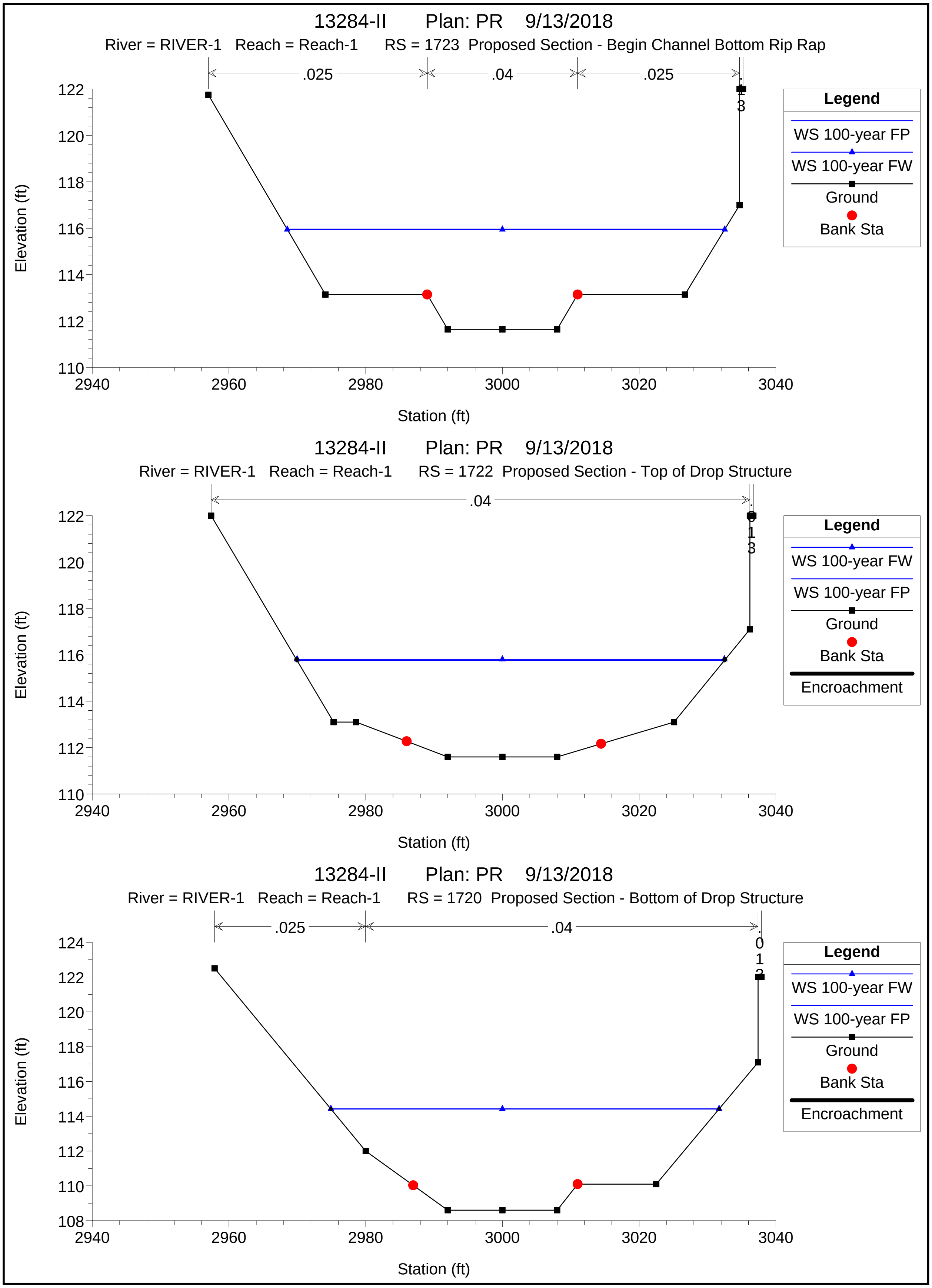

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1740 Culv Culvert @ Euclid
.04
.025
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

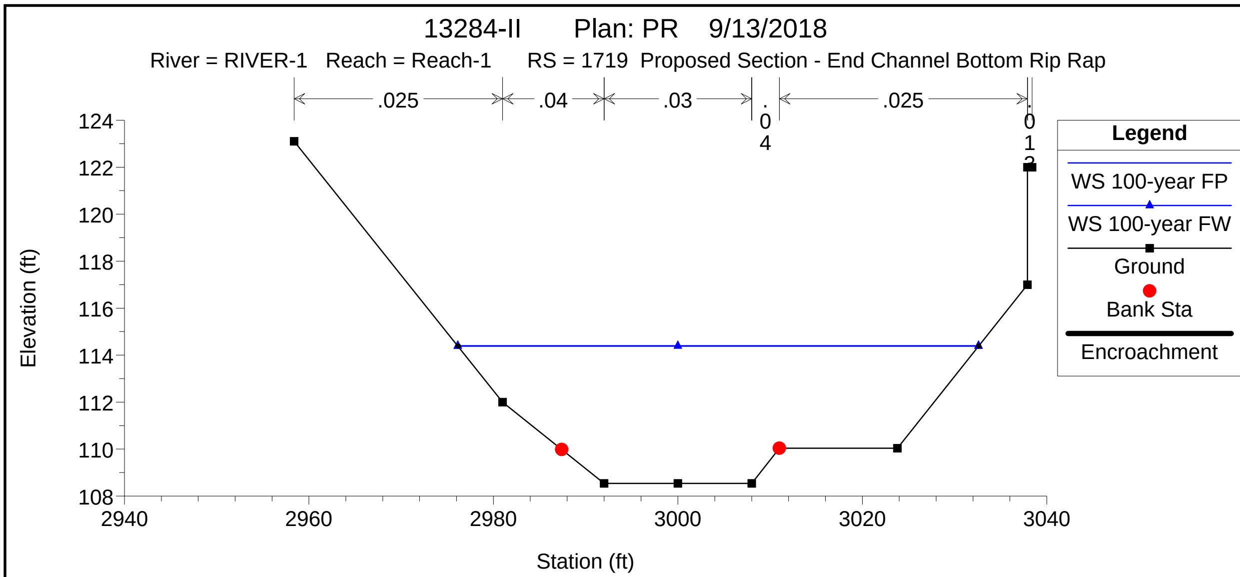

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1740 Culv Culvert @ Euclid
.04
.025
.04
.04
Elevation (ft)
Station (ft)
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment


13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1735 D/S FACE EUCLID AVENUE CROSSING
.03
.025
.03
.03
.03
Elevation (ft)
Station (ft)
130
125
120
115
110
2700
2800
2900
3000
3100
3200
3300
Legend
WS 100-year FW
WS 100-year FP
Ground
Ineff
Bank Sta
Encroachment

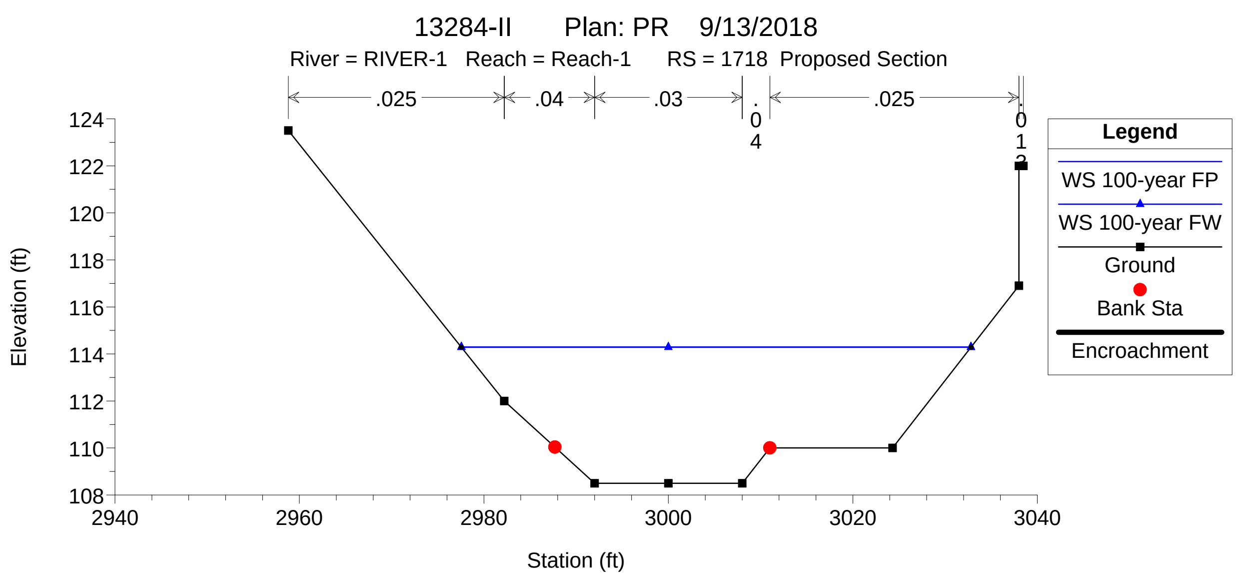

13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1731 Proposed Section
.04
.03
.02
.03
.025
.03
Elevation (ft)
Station (ft)
130
125
120
115
110
2800
2850
2900
2950
3000
3050
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta


13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1728 Proposed Section
.04
.025
.03
.025
Elevation (ft)
Station (ft)
126
124
122
120
118
116
114
112
110
2840
2860
2880
2900
2920
2940
2960
2980
3000
3020
3040
Legend
WS 100-year FP
WS 100-year FW
Ground
Ineff
Bank Sta


13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1723 Proposed Section - Begin Channel Bottom Rip Rap
.025
.04
.025
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta
Elevation (ft)
Station (ft)
13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1722 Proposed Section - Top of Drop Structure
.04
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1720 Proposed Section - Bottom of Drop Structure
.025
.04
Legend
WS 100-year FW
WS 100-year FP
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)



13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1719 Proposed Section - End Channel Bottom Rip Rap
.025
.04
.03
.04
.025
.012
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta
Encroachment
Elevation (ft)
124
122
120
118
116
114
112
110
108
2940
2960
2980
3000
3020
3040
Station (ft)



13284-II Plan: PR 9/13/2018
River = RIVER-1 Reach = Reach-1 RS = 1718 Proposed Section
.025
.04
.03
.04
.025
.012
Legend
WS 100-year FP
WS 100-year FW
Ground
Bank Sta
Encroachment
Elevation (ft)
124
122
120
118
116
114
112
110
108
2940
2960
2980
3000
3020
3040
Station (ft)

Attachment 8

Proposed HEC-RAS Workmap

NO-RISE CERTIFICATION HEC-RAS WORKMAP FOR ACCESS YOUTH ACEDEMY

SOUTH LAS CHOLLAS CREEK

SHEET 1 OF 1

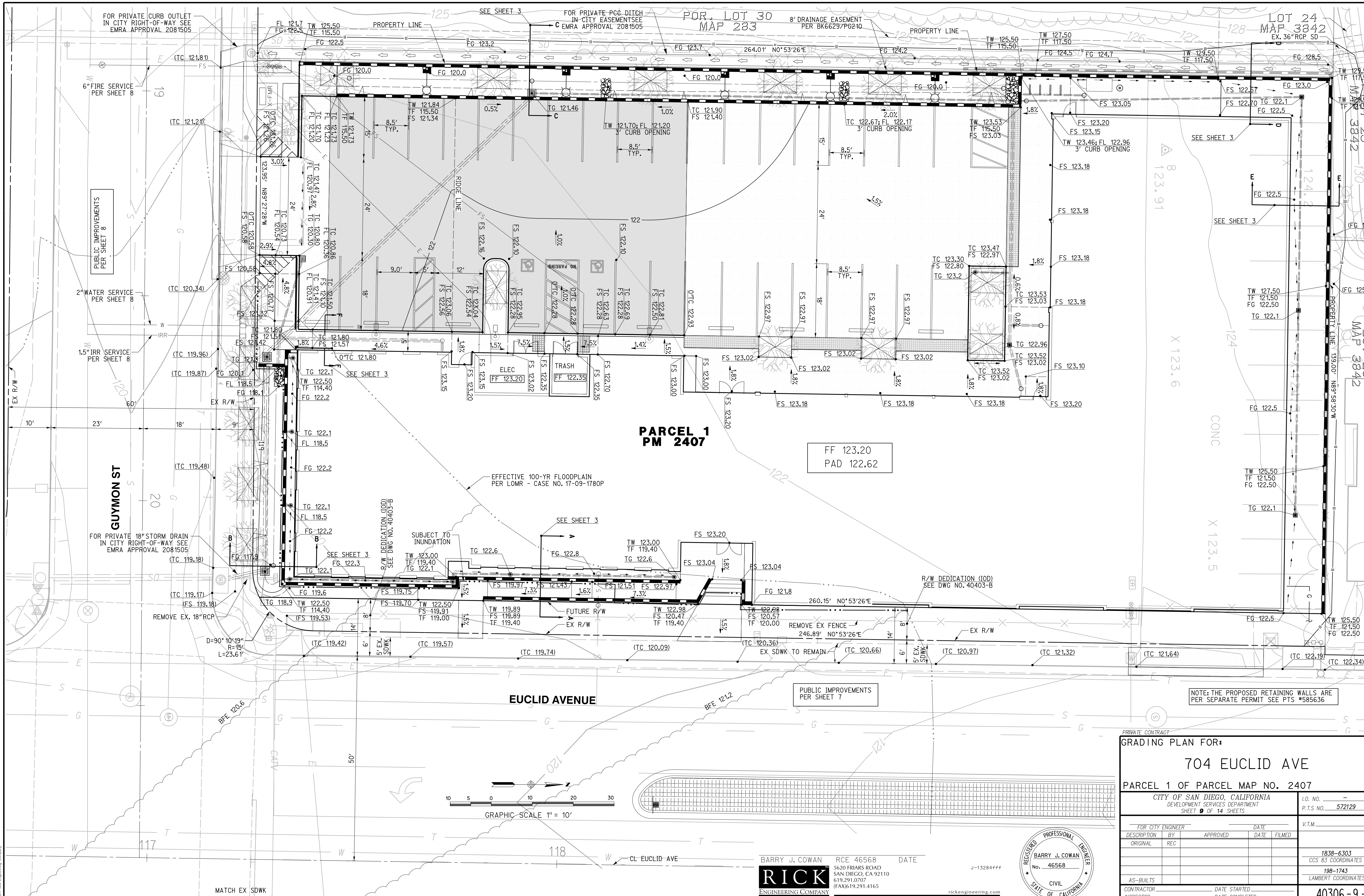
J-13284-FFF
DATE: SEPTEMBER 12, 2018

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619.291.0707
(FAX)619.291.4165
rickengineering.com
Riverside - Orange - San Luis Obispo - Bakersfield - Sacramento - Phoenix - Tucson

S:\13284-FFF_AccessYouth_SD\WaterResources\13284-FFF_Workmap_
REC_NCS-2.ctb

Attachment 9

Proposed Grading Plan



PRIVATE CONTRACT

GRADING PLAN FOR:

704 EUCLID AVE

PARCEL 1 OF PARCEL MAP NO. 2407

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 9 OF 14 SHEETS

FOR CITY ENGINEER			DATE		
DESCRIPTION	BY	APPROVED	DATE	FILMED	
ORIGINAL	REC				
AS-BUILTS					

I.O. NO. -
P.T.S NO. 572129
V.T.M.

1838-6303
CCS 83 COORDINATES
198-1743
LAMBERT COORDINATES

CONTRACTOR ____ DATE STARTED ____
INSPECTOR ____ DATE COMPLETED ____

40306-9-D

BARRY J. COWAN RCE 46568 DATE

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619.291.0707
(FAX)619.291.4165
rickengineering.com
Riverside - Orange - San Luis Obispo - Bakersfield - Sacramento - Phoenix - Tucson

J-13284fff

REGISTERED PROFESSIONAL ENGINEER
BARRY J. COWAN
No. 46568
CIVIL
STATE OF CALIFORNIA

Attachment 10

Electronic Files

The City of San Diego

PRIORITY DEVELOPMENT PROJECT (PDP) STORM WATER QUALITY MANAGEMENT PLAN (SWQMP) FOR

Access Youth Academy
P.T.S. # 572129
D.W.G. # 40306-D

REGISTERED PROFESSIONAL ENGINEER
BRENDAN CRAIG HASTIE
NO. 65809
EXP. 9/30/19
CIVIL
STATE OF CALIFORNIA

ENGINEER OF WORK:

Brendan Hastie, RCE # 65809, Exp. 9/19

PREPARED FOR:

Mr. Renato Paiva, Access Youth Academy
9370 Waples Street, Suite 101
San Diego, California 92121
(619) 533-1574

PREPARED BY:

RICK
ENGINEERING COMPANY

Rick Engineering Company
5620 Friars Road
San Diego, California 92110
(619) 291-0707

DATE:

August 23, 2017
Revised: December 7, 2017
Revised: April 17, 2018

Approved By: City of San Diego　　　　Date

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Project Name: **Access Youth Academy**

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- Certification Page
- Submittal Record
- Project Vicinity Map
- FORM DS-560: Storm Water Applicability Checklist
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- FORM I-3B: Site Information Checklist for PDPs
- FORM I-4: Source Control BMP Checklist for All Development Projects
- FORM I-5: Site Design BMP Checklist for All Development Projects
- FORM I-6: Summary of PDP Structural BMPs
- FORM DS-563: Permanent BMP Construction, Self-Certification Form
- Attachment 1: Backup for PDP Pollutant Control BMPs
  - Attachment 1a: DMA Exhibit
  - Attachment 1b: Tabular Summary of DMAs and Design Capture Volume Calculations
  - Attachment 1c: Harvest and Use Feasibility Screening (when applicable)
  - Attachment 1d: Categorization of Infiltration Feasibility Condition (when applicable)
  - Attachment 1e: Pollutant Control BMP Design Worksheets / Calculations
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  - Attachment 2b: Management of Critical Coarse Sediment Yield Areas
  - Attachment 2c: Geomorphic Assessment of Receiving Channels
  - Attachment 2d: Flow Control Facility Design
- Attachment 3: Structural BMP Maintenance Plan
  - Attachment 3a: Structural BMP Maintenance Thresholds and Actions
  - Attachment 3b: Draft Maintenance Agreement (when applicable)
- Attachment 4: Copy of Plan Sheets Showing Permanent Storm Water BMPs
- Attachment 5: Project's Drainage Report
- Attachment 6: Project's Geotechnical and Groundwater Investigation Report

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ACRONYMS

APN	Assessor's Parcel Number
ASBS	Area of Special Biological Significance
BMP	Best Management Practice
CEQA	California Environmental Quality Act
CGP	Construction General Permit
DCV	Design Capture Volume
DMA	Drainage Management Areas
ESA	Environmentally Sensitive Area
GLU	Geomorphic Landscape Unit
GW	Ground Water
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
HU	Harvest and Use
INF	Infiltration
LID	Low Impact Development
LUP	Linear Underground/Overhead Projects
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
POC	Pollutant of Concern
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWPPP	Stormwater Pollutant Protection Plan
SWQMP	Storm Water Quality Management Plan
TMDL	Total Maximum Daily Load
WMAA	Watershed Management Area Analysis
WPCP	Water Pollution Control Program
WQIP	Water Quality Improvement Plan

PDP SWQMP
FOR
ACCESS YOUTH ACADEMY
(FINAL ENGINEERING)

REVISION PAGE

April 17, 2018

This PDP SWQMP presents a revision to the December 7, 2017 report pursuant to comments from the City of San Diego dated January 22, 2018. The following text identifies the comments provided by the City of San Diego (Storm Water) followed by a response from Rick Engineering Company (in Bold).

1) Attachment 1a – Please clearly delineate the storm drain easement. Provide dimensions and drawing number.

   Comment noted. After careful research, an easement for the storm drain in question was unable to be found.

2) Attachment 1a – Please revise the structural details per worksheet B.5-1.

   Comment noted.

3) Attachment 1e – Please revise worksheet B.5-1, see redlined sheet for revisions.

   Comment noted.

4) Attachment 5 – Please include the drainage study in the SWQMP.

   Comment noted.

5) Please include a Site Design, Source Control and Pollutant Control BMP Operation + Maintenance Procedure Table per the Grading plan template.

   Comment noted.

PDP SWQMP
FOR
ACCESS YOUTH ACADEMY
(FINAL ENGINEERING)

REVISION PAGE

December 7, 2017

This PDP SWQMP presents a revision to the August 23, 2017 report pursuant to comments from the City of San Diego dated September 20, 2017. The following text identifies the comments provided by the City of San Diego (Storm Water) followed by a response from Rick Engineering Company (in Bold).

1) Please use the following numbers for each type of heading, (revise the Storm Water Quality Management Plan, accordingly):

   Project Tracking No.: 572129
   'D' Sheet No.: 40306-D

   Comment noted.

2) The Engineer of Work must provide the original wet signature, stamp and date the certification page prior to permit approval.

   Comment noted.

3) Sheet 13 – Please revise, sign and provide the most updated version of the Storm Water Requirements Applicability Checklist DS-560.

   Comment noted.

4) Sheet 19 Form I-3B – Please provide permit application number 572129 on all applicable sheets. Include disturbance from the ROW and revise increase in impervious area percentage.

   Comment noted.

5) Sheet 36 Form I-5 page 4 – Please insert a site map with all the applicable site design BMPs identified from the form.

   Comment noted.

6) Sheet 39 Form I-6 – Please check the applicable type and purpose on both forms.

   Comment noted.

7) Sheet 43 – Please fill out the top portion and provide the most updated version of the Permanent BMP Construction form DS-563.

   Comment noted.

8) Attachment 1a DMA Exhibit. Please include the following on the exhibit.
   -Fronting street names
   -Storm drain easement (drawing number and dimensions)
   -Structural details per Figure E.13-E. 13-1: Typical plan and Section view of a Biofiltration BMP
   -Orifice structural details

   Comment noted.

9) Attachment 1d – Form I-8: Prior to storm water sign off, Geology approval is required on the site infiltration category. Please note additional comments may/will follow.

   Comment noted.

10) Attachment 1e – Please use the City of San Diego standard forms from the Storm Water Standards Manual, worksheet B.2-1 and worksheet B.5-1.

    Worksheets B.2-1 and B.5-1 from the City of San Diego Storm Water Standards Manual (January 2016) are now included in attachment 1e along with Rick Engineering's BMP sizing spreadsheet.

11) Attachment 2a – Please provide Hydromod exhibit.

    Comment noted.

12) Attachment 2d – Please provide adequate drawdown, orifice and storage calculations. Clearly show required volume and storage sizing. 24 hours minimum required for water quality treatment.

Comment noted. In regards to BMP-2; due to the relatively small DMA, higher low-flow threshold (0.5Q2) and basin geometry, the drawdown time is calculated to be lower than 24 hours. The November 2017 City Storm Water Standards Manual (SWSM) states in the Design Fact Sheets for Biofiltration (BF-1) that surface ponding is limited to 24 hours for plant health. Both BMPs 1 and 2 drawdown surface ponding in less than 24 hours and are therefore compliant with the most current version of the City SWSM.

13) Attachment 3 – Please provide a copy of the original SWMDCMA.

A completed SWMDCMA is now included as attachment 3.

14) Please provide an electronic copy of the SWQMP, prior to permit issuance.

Comment noted.

15) All revisions must be reflected on all forms, exhibits and plans.

Comment noted.

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CERTIFICATION PAGE

Project Name: Access Youth Academy
Permit Application Number: 572129

I hereby declare that I am the Engineer in Responsible Charge of design of storm water BMPs for this project, and that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the requirements of the Storm Water Standards, which is based on the requirements of SDRWQCB Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100 (MS4 Permit).

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water Standards. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable source control and site design BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

R.C.E. #65809, EXP. 09/19

Engineer of Work's Signature, PE Number & Expiration Date

Brendan Hastie

Print Name

Rick Engineering Company

Company

April 17, 2018

Date

Engineer's Stamp

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Project Name: **Access Youth Academy**

SUBMITTAL RECORD

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In last column indicate changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments.

Submittal Number	Date	Project Status	Changes
1	9/6/17	☐ Preliminary Design/Planning/CEQA ☒ Final Design	Initial Submittal
2	12/7/17	☐ Preliminary Design/Planning/CEQA ☒ Final Design	Second Submittal -Response to City Comments -Revisions to Forms DS-560. DS-563 & I-6. -Revisions to Appendices
3	4/17/18	☐ Preliminary Design/Planning/CEQA ☒ Final Design	Third Submittal -Response to City Comments -Revisions to Appendices 1A, 1E, 3 and 4
4	Enter a date.	☐ Preliminary Design/Planning/CEQA ☒ Final Design	Click here to enter text.

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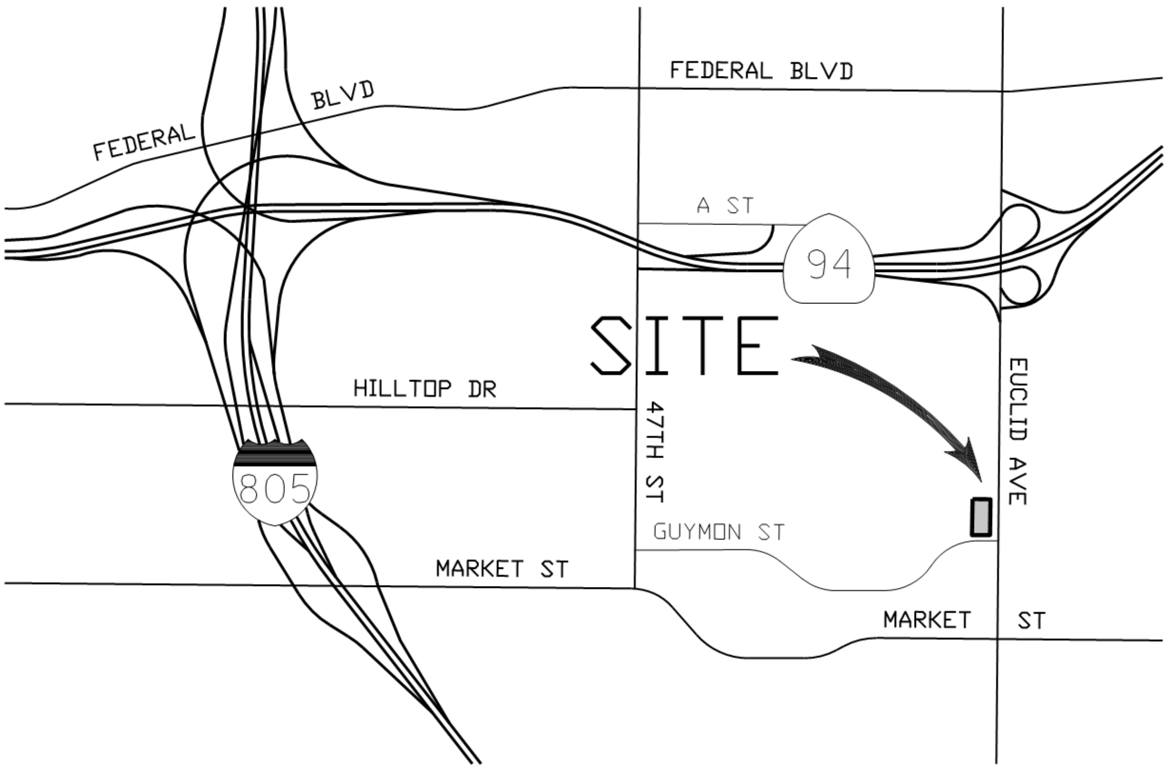
Project Name: Access Youth Academy

PROJECT VICINITY MAP

Project Name: Access Youth Academy
Permit Application Number: **572129**



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City of San Diego
Development Services
1222 First Ave., MS-302
San Diego, CA 92101
(619) 446-5000

Storm Water Requirements Applicability Checklist

FORM DS-560
OCTOBER 2016

Project Address: 704 Euclid Avenue, San Diego, CA 92114	Project Number *(for City Use Only)*:

SECTION 1. Construction Storm Water BMP Requirements:

All construction sites are required to implement construction BMPs in accordance with the performance standards in the Storm Water Standards Manual. Some sites are additionally required to obtain coverage under the State Construction General Permit (CGP)[1] , which is administered by the State Water Resources Control Board.

For all projects complete PART A: If project is required to submit a SWPPP or WPCP, continue to PART B.

PART A: Determine Construction Phase Storm Water Requirements.

1. Is the project subject to California's statewide General NPDES permit for Storm Water Discharges Associated with Construction Activities, also known as the State Construction General Permit (CGP)? (Typically projects with land disturbance greater than or equal to 1 acre.)

   ☐ Yes; SWPPP required, skip questions 2-4 ☒ No; next question

2. Does the project propose construction or demolition activity, including but not limited to, clearing, grading, grubbing, excavation, or any other activity resulting in ground disturbance and contact with storm water runoff?

   ☒ Yes; WPCP required, skip 3-4 ☐ No; next question

3. Does the project propose routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility? (Projects such as pipeline/utility replacement)

   ☐ Yes; WPCP required, skip 4 ☒ No; next question

4. Does the project only include the following Permit types listed below?

   - Electrical Permit, Fire Alarm Permit, Fire Sprinkler Permit, Plumbing Permit, Sign Permit, Mechanical Permit, Spa Permit.
   - Individual Right of Way Permits that exclusively include only ONE of the following activities: water service, sewer lateral, or utility service.
   - Right of Way Permits with a project footprint less than 150 linear feet that exclusively include only ONE of the following activities: curb ramp, sidewalk and driveway apron replacement, pot holing, curb and gutter replacement, and retaining wall encroachments.

   ☐ Yes; no document required

Check one of the boxes below, and continue to PART B:

☐ If you checked "Yes" for question 1, **a SWPPP is REQUIRED. Continue to PART B**

☒ If you checked "No" for question 1, and checked "Yes" for question 2 or 3, **a WPCP is REQUIRED.** If the project proposes less than 5,000 square feet of ground disturbance AND has less than a 5-foot elevation change over the entire project area, a Minor WPCP may be required instead. **Continue to PART B.**

☐ If you checked "No" for all questions 1-3, and checked "Yes" for question 4 PART B **does not apply and no document is required. Continue to Section 2.**

1. More information on the City's construction BMP requirements as well as CGP requirements can be found at: www.sandiego.gov/stormwater/regulations/index.shtml

PART B: Determine Construction Site Priority

This prioritization must be completed within this form, noted on the plans, and included in the SWPPP or WPCP. The city reserves the right to adjust the priority of projects both before and after construction. Construction projects are assigned an inspection frequency based on if the project has a "high threat to water quality." The City has aligned the local definition of "high threat to water quality" to the risk determination approach of the State Construction General Permit (CGP). The CGP determines risk level based on project specific sediment risk and receiving water risk. Additional inspection is required for projects within the Areas of Special Biological Significance (ASBS) watershed. **NOTE:** The construction priority does **NOT** change construction BMP requirements that apply to projects; rather, it determines the frequency of inspections that will be conducted by city staff.

Complete PART B and continued to Section 2

1. ☐ **ASBS**

a. Projects located in the ASBS watershed.

2. ☐ **High Priority**

a. Projects 1 acre or more determined to be Risk Level 2 or Risk Level 3 per the Construction General Permit and not located in the ASBS watershed.

b. Projects 1 acre or more determined to be LUP Type 2 or LUP Type 3 per the Construction General Permit and not located in the ASBS watershed.

3. ☐ **Medium Priority**

a. Projects 1 acre or more but not subject to an ASBS or high priority designation.

b. Projects determined to be Risk Level 1 or LUP Type 1 per the Construction General Permit and not located in the ASBS watershed.

4. ☒ **Low Priority**

a. Projects requiring a Water Pollution Control Plan but not subject to ASBS, high, or medium priority designation.

SECTION 2. Permanent Storm Water BMP Requirements.

Additional information for determining the requirements is found in the Storm Water Standards Manual.

PART C: Determine if Not Subject to Permanent Storm Water Requirements.

Projects that are considered maintenance, or otherwise not categorized as "new development projects" or "redevelopment projects" according to the Storm Water Standards Manual are not subject to Permanent Storm Water BMPs.

If "yes" is checked for any number in Part C, proceed to Part F and check "Not Subject to Permanent Storm Water BMP Requirements".

If "no" is checked for all of the numbers in Part C continue to Part D.

1.	Does the project only include interior remodels and/or is the project entirely within an existing enclosed structure and does not have the potential to contact storm water?	☐ Yes	☒ No
2.	Does the project only include the construction of overhead or underground utilities without creating new impervious surfaces?	☐ Yes	☒ No
3.	Does the project fall under routine maintenance? Examples include, but are not limited to: roof or exterior structure surface replacement, resurfacing or reconfiguring surface parking lots or existing roadways without expanding the impervious footprint, and routine replacement of damaged pavement (grinding, overlay, and pothole repair).	☐ Yes	☒ No

PART D: PDP Exempt Requirements.

PDP Exempt projects are required to implement site design and source control BMPs.

If "yes" was checked for any questions in Part D, continue to Part F and check the box labeled "PDP Exempt."

If "no" was checked for all questions in Part D, continue to Part E.

1. **Does the project ONLY include new or retrofit sidewalks, bicycle lanes, or trails that:**
   - **Are designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas? Or;**
   - **Are designed and constructed to be hydraulically disconnected from paved streets and roads? Or;**
   - **Are designed and constructed with permeable pavements or surfaces in accordance with the Green Streets guidance in the City's Storm Water Standards manual?**

   ☐ Yes; PDP exempt requirements apply ☒ No; next question

2. Does the project ONLY include retrofitting or redeveloping existing paved alleys, streets or roads designed and constructed in accordance with the Green Streets guidance in the City's Storm Water Standards Manual?

   ☐ Yes; PDP exempt requirements apply ☒ No; project not exempt.

PART E: Determine if Project is a Priority Development Project (PDP).

Projects that match one of the definitions below are subject to additional requirements including preparation of a Storm Water Quality Management Plan (SWQMP).

If "yes" is checked for any number in PART E, continue to PART F and check the box labeled "Priority Development Project".

If "no" is checked for every number in PART E, continue to PART F and check the box labeled "Standard Development Project".

1.	**New Development that creates 10,000 square feet or more of impervious surfaces collectively over the project site.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.	☒ Yes ☐ No
2.	**Redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surfaces on an existing site of 10,000 square feet or more of impervious surfaces.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.	☐ Yes ☒ No
3.	**New development or redevelopment of a restaurant.** Facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC 5812), and where the land development creates and/or replace 5,000 square feet or more of impervious surface.	☐ Yes ☒ No
4.	**New development or redevelopment on a hillside.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site) and where the development will grade on any natural slope that is twenty-five percent or greater.	☐ Yes ☒ No
5.	**New development or redevelopment of a parking lot that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).**	☒ Yes ☐ No
6.	**New development or redevelopment of streets, roads, highways, freeways, and driveways.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).	☐ Yes ☒ No

7. **New development or redevelopment discharging directly to an Environmentally Sensitive Area.** The project creates and/or replaces 2,500 square feet of impervious surface (collectively over project site), and discharges directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands).	☐ Yes ☒ No
8. **New development or redevelopment projects of a retail gasoline outlet (RGO) that create and/or replaces 5,000 square feet of impervious surface.** The development project meets the following criteria: (a) 5,000 square feet or more or (b) has a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.	☐ Yes ☒ No
9. **New development or redevelopment projects of an automotive repair shops that creates and/or replaces 5,000 square feet or more of impervious surfaces.** Development projects categorized in any one of Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, or 7536-7539.	☐ Yes ☒ No
10. **Other Pollutant Generating Project.** The project is not covered in the categories above, results in the disturbance of one or more acres of land and is expected to generate pollutants post construction, such as fertilizers and pesticides. This does not include projects creating less than 5,000 sf of impervious surface and where added landscaping does not require regular use of pesticides and fertilizers, such as slope stabilization using native plants. Calculation of the square footage of impervious surface need not include linear pathways that are for infrequent vehicle use, such as emergency maintenance access or bicycle pedestrian use, if they are built with pervious surfaces of if they sheet flow to surrounding pervious surfaces.	☒ Yes ☐ No

PART F: Select the appropriate category based on the outcomes of PART C through PART E.

1. The project is **NOT SUBJECT TO PERMANENT STORM WATER REQUIREMENTS.**	☐
2. The project is a **STANDARD DEVELOPMENT PROJECT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance.	☐
3. The project is **PDP EXEMPT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance.	☐
4. The project is a **PRIORITY DEVELOPMENT PROJECT**. Site design, source control, and structural pollutant control BMP requirements apply. See the Storm Water Standards Manual for guidance on determining if project requires a hydromodification plan management	☒

RENATO PAIVA
Name of Owner or Agent *(Please Print)*

EXECUTIVE DIRECTOR
Title

[signature]
Signature

10/29/18
Date

Project Name: **Access Youth Academy**

<table>
<tr><td colspan="2">Applicability of Permanent, Post-Construction Storm Water BMP Requirements
(Storm Water Intake Form for all Development Permit Applications)</td><td>**Form I-1**</td></tr>
<tr><td colspan="3">Project Identification</td></tr>
<tr><td colspan="3">Project Name: Access Youth Academy</td></tr>
<tr><td colspan="2">Permit Application Number: 572129</td><td>Date: 10/31/17</td></tr>
<tr><td colspan="3">Determination of Requirements</td></tr>
<tr><td colspan="3">The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short summary of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements.

Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop".
Refer to Part 1 of Storm Water Standards sections and/or separate forms referenced in each step below.</td></tr>
<tr><td>Step</td><td>Answer</td><td>Progression</td></tr>
<tr><td rowspan="2">Step 1: Is the project a "development project"? See Section 1.3 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.</td><td>◉ Yes</td><td>Go to Step 2.</td></tr>
<tr><td>○ No</td><td>Stop.
Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.</td></tr>
<tr><td colspan="3">Discussion / justification if the project is not a "development project" (e.g., the project includes only interior remodels within an existing building):
Click or tap here to enter text.</td></tr>
<tr><td rowspan="3">Step 2: Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions?
To answer this item, see Section 1.4 of the BMP Design Manual (Part 1 of Storm Water Standards) in its entirety for guidance, AND complete Storm Water Requirements Applicability Checklist.</td><td>○ Standard Project</td><td>Stop.
Standard Project requirements apply.</td></tr>
<tr><td>◉ PDP</td><td>PDP requirements apply, including PDP SWQMP.
Go to Step 3.</td></tr>
<tr><td>○ PDP Exempt</td><td>Stop.
Standard Project requirements apply. Provide discussion and list any additional requirements below.</td></tr>
<tr><td colspan="3">Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:
Click or tap here to enter text.</td></tr>
</table>

Project Name: **Access Youth Academy**

Form I-1 Page 2		
Step	Answer	Progression
Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	○ Yes	Consult the City Engineer to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	◉ No	BMP Design Manual PDP requirements apply. Go to Step 4.
Discussion / justification of prior lawful approval, and identify requirements (<u>not required if prior lawful approval does not apply</u>): Click or tap here to enter text.		
Step 4. Do hydromodification control requirements apply? See Section 1.6 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	◉ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to Step 5.
	○ No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.
Discussion / justification if hydromodification control requirements do <u>not</u> apply: Click or tap here to enter text.		
Step 5. Does protection of critical coarse sediment yield areas apply? See Section 6.2 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	○ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	◉ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.
Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply: There are no PCCSYA areas within the project boundary. Refer to Attachment 2B for an exhibit of the nearest PCCSYA relative to the project site.		

Project Name: **Access Youth Academy**

Site Information Checklist For PDPs	Form I-3B
Project Summary Information	
Project Name	Access Youth Academy
Project Address	704 Euclid Avenue, San Diego, CA 92114
Assessor's Parcel Number(s) (APN(s))	548-010-13
Permit Application Number	572129
Project Watershed	Select One: ○ San Dieguito River ○ Penasquitos ○ Mission Bay ○ San Diego River ◉ San Diego Bay ○ Tijuana River
Hydrologic subarea name with Numeric Identifier up to two decimal places (9XX.XX)	908.22, Chollas
Project Area (total area of Assessor's Parcel(s) associated with the project or total area of the right-of-way)	0.9 Acres (39,204 Square Feet)
Area to be disturbed by the project (Project Footprint)	0.9 Acres (39,204 Square Feet)
Project Proposed Impervious Area (subset of Project Footprint)	0.7 Acres (30,492 Square Feet)
Project Proposed Pervious Area (subset of Project Footprint)	0.2 Acres (8,712 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Project Area.	
The proposed increase or decrease in impervious area in the proposed condition as compared to the pre-project condition.	+78 %

Project Name: **Access Youth Academy**

Form I-3B Page 2 of 11
Description of Existing Site Condition and Drainage Patterns
Current Status of the Site (select all that apply): ☐ Existing development ☒ Previously graded but not built out ☐ Agricultural or other non-impervious use ☐ Vacant, undeveloped/natural Description / Additional Information: The existing site has been previously mass graded.
Existing Land Cover Includes (select all that apply): ☐ Vegetative Cover ☒ Non-Vegetated Pervious Areas ☒ Impervious Areas Description / Additional Information: The existing land cover includes a recreational sports field and a small parking lot.
Underlying Soil belongs to Hydrologic Soil Group (select all that apply): ☐ NRCS Type A ☐ NRCS Type B ☐ NRCS Type C ☒ NRCS Type D
Approximate Depth to Groundwater (GW): ○ GW Depth < 5 feet ○ 5 feet < GW Depth < 10 feet ○ 10 feet < GW Depth < 20 feet ◉ GW Depth > 20 feet
Existing Natural Hydrologic Features (select all that apply): ☐ Watercourses ☐ Seeps ☐ Springs ☐ Wetlands ☒ None Description / Additional Information:

Project Name: **Access Youth Academy**

Form I-3B Page 3 of 11
Description of Existing Site Topography and Drainage:
How is storm water runoff conveyed from the site? At a minimum, this description should answer: 1. Whether existing drainage conveyance is natural or urban; 2. If runoff from offsite is conveyed through the site? If yes, quantification of all offsite drainage areas, design flows, and locations where offsite flows enter the project site and summarize how such flows are conveyed through the site; 3. Provide details regarding existing project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, and natural and constructed channels; 4. Identify all discharge locations from the existing project along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.
Description / Additional Information:
The project is defined by two (2) drainage basins. One of these drainage basins is located in the western portion of the project site (Basin 1) and drains in a south-easterly direction to an existing catch basin at the southeast corner of the project site which outlets to Chollas Creek on the opposite side of Guymon Street from the project site (on the southern project boundary). The other drainage basin (Basin 2) conveys runoff southeasterly towards the street gutters on Euclid Avenue, which then conveys the runoff to the same existing catch basin on the southeast corner of the project site. The existing channel that the catch basin discharges into extends all the way to the San Diego Bay Shoreline in the vicinity of Norman Scott Road via Chollas Creek. Refer to the report titled, "Drainage Study for Access Youth Academy," dated August 23, 2017 (or any revision thereof) for more information regarding drainage patterns.

Project Name: **Access Youth Academy**

Form I-3B Page 4 of 11
Description of Proposed Site Development and Drainage Patterns
Project Description / Proposed Land Use and/or Activities: The proposed project will include a new building approximately 16,000ft^2 in size, a new parking lot adjacent to the building, an outdoor events area and on-site drainage system improvements. Drainage patterns will remain similar to the existing condition. For more information regarding the post-project drainage patterns, refer to the report titled, "Drainage Study for Access Youth Academy," dated August 23, 2017 (or any revision thereof).
List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features): Impervious features will include a building and a parking lot adjacent to the building.
List/describe proposed pervious features of the project (e.g., landscape areas): Proposed pervious features include landscape areas.
Does the project include grading and changes to site topography? ◉ Yes ○ No Description / Additional Information: The project includes grading in order to make the project feasible. Drainage patterns will remain similar to pre-project conditions. Overall, the site will discharge in the same location as in the existing condition.

Form I-3B Page 5 of 11

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

- ☒ Yes
- ☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural and constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Description / Additional Information:

An on-site storm drain system is being proposed in order to convey storm water runoff from the project into one of the two (2) proposed permanent structural BMPs prior to discharging into the project's Point of Compliance (POC). The POC is a catch basin located on the south-eastern corner of the project boundary and discharges into Chollas Creek via an existing 18-inch RCP. More information regarding the proposed storm water conveyance systems is provided within the project's drainage study.

Project Name: **Access Youth Academy**

Form I-3B Page 6 of 11
Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply): ☒ On-site storm drain inlets ☐ Interior floor drains and elevator shaft sump pumps ☐ Interior parking garages ☐ Need for future indoor & structural pest control ☒ Landscape/Outdoor Pesticide Use ☐ Pools, spas, ponds, decorative fountains, and other water features ☐ Food service ☐ Refuse areas ☐ Industrial processes ☐ Outdoor storage of equipment or materials ☐ Vehicle and Equipment Cleaning ☐ Vehicle/Equipment Repair and Maintenance ☐ Fuel Dispensing Areas ☐ Loading Docks ☐ Fire Sprinkler Test Water ☐ Miscellaneous Drain or Wash Water ☒ Plazas, sidewalks, and parking lots ☐ Large Trash Generating Facilities ☐ Animal Facilities ☐ Plant Nurseries and Garden Centers ☐ Automotive-related Uses Description / Additional Information: Click or tap here to enter text.

Project Name: **Access Youth Academy**

Form I-3B Page 7 of 11
Identification and Narrative of Receiving Water
Narrative describing flow path from discharge location(s), through urban storm conveyance system, to receiving creeks, rivers, and lagoons and ultimate discharge location to Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable) The project has one (1) discharge point of compliance (POC): POC 1: Existing catch basin located at the southeast corner of the project site. Storm water runoff from POC 1 is discharged into an existing engineered channel via an existing 18-inch RCP. Storm water from the project is ultimately discharged into San Diego Bay via Chollas Creek.
Provide a summary of all beneficial uses of receiving waters downstream of the project discharge locations. Chollas Creek has the following beneficial uses associated with it: REC1, REC2, WARM and WILD.
Identify all ASBS (areas of special biological significance) receiving waters downstream of the project discharge locations. No ASBS receiving waters exist downstream of the project discharge locations.
Provide distance from project outfall location to impaired or sensitive receiving waters. The distance from the project outfall to the San Diego Bay is approximately 3 miles. San Diego Bay is classified as an Environmentally Sensitive Area.
Summarize information regarding the proximity of the permanent, post-construction storm water BMPs to the City's Multi-Habitat Planning Area and environmentally sensitive lands N/A

Project Name: **Access Youth Academy**

Form I-3B Page 8 of 11

Identification of Receiving Water Pollutants of Concern

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs/ WQIP Highest Priority Pollutant
Chollas Creek	Copper, Diazinon, Indicator Bacteria, Lead, Phosphorus, Total Nitrogen, Trash, Zinc	Expected TMDL completion dates vary from 2019-2021
	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
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Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

Identification of Project Site Pollutants*

*Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)

Identify pollutants anticipated from the project site based on all proposed use(s) of the site (see BMP Design Manual (Part 1 of Storm Water Standards) Appendix B.6):

Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	◉	○	○
Nutrients	◉	○	○
Heavy Metals	◉	○	○
Organic Compounds	◉	○	○
Trash & Debris	◉	○	○
Oxygen Demanding Substances	◉	○	○
Oil & Grease	◉	○	○
Bacteria & Viruses	◉	○	○
Pesticides	◉	○	○

Project Name: **Access Youth Academy**

Form I-3B Page 9 of 11
Hydromodification Management Requirements
Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)? ◉ Yes, hydromodification management flow control structural BMPs required. ○ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. ○ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. ○ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides. Description / Additional Information (to be provided if a 'No' answer has been selected above):
Critical Coarse Sediment Yield Areas* *This Section only required if hydromodification management requirements apply
Based on Section 6.2 and Appendix H does CCSYA exist on the project footprint or in the upstream area draining through the project footprint? ○ Yes ◉ No, No critical coarse sediment yield areas to be protected based on WMAA maps Discussion / Additional Information: Refer to Attachment 2 for an exhibit showing the nearest PCCSYA relative to the project.

Project Name: **Access Youth Academy**

Form I-3B Page 10 of 11
Flow Control for Post-Project Runoff* *This Section only required if hydromodification management requirements apply
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit. The project has one (1) discharge point of compliance (POC): POC 1: Existing catch basin located at the southeast corner of the project site. Storm water runoff from POC 1 is discharged into an existing engineered channel via an existing 18-inch RCP. Storm water from the project is ultimately discharged into San Diego Bay via Chollas Creek. HMP is required for runoff discharged to POC 1.
Has a geomorphic assessment been performed for the receiving channel(s)? ○ No, the low flow threshold is 0.1Q2 (default low flow threshold) ○ Yes, the result is the low flow threshold is 0.1Q2 ○ Yes, the result is the low flow threshold is 0.3Q2 ◉ Yes, the result is the low flow threshold is 0.5Q2 If a geomorphic assessment has been performed, provide title, date, and preparer: A Geomorphic Channel Assessment has been prepared and is provided as Attachment 2B.
Discussion / Additional Information: (optional) N/A

Project Name: **Access Youth Academy**

Form I-3B Page 11 of 11
Other Site Requirements and Constraints
When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements. N/A
Optional Additional Information or Continuation of Previous Sections As Needed
This space provided for additional information or continuation of information from previous sections as needed. N/A

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Project Name: **Access Youth Academy**

Source Control BMP Checklist for All Development Projects			Form I-4
Source Control BMPs			
All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of the Storm Water Standards) for information to implement source control BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.			
Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	○ Yes	○ No	◉ N/A
Discussion / justification if SC-1 not implemented: Click or tap here to enter text.			
SC-2 Storm Drain Stenciling or Signage	◉ Yes	○ No	○ N/A
Discussion / justification if SC-2 not implemented: Click or tap here to enter text.			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	○ Yes	○ No	◉ N/A
Discussion / justification if SC-3 not implemented: Click or tap here to enter text.			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	○ Yes	○ No	◉ N/A
Discussion / justification if SC-4 not implemented: Click or tap here to enter text.			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	○ Yes	○ No	◉ N/A
Discussion / justification if SC-5 not implemented: Click or tap here to enter text.			

Project Name: **Access Youth Academy**

Form I-4 Page 2 of 2			
Source Control Requirement	**Applied?**		
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
On-site storm drain inlets	◉ Yes	○ No	○ N/A
Interior floor drains and elevator shaft sump pumps	○ Yes	○ No	◉ N/A
Interior parking garages	○ Yes	○ No	◉ N/A
Need for future indoor & structural pest control	○ Yes	○ No	◉ N/A
Landscape/Outdoor Pesticide Use	○ Yes	○ No	◉ N/A
Pools, spas, ponds, decorative fountains, and other water features	○ Yes	○ No	◉ N/A
Food service	○ Yes	○ No	◉ N/A
Refuse areas	○ Yes	○ No	◉ N/A
Industrial processes	○ Yes	○ No	◉ N/A
Outdoor storage of equipment or materials	○ Yes	○ No	◉ N/A
Vehicle/Equipment Repair and Maintenance	○ Yes	○ No	◉ N/A
Fuel Dispensing Areas	○ Yes	○ No	◉ N/A
Loading Docks	○ Yes	○ No	◉ N/A
Fire Sprinkler Test Water	○ Yes	○ No	◉ N/A
Miscellaneous Drain or Wash Water	○ Yes	○ No	◉ N/A
Plazas, sidewalks, and parking lots	◉ Yes	○ No	○ N/A
SC-6A: Large Trash Generating Facilities	○ Yes	○ No	◉ N/A
SC-6B: Animal Facilities	○ Yes	○ No	◉ N/A
SC-6C: Plant Nurseries and Garden Centers	○ Yes	○ No	◉ N/A
SC-6D: Automotive-related Uses	○ Yes	○ No	◉ N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above. Click or tap here to enter text.			

Project Name: **Access Youth Academy**

Site Design BMP Checklist for All Development Projects			Form I-5
Site Design BMPs			
All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of Storm Water Standards) for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided. A site map with implemented site design BMPs must be included at the end of this checklist.			
Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	◉ Yes	○ No	○ N/A
Discussion / justification if SD-1 not implemented: Click or tap here to enter text.			
1-1 Are existing natural drainage pathways and hydrologic features mapped on the site map?	○ Yes	○ No	◉ N/A
1-2 Are street trees implemented? If yes, are they shown on the site map?	○ Yes	○ No	◉ N/A
1-3 Implemented street trees meet the design criteria in SD-1 Fact Sheet (e.g. soil volume, maximum credit, etc.)?	○ Yes	○ No	◉ N/A
1-4 Is street tree credit volume calculated using Appendix B.2.2.1 and SD-1 Fact Sheet in Appendix E?	○ Yes	○ No	◉ N/A
SD-2 Have natural areas, soils and vegetation been conserved?	○ Yes	○ No	◉ N/A
Discussion / justification if SD-2 not implemented: Click or tap here to enter text.			

Project Name: **Access Youth Academy**

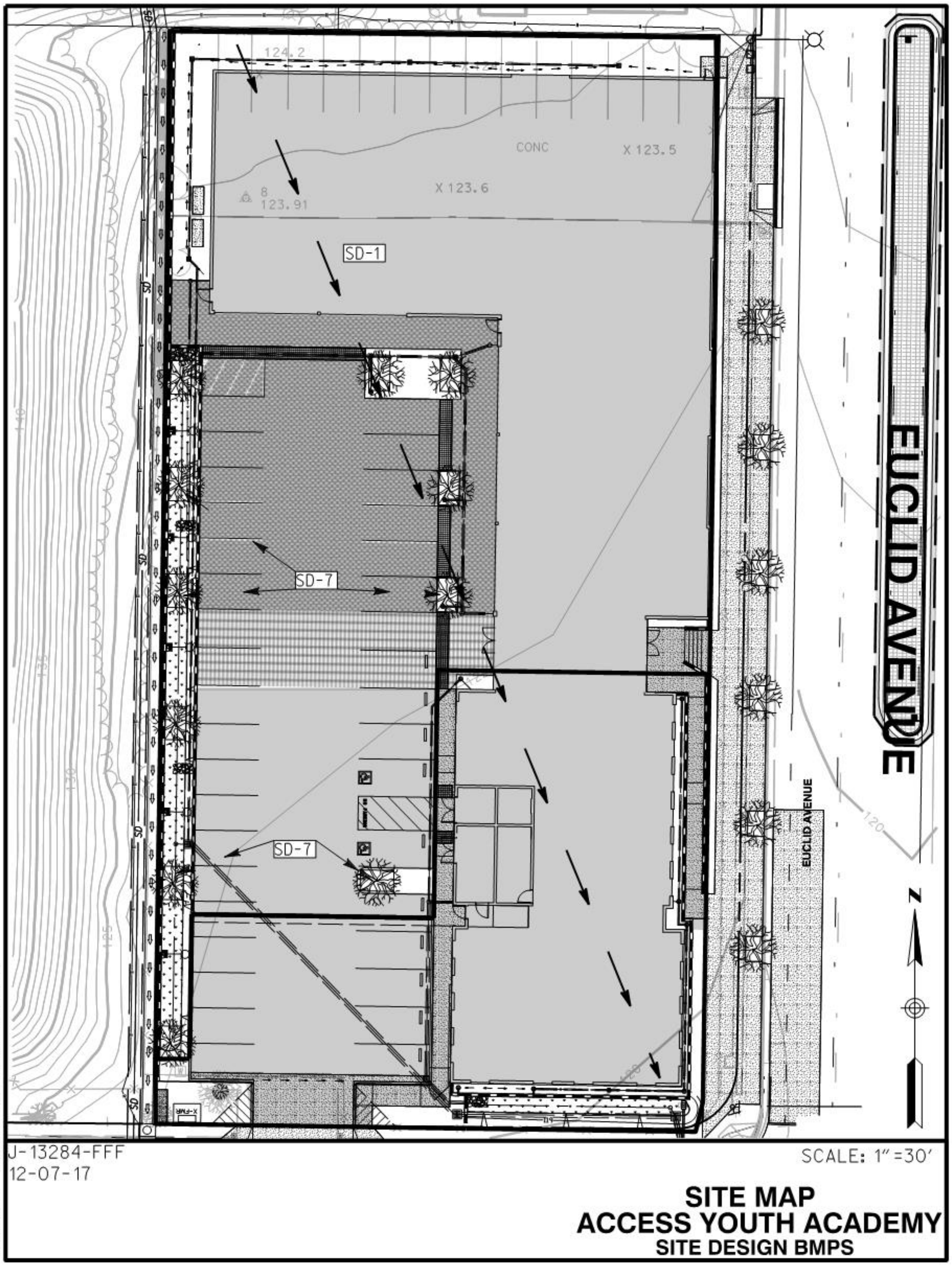
Form I-5 Page 2 of 4			
Site Design Requirement	Applied?		
SD-3 Minimize Impervious Area	○ Yes	○ No	◉ N/A
Discussion / justification if SD-3 not implemented: Click or tap here to enter text.			
SD-4 Minimize Soil Compaction	○ Yes	○ No	◉ N/A
Discussion / justification if SD-4 not implemented: Click or tap here to enter text.			
SD-5 Impervious Area Dispersion	○ Yes	○ No	◉ N/A
Discussion / justification if SD-5 not implemented: Click or tap here to enter text.			
5-1 Is the pervious area receiving run on from impervious area identified on the site map?	○ Yes	◉ No	
5-2 Does the pervious area satisfy the design criteria in SD-5 Fact Sheet in Appendix E (e.g. maximum slope, minimum length, etc.)	○ Yes	◉ No	
5-3 Is impervious area dispersion credit volume calculated using Appendix B.2.1.1 and SD-5 Fact Sheet in Appendix E?	○ Yes	◉ No	

Project Name: **Access Youth Academy**

Form I-5 Page 3 of 4			
Site Design Requirement	Applied?		
SD-6 Runoff Collection	○ Yes	○ No	◉ N/A
Discussion / justification if SD-6 not implemented: Click or tap here to enter text.			
6a-1 Are green roofs implemented in accordance with design criteria in SD-6A Fact Sheet? If yes, are they shown on the site map?	○ Yes	○ No	◉ N/A
6a-2 Is green roof credit volume calculated using Appendix B.2.1.2 and SD-6A Fact Sheet in Appendix E?	○ Yes	○ No	◉ N/A
6b-1 Are permeable pavements implemented in accordance with design criteria in SD-6B Fact Sheet? If yes, are they shown on the site map?	○ Yes	○ No	◉ N/A
6b-2 Is permeable pavement credit volume calculated using Appendix B.2.1.3 and SD-6B Fact Sheet in Appendix E?	○ Yes	○ No	◉ N/A
SD-7 Landscaping with Native or Drought Tolerant Species	◉ Yes	○ No	○ N/A
Discussion / justification if SD-7 not implemented: Click or tap here to enter text.			
SD-8 Harvesting and Using Precipitation	○ Yes	○ No	◉ N/A
Discussion / justification if SD-8 not implemented: Harvest and Use is currently nor permitted per County of San Diego Health Codes.			
8-1 Are rain barrels implemented in accordance with design criteria in SD-8 Fact Sheet? If yes, are they shown on the site map?	○ Yes	○ No	◉ N/A
8-2 Is rain barrel credit volume calculated using Appendix B.2.2.2 and SD-8 Fact Sheet in Appendix E?	○ Yes	○ No	◉ N/A

Form I-5 Page 4 of 4

Insert Site Map with all site design BMPs identified:



Project Name: **Access Youth Academy**

Summary of PDP Structural BMPs	Form I-6
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual, Part 1 of Storm Water Standards). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s). PDP structural BMPs must be verified by the City at the completion of construction. This includes requiring the project owner or project owner's representative to certify construction of the structural BMPs (complete Form DS-563). PDP structural BMPs must be maintained into perpetuity (see Chapter 7 of the BMP Design Manual). Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).	
Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. Two (2) biofiltration BMPs (BMP 1 and BMP 2) are being proposed as part of this project and were designed to meet water quality and HMP requirements per the City of San Diego's Storm Water Standards Manual (February 2016). As part of the design of these structural BMPs, Step 1 was to delineate drainage management Areas (DMAs) to each BMP. Step 2 was to calculate the DCV/Water Quality Flow Rate for each DMA and design the associated BMPs based on whether the BMP is using a volume-based approach or a flow-based approach. Both proposed biofiltration BMPs (BMP1 and BMP 2) were sized to be volume-based BMPs. The volume-based BMPs were designed to store 0.75xDCV, per Option 2 from Worksheet B.5-1. Both of the two (2) proposed biofiltration BMPs will be designed to comply with hydromodification management (flow control) requirements per the City of San Diego Storm Water Standards Manual. This will be achieved through the use of a perforated sub-drain at the bottom of both basins and through a series of outlets set above the required design capture volume. The outlet work design for BMP 1 consists of one (1) mid-flow orifice for HMP control, 3.5" in diameter, on the face of a Type "I" Catch Basin with its flowline set at the ponding depth of the Water Quality volume. The flowline of the Type "I" Catch Basin is set 2.5" above the ponding depth of the HMP volume. The outlet work design for BMP 2 consists of one (1) 3.0" diameter mid-flow orifice, for HMP control, on the face of a Type "I" Catch Basin with its flowline set at the ponding depth of the Water Quality volume. The flowline of the Type "I" Catch Basin is set at the ponding depth of the HMP volume. Please refer to Attachment 4 for cross-section schematics and details of each BMP. (Continue on page 2 as necessary.)	

Project Name: **Access Youth Academy**

Form I-6 Page 2 of 6
(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)
(Continued from page 1) Click or tap here to enter text.

Project Name: **Access Youth Academy**

Form I-6 Page 3 of 6	
Structural BMP Summary Information	
Structural BMP ID No. 1	
Construction Plan Sheet No. Click or tap here to enter text.	
Type of structural BMP: ○ Retention by harvest and use (HU-1) ○ Retention by infiltration basin (INF-1) ○ Retention by bioretention (INF-2) ○ Retention by permeable pavement (INF-3) ○ Partial retention by biofiltration with partial retention (PR-1) ◉ Biofiltration (BF-1) ○ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide (BMP type/description in discussion section below) ○ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ○ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion ○ Detention pond or vault for hydromodification management ○ Other (describe in discussion section below)	
Purpose: ○ Pollutant control only ○ Hydromodification control only ◉ Combined pollutant control and hydromodification control ○ Pre-treatment/forebay for another structural BMP ○ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification form DS-563	Rick Engineering Company
Who will be the final owner of this BMP?	Access Youth Academy
Who will maintain this BMP into perpetuity?	Access Youth Academy
What is the funding mechanism for maintenance?	Access Youth Academy

Project Name: **Access Youth Academy**

Form I-6 Page 4 of 6
Structural BMP ID No. 1
Construction Plan Sheet No. Click or tap here to enter text.
Discussion (as needed): BMP 1 is a proposed biofiltration basin BMP that includes HMP sizing.

Project Name: **Access Youth Academy**

Form I-6 Page 5 of 6	
Structural BMP Summary Information	
Structural BMP ID No. 2	
Construction Plan Sheet No. Click or tap here to enter text.	
Type of structural BMP: ○ Retention by harvest and use (HU-1) ○ Retention by infiltration basin (INF-1) ○ Retention by bioretention (INF-2) ○ Retention by permeable pavement (INF-3) ○ Partial retention by biofiltration with partial retention (PR-1) ◉ Biofiltration (BF-1) ○ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide (BMP type/description in discussion section below) ○ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ○ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion ○ Detention pond or vault for hydromodification management ○ Other (describe in discussion section below)	
Purpose: ○ Pollutant control only ○ Hydromodification control only ◉ Combined pollutant control and hydromodification control ○ Pre-treatment/forebay for another structural BMP ○ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification form DS-563	Rick Engineering Company
Who will be the final owner of this BMP?	Access Youth Academy
Who will maintain this BMP into perpetuity?	Access Youth Academy
What is the funding mechanism for maintenance?	Access Youth Academy

Project Name: **Access Youth Academy**

Form I-6 Page 6 of 6
Structural BMP ID No. 2
Construction Plan Sheet No. Click or tap here to enter text.
Discussion (as needed): BMP 2 is a proposed biofiltration basin BMP that includes HMP sizing.

SD	**City of San Diego** **Development Services** 1222 First Ave., MS-501 San Diego, CA 92101	# Permanent BMP Construction **Self Certification Form**	**FORM** **DS-563** **December 2016**

Date Prepared: April 17, 2018	Project No./Drawing No.: 572129/40306-D
Project Applicant:	Phone:
Project Address: 704 Euclid Avenue, San Diego, CA 92114	
Project Name: Access Youth Academy	

The purpose of this form is to verify that the site improvements for the project, identified above, have been constructed in conformance with the approved Storm Water Standards Manual documents and drawings.

This form must be completed by the engineer and submitted prior to final inspection of the construction permit. Completion and submittal of this form is required for Priority Development Projects in order to comply with the City's Storm Water ordinances and applicable San Diego Regional MS4 Permit. Final inspection for occupancy and/or release of grading or public improvement bonds may be delayed if this form is not submitted and approved by the City of San Diego.

Certification:

As the professional in responsible charge for the design of the above project, I certify that I have inspected all constructed Low Impact Development (LID) site design, source control, hydromodification, and treatment control BMP's required per the Storm Water Standards Manual; and that said BMP's have been constructed in compliance with the approved plans and all applicable specifications, permits, ordinances and San Diego Regional MS4 Permit.

I understand that this BMP certification statement does not constitute an operation and maintenance verification.

Signature: ____________________

Date of Signature: ____________________

Printed Name: Brendan Hastie

Title: Associate Principal

Phone No. (619) 291-0707

Engineer's Stamp

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ATTACHMENT 1
BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

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Project Name: **Access Youth Academy**

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist.	☒ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	◉ Included on DMA Exhibit in Attachment 1a ○ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	◉ Included ○ Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	◉ Included ○ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines and site design credit calculations	☒ Included

Project Name: **Access Youth Academy**

Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

☒ Underlying hydrologic soil group
☒ Approximate depth to groundwater
☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒ Critical coarse sediment yield areas to be protected
☒ Existing topography and impervious areas
☒ Existing and proposed site drainage network and connections to drainage offsite
☒ Proposed grading
☒ Proposed impervious features
☒ Proposed design features and surface treatments used to minimize imperviousness
☒ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
☒ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
☒ Structural BMPs (identify location, type of BMP, and size/detail)

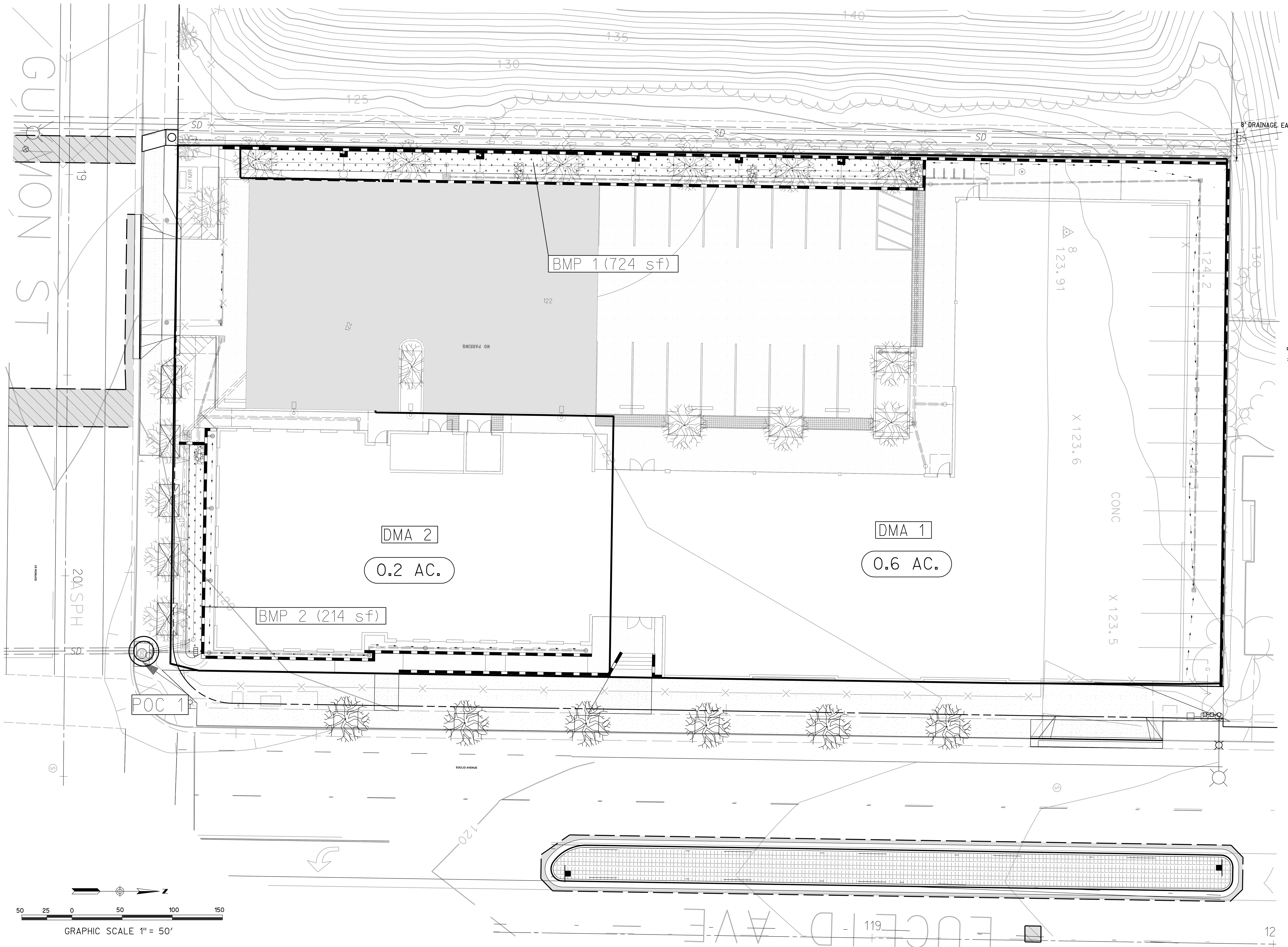
DMA/BMP ID	Area (Acres)	Type
1	0.6	Biofiltration
2	0.2	Biofiltration

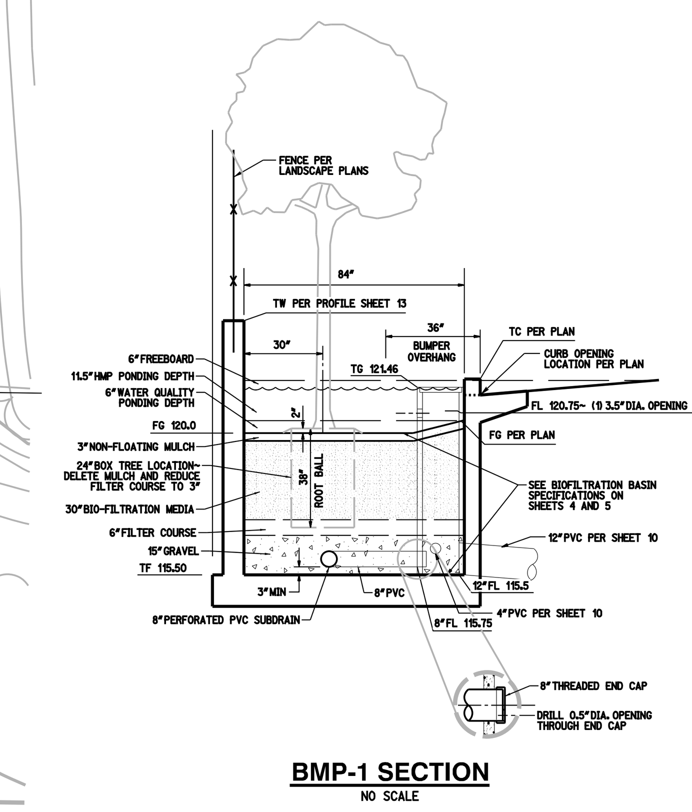
NOTES:
1. UNDERLYING HYDROLOGIC SOIL GROUP IS TYPE D.

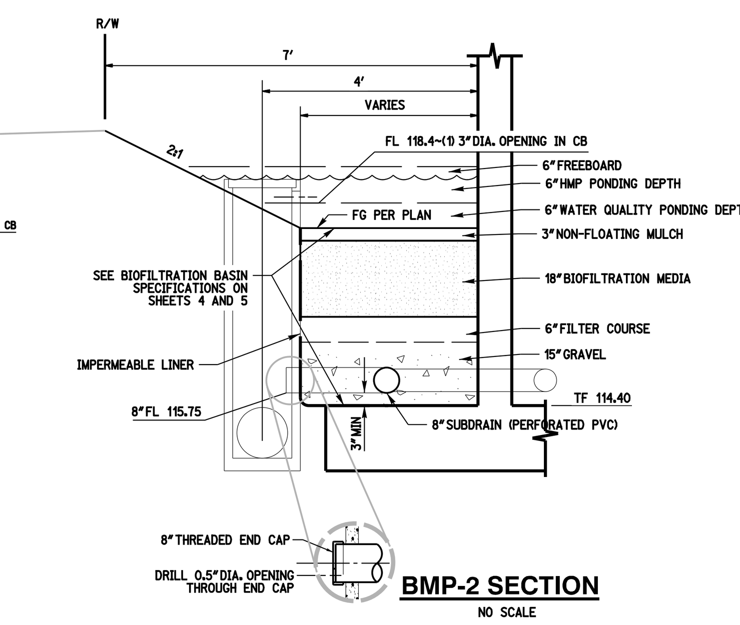
2. PER THE PROJECT'S GEOTECHNICAL REPORT, GROUNDWATER WAS NOT ENCOUNTERED, BORINGS WERE DUG DOWN TO A MAX DEPTH OF 20 FT.

3. INFILTRATION BMPS ARE NOT BEING PROPOSED BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEER.

4. NO CRITICAL COARSE SEDIMENT YIELD AREAS ARE LOCATED WITHIN THE PROJECT SITE. REFER TO APPENDIX 2B FOR AN EXHIBIT DISPLAYING THE NEAREST CRITICAL COARSE SEDIMENT YIELD AREA.







LEGEND

◎	POC
DMA 1	DMA ID
XX.X AC.	DMA AREA
	DMA BOUNDARY
	PROPOSED STORM DRAIN SYSTEM
SD	EXISTING STORM DRAIN SYSTEM
	PROPOSED BIOFILTRATION BMP

GRAPHIC SCALE 1" = 50'

50 25 0 50 100 150

RICK ENGINEERING COMPANY
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619-291-0707
(FAX) 619-291-4165
San Diego · Riverside · Orange · Sacramento · San Luis Obispo · Phoenix · Tucson · Denver
rickengineering.com

J-13284fff

DMA EXHIBIT FOR ACCESS YOUTH ACADEMY

Date: August 23, 2017
Revised: December 7, 2017
Revised: April 17, 2018

J-13284-FFF

NOT FOR CONSTRUCTION - EXHIBIT FOR DRAINAGE STUDY ONLY

Worksheet B.3-1. Harvest and Use Feasibility Screening

Harvest and Use Feasibility Screening		Worsksheet B.3-1
1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season? ☐ Toilet and urinal flushing ☐ Landscape irrigation ☐ Other:____________ Harvest and use is currently not permitted per County of San Diego Health Codes. Therefore, there is no demand for harvested water.		
2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2. [Provide a summary of calculations here] N/A		
3. Calculate the DCV using worksheet B-2.1. [Provide a results here] Drainage Management area (total) = 34,283 ft^2 Adjusted Runoff Factor = 0.81 24 hr 85^{th} Percentile Precipitation = 0.54 inches $DCV = 34,283\,ft^2 \cdot (0.54\,in/12) \cdot 0.81 = \boxed{1250\,ft^3}$		
3a. Is the 36-hour demand greater than or equal to the DCV? Yes / No ⇨ ⇩	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV? Yes / No ⇨ ⇩	3c. Is the 36-hour demand less than 0.25DCV? Yes ⇩
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	Harvest and use is considered to be infeasible.

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☑
Provide basis: The upper materials present at the site are fill soils consisting of clayey sand. The tested materials are believed to be generally representative of the materials that will be encountered below the proposed storm water BMPs. The tested infiltration rates were 0.0 inch per hour. In our opinion, the tested infiltration rates do not support a reliable infiltration rate of greater than 0.5 inch per hour. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☑
Provide basis: The tested infiltration rates do not support a reliable infiltration of greater than 0.5 inch per hour. Allowing infiltration greater than 0.5 inch per hour will increase the risk of geotechnical hazards including increased surface runoff on the project site and onto adjacent properties, uncontrolled lateral and vertical migration of groundwater beneath adjacent structures and improvements, and uncontrolled lateral and vertical migration of groundwater through permeable bedding material of utilities within the public right-of-way (Euclid Avenue and Guymon Street). SCST does not recommend allowing infiltration greater than 0.5 inch per hour at the site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☑
Provide basis: The tested infiltration rates at the site indicate that the onsite soils do not support reliable infiltration of greater than 0.5 inch per hour. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☑
Provide basis: Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by [City Engineer] to substantiate findings.

Worksheet C.4-1 Page 3 of 4			
Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria **Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☑
Provide basis: The upper materials present at the site are fill soils consisting of clayey sand. The tested materials are believed to be generally representative of the materials that will be encountered below the proposed storm water BMPs. The tested infiltration rates were 0.0 inch per hour. In our opinion, the tested infiltration rates do not support a reliable infiltration rate of any appreciable quantity. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☑
Provide basis: In our opinion partial infiltration of less than 0.5 inch per hour should not be allowed without increasing the risk of geotechnical hazards. Lateral migration of subsurface water is anticipated, potentially resulting in moisture issues beneath adjacent structures and improvements and in downslope properties where excessive moisture was not present previously. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	Yes	No
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☑	☐
Provide basis: Partial infiltration of less than 0.5 inch per hour could be allowed without posing significant risk for groundwater related concerns as long as the BMP system is designed to pretreat effluent. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☑	☐
Provide basis: Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	No Infiltration	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Access Youth Academy - Pollutant Control BMP Sizing

													Simple Sizing Method for Biofiltration BMPs - Required[1]														
													Target DCV	Partial Retention									BMP Parameters				
BMP ID	BMP Type	Drainage Management Area (acres)	Drainage Management Area (ft^2)	% Impervious	Impervious Area (ft^2)	Pervious Area (ft^2)	Impervious Area Type	Pervious Area Type	Runoff Factor for Impervious Area [3]	Runoff Factor for Pervious Area[3,4]	Effective Impervious Area (ft^2)	24-hour 85th Percentile Precipitation (inches)	DCV (ft^3)	Remaining DCV after Implementing Retention BMPs (ft^3) (1)	Infiltration Rate (for Partial Infiltration) [5] (2)	Allowable Drawdown Time for Aggregate Storage Below the Underdrain (hrs) (3)	Depth of Runoff that can be Infiltrated (in) (4)	Aggregate Pore Space (5)	Required Depth of Gravel Below Underdrain (in) (6)	Assumed Surface area of the Biofiltration BMP (ft^2) (7)	Media Retained Pore Space (in/in) (8)	Volume Retained by BMP (ft^3) (9)	Remaining DCV (ft^3) (10)	Surface Ponding Depth (ft) (11)	Media Thickness (ft) (12)	Aggregate Storage Above Underdrain (ft) (13)	Media Available Pore Space (14)	Media Filtration rate to be used for sizing [8] (in/hr) (15)
1	Biofiltration BMP	0.6	24,136	83%	20,033	4,103	Concrete or Asphalt	Natural (D Soil)	0.9	0.3	19,261	0.54	869	869	0.00	36	0	0.40	3	724	0.1	199	670	0.50	2.75	1.00	0.20	0.8
2	Biofiltration BMP	0.2	10,147	85%	8,625	1,522	Concrete or Asphalt	Natural (D Soil)	0.9	0.3	8,219	0.54	370	370	0.00	36	0	0.40	3	214	0.1	37	332	0.50	1.75	1.00	0.20	2.4

Notes:

1. Values shown in parenthesis (1) designate the row number equivalent to Worksheet B.5-1 "Simple Sizing Method for Biofiltration BMPs" from the 2016 City of San Diego Storm Water Standards (dated January, 2016)

2. The required and provided pollutant control volumes are based on the 2013 MS4 permit and the 2016 City of San Diego Storm Water Standards.

3. Runoff Factors for pervious and impervious areas were determined from Table B.1-1: "Runoff Factors for Surface Draining to BMPs - Pollutant Control BMPs" from the 2016 City of San Diego Storm Water Standards.

4. Although some portions of the impervious areas within the site will be composed of Biofiltration BMPs (amended , mulched soils or landscape), Runoff Factors for pervious areas were assumed to be "Natural" (D Soil).
Using the "Natural" surface designation for the entire pervious area provides a more conservative result.

5. Infiltration rate for partial infiltration was assumed to be Zero (0) for bioretention sizing calculations since an impermeable liner will be used.
6. DCV for Infiltration was calculated using the 2016 City of San Diego's Storm Water Standards: Worksheet B.2-1.
7. Worksheet B.4-1 from the 2016 City of San Diego's Storm Water Standards was used to determine the drawdown time of each bioretention basin.
8. Media filtration rate to be used for sizing varies based on whether the filtration rate is controlled by the outlet (i.e., low flow orifice) or the media. Typically, 5in/hr should be used if filtration rate is not outlet controlled.
9. Geotechnical investigation needs to be performed (i.e. - infiltration testing) in order to determine feasibility of infiltration.

Access Youth Academy - Pollutant Control BMP Sizing

			Simple Sizing Method for Biofiltration BMPs - Required[1]																							
			Baseline Calculations				Option 1 - Biofilter 1.5xDCV		Option 2 - Store 0.75 of remaining DCV in Pores and Ponding		Footprint of the BMP					Provided BMP Parameters									Check: Provided Biofiltration Volume >= Required Storage	
BMP ID	BMP Type	Drainage Management Area (acres)	Allowable Routing (hrs) (16)	Depth Filtered during Storm (in) (17)	Depth of Detention Storage (in) (18)	Total Depth Treated (in) (19)	Required Biofiltered Volume (ft^3) (20)	Required Footprint (ft^2) (21)	Required Storage[2] (ft^3) (22)	Required Footprint (ft^2) (23)	Area Draining to BMP (ft^2) (24)	Adjusted Runoff Factor for Drainage Area (25)	BMP Footprint Sizing Factor (26)	Minimum BMP Footprint (3% Check) (ft^2) (27)	Required BMP Footprint (28)	Provided BMP Bottom Footprint (ft^2)	Ponding Surface Area (ft^2)	Side Slope (H:V)	Surface Ponding Volume (ft^3)	Subsurface Volume (ft^3)	Conveyance (ft)	Freeboard (ft)	Perforated Underdrain Diameter (in)	Total Depth (ft)	Provided Bioretention Volume[2] (ft^3)	Adequacy of Provided Biofiltration Volume (ft^3)
1	Biofiltration BMP	0.60	6	5	17	22	1005	542	502	346	24,136	0.80	0.03	579	579	724	724	0	362	688	0.25	0.25	8	4.75	1,050	OK
2	Biofiltration BMP	0.20	6	14	15	29	499	204	249	199	10,147	0.81	0.03	247	247	214	269	2	121	161	0.25	0.25	8	3.75	281	OK

Notes:

1. Values shown in parenthesis (1) designate the row number equivalent to Worksheet B.5-1 "Simple Sizing Method for Biofiltration BMPs" from the 2016 City of San Diego Storm Water Standards (dated January, 2016)

2. The required and provided pollutant control volumes are based on the 2013 MS4 permit and the 2016 City of San Diego Storm Water Standards.

3. Runoff Factors for pervious and impervious areas were determined from Table B.1-1: "Runoff Factors for Surface Draining to BMPs - Pollutant Control BMPs" from the 2016 City of San Diego Storm Water Standards.

4. Although some portions of the impervious areas within the site will be composed of Biofiltration BMPs (amended , mulched soils or landscape), Runoff Factors for pervious areas were assumed to be "Natural" (D Soil).

Using the "Natural" surface designation for the entire pervious area provides a more conservative result.

5. Infiltration rate for partial infiltration was assumed to be Zero (0) for bioretention sizing calculations since an impermeable liner will be used.

6. DCV for Infiltration was calculated using the 2016 City of San Diego's Storm Water Standards: Worksheet B.2-1.

7. Worksheet B.4-1 from the 2016 City of San Diego's Storm Water Standards was used to determine the drawdown time of each bioretention basin.

8. Media filtration rate to be used for sizing varies based on whether the filtration rate is controlled by the outlet (i.e., low flow orifice) or the media. Typically, 5in/hr should be used if filtration rate is not outlet controlled.

9. Geotechnical investigation needs to be performed (i.e. - infiltration testing) in order to determine feasibility of infiltration.

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs BMP-1

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1 (Page 1 of 2)	
1	Remaining DCV after implementing retention BMPs	869	cubic-feet
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr.
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4/ Line 5]	3	inches 3" minimum
7	Assumed surface area of the biofiltration BMP	724	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	199	cubic-feet
10	DCV that requires biofiltration [Line 1 – Line 9]	670	cubic-feet
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 inches minimum], also add mulch layer thickness to this line for sizing calculations	33	inches
13	Aggregate Storage above underdrain invert (12 inches typical) – use 0 inches for sizing if the aggregate is not over the entire bottom surface area	12	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet use the outlet controlled rate which will be less than 5 in/hr.)	0.8	in/hr.
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	5	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	17	inches
19	Total Depth Treated [Line 17 + Line 18]	22	inches

Note: Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs (continued)

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1 (Page 2 of 2)	
Option 1 – Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	1005	cubic-feet
21	Required Footprint [Line 20/ Line 19] x 12	548	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	503	cubic-feet
23	Required Footprint [Line 22/ Line 18] x 12	355	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	24,136	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.80	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	579	sq-ft
28	Footprint of the BMP = Maximum(Minimum(Line 21, Line 23), Line 27)	579	sq-ft
Check for Volume Reduction [Not applicable for No Infiltration Condition]			
29	Calculate the fraction of DCV retained in the BMP [Line 9/Line 1]	0.[illegible]	unitless
30	Minimum required fraction of DCV retained for partial infiltration condition	0.375	unitless
31	Is the retained DCV ≥ 0.375? If the answer is no increase the footprint sizing factor in Line 26 until the answer is yes for this criterion.	☐ Yes	☐ No

Note:

1. Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)
2. The DCV fraction of 0.375 is based on a 40% average annual percent capture and a 36-hour drawdown time.
3. The increase in footprint for volume reduction can be optimized using the approach presented in Appendix B.5.2. The optimized footprint cannot be smaller than the alternative minimum footprint sizing factor from Worksheet B.5-2.
4. If the proposed biofiltration BMP footprint is smaller than the alternative minimum footprint sizing factor from Worksheet B.5-2, but satisfies Option 1 or Option 2 sizing, it is considered a compact biofiltration BMP and may be allowed at the discretion of the City Engineer, if it meets the requirements in Appendix F.

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs BMP-2

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1 (Page 1 of 2)	
1	Remaining DCV after implementing retention BMPs	370	cubic-feet
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr.
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4/ Line 5]	3	inches 3" minimum
7	Assumed surface area of the biofiltration BMP	214	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	37	cubic-feet
10	DCV that requires biofiltration [Line 1 – Line 9]	333	cubic-feet
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 inches minimum], also add mulch layer thickness to this line for sizing calculations	21	inches
13	Aggregate Storage above underdrain invert (12 inches typical) – use 0 inches for sizing if the aggregate is not over the entire bottom surface area	12	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet use the outlet controlled rate which will be less than 5 in/hr.)	2.4	in/hr.
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	14	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	15	inches
19	Total Depth Treated [Line 17 + Line 18]	29	inches

Note: Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs (continued)

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1 (Page 2 of 2)	
Option 1 – Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	500	cubic-feet
21	Required Footprint [Line 20/ Line 19] x 12	207	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	250	cubic-feet
23	Required Footprint [Line 22/ Line 18] x 12	200	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	10,147	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.81	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	247	sq-ft
28	Footprint of the BMP = Maximum(Minimum(Line 21, Line 23), Line 27)	247	sq-ft
Check for Volume Reduction [Not applicable for No Infiltration Condition]			
29	Calculate the fraction of DCV retained in the BMP [Line 9/Line 1]		unitless
30	Minimum required fraction of DCV retained for partial infiltration condition	0.375	unitless
31	Is the retained DCV ≥ 0.375? If the answer is no increase the footprint sizing factor in Line 26 until the answer is yes for this criterion.	☐ Yes	☐ No

Note:

1. Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)
2. The DCV fraction of 0.375 is based on a 40% average annual percent capture and a 36-hour drawdown time.
3. The increase in footprint for volume reduction can be optimized using the approach presented in Appendix B.5.2. The optimized footprint cannot be smaller than the alternative minimum footprint sizing factor from Worksheet B.5-2.
4. If the proposed biofiltration BMP footprint is smaller than the alternative minimum footprint sizing factor from Worksheet B.5-2, but satisfies Option 1 or Option 2 sizing, it is considered a compact biofiltration BMP and may be allowed at the discretion of the City Engineer, if it meets the requirements in Appendix F.

ATTACHMENT 2
BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

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Project Name: Access Youth Academy

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☒ Included See Hydromodification Management Exhibit Checklist.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☒ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	○ Not Performed ◉ Included ○ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design and Structural BMP Drawdown Calculations (Required) Overflow Design Summary for each structural BMP See Chapter 6 and Appendix G of the BMP Design Manual	◉ Included ○ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	◉ Included ○ Not required because BMPs will drain in less than 96 hours

Project Name: **Access Youth Academy**

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

The Hydromodification Management Exhibit must identify:

☒ Underlying hydrologic soil group
☒ Approximate depth to groundwater
☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒ Critical coarse sediment yield areas to be protected
☒ Existing topography
☒ Existing and proposed site drainage network and connections to drainage offsite
☒ Proposed grading
☒ Proposed impervious features
☒ Proposed design features and surface treatments used to minimize imperviousness
☒ Point(s) of Compliance (POC) for Hydromodification Management
☒ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
☒ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

DMA/BMP ID	Area (Acres)	Type
1	0.6	Biofiltration
2	0.2	Biofiltration

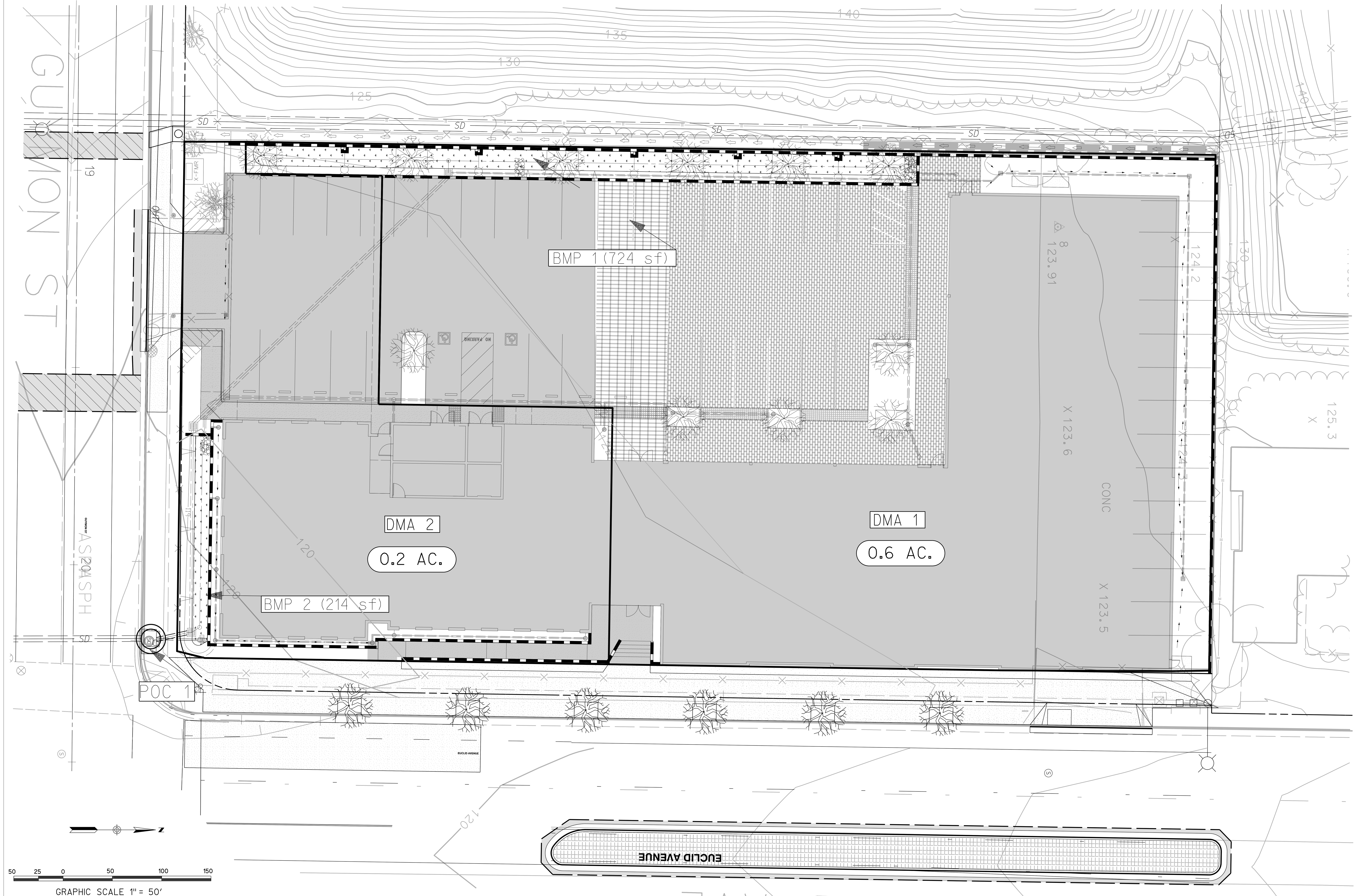
NOTES:

1. UNDERLYING HYDROLOGIC SOIL GROUP IS TYPE D.

2. PER THE PROJECT'S GEOTECHNICAL REPORT, GROUNDWATER WAS NOT ENCOUNTERED, BORINGS WERE DUG DOWN TO A MAX DEPTH OF 20 FT.

3. INFILTRATION BMPS ARE NOT BEING PROPOSED BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEER.

4. NO CRITICAL COARSE SEDIMENT YIELD AREAS ARE LOCATED WITHIN THE PROJECT SITE. REFER TO APPENDIX 2B FOR AN EXHIBIT DISPLAYING THE NEAREST CRITICAL COARSE SEDIMENT YIELD AREA.



LEGEND

POC

DMA 100 — DMA ID

XX.X AC. — DMA AREA

DMA BOUNDARY

PROPOSED STORM DRAIN SYSTEM

SD — EXISTING STORM DRAIN SYSTEM

PROPOSED BIOFILTRATION BMP

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619-291-0707
(FAX) 619-291-4165
rickengineering.com
Riverside - Orange - Sacramento - San Luis Obispo - Phoenix - Tucson - Denver

J-13284FFF

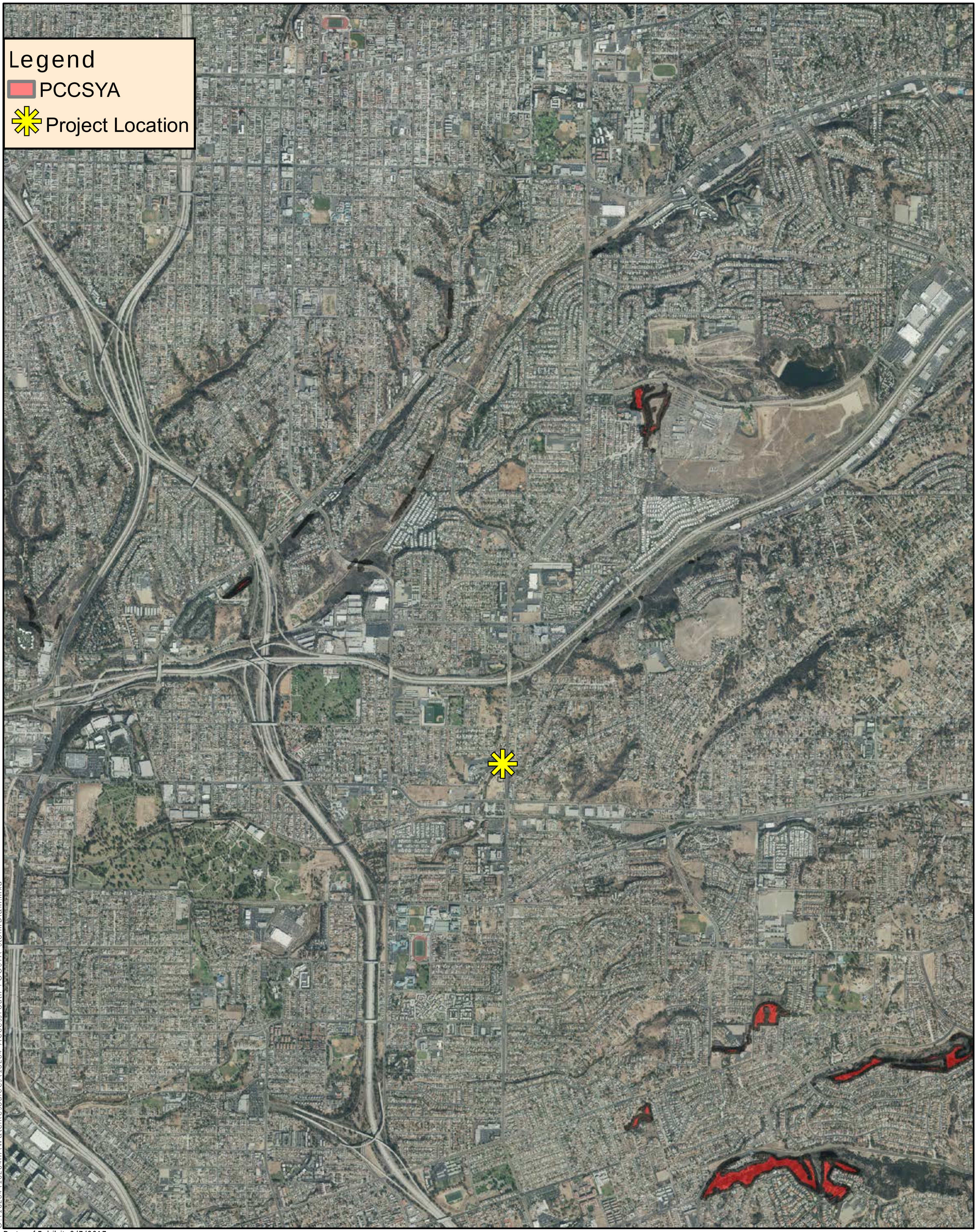
HYDROMOD EXHIBIT FOR ACCESS YOUTH ACADEMY

Date: August 23, 2017

Revised: December 4, 2017

J-13284-FFF

NOT FOR CONSTRUCTION - EXHIBIT FOR DRAINAGE STUDY ONLY



O:\13284\13284fff\WaterResources\13284_AccessYouth_PCCSYA_StormDrain.mxd

Date of Exhibit: 8/7/2017
DigitalGlobe Aerial Image: 11.2014

RICK ENGINEERING COMPANY

Scale in Feet
0 650 1,300 2,600

North

Access Youth Academy

J-13284fff

Exhibit for Potential Critical Coarse Sediment Yield Areas (PCCSYA) (Per Regional WMMA)

GEOMORPHIC ASSESSMENT – ACCESS YOUTH ACADEMY

The geomorphic channel assessment (channel screening analysis) for the Access Youth Academy project (herein referred to as the "project") is summarized within the following sections:

• Point of Compliance (POC)
• Domain of Analysis (DOA)
• Initial Desktop Analysis
• Field Screening: Vertical and Lateral Susceptibility

Points of Compliance (POC)

The initial step in performing the Southern California Coastal Water Research Project (SCCWRP) channel screening analysis is to identify the points of compliance (POCs) for the project; the point at which storm water is discharged from the site into the downstream conveyance system (i.e., storm drain or open channel). Specific to the project, there is a total of one (1) POC that is tributary to Chollas Creek. There is only one (1) POC (POC 1) that discharges into a natural channel. POC 1 is located just south of Guymon Street; the natural channel downstream of POC 1 is bounded to the north by Guymon Street, to the east by Euclid Avenue and to the south by Market Street. Refer to the project's DMA exhibit for locations of POCs relative to the project.

Domain of Analysis (DOA)

The next step is to define the domain of analysis (i.e., upstream and downstream study limits).
The Final HMP, dated March 2011, specifies that the downstream domain of analysis shall be based on the following criteria (whichever is reached first governs):

• At least one reach downstream of the first grade-control point
• Tidal backwater / Lentic (still water) waterbody
• Equal order tributary
• Accumulation of 50 percent drainage area for stream systems
• Accumulation of 100 percent drainage area for urban conveyance systems

Based on the evaluation of each bullet item above, the downstream limit for the DOA occurs at least one reach downstream of the first grade control point. Within the DOA reach, there are two (2) grade control structures, in the form of boulder drop structures. Photographs from the field visit are included in Section G-3 of this attachment. The upstream limit of the DOA is defined as a distance equal to 20 channel widths or to a grade control in good condition – whichever comes first. For this channel assessment, there are no upstream portions of channels; therefore, the points of discharge were established as the upstream limit of the DOA.

The Domain of Analysis was then sub-divided into reaches for individual susceptibility analyses based on the following criteria:

- 200 meters or ca. 20 bankfull widths
- Distinct or abrupt change in grade or slope due to either natural or artificial features
- Distinct or abrupt change in dominant bed material or sediment conveyance
- Distinct of abrupt change in valley setting or confinement
- Distinct or abrupt change in channel type, bed form, or planform

It was determined that two (2) reaches were required for the susceptibility analysis for each POC.

Initial Desktop Analysis

Once the domain of analysis is defined, the Final HMP requires an initial desktop analysis to be completed. The required input data in the initial desktop analysis are contributing area in square miles, mean annual precipitation in inches, valley slope, and valley width in meters. This information was obtained using the 2014 County of San Diego 2-ft topography, aerial photograph, and the Western Regional Climate Center for mean annual precipitation. For schematic purposes, the watershed area tributary to the upstream and downstream limit of the Domain of Analysis, as delineated in StreamStats, is shown on the overall geomorphic assessment exhibit provided in Section G-2 of this Appendix. The initial desktop analysis for each reach is included in Section G-1 of this Appendix.

Field Screening: Vertical and Lateral Susceptibility

After the initial desktop analysis is completed, a field visit is required to assess the vertical and lateral susceptibility of each channel reach for each DOA. Typically, as part of the field visit, measurements are conducted including observations or pebble counts to determine D50, measurements of the bank height and bank angle, and assessing bottom widths of the channel. These field observations and measurements are used throughout the channel screening to identify a vertical susceptibility rating and lateral susceptibility rating. These ratings then correlate to a low, medium, or high susceptibility for vertical and lateral susceptibility, which then results in a combined channel susceptibility for each reach.

The field screening for this project did not include pebble counts due to the channel downstream of POC 1 being an engineered stabilized cobble bed channel that is maintained. Based on observation, the channel seemed to be in good condition with no observed erosion (vertical or lateral). The channel was stable throughout and includes rip-rap from the toe of the channel up the banks along the DOA reaches. Photos of the site visit along with a photo location exhibit are included in Attachment G-3 for reference.

Results and Conclusion

The vertical and lateral susceptibility results for each reach must be used to determine the overall channel susceptibility and low flow threshold based on engineering judgement. Based on the observations of the existing channel downstream of POC 1 it was determined that the overall vertical and lateral channel susceptibility to be "low". Therefore, the project can be modeled using a low flow threshold of 0.5Q2. The results of the 0.5Q2 threshold have been used to prepare HMP analyses for the proposed BMPs to meet Final HMP criteria prior to the project discharge at each outfall location. Refer to the HMP analyses for additional detailed information regarding the modeling and design solutions implemented to meet the Final HMP criteria.

Geomorphic Assessment Attachments

The following sections of this HMP provide backup information, as follows:
Section G-1: Geomorphic Assessment Results
Section G-2: Geomorphic Assessment Exhibits
Section G-3: Field Photographs

S.CA Hydromodification Screening Tool version 1.0

user: IC

stream: **POC 1, for Access Youth Academy (Tributary to Chollas Creek)**

latitude (decimal degrees): **32.7121**

longitude (decimal degrees): **-117.0851**

FORM 1: INITIAL DESKTOP ANALYSIS

GIS metrics and screening indices (for detailed instructions/examples see 'Field Screening Companion Document')

Symbol	Variable	units	Value	Description & Source
A	Drainage Area	mi^2	**3.1**	contributing drainage area to screening location via *published HUCs and/or 30-m (or better) National Elevation Data (NED), USGS seamless server*
P	Mean annual precipitation	inches	**11.51**	area-weighted annual precipitation via *USGS delineated polygons using records from 1900 to 1960 (which was more significant in hydrologic models than polygons delineated from shorter record lengths)*
S_v	Valley slope	m/m	**0.013**	valley slope at site *via NED, measured over a relatively homogeneous valley segment as indicated by slope, hillslope coupling/confinement, valley alignment, confluences, etc., over a distance of up to ~500 meters or 10% of the main-channel length (whatever is smaller)*
W_v	Valley width	meters	**4.9**	valley bottom width at site *between natural valley walls as dictated by clear breaks in hillslope on NED raster, irrespective of potential armoring from floodplain encroachement, levees, etc. (imprecise measurements have negligible effect on rating in wide valleys where VWI >>2, as defined in lateral decision tree)*
Q_{10cfs}	10-year peak flow, US units	ft^3/s	**320**	$Q_{10cfs} = 18.2 * A^{0.87} * P^{0.77}$ *(Hawley and Bledsoe, In review)*
Q_{10}	10-year peak flow	m^3/s	**9.04**	$Q_{10} = 0.0283 * Q_{10cfs}$
INDEX	10-year mobility index	$m^{1.5}/s^{0.5}$	**0.039**	$INDEX = S_v * Q_{10}^{0.5}$
W_{ref}	Reference width	meters	**18.34**	$W_{ref} = 6.99 * Q_{10}^{0.438}$
VWI	Valley width index	m/m	**0.27**	$VWI = W_v / W_{ref}$

S.CA Hydromodification Screening Tool version 1.0

user: IC

stream: **POC 1, for Access Youth Academy (Tributary to Chollas Creek)**

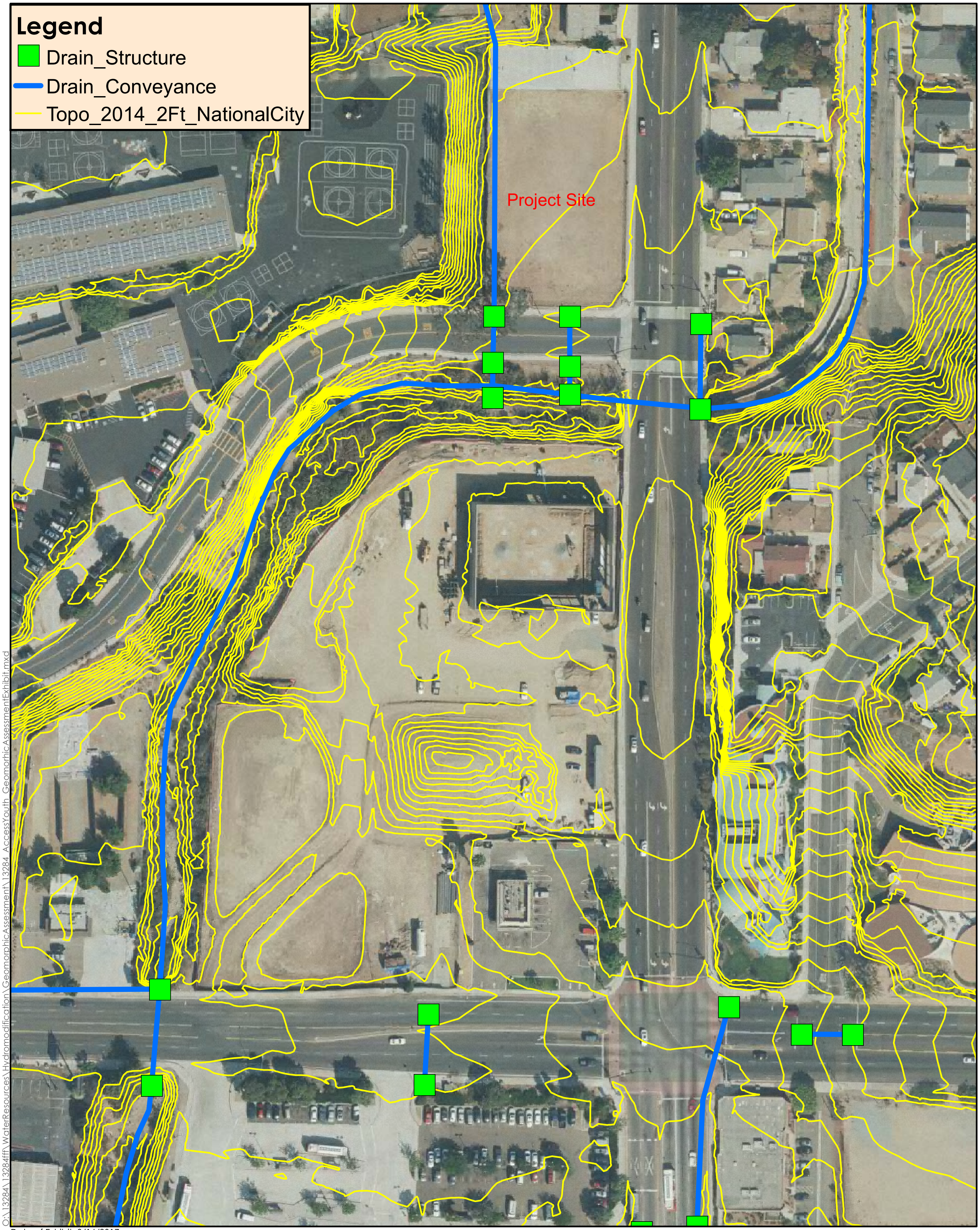
latitude (decimal degrees): **32.7106**

longitude (decimal degrees): **-117.0867**

FORM 1: INITIAL DESKTOP ANALYSIS

GIS metrics and screening indices (for detailed instructions/examples see 'Field Screening Companion Document')

Symbol	Variable	units	Value	Description & Source
A	Drainage Area	mi^2	**3.2**	contributing drainage area to screening location via *published HUCs and/or 30-m (or better) National Elevation Data (NED), USGS seamless server*
P	Mean annual precipitation	inches	**11.51**	area-weighted annual precipitation via *USGS delineated polygons using records from 1900 to 1960 (which was more significant in hydrologic models than polygons delineated from shorter record lengths)*
S_v	Valley slope	m/m	**0.012**	valley slope at site *via NED, measured over a relatively homogeneous valley segment as indicated by slope, hillslope coupling/confinement, valley alignment, confluences, etc., over a distance of up to ~500 meters or 10% of the main-channel length (whatever is smaller)*
W_v	Valley width	meters	**6.4**	valley bottom width at site *between natural valley walls as dictated by clear breaks in hillslope on NED raster, irrespective of potential armoring from floodplain encroachement, levees, etc. (imprecise measurements have negligible effect on rating in wide valleys where VWI >>2, as defined in lateral decision tree)*
Q_{10cfs}	10-year peak flow, US units	ft^3/s	**329**	$Q_{10cfs} = 18.2 * A^{0.87} * P^{0.77}$ *(Hawley and Bledsoe, In review)*
Q_{10}	10-year peak flow	m^3/s	**9.30**	$Q_{10} = 0.0283 * Q_{10cfs}$
INDEX	10-year mobility index	$m^{1.5}/s^{0.5}$	**0.037**	$INDEX = S_v * Q_{10}^{0.5}$
W_{ref}	Reference width	meters	**18.56**	$W_{ref} = 6.99 * Q_{10}^{0.438}$
VWI	Valley width index	m/m	**0.34**	$VWI = W_v / W_{ref}$



O:\13284\13284fff\WaterResources\Hydromodification\GeomorphicAssessment\13284_AccessYouth_GeomorphicAssessmentExhibit.mxd

Date of Exhibit: 8/16/2017
USGS Aerial Image: Nov. 2014

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Scale in Feet
0 30 60 120

North

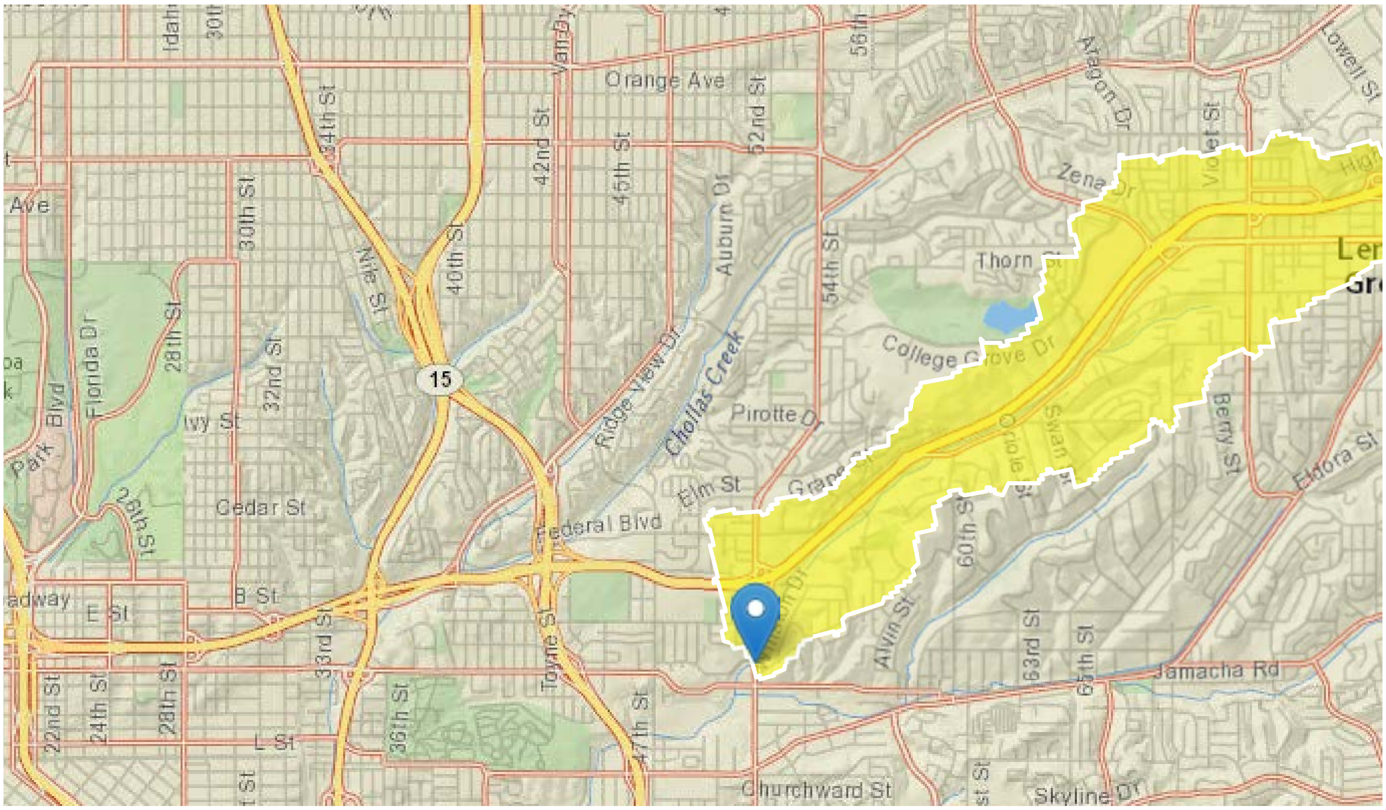
Access Youth Academy

J-13284fff

Geomorphic Channel Assessment Exhibit

StreamStats Report_Reach1

Region ID: CA
Workspace ID: CA20170803114455696000
Clicked Point (Latitude, Longitude): 32.71207, -117.08512
Time: 2017-08-03 08:47:45 -0700



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3.1	square miles
PRECIP	Mean Annual Precipitation	12.5	inches

StreamStatsReport_Reach2

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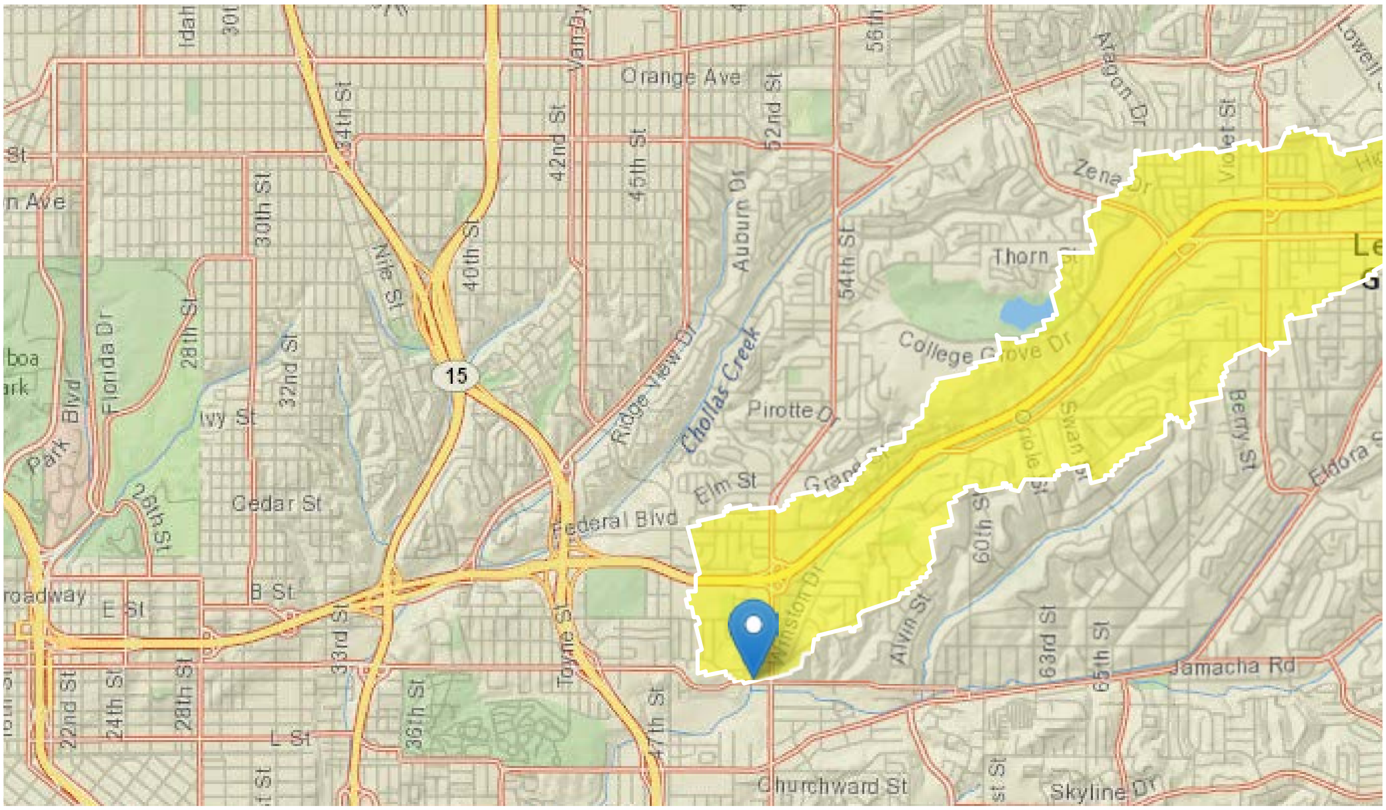

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
PRECIP	Mean Annual Precipitation	12.4	inches
DRNAREA	Area that drains to a point on a stream	3.2	square miles

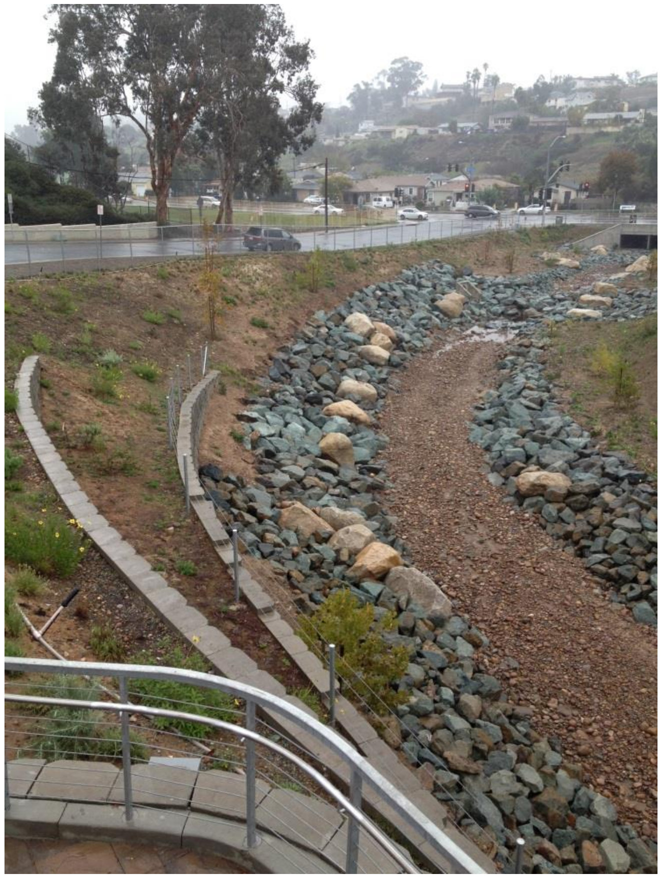

Figure 1: Looking upstream towards Reach 1 and Project Outfall

Figure 2: Looking upstream towards Reach 1, other side of channel bank

Figure 3: Channel Bank along Reach 2, looking upstream

Figure 4: Reach 2, looking downstream before turning south

Figure 5: Reach 2, looking upstream after turning south

Figure 6: Reach 2, looking further downstream towards pedestrian bridge

Figure 7: Reach 2, another view looking downstream towards the pedestrian bridge

Figure 8: Reach 2, Looking Downstream towards the end of the channel

Figure 9: Reach 2, another view looking downstream towards the end of the channel

Grate Inlet Sizing (Weir vs. Orifice)

Weir coefficient, C_w	3.0
Orifice coefficient, C_o	0.60
Available head, h (feet)	0.50

Inlet Type	Capacity based on Weir Equation[3, 4], Q_{cap} (cfs[5])	Capacity based on Orifice Equation[3, 4], Q_{cap} (cfs[5])	Governing Equation
1212 Series - 12"x12" Catch Basin[1]	2.26	1.90	Orifice
1218 Series - 12"x18" Catch Basin[1]	2.61	2.54	Orifice
1818 Series - 18"x18" Catch Basin[1]	2.96	3.22	Weir
2424 Series - 24"x24" Catch Basin[1]	3.83	5.39	Weir
3636 Series - 36"x36" Catch Basin[1]	5.59	11.26	Weir

Type 'I' Catch Basin[2]	4.89	8.27	Weir

Note:

1. Based on Brooks Products, Inc. - H 20-44 Traffic, Steel Grate, not Parkway, Cast-iron grate
2. Based on Drawing Number D-13 & D-15 in the City of San Diego Regional Standard Drawings, dated April 2003
3. A reduction factor of 50% assumed for clogging.
4. Weir equation, $Q = C_w L_e (h)^{3/2}$; Orifice equation, $Q = C_o A_e (2gh)^{1/2}$
5. "cfs" = cubic feet per second

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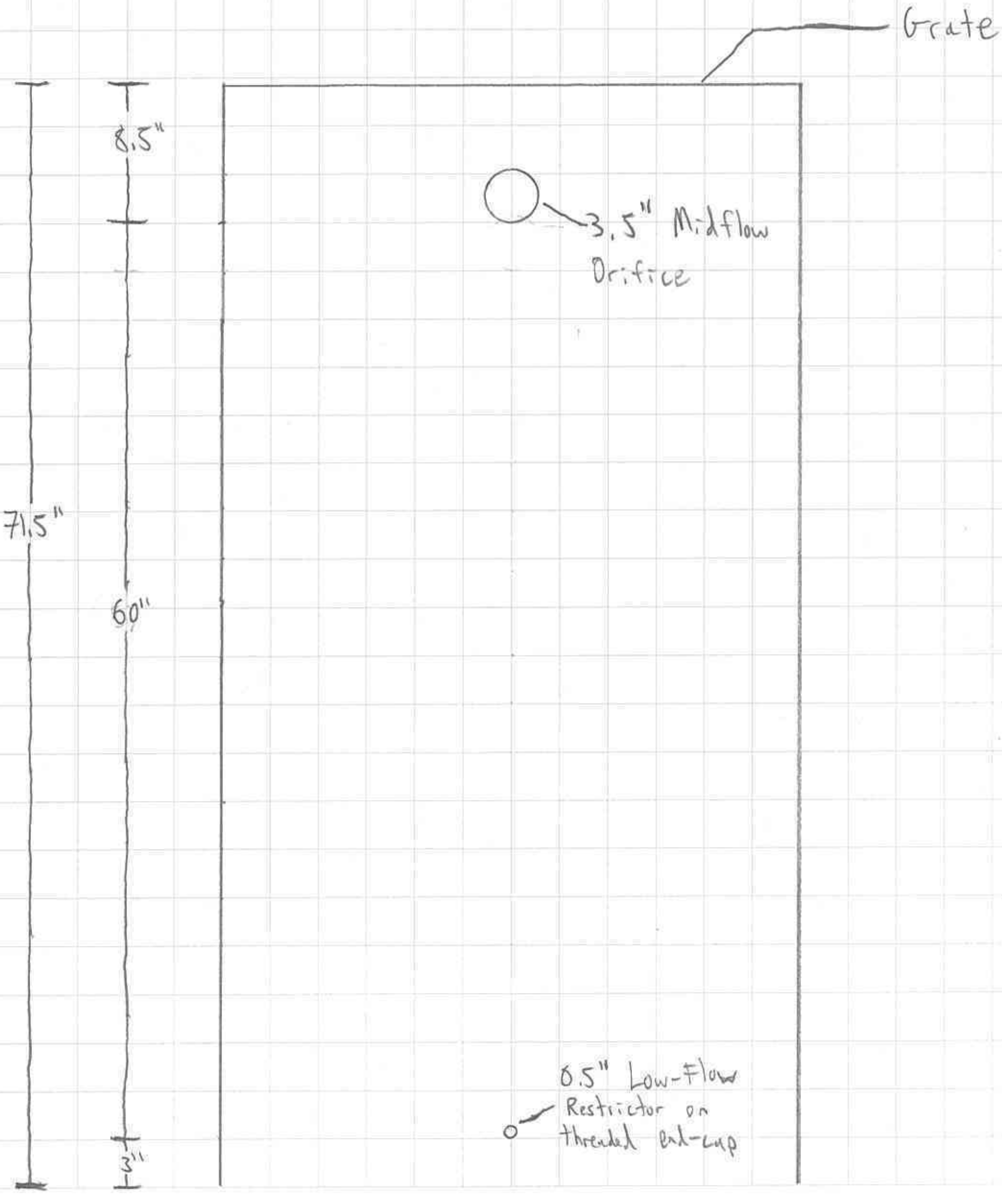
Date 11/08/2017
Job No. 13284-FFF
Page 1 of 1
Done By I.C.
Checked By

Access Youth Academy: Outlet Works BMP-1



Orifice Equation Calculation

$Q_{orifice} = C_o * A * (2 * g * (H-h))^{0.5}$

Orifice Coefficient, C_o	0.6
g (ft/s2)	32.2
Increment (ft)	0.50

CIRCULAR OPENINGS	1 x 3.5" dia.	None	None	None	None	None
# of openings	1	0	0	0	0	0
Orifice Size (inches)	3.5	0	0	0	0	0

Flowline of Orifice (ft)	0	0	0	0	0	0

Flowline (ft)	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**TOTAL**
0.00	No Value	0.000	0.000	0.000	0.000	0.000	**0.000**
0.50	0.191	0.000	0.000	0.000	0.000	0.000	**0.191**
1.00	0.297	0.000	0.000	0.000	0.000	0.000	**0.297**
1.50	0.374	0.000	0.000	0.000	0.000	0.000	**0.374**
2.00	0.438	0.000	0.000	0.000	0.000	0.000	**0.438**
2.50	0.494	0.000	0.000	0.000	0.000	0.000	**0.494**
3.00	0.543	0.000	0.000	0.000	0.000	0.000	**0.543**
3.50	0.589	0.000	0.000	0.000	0.000	0.000	**0.589**
4.00	0.632	0.000	0.000	0.000	0.000	0.000	**0.632**
4.50	0.671	0.000	0.000	0.000	0.000	0.000	**0.671**
5.00	0.709	0.000	0.000	0.000	0.000	0.000	**0.709**
5.50	0.744	0.000	0.000	0.000	0.000	0.000	**0.744**
6.00	0.778	0.000	0.000	0.000	0.000	0.000	**0.778**

Access Youth Academy
JN - 13284FFF
November 9, 2017

Drawdown Time Calculations - BMP 1

Note: Following data were obtained from TAPE 21 as resulted from HEC-1 analyses.

Each ordinate = 1 minutes

HMP_v (acre-feet)	0.025	@	WSEL (ft)	1.5	→	$Q_{out, max}$ at HMP (cfs)	4.657

Ordinate	*1st*	*2nd*	*3rd*	*4th*	*5th*	*6th*	*7th*	*8th*	*9th*	*10th*
0	4.657	0.822	0.451	0.409	0.371	0.336	0.304	0.276	0.25	0.227
10	0.206	0.188	0.177	0.167	0.157	0.148	0.14	0.131	0.124	0.117
20	0.11	0.103	0.097	0.092	0.086	0.081	0.077	0.072	0.068	0.064
30	0.06	0.057	0.054	0.05	0.048	0.045	0.042	0.04	0.037	0.035
40	0.033	0.031	0.029	0.028	0.026	0.025	0.023	0.022	0.021	0.019
50	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.013	0.013	0.013
60	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
70	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
80	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
90	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
100	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
110	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
120	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
130	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
140	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
150	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
160	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
170	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
180	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
190	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
200	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
210	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
220	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
230	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
240	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
250	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
260	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
270	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
280	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
290	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
300	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
310	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
320	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
330	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
340	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
350	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
360	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
370	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
380	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
390	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
400	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
410	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
420	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
430	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
440	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
450	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
460	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
470	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
480	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
490	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
500	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

510	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
520	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.012
530	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
540	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011
550	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
560	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.01	0.01
570	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
580	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
590	0.01	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
600	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
610	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008
620	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
630	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
640	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007
650	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
660	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
670	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006
680	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
690	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
700	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
710	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005
720	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
730	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
740	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
750	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
760	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
770	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
780	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
790	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
800	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
810	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
820	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003
830	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
840	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
850	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
860	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
870	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
880	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
890	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
900	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
920	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
930	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
940	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
950	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
960	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
970	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
980	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
990	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
1000	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
1010	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
1020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1040	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1050	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1060	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1070	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1080	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1090	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1100	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1110	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1120	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1130	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1140	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

1150	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1160	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1170	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1180	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1190	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1200	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1210	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1220	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1230	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1240	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1250	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1260	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1270	0.001	0.001	0.001	0.001	0.001	0.001	0			

Drawdown Time to Basin Bottom (hours): **21.3** <96 HRs

```
[TITLE]
;;Project Title/Notes
13284fff Access Youth Academy


[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           10/17/1948
START_TIME           08:00:00
REPORT_START_DATE    10/17/1948
REPORT_START_TIME    08:00:00
END_DATE             12/31/2005
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          0.06   0.08   0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- ------ ------ ----------
Lindbergh        INTENSITY 1:00     1.0      TIMESERIES TS-Lindbergh

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA1             Lindbergh        POC1             0.6      0        132      0.9      0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA1             0.012      0.15       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA1             9          0.025      0.33

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC1             0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
TS-Lindbergh     FILE "W:\WQ_DRN_LID_HMP-MunicipalityReferences\HMP\_SWMM\RainfallData_formatted\1hr\lindbergh.dat"

[REPORT]
;;Reporting Options
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None
```

```
[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC1             4282.103           4337.715

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA1             3513.650           6804.853
DMA1             3483.316           6006.067
DMA1             5262.892           5965.622
DMA1             5283.114           6956.522
DMA1             3473.205           6966.633

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Lindbergh        2563.195           7411.527
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)
--------------------------------------------------------------

13284fff Access Youth Academy

*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ OCT-17-1948 08:00:00
Ending Date .............. DEC-31-2005 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


**************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
**************************     ---------       -------
Total Precipitation ......        28.192       563.840
Evaporation Loss .........         0.941        18.823
Infiltration Loss ........        23.206       464.121
Surface Runoff ...........         4.435        88.703
Final Storage ............         0.000         0.000
Continuity Error (%) .....        -1.385


**************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         4.435         1.445
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         4.435         1.445
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000


***************************
Subcatchment Runoff Summary
***************************
```

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA1	563.84	0.00	18.82	464.12	88.70	1.45	0.73	0.157

```
Analysis begun on:  Wed Nov 01 11:23:08 2017
Analysis ended on:  Wed Nov 01 11:23:21 2017
Total elapsed time: 00:00:13
```

```
[TITLE]
;;Project Title/Notes
13284fff Access Youth Academy

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           10/17/1948
START_TIME           08:00:00
REPORT_START_DATE    10/17/1948
REPORT_START_TIME    08:00:00
END_DATE             12/31/2005
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          0.06   0.08   0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- ------ ------ ----------
Lindbergh        INTENSITY 1:00     1.0      TIMESERIES TS-Lindbergh

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA1             Lindbergh        BMP1             0.58338  83       79       0.9      0
BMP1             Lindbergh        DIV1             0.01662  0        6.0      0.01     0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA1             0.012      0.15       0.05       0.1        25         OUTLET
BMP1             0.012      0.15       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA1             9          0.01875    0.33
BMP1             9          0.025      0.33

[LID_CONTROLS]
;;Name           Type/Layer Parameters
;;-------------- ---------- ----------
BMP1             BC
BMP1             SURFACE    6.00       0          0          0          5
BMP1             SOIL       30         0.4        0.2        0.1        5          5          1.5
BMP1             STORAGE    12         0.67       0          0
BMP1             DRAIN      0.1140     0.5        0          6

[LID_USAGE]
;;Subcatchment   LID Process      Number  Area       Width      InitSat    FromImp    ToPerv     RptFile
 DrainTo
;;-------------- ---------------- ------- ---------- ---------- ---------- ---------- ----------
------------------------ ----------------
BMP1             BMP1             1       723.97     6.0        0          100        0

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC1             0          FREE                        NO
```

```
[DIVIDERS]
;;Name           Elevation  Diverted Link    Type       Parameters
;;-------------- ---------- ---------------- ---------- ----------
DIV1             0          bypass           CUTOFF     0.0131     0          0          0          0

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Name/Params            N/A      Fevap    Psi      Ksat
   IMD
;;-------------- -------- ---------- ----------- ---------- ---------------------------- -------- --------
-------- --------
STOR1            0        1.0        0          TABULAR    StorageCurve1                0        0

[CONDUITS]
;;Name           From Node        To Node          Length     Roughness  InOffset   OutOffset  InitFlow   MaxFlow
;;-------------- ---------------- ---------------- ---------- ---------- ---------- ---------- ---------- ----------
bypass           DIV1             STOR1            400        0.013      0          0          0          0
underdrain       DIV1             POC1             400        0.013      0          0          0          0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
Midflow          STOR1            POC1             0          TABULAR/DEPTH   RatingCurve1                NO

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels    Culvert
;;-------------- ------------ ---------------- ---------- ---------- ---------- ---------- ----------
bypass           DUMMY        0                0          0          0          1
underdrain       DUMMY        0                0          0          0          1

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
RatingCurve1     Rating     0.00       0.000
RatingCurve1                0.50       0.191
RatingCurve1                0.75       0.490
RatingCurve1                1.00       4.657
;
StorageCurve1    Storage    0          724
StorageCurve1               0.25       724
StorageCurve1               0.5        724
StorageCurve1               0.75       724
StorageCurve1               1          724

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
TS-Lindbergh     FILE "W:\WQ_DRN_LID_HMP-MunicipalityReferences\HMP\_SWMM\RainfallData_formatted\1hr\lindbergh.dat"

[REPORT]
;;Reporting Options
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC1             4282.103           4337.715
DIV1             4474.216           5621.840
STOR1            3634.985           5652.174

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA1             3513.650           6804.853
DMA1             3483.316           6006.067
DMA1             5262.892           5965.622
DMA1             5283.114           6956.522
DMA1             3473.205           6966.633
BMP1             4858.443           5803.842
BMP1             5606.673           5793.731
BMP1             5586.451           5318.504
BMP1             4777.553           5348.837
BMP1             4767.442           5834.176

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Lindbergh        2563.195           7411.527
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)
--------------------------------------------------------------

13284fff Access Youth Academy
WARNING 04: minimum elevation drop used for Conduit bypass
WARNING 04: minimum elevation drop used for Conduit underdrain

*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... KINWAVE
Starting Date ............ OCT-17-1948 08:00:00
Ending Date .............. DEC-31-2005 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00
Routing Time Step ........ 60.00 sec

**************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
**************************     ---------       -------
Initial LID Storage ......         0.004         0.083
Total Precipitation ......        28.192       563.840
Evaporation Loss .........         6.098       121.969
Infiltration Loss ........         3.554        71.083
Surface Runoff ...........         3.831        76.625
LID Drainage .............        14.938       298.756
Final Storage ............         0.010         0.199
Continuity Error (%) .....        -0.835

**************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        18.769         6.116
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        18.765         6.115
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.019

********************************
Highest Flow Instability Indexes
********************************
All links are stable.

*************************
Routing Time Step Summary
*************************
Minimum Time Step           :    60.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     1.00
Percent Not Converging      :     0.00

***************************
Subcatchment Runoff Summary
***************************

-----------------------------------------------------------------------------------------------------------
                             Total       Total       Total       Total       Total        Total     Peak  Runoff
                            Precip       Runon        Evap       Infil      Runoff       Runoff   Runoff   Coeff
```

Subcatchment	in	in	in	in	in	10^6 gal	CFS	
DMA1	563.84	0.00	95.91	73.11	399.64	6.33	0.79	0.709
BMP1	563.84	14027.63	1036.72	0.00	13551.67	6.12	0.82	0.929

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
BMP1	BMP1	14591.47	1036.75	0.00	2766.33	10785.78	3.00	6.06	-0.00

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
POC1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
DIV1	DIVIDER	0.00	0.00	0.00	0 00:00	0.00
STOR1	STORAGE	0.00	0.77	0.77	6263 00:54	0.77

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
POC1	OUTFALL	0.00	0.83	6263 00:54	0	6.11	0.000
DIV1	DIVIDER	0.82	0.82	6263 01:01	6.12	6.12	0.000
STOR1	STORAGE	0.00	0.80	6263 01:01	0	1.24	0.094

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
DIV1	DIVIDER	501471.00	0.000	0.000
STOR1	STORAGE	501471.00	0.770	0.230

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR1	0.000	0	0	0	0.559	77	6263 00:54	0.82

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
POC1	5.80	0.01	0.83	6.115
System	5.80	0.01	0.83	6.115

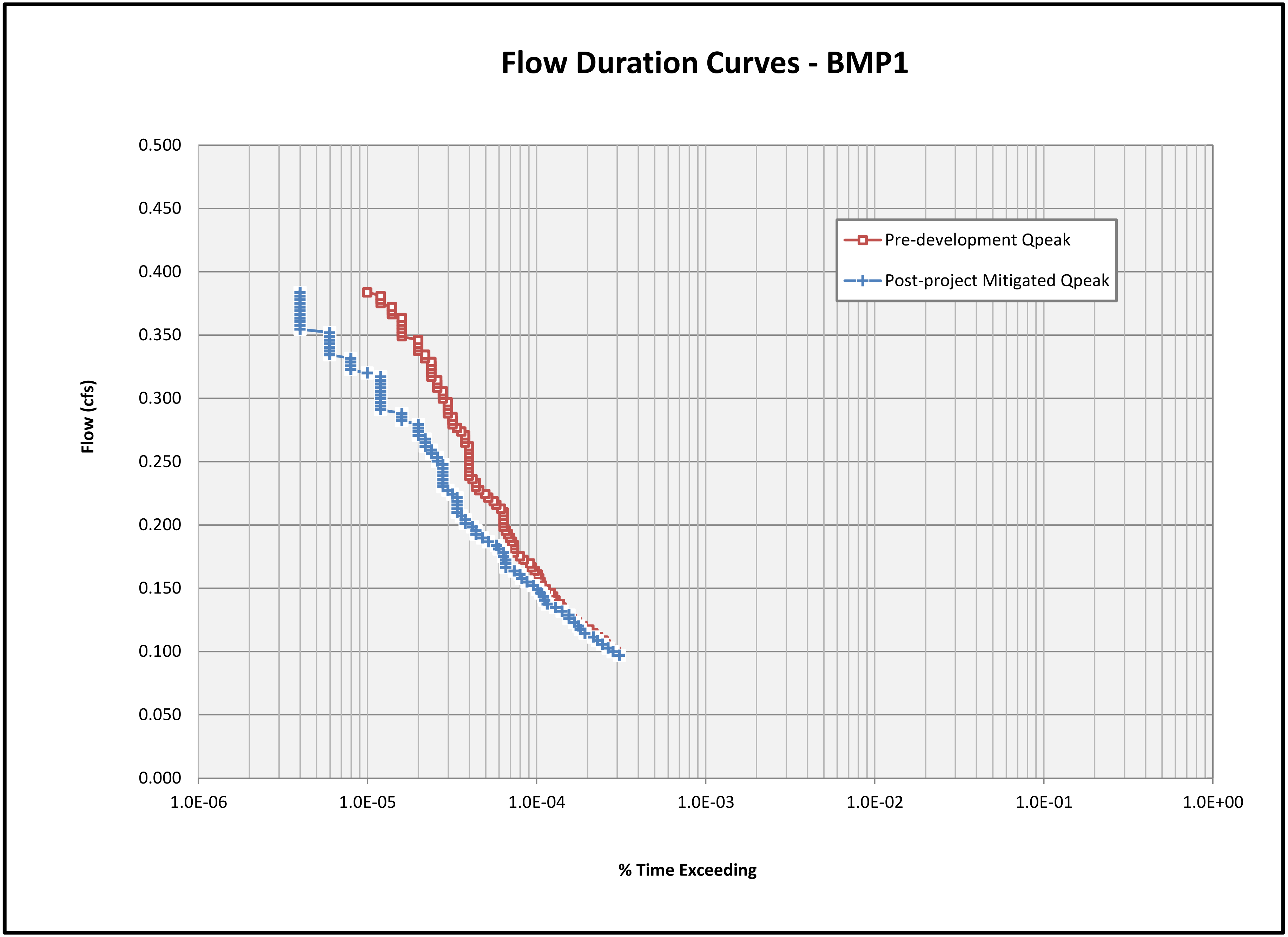
```
********************
Link Flow Summary
********************

-----------------------------------------------------------------------------
                               Maximum  Time of Max   Maximum    Max/    Max/
                                |Flow|   Occurrence   |Veloc|    Full    Full
Link                 Type          CFS  days hr:min    ft/sec    Flow   Depth
-----------------------------------------------------------------------------
bypass               DUMMY        0.80  6263  01:01
underdrain           DUMMY        0.01     0  22:32
Midflow              DUMMY        0.82  6263  00:54


*************************
Conduit Surcharge Summary
*************************

No conduits were surcharged.


Analysis begun on:  Wed Nov 29 10:42:39 2017
Analysis ended on:  Wed Nov 29 10:43:09 2017
Total elapsed time: 00:00:30
```

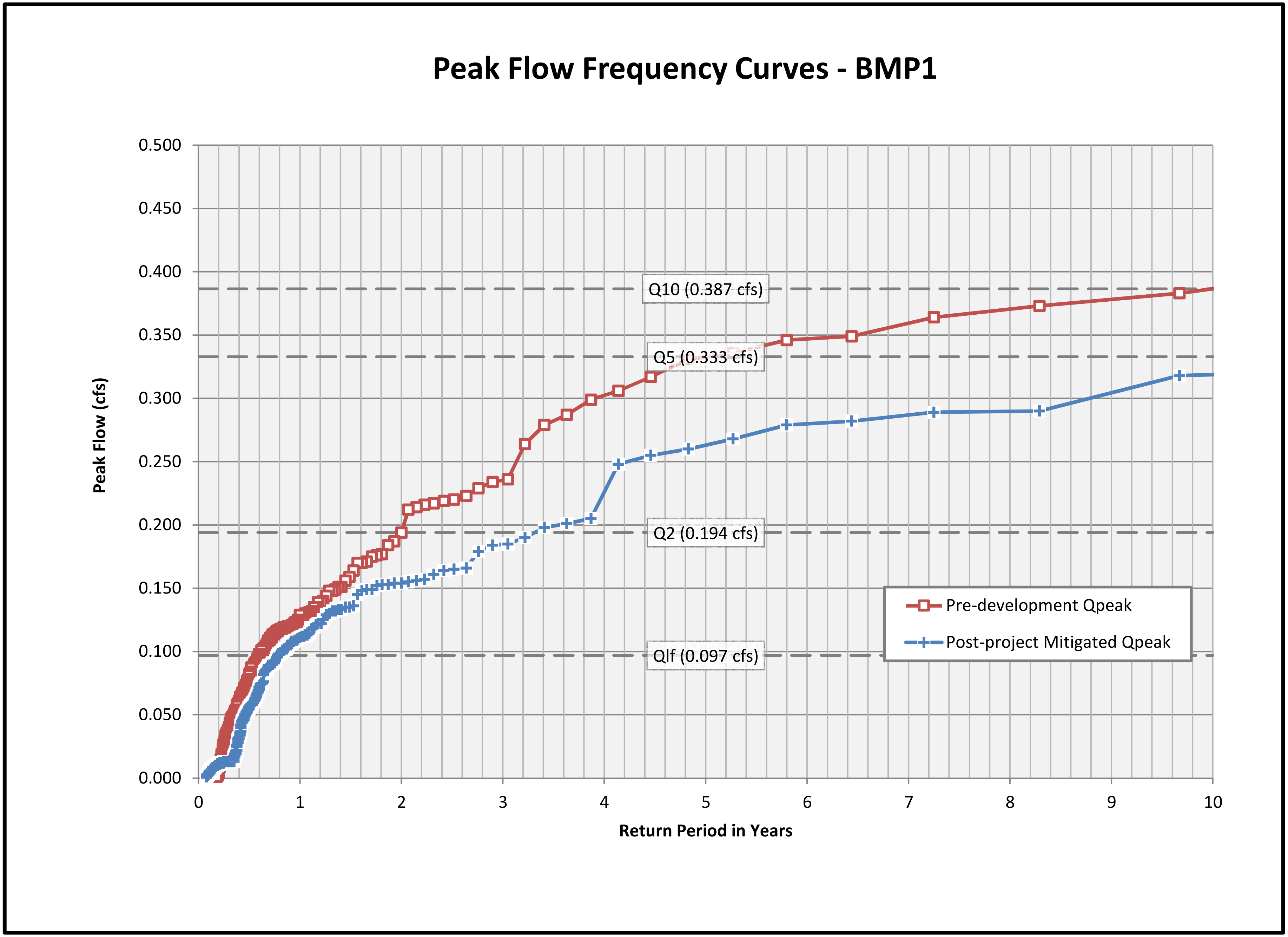
Low-flow Threshold:	50%	
0.5xQ2 (Pre):	0.097	cfs
Q10 (Pre):	0.387	cfs
Ordinate #:	100	
Incremental Q (Pre):	0.00290	cfs
Total Hourly Data:	501471	hours

The proposed BMP: PASSED

Beginning of Interval	Pre-develop. Flow (cfs)	Pre-develop. Hours	Pre-develop. % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
1	0.097	154	3.07E-04	155	3.09E-04	101%	*Pass^*
2	0.100	148	2.95E-04	142	2.83E-04	96%	Pass
3	0.103	137	2.73E-04	133	2.65E-04	97%	Pass
4	0.106	129	2.57E-04	123	2.45E-04	95%	Pass
5	0.109	125	2.49E-04	115	2.29E-04	92%	Pass
6	0.111	116	2.31E-04	109	2.17E-04	94%	Pass
7	0.114	109	2.17E-04	97	1.93E-04	89%	Pass
8	0.117	103	2.05E-04	91	1.81E-04	88%	Pass
9	0.120	94	1.87E-04	89	1.77E-04	95%	Pass
10	0.123	87	1.73E-04	84	1.68E-04	97%	Pass
11	0.126	81	1.62E-04	78	1.56E-04	96%	Pass
12	0.129	79	1.58E-04	78	1.56E-04	99%	Pass
13	0.132	73	1.46E-04	71	1.42E-04	97%	Pass
14	0.135	71	1.42E-04	65	1.30E-04	92%	Pass
15	0.138	69	1.38E-04	58	1.16E-04	84%	Pass
16	0.140	65	1.30E-04	56	1.12E-04	86%	Pass
17	0.143	63	1.26E-04	55	1.10E-04	87%	Pass
18	0.146	61	1.22E-04	53	1.06E-04	87%	Pass
19	0.149	57	1.14E-04	51	1.02E-04	89%	Pass
20	0.152	54	1.08E-04	48	9.57E-05	89%	Pass
21	0.155	53	1.06E-04	44	8.77E-05	83%	Pass
22	0.158	52	1.04E-04	41	8.18E-05	79%	Pass
23	0.161	51	1.02E-04	40	7.98E-05	78%	Pass
24	0.164	49	9.77E-05	37	7.38E-05	76%	Pass
25	0.167	47	9.37E-05	33	6.58E-05	70%	Pass
26	0.169	46	9.17E-05	33	6.58E-05	72%	Pass
27	0.172	42	8.38E-05	33	6.58E-05	79%	Pass
28	0.175	40	7.98E-05	32	6.38E-05	80%	Pass
29	0.178	37	7.38E-05	32	6.38E-05	86%	Pass
30	0.181	37	7.38E-05	30	5.98E-05	81%	Pass
31	0.184	37	7.38E-05	29	5.78E-05	78%	Pass
32	0.187	36	7.18E-05	26	5.18E-05	72%	Pass
33	0.190	35	6.98E-05	24	4.79E-05	69%	Pass
34	0.193	34	6.78E-05	22	4.39E-05	65%	Pass
35	0.195	33	6.58E-05	22	4.39E-05	67%	Pass
36	0.198	32	6.38E-05	21	4.19E-05	66%	Pass
37	0.201	32	6.38E-05	19	3.79E-05	59%	Pass
38	0.204	32	6.38E-05	19	3.79E-05	59%	Pass
39	0.207	32	6.38E-05	18	3.59E-05	56%	Pass
40	0.210	32	6.38E-05	17	3.39E-05	53%	Pass
41	0.213	31	6.18E-05	17	3.39E-05	55%	Pass
42	0.216	29	5.78E-05	17	3.39E-05	59%	Pass
43	0.219	28	5.58E-05	17	3.39E-05	61%	Pass
44	0.222	26	5.18E-05	17	3.39E-05	65%	Pass
45	0.224	25	4.99E-05	16	3.19E-05	64%	Pass
46	0.227	23	4.59E-05	15	2.99E-05	65%	Pass
47	0.230	22	4.39E-05	14	2.79E-05	64%	Pass
48	0.233	22	4.39E-05	14	2.79E-05	64%	Pass
49	0.236	21	4.19E-05	14	2.79E-05	67%	Pass
50	0.239	20	3.99E-05	14	2.79E-05	70%	Pass
51	0.242	20	3.99E-05	14	2.79E-05	70%	Pass
52	0.245	20	3.99E-05	14	2.79E-05	70%	Pass

Beginning of Interval	Pre-develop. Flow (cfs)	Pre-develop. Hours	Pre-develop. % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
53	0.248	20	3.99E-05	14	2.79E-05	70%	Pass
54	0.250	20	3.99E-05	13	2.59E-05	65%	Pass
55	0.253	20	3.99E-05	13	2.59E-05	65%	Pass
56	0.256	20	3.99E-05	12	2.39E-05	60%	Pass
57	0.259	20	3.99E-05	12	2.39E-05	60%	Pass
58	0.262	20	3.99E-05	11	2.19E-05	55%	Pass
59	0.265	19	3.79E-05	11	2.19E-05	58%	Pass
60	0.268	19	3.79E-05	11	2.19E-05	58%	Pass
61	0.271	19	3.79E-05	10	1.99E-05	53%	Pass
62	0.274	18	3.59E-05	10	1.99E-05	56%	Pass
63	0.277	17	3.39E-05	10	1.99E-05	59%	Pass
64	0.279	16	3.19E-05	10	1.99E-05	63%	Pass
65	0.282	16	3.19E-05	8	1.60E-05	50%	Pass
66	0.285	16	3.19E-05	8	1.60E-05	50%	Pass
67	0.288	15	2.99E-05	8	1.60E-05	53%	Pass
68	0.291	15	2.99E-05	6	1.20E-05	40%	Pass
69	0.294	15	2.99E-05	6	1.20E-05	40%	Pass
70	0.297	15	2.99E-05	6	1.20E-05	40%	Pass
71	0.300	14	2.79E-05	6	1.20E-05	43%	Pass
72	0.303	14	2.79E-05	6	1.20E-05	43%	Pass
73	0.306	14	2.79E-05	6	1.20E-05	43%	Pass
74	0.308	13	2.59E-05	6	1.20E-05	46%	Pass
75	0.311	13	2.59E-05	6	1.20E-05	46%	Pass
76	0.314	13	2.59E-05	6	1.20E-05	46%	Pass
77	0.317	12	2.39E-05	6	1.20E-05	50%	Pass
78	0.320	12	2.39E-05	5	9.97E-06	42%	Pass
79	0.323	12	2.39E-05	4	7.98E-06	33%	Pass
80	0.326	12	2.39E-05	4	7.98E-06	33%	Pass
81	0.329	12	2.39E-05	4	7.98E-06	33%	Pass
82	0.332	11	2.19E-05	4	7.98E-06	36%	Pass
83	0.334	11	2.19E-05	3	5.98E-06	27%	Pass
84	0.337	10	1.99E-05	3	5.98E-06	30%	Pass
85	0.340	10	1.99E-05	3	5.98E-06	30%	Pass
86	0.343	10	1.99E-05	3	5.98E-06	30%	Pass
87	0.346	10	1.99E-05	3	5.98E-06	30%	Pass
88	0.349	8	1.60E-05	3	5.98E-06	38%	Pass
89	0.352	8	1.60E-05	3	5.98E-06	38%	Pass
90	0.355	8	1.60E-05	2	3.99E-06	25%	Pass
91	0.358	8	1.60E-05	2	3.99E-06	25%	Pass
92	0.361	8	1.60E-05	2	3.99E-06	25%	Pass
93	0.363	8	1.60E-05	2	3.99E-06	25%	Pass
94	0.366	7	1.40E-05	2	3.99E-06	29%	Pass
95	0.369	7	1.40E-05	2	3.99E-06	29%	Pass
96	0.372	7	1.40E-05	2	3.99E-06	29%	Pass
97	0.375	6	1.20E-05	2	3.99E-06	33%	Pass
98	0.378	6	1.20E-05	2	3.99E-06	33%	Pass
99	0.381	6	1.20E-05	2	3.99E-06	33%	Pass
100	0.384	5	9.97E-06	2	3.99E-06	40%	Pass


Flow Duration Curves - BMP1
Flow (cfs)
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
1.0E-01
1.0E+00
% Time Exceeding
Pre-development Qpeak
Post-project Mitigated Qpeak



Peak Flow Frequency Curves - BMP1
Peak Flow (cfs)
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
0
1
2
3
4
5
6
7
8
9
10
Return Period in Years
Q10 (0.387 cfs)
Q5 (0.333 cfs)
Q2 (0.194 cfs)
Qlf (0.097 cfs)
Pre-development Qpeak
Post-project Mitigated Qpeak

RICK™
ENGINEERING COMPANY
5620 Friars Road
San Diego, CA 92110-2596

Tel: (619) 291-0707
Fax: (619) 291-4165

Date 11/09/2017
Job No. 13784fff
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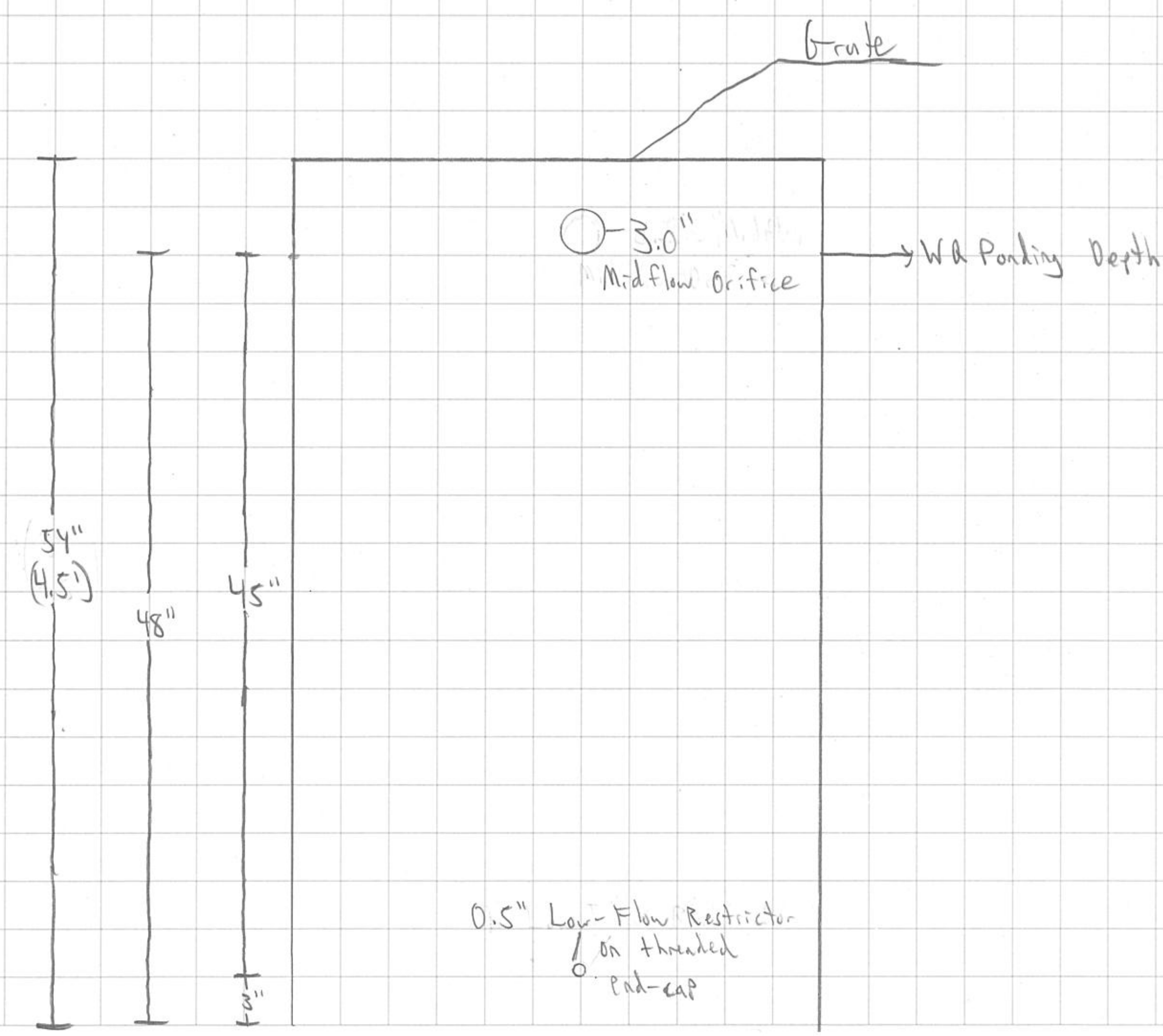
Done By J.C.
Checked By

Access Youth Academy : Outlet Works BMP-2



Orifice Equation Calculation

$Q_{orifice} = C_o * A * (2 * g * (H\text{-}h))^{0.5}$

Orifice Coefficient, C_o	0.6
g (ft/s2)	32.2
Increment (ft)	0.25

CIRCULAR OPENINGS	1 x 3" dia.	None	None	None	None	None
# of openings	1	0	0	0	0	0
Orifice Size (inches)	3	0	0	0	0	0

Flowline of Orifice (ft)	0	0	0	0	0	0

Flowline (ft)	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**Q (cfs)**	**TOTAL**
0.00	No Value	0.000	0.000	0.000	0.000	0.000	**0.000**
0.25	0.084	0.000	0.000	0.000	0.000	0.000	**0.084**
0.50	0.145	0.000	0.000	0.000	0.000	0.000	**0.145**
0.75	0.187	0.000	0.000	0.000	0.000	0.000	**0.187**
1.00	0.221	0.000	0.000	0.000	0.000	0.000	**0.221**
1.25	0.251	0.000	0.000	0.000	0.000	0.000	**0.251**
1.50	0.277	0.000	0.000	0.000	0.000	0.000	**0.277**
1.75	0.301	0.000	0.000	0.000	0.000	0.000	**0.301**
2.00	0.324	0.000	0.000	0.000	0.000	0.000	**0.324**
2.25	0.345	0.000	0.000	0.000	0.000	0.000	**0.345**
2.50	0.364	0.000	0.000	0.000	0.000	0.000	**0.364**
0.29	0.097	0.000	0.000	0.000	0.000	0.000	**0.097**
3.00	0.401	0.000	0.000	0.000	0.000	0.000	**0.401**

Drawdown Time Calculations - BMP 2

Note: Following data were obtained from TAPE 21 as resulted from HEC-1 analyses.

Each ordinate = 1 minutes

HMP_v (acre-feet)	0.011	@	WSEL (ft)	1.5	⟶	$Q_{out, max}$ at HMP (cfs)	10.011

Ordinate	*1st*	*2nd*	*3rd*	*4th*	*5th*	*6th*	*7th*	*8th*	*9th*	*10th*
0	10.011	0.057	0.054	0.051	0.048	0.045	0.043	0.04	0.038	0.036
10	0.034	0.032	0.03	0.028	0.027	0.025	0.024	0.022	0.021	0.02
20	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.012
30	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
40	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
50	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
60	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
70	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
80	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
90	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
100	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
110	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
120	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.011
130	0.011	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.009
140	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.008
150	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
160	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
170	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
180	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005
190	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
200	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004
210	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
220	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
230	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
240	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
250	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
260	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
270	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
280	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
290	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
300	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
310	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
320	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
330	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
340	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
350	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
360	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
370	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
380	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
390	0.001	0.001	0.001	0						

Drawdown Time to Basin Bottom (hours): **6.6** <96 HRs

```
[TITLE]
;;Project Title/Notes
13284fff Access Youth Academy

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           10/17/1948
START_TIME           08:00:00
REPORT_START_DATE    10/17/1948
REPORT_START_TIME    08:00:00
END_DATE             12/31/2005
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          0.06   0.08   0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- ------ ------ ----------
Lindbergh        INTENSITY 1:00     1.0      TIMESERIES TS-Lindbergh

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA2             Lindbergh        POC1             0.2      0        123      0.8      0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA2             0.012      0.15       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA2             9          0.025      0.33

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC1             0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
TS-Lindbergh     FILE "W:\WQ_DRN_LID_HMP-MunicipalityReferences\HMP\_SWMM\RainfallData_formatted\1hr\lindbergh.dat"

[REPORT]
;;Reporting Options
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None
```

```
[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC1             4282.103           4337.715

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA2             3513.650           6804.853
DMA2             3483.316           6006.067
DMA2             5262.892           5965.622
DMA2             5283.114           6956.522
DMA2             3473.205           6966.633

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Lindbergh        2563.195           7411.527
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)
--------------------------------------------------------------

13284fff Access Youth Academy

*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ OCT-17-1948 08:00:00
Ending Date .............. DEC-31-2005 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


**************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
**************************     ---------       -------
Total Precipitation ......         9.397       563.840
Evaporation Loss .........         0.303        18.180
Infiltration Loss ........         7.611       456.690
Surface Runoff ...........         1.626        97.571
Final Storage ............         0.000         0.000
Continuity Error (%) .....        -1.525


**************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         1.626         0.530
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         1.626         0.530
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000


***************************
Subcatchment Runoff Summary
***************************

--------------------------------------------------------------------------------------------------------
                            Total      Total      Total      Total      Total       Total     Peak  Runoff
                           Precip      Runon       Evap      Infil     Runoff      Runoff   Runoff   Coeff
Subcatchment                   in         in         in         in         in    10^6 gal      CFS
--------------------------------------------------------------------------------------------------------
DMA2                       563.84       0.00      18.18     456.69      97.57        0.53     0.26   0.173


Analysis begun on:  Thu Nov 09 07:50:29 2017
Analysis ended on:  Thu Nov 09 07:50:42 2017
Total elapsed time: 00:00:13
```

```
[TITLE]
;;Project Title/Notes
13284fff Access Youth Academy

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           10/17/1948
START_TIME           08:00:00
REPORT_START_DATE    10/17/1948
REPORT_START_TIME    08:00:00
END_DATE             12/31/2005
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          0.06   0.08   0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- ------ ------ ----------
Lindbergh        INTENSITY 1:00     1.0      TIMESERIES TS-Lindbergh

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA2             Lindbergh        BMP2             0.19509  85       50       0.8      0
BMP2             Lindbergh        DIV2             0.00491  0        4        0.01     0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA2             0.012      0.15       0.05       0.1        25         OUTLET
BMP2             0.012      0.15       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA2             9          0.01875    0.33
BMP2             9          0.025      0.33

[LID_CONTROLS]
;;Name           Type/Layer Parameters
;;-------------- ---------- ----------
BMP2             BC
BMP2             SURFACE    6.77       0.0        0          0          5
BMP2             SOIL       21         0.4        0.2        0.1        5          5          1.5
BMP2             STORAGE    12         0.67       0          0
BMP2             DRAIN      0.3858     0.5        0          6

[LID_USAGE]
;;Subcatchment   LID Process      Number  Area       Width      InitSat    FromImp    ToPerv     RptFile
 DrainTo
;;-------------- ---------------- ------- ---------- ---------- ---------- ---------- ----------
------------------------ ----------------
BMP2             BMP2             1       213.88     4          0          100        0

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC1             0          FREE                        NO
```

```
[DIVIDERS]
;;Name           Elevation  Diverted Link    Type       Parameters
;;-------------- ---------- ---------------- ---------- ----------
DIV2             0          bypass           CUTOFF     0.0118     0          0          0          0

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Name/Params            N/A      Fevap    Psi      Ksat
   IMD
;;-------------- -------- ---------- ----------- ---------- ---------------------------- -------- --------
-------- --------
STOR2            0        1          0          TABULAR    StorageCurve2                0        0

[CONDUITS]
;;Name           From Node        To Node          Length     Roughness  InOffset   OutOffset  InitFlow   MaxFlow
;;-------------- ---------------- ---------------- ---------- ---------- ---------- ---------- ---------- ----------
bypass           DIV2             STOR2            400        0.013      0          0          0          0
underdrain       DIV2             POC1             400        0.013      0          0          0          0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
Midflow          STOR2            POC1             0          TABULAR/DEPTH   RatingCurve2                NO

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels    Culvert
;;-------------- ------------ ---------------- ---------- ---------- ---------- ---------- ----------
bypass           DUMMY        0                0          0          0          1
underdrain       DUMMY        0                0          0          0          1

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
RatingCurve2     Rating     0.00       0.000
RatingCurve2                0.25       0.084
RatingCurve2                0.50       0.145
RatingCurve2                0.75       3.647
RatingCurve2                1.00       10.011
;
StorageCurve2    Storage    0          269
StorageCurve2               0.25       298
StorageCurve2               0.5        326
StorageCurve2               0.75       356
StorageCurve2               1          385

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
TS-Lindbergh     FILE "W:\WQ_DRN_LID_HMP-MunicipalityReferences\HMP\_SWMM\RainfallData_formatted\1hr\lindbergh.dat"

[REPORT]
;;Reporting Options
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC1             4282.103           4337.715
DIV2             4302.326           5621.840
STOR2            3402.427           5662.285

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA2             3513.650           6804.853
DMA2             3483.316           6006.067
DMA2             5262.892           5965.622
DMA2             5283.114           6956.522
DMA2             3473.205           6966.633
BMP2             4777.553           5682.508
BMP2             5879.676           5773.509
BMP2             5829.120           5328.615
BMP2             4797.776           5358.948
BMP2             4777.553           5722.952

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
```

Lindbergh	2563.195	7411.527

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)
--------------------------------------------------------------

13284fff Access Youth Academy
WARNING 04: minimum elevation drop used for Conduit bypass
WARNING 04: minimum elevation drop used for Conduit underdrain

*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... KINWAVE
Starting Date ............ OCT-17-1948 08:00:00
Ending Date .............. DEC-31-2005 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00
Routing Time Step ........ 60.00 sec


**************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
**************************     ---------       -------
Initial LID Storage ......         0.001         0.052
Total Precipitation ......         9.397       563.840
Evaporation Loss .........         1.933       115.953
Infiltration Loss ........         1.040        62.371
Surface Runoff ...........         0.872        52.301
LID Drainage .............         5.651       339.088
Final Storage ............         0.002         0.141
Continuity Error (%) .....        -1.057


**************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         6.523         2.126
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         6.523         2.125
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.008


********************************
Highest Flow Instability Indexes
********************************
All links are stable.


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :    60.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     1.00
Percent Not Converging      :     0.00


***************************
Subcatchment Runoff Summary
***************************

--------------------------------------------------------------------------------------------------------
                             Total       Total       Total       Total       Total       Total     Peak  Runoff
                            Precip       Runon        Evap       Infil      Runoff      Runoff   Runoff   Coeff
```

Subcatchment	in	in	in	in	in	10^6 gal	CFS	
DMA2	563.84	0.00	95.68	63.94	410.31	2.17	0.27	0.728
BMP2	563.84	16302.73	921.65	0.00	15942.54	2.13	0.25	0.945

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
BMP2	BMP2	16866.57	921.68	0.00	2130.48	13812.62	2.10	4.48	-0.00

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
POC1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
DIV2	DIVIDER	0.00	0.00	0.00	0 00:00	0.00
STOR2	STORAGE	0.00	0.51	0.51	6263 00:53	0.51

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
POC1	OUTFALL	0.00	0.26	6263 00:53	0	2.13	0.000
DIV2	DIVIDER	0.25	0.25	6263 01:01	2.13	2.13	0.000
STOR2	STORAGE	0.00	0.24	6263 01:01	0	0.274	0.060

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
DIV2	DIVIDER	501471.00	0.000	0.000
STOR2	STORAGE	501471.00	0.508	0.492

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR2	0.000	0	0	0	0.152	46	6263 00:56	0.25

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
POC1	2.55	0.01	0.26	2.125
System	2.55	0.01	0.26	2.125

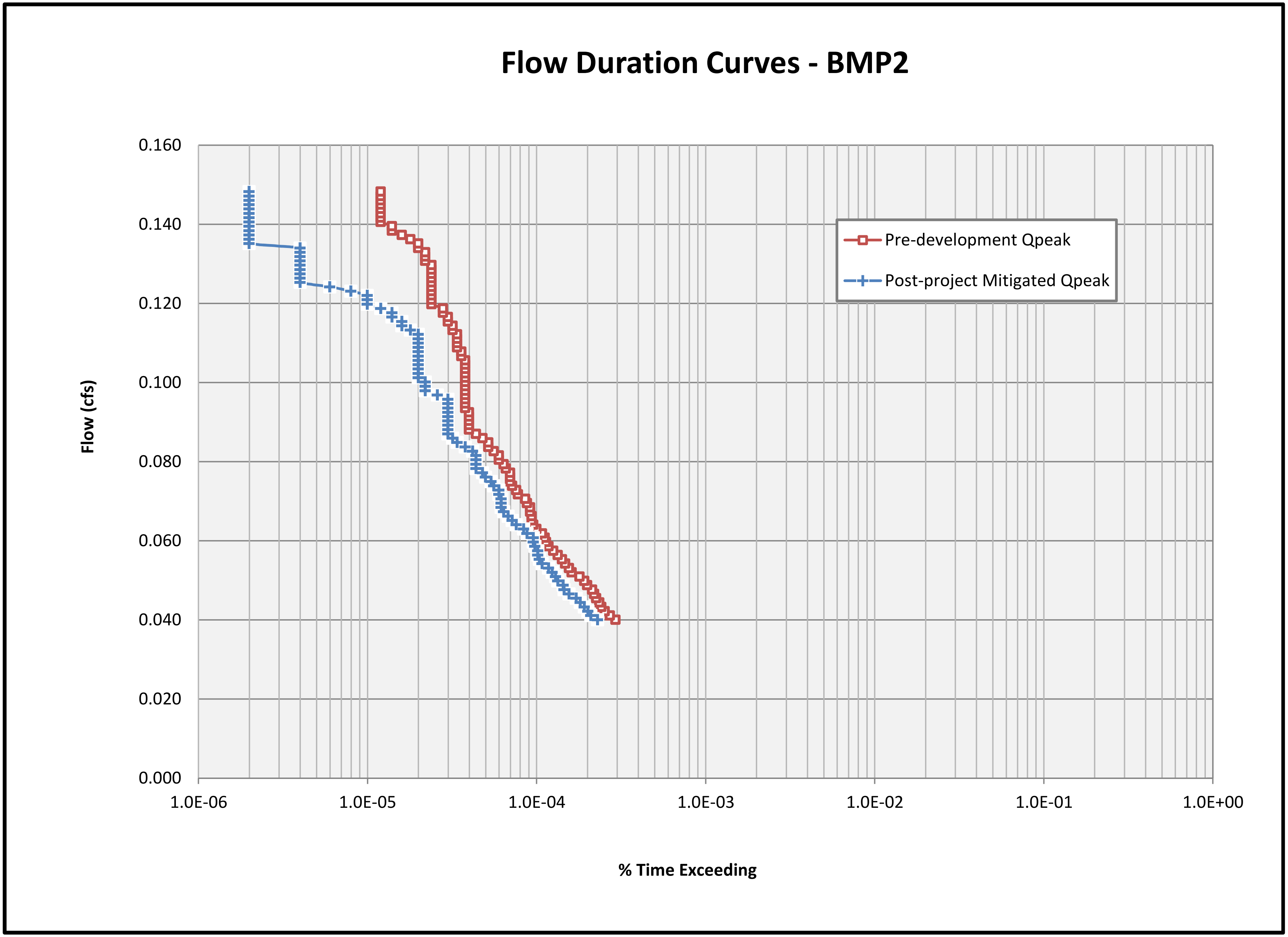
```
********************
Link Flow Summary
********************

-----------------------------------------------------------------------------
                               Maximum  Time of Max   Maximum    Max/    Max/
                                |Flow|   Occurrence   |Veloc|    Full    Full
Link                 Type          CFS  days hr:min    ft/sec    Flow   Depth
-----------------------------------------------------------------------------
bypass               DUMMY        0.24  6263  01:01
underdrain           DUMMY        0.01   389  04:05
Midflow              DUMMY        0.25  6263  00:53

*************************
Conduit Surcharge Summary
*************************

No conduits were surcharged.


Analysis begun on:  Thu Nov 09 08:57:26 2017
Analysis ended on:  Thu Nov 09 08:57:56 2017
Total elapsed time: 00:00:30
```

Low-flow Threshold:	50%	
0.5xQ2 (Pre):	0.040	cfs
Q10 (Pre):	0.149	cfs
Ordinate #:	100	
Incremental Q (Pre):	0.00109	cfs
Total Hourly Data:	501471	hours

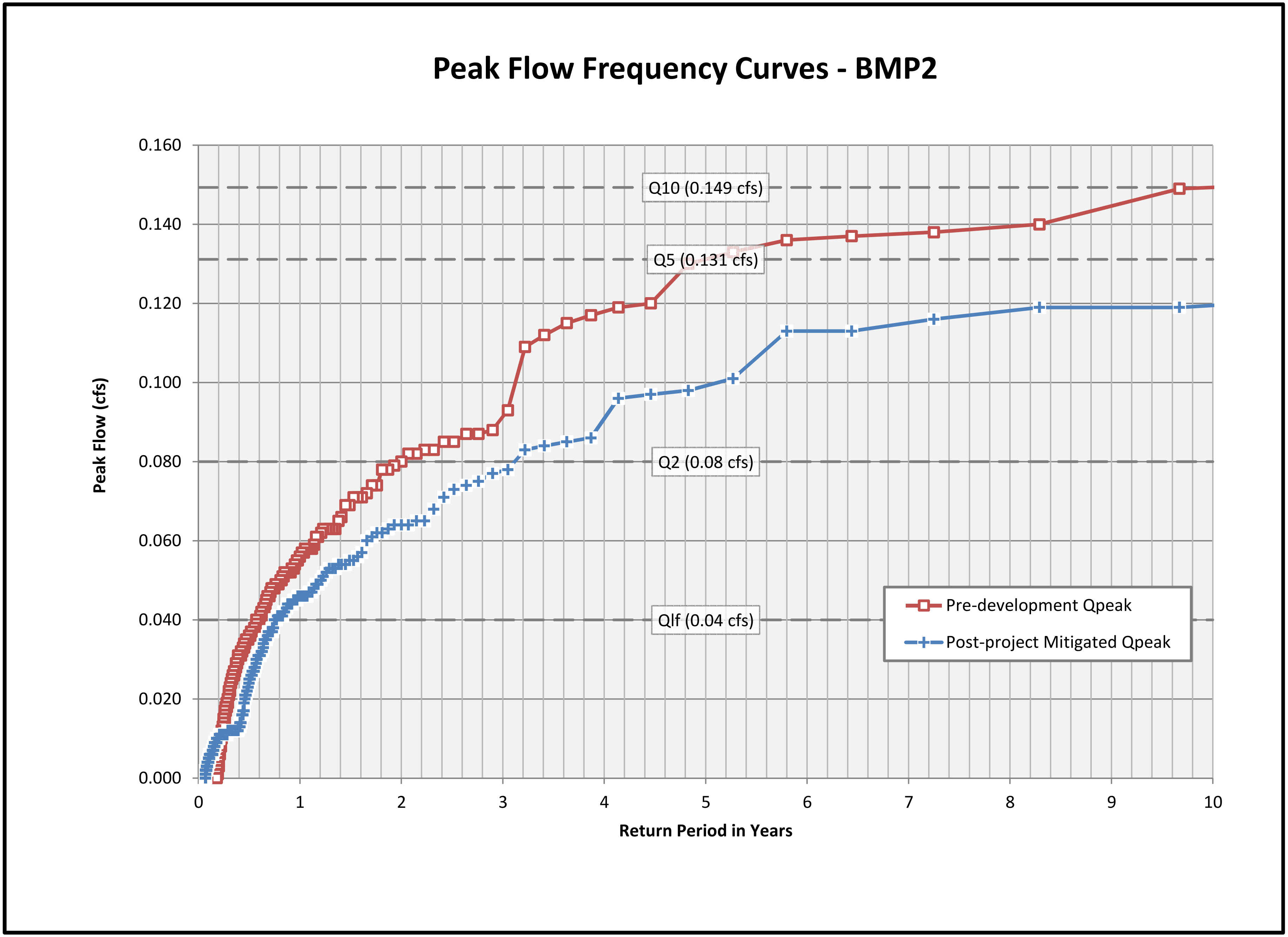
The proposed BMP: PASSED

Beginning of Interval	Pre-develop. Flow (cfs)	Pre-develop. Hours	Pre-develop. % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
1	0.040	147	2.93E-04	115	2.29E-04	78%	Pass
2	0.041	136	2.71E-04	105	2.09E-04	77%	Pass
3	0.042	127	2.53E-04	101	2.01E-04	80%	Pass
4	0.043	121	2.41E-04	96	1.91E-04	79%	Pass
5	0.044	118	2.35E-04	91	1.81E-04	77%	Pass
6	0.045	113	2.25E-04	86	1.71E-04	76%	Pass
7	0.047	110	2.19E-04	78	1.56E-04	71%	Pass
8	0.048	107	2.13E-04	73	1.46E-04	68%	Pass
9	0.049	100	1.99E-04	72	1.44E-04	72%	Pass
10	0.050	96	1.91E-04	67	1.34E-04	70%	Pass
11	0.051	90	1.79E-04	65	1.30E-04	72%	Pass
12	0.052	81	1.62E-04	62	1.24E-04	77%	Pass
13	0.053	78	1.56E-04	59	1.18E-04	76%	Pass
14	0.054	74	1.48E-04	54	1.08E-04	73%	Pass
15	0.055	71	1.42E-04	52	1.04E-04	73%	Pass
16	0.056	67	1.34E-04	51	1.02E-04	76%	Pass
17	0.057	63	1.26E-04	51	1.02E-04	81%	Pass
18	0.059	59	1.18E-04	49	9.77E-05	83%	Pass
19	0.060	57	1.14E-04	48	9.57E-05	84%	Pass
20	0.061	56	1.12E-04	48	9.57E-05	86%	Pass
21	0.062	54	1.08E-04	44	8.77E-05	81%	Pass
22	0.063	50	9.97E-05	42	8.38E-05	84%	Pass
23	0.064	48	9.57E-05	38	7.58E-05	79%	Pass
24	0.065	47	9.37E-05	36	7.18E-05	77%	Pass
25	0.066	47	9.37E-05	34	6.78E-05	72%	Pass
26	0.067	46	9.17E-05	32	6.38E-05	70%	Pass
27	0.068	46	9.17E-05	31	6.18E-05	67%	Pass
28	0.070	44	8.77E-05	31	6.18E-05	70%	Pass
29	0.071	43	8.57E-05	31	6.18E-05	72%	Pass
30	0.072	39	7.78E-05	30	5.98E-05	77%	Pass
31	0.073	38	7.58E-05	30	5.98E-05	79%	Pass
32	0.074	36	7.18E-05	28	5.58E-05	78%	Pass
33	0.075	35	6.98E-05	27	5.38E-05	77%	Pass
34	0.076	35	6.98E-05	25	4.99E-05	71%	Pass
35	0.077	35	6.98E-05	24	4.79E-05	69%	Pass
36	0.078	33	6.58E-05	22	4.39E-05	67%	Pass
37	0.079	32	6.38E-05	22	4.39E-05	69%	Pass
38	0.080	30	5.98E-05	22	4.39E-05	73%	Pass
39	0.082	30	5.98E-05	22	4.39E-05	73%	Pass
40	0.083	28	5.58E-05	21	4.19E-05	75%	Pass
41	0.084	26	5.18E-05	19	3.79E-05	73%	Pass
42	0.085	26	5.18E-05	17	3.39E-05	65%	Pass
43	0.086	24	4.79E-05	16	3.19E-05	67%	Pass
44	0.087	22	4.39E-05	15	2.99E-05	68%	Pass
45	0.088	20	3.99E-05	15	2.99E-05	75%	Pass
46	0.089	20	3.99E-05	15	2.99E-05	75%	Pass
47	0.090	20	3.99E-05	15	2.99E-05	75%	Pass
48	0.091	20	3.99E-05	15	2.99E-05	75%	Pass
49	0.092	20	3.99E-05	15	2.99E-05	75%	Pass
50	0.094	19	3.79E-05	15	2.99E-05	79%	Pass
51	0.095	19	3.79E-05	15	2.99E-05	79%	Pass
52	0.096	19	3.79E-05	15	2.99E-05	79%	Pass

Beginning of Interval	Pre-develop. Flow (cfs)	Pre-develop. Hours	Pre-develop. % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
53	0.097	19	3.79E-05	13	2.59E-05	68%	Pass
54	0.098	19	3.79E-05	11	2.19E-05	58%	Pass
55	0.099	19	3.79E-05	11	2.19E-05	58%	Pass
56	0.100	19	3.79E-05	11	2.19E-05	58%	Pass
57	0.101	19	3.79E-05	10	1.99E-05	53%	Pass
58	0.102	19	3.79E-05	10	1.99E-05	53%	Pass
59	0.103	19	3.79E-05	10	1.99E-05	53%	Pass
60	0.105	19	3.79E-05	10	1.99E-05	53%	Pass
61	0.106	19	3.79E-05	10	1.99E-05	53%	Pass
62	0.107	18	3.59E-05	10	1.99E-05	56%	Pass
63	0.108	18	3.59E-05	10	1.99E-05	56%	Pass
64	0.109	17	3.39E-05	10	1.99E-05	59%	Pass
65	0.110	17	3.39E-05	10	1.99E-05	59%	Pass
66	0.111	17	3.39E-05	10	1.99E-05	59%	Pass
67	0.112	17	3.39E-05	10	1.99E-05	59%	Pass
68	0.113	16	3.19E-05	9	1.79E-05	56%	Pass
69	0.114	16	3.19E-05	8	1.60E-05	50%	Pass
70	0.115	15	2.99E-05	8	1.60E-05	53%	Pass
71	0.117	15	2.99E-05	7	1.40E-05	47%	Pass
72	0.118	14	2.79E-05	7	1.40E-05	50%	Pass
73	0.119	14	2.79E-05	6	1.20E-05	43%	Pass
74	0.120	12	2.39E-05	5	9.97E-06	42%	Pass
75	0.121	12	2.39E-05	5	9.97E-06	42%	Pass
76	0.122	12	2.39E-05	5	9.97E-06	42%	Pass
77	0.123	12	2.39E-05	4	7.98E-06	33%	Pass
78	0.124	12	2.39E-05	3	5.98E-06	25%	Pass
79	0.125	12	2.39E-05	2	3.99E-06	17%	Pass
80	0.126	12	2.39E-05	2	3.99E-06	17%	Pass
81	0.127	12	2.39E-05	2	3.99E-06	17%	Pass
82	0.129	12	2.39E-05	2	3.99E-06	17%	Pass
83	0.130	12	2.39E-05	2	3.99E-06	17%	Pass
84	0.131	11	2.19E-05	2	3.99E-06	18%	Pass
85	0.132	11	2.19E-05	2	3.99E-06	18%	Pass
86	0.133	11	2.19E-05	2	3.99E-06	18%	Pass
87	0.134	10	1.99E-05	2	3.99E-06	20%	Pass
88	0.135	10	1.99E-05	1	1.99E-06	10%	Pass
89	0.136	9	1.79E-05	1	1.99E-06	11%	Pass
90	0.137	8	1.60E-05	1	1.99E-06	13%	Pass
91	0.138	7	1.40E-05	1	1.99E-06	14%	Pass
92	0.140	7	1.40E-05	1	1.99E-06	14%	Pass
93	0.141	6	1.20E-05	1	1.99E-06	17%	Pass
94	0.142	6	1.20E-05	1	1.99E-06	17%	Pass
95	0.143	6	1.20E-05	1	1.99E-06	17%	Pass
96	0.144	6	1.20E-05	1	1.99E-06	17%	Pass
97	0.145	6	1.20E-05	1	1.99E-06	17%	Pass
98	0.146	6	1.20E-05	1	1.99E-06	17%	Pass
99	0.147	6	1.20E-05	1	1.99E-06	17%	Pass
100	0.148	6	1.20E-05	1	1.99E-06	17%	Pass



Flow Duration Curves - BMP2
Pre-development Qpeak
Post-project Mitigated Qpeak
Flow (cfs)
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
1.0E-01
1.0E+00
% Time Exceeding


Peak Flow Frequency Curves - BMP2
Peak Flow (cfs)
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
0
1
2
3
4
5
6
7
8
9
10
Return Period in Years
Q10 (0.149 cfs)
Q5 (0.131 cfs)
Q2 (0.08 cfs)
Qlf (0.04 cfs)
Pre-development Qpeak
Post-project Mitigated Qpeak

```
[TITLE]
;;Project Title/Notes
13284fff Access Youth Academy

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           10/17/1948
START_TIME           08:00:00
REPORT_START_DATE    10/17/1948
REPORT_START_TIME    08:00:00
END_DATE             12/31/2005
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          0.06   0.08   0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- ------ ------ ----------
Lindbergh        INTENSITY 1:00     1.0      TIMESERIES TS-Lindbergh

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA1             Lindbergh        POC1             0.6      0        132      0.9      0
DMA2             Lindbergh        POC1             0.2      0        123      0.8      0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA1             0.012      0.15       0.05       0.1        25         OUTLET
DMA2             0.012      0.15       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA1             9          0.025      0.33
DMA2             9          0.025      0.33

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC1             0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
TS-Lindbergh     FILE "W:\WQ_DRN_LID_HMP-MunicipalityReferences\HMP\_SWMM\RainfallData_formatted\1hr\lindbergh.dat"

[REPORT]
;;Reporting Options
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
```

```
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC1             4282.103           4337.715

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA1             3513.650           6804.853
DMA1             3483.316           6006.067
DMA1             5262.892           5965.622
DMA1             5283.114           6956.522
DMA1             3473.205           6966.633
DMA2             5980.789           5995.956
DMA2             6011.122           6885.743
DMA2             8023.256           6905.966
DMA2             8043.478           5884.732
DMA2             5930.233           5925.177

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Lindbergh        2563.195           7411.527
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)
--------------------------------------------------------------

13284fff Access Youth Academy

*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ OCT-17-1948 08:00:00
Ending Date .............. DEC-31-2005 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


**************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
**************************     ---------       -------
Total Precipitation ......        37.589       563.840
Evaporation Loss .........         1.248        18.723
Infiltration Loss ........        30.812       462.186
Surface Runoff ...........         6.061        90.922
Final Storage ............         0.000         0.000
Continuity Error (%) .....        -1.417


**************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         6.061         1.975
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         6.061         1.975
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000


***************************
Subcatchment Runoff Summary
***************************

--------------------------------------------------------------------------------------------------------
                            Total      Total      Total      Total      Total       Total     Peak  Runoff
                           Precip      Runon       Evap      Infil     Runoff      Runoff   Runoff   Coeff
Subcatchment                   in         in         in         in         in    10^6 gal      CFS
--------------------------------------------------------------------------------------------------------
DMA1                       563.84       0.00      18.82     464.12      88.70        1.45     0.73   0.157
DMA2                       563.84       0.00      18.42     456.38      97.58        0.53     0.26   0.173


Analysis begun on:  Thu Nov 09 09:31:17 2017
Analysis ended on:  Thu Nov 09 09:31:31 2017
Total elapsed time: 00:00:14
```

```
[TITLE]
;;Project Title/Notes
13284fff Access Youth Academy

[OPTIONS]
;;Option             Value
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
LINK_OFFSETS         DEPTH
MIN_SLOPE            0
ALLOW_PONDING        NO
SKIP_STEADY_STATE    NO

START_DATE           10/17/1948
START_TIME           08:00:00
REPORT_START_DATE    10/17/1948
REPORT_START_TIME    08:00:00
END_DATE             12/31/2005
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         12.557
MAX_TRIALS           8
HEAD_TOLERANCE       0.005
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              1

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
MONTHLY          0.06   0.08   0.11   0.15   0.17   0.19   0.19   0.18   0.15   0.11   0.08   0.06
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- ------ ------ ----------
Lindbergh        INTENSITY 1:00     1.0      TIMESERIES TS-Lindbergh

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- ----------------
DMA1             Lindbergh        BMP1             0.58338  83       79       0.9      0
BMP1             Lindbergh        DIV1             0.01662  0        6.0      0        0
DMA2             Lindbergh        BMP2             0.19509  85       50       0.8      0
BMP2             Lindbergh        DIV2             0.00491  0        4        0        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA1             0.012      0.15       0.05       0.1        25         OUTLET
BMP1             0.012      0.15       0.05       0.1        25         OUTLET
DMA2             0.012      0.15       0.05       0.1        25         OUTLET
BMP2             0.012      0.15       0.05       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    Ksat       IMD
;;-------------- ---------- ---------- ----------
DMA1             9          0.01875    0.33
BMP1             9          0.025      0.33
DMA2             9          0.01875    0.33
BMP2             9          0.025      0.33

[LID_CONTROLS]
;;Name           Type/Layer Parameters
;;-------------- ---------- ----------
BMP1             BC
BMP1             SURFACE    6.00       0          0          0          5
BMP1             SOIL       33         0.4        0.2        0.1        5          5          1.5
BMP1             STORAGE    12         0.67       0          0
BMP1             DRAIN      0.1140     0.5        0          6

BMP2             BC
BMP2             SURFACE    6.77       0.0        0          0          5
BMP2             SOIL       21         0.4        0.2        0.1        5          5          1.5
BMP2             STORAGE    12         0.67       0          0
BMP2             DRAIN      0.3858     0.5        0          6
```

```
[LID_USAGE]
;;Subcatchment   LID Process      Number  Area       Width      InitSat    FromImp    ToPerv     RptFile
 DrainTo
;;-------------- ---------------- ------- ---------- ---------- ---------- ---------- ----------
------------------------ ----------------
BMP1             BMP1             1       723.97     6.0        0          100        0
BMP2             BMP2             1       213.88     4          0          100        0

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
POC1             0          FREE                        NO

[DIVIDERS]
;;Name           Elevation  Diverted Link    Type       Parameters
;;-------------- ---------- ---------------- ---------- ----------
DIV1             0          bypass           CUTOFF     0.0135     0          0          0          0
DIV2             0          bypass2          CUTOFF     0.0118     0          0          0          0

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Name/Params            N/A      Fevap    Psi      Ksat
   IMD
;;-------------- -------- ---------- ----------- ---------- ---------------------------- -------- --------
-------- --------
STOR1            0        1          0          TABULAR    StorageCurve1                0        0
STOR2            0        1          0          TABULAR    StorageCurve2                0        0

[CONDUITS]
;;Name           From Node        To Node          Length     Roughness  InOffset   OutOffset  InitFlow   MaxFlow
;;-------------- ---------------- ---------------- ---------- ---------- ---------- ---------- ---------- ----------
bypass           DIV1             STOR1            400        0.013      0          0          0          0
1                DIV1             POC1             400        0.013      0          0          0          0
bypass2          DIV2             STOR2            400        0.013      0          0          0          0
2                DIV2             POC1             400        0.013      0          0          0          0

[OUTLETS]
;;Name           From Node        To Node          Offset     Type            QTable/Qcoeff    Qexpon     Gated
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- --------
Midflow          STOR1            POC1             0          TABULAR/DEPTH   RatingCurve1                NO
Midflow2         STOR2            POC1             0          TABULAR/DEPTH   RatingCurve2                NO

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels    Culvert
;;-------------- ------------ ---------------- ---------- ---------- ---------- ---------- ----------
bypass           DUMMY        0                0          0          0          1
1                DUMMY        0                0          0          0          1
bypass2          DUMMY        0                0          0          0          1
2                DUMMY        0                0          0          0          1

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
RatingCurve1     Rating     0.00       0.000
RatingCurve1                0.50       0.191
RatingCurve1                0.75       0.490
RatingCurve1                1.00       4.657
;
RatingCurve2     Rating     0.00       0.000
RatingCurve2                0.25       0.084
RatingCurve2                0.50       0.145
RatingCurve2                0.75       3.647
RatingCurve2                1.00       10.011
;
StorageCurve1    Storage    0          724
StorageCurve1               0.25       724
StorageCurve1               0.5        724
StorageCurve1               0.75       724
StorageCurve1               1          724
;
StorageCurve2    Storage    0          269
StorageCurve2               0.25       298
StorageCurve2               0.5        326
StorageCurve2               0.75       356
StorageCurve2               1          385

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
TS-Lindbergh     FILE "W:\WQ_DRN_LID_HMP-MunicipalityReferences\HMP\_SWMM\RainfallData_formatted\1hr\lindbergh.dat"

[REPORT]
;;Reporting Options
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
```

```
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC1             4282.103           4337.715
DIV1             4474.216           5621.840
DIV2             298.281            5005.056
STOR1            3634.985           5652.174
STOR2            1056.623           5035.389

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA1             3513.650           6804.853
DMA1             3483.316           6006.067
DMA1             5262.892           5965.622
DMA1             5283.114           6956.522
DMA1             3473.205           6966.633
BMP1             4858.443           5803.842
BMP1             5606.673           5793.731
BMP1             5586.451           5318.504
BMP1             4777.553           5348.837
BMP1             4767.442           5834.176
DMA2             1845.298           6875.632
DMA2             1865.521           5975.733
DMA2             55.612             5975.733
DMA2             65.723             7027.300
DMA2             1875.632           6976.744
BMP2             844.287            5702.730
BMP2             1076.845           5733.064
BMP2             1086.957           5288.170
BMP2             156.724            5267.947
BMP2             166.835            5682.508
BMP2             763.397            5682.508

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Lindbergh        2563.195           7411.527
```

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.010)
--------------------------------------------------------------

13284fff Access Youth Academy
WARNING 04: minimum elevation drop used for Conduit bypass
WARNING 04: minimum elevation drop used for Conduit 1
WARNING 04: minimum elevation drop used for Conduit bypass2
WARNING 04: minimum elevation drop used for Conduit 2

*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... KINWAVE
Starting Date ............ OCT-17-1948 08:00:00
Ending Date .............. DEC-31-2005 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00
Routing Time Step ........ 60.00 sec

**************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
**************************     ---------       -------
Initial LID Storage ......         0.005         0.081
Total Precipitation ......        37.589       563.840
Evaporation Loss .........         8.079       121.184
Infiltration Loss ........         4.594        68.905
Surface Runoff ...........         4.517        67.760
LID Drainage .............        20.727       310.903
Final Storage ............         0.013         0.191
Continuity Error (%) .....        -0.891

**************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        25.244         8.226
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        25.240         8.225
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.016

********************************
Highest Flow Instability Indexes
********************************
All links are stable.

*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     60.00 sec
Average Time Step           :     60.00 sec
Maximum Time Step           :     60.00 sec
Percent in Steady State     :      0.00
Average Iterations per Step :      1.00
Percent Not Converging      :      0.00

***************************
Subcatchment Runoff Summary
***************************
```

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Total Runoff 10^6 gal	Peak Runoff CFS	Runoff Coeff
DMA1	563.84	0.00	95.91	73.11	399.64	6.33	0.79	0.709
BMP1	563.84	14027.63	1071.34	0.00	13517.03	6.10	0.82	0.926
DMA2	563.84	0.00	95.68	63.94	410.31	2.17	0.27	0.728
BMP2	563.84	16302.73	921.65	0.00	15942.54	2.13	0.25	0.945

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Initial Storage in	Final Storage in	Continuity Error %
BMP1	BMP1	14591.47	1071.37	0.00	2632.33	10885.15	3.30	6.36	-0.00
BMP2	BMP2	16866.57	921.68	0.00	2130.48	13812.62	2.10	4.48	-0.00

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
POC1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
DIV1	DIVIDER	0.00	0.00	0.00	0 00:00	0.00
DIV2	DIVIDER	0.00	0.00	0.00	0 00:00	0.00
STOR1	STORAGE	0.00	0.77	0.77	6263 01:02	0.77
STOR2	STORAGE	0.00	0.51	0.51	6263 00:53	0.51

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
POC1	OUTFALL	0.00	1.07	6263 01:02	0	8.22	0.000
DIV1	DIVIDER	0.82	0.82	6263 01:01	6.1	6.1	0.000
DIV2	DIVIDER	0.25	0.25	6263 01:01	2.13	2.13	0.000
STOR1	STORAGE	0.00	0.80	6263 01:01	0	1.18	0.096
STOR2	STORAGE	0.00	0.24	6263 01:01	0	0.274	0.060

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
DIV1	DIVIDER	501471.00	0.000	0.000
DIV2	DIVIDER	501471.00	0.000	0.000
STOR1	STORAGE	501471.00	0.769	0.231
STOR2	STORAGE	501471.00	0.508	0.492

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft3	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR1	0.000	0	0	0	0.557	77	6263 01:01	0.80
STOR2	0.000	0	0	0	0.152	46	6263 00:56	0.25

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
POC1	5.90	0.01	1.07	8.224
System	5.90	0.01	1.07	8.224

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
bypass	DUMMY	0.80	6263 01:01			
1	DUMMY	0.01	389 04:01			
bypass2	DUMMY	0.24	6263 01:01			
2	DUMMY	0.01	389 04:05			
Midflow	DUMMY	0.80	6263 01:02			
Midflow2	DUMMY	0.25	6263 00:53			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Nov 29 13:33:42 2017
Analysis ended on: Wed Nov 29 13:34:24 2017
Total elapsed time: 00:00:42

Access Youth Academy
13284fff
11/29/2017

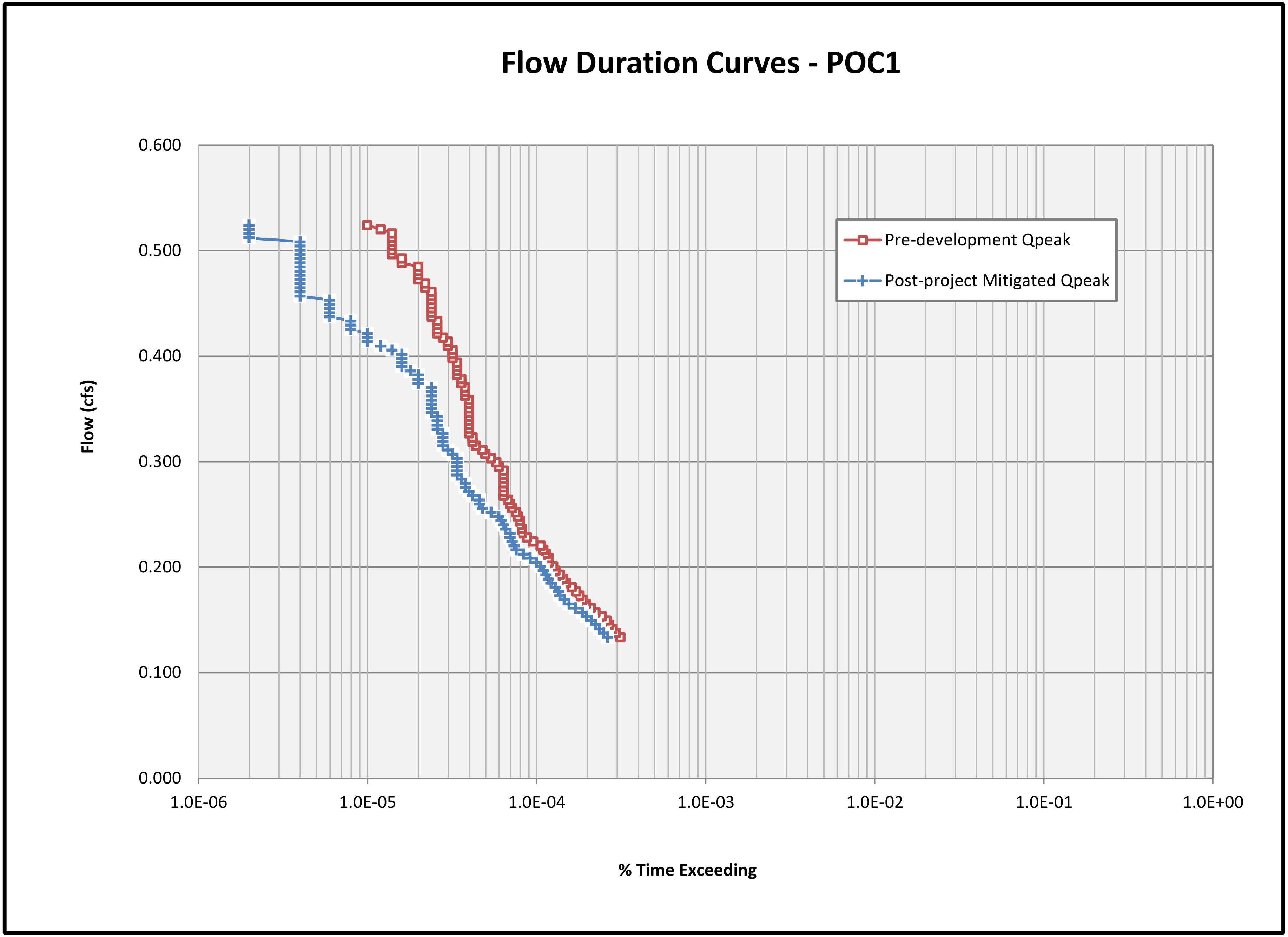
[POC 1]

Low-flow Threshold:	50%	
0.5xQ2 (Pre):	0.134	cfs
Q10 (Pre):	0.528	cfs
Ordinate #:	100	
Incremental Q (Pre):	0.00395	cfs
Total Hourly Data:	501471	hours

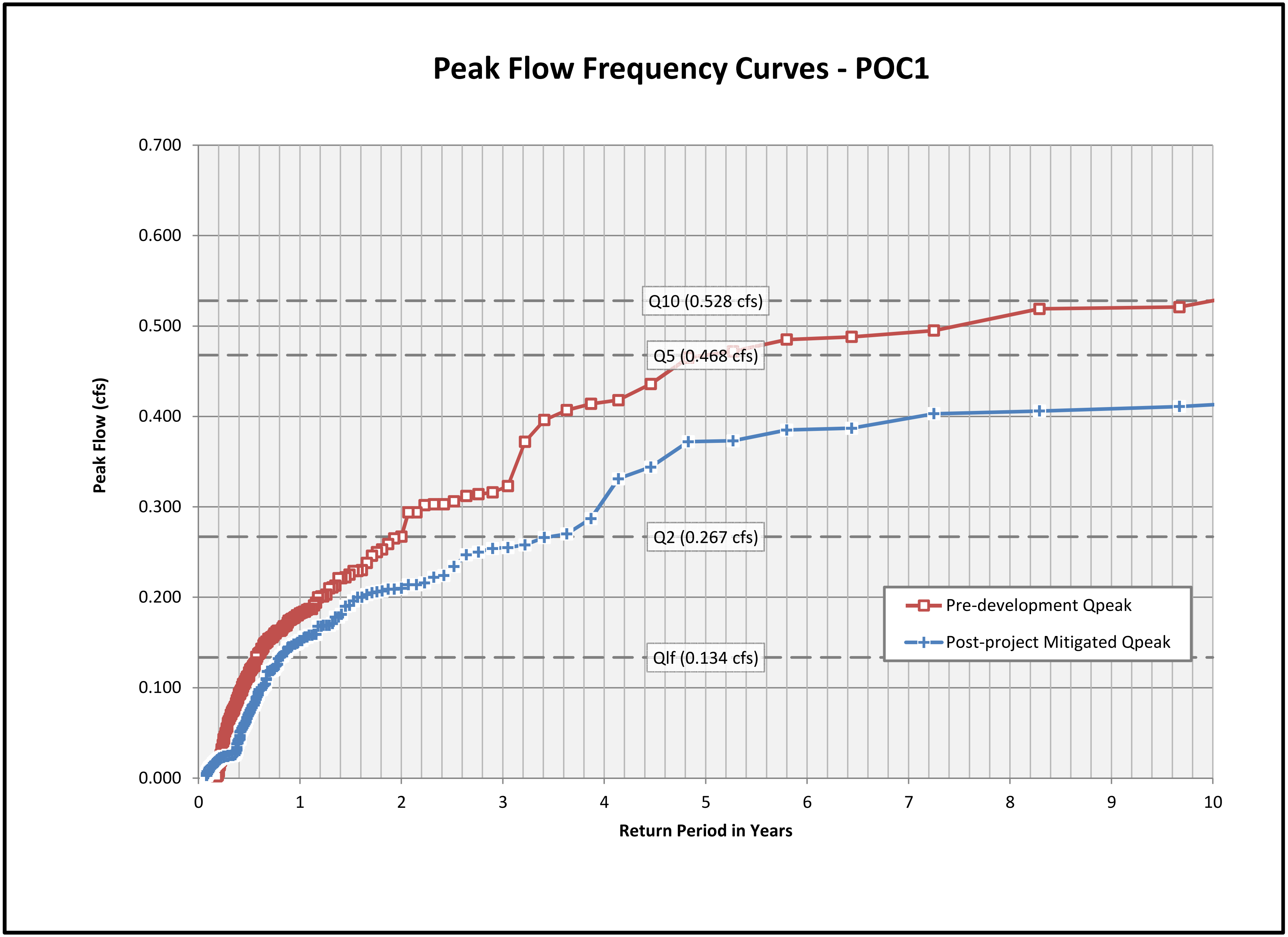
The proposed BMP: PASSED

Beginning of Interval	Pre-develop. Flow (cfs)	Pre-develop. Hours	Pre-develop. % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
1	0.134	157	3.13E-04	132	2.63E-04	84%	Pass
2	0.137	148	2.95E-04	125	2.49E-04	84%	Pass
3	0.141	141	2.81E-04	118	2.35E-04	84%	Pass
4	0.145	135	2.69E-04	112	2.23E-04	83%	Pass
5	0.149	130	2.59E-04	106	2.11E-04	82%	Pass
6	0.153	122	2.43E-04	99	1.97E-04	81%	Pass
7	0.157	112	2.23E-04	94	1.87E-04	84%	Pass
8	0.161	105	2.09E-04	85	1.70E-04	81%	Pass
9	0.165	98	1.95E-04	78	1.56E-04	80%	Pass
10	0.169	94	1.87E-04	73	1.46E-04	78%	Pass
11	0.173	90	1.79E-04	69	1.38E-04	77%	Pass
12	0.177	86	1.71E-04	68	1.36E-04	79%	Pass
13	0.181	81	1.62E-04	65	1.30E-04	80%	Pass
14	0.185	75	1.50E-04	61	1.22E-04	81%	Pass
15	0.189	72	1.44E-04	59	1.18E-04	82%	Pass
16	0.193	69	1.38E-04	57	1.14E-04	83%	Pass
17	0.197	65	1.30E-04	55	1.10E-04	85%	Pass
18	0.201	63	1.26E-04	53	1.06E-04	84%	Pass
19	0.205	59	1.18E-04	50	9.97E-05	85%	Pass
20	0.208	59	1.18E-04	46	9.17E-05	78%	Pass
21	0.212	57	1.14E-04	42	8.38E-05	74%	Pass
22	0.216	55	1.10E-04	38	7.58E-05	69%	Pass
23	0.220	53	1.06E-04	37	7.38E-05	70%	Pass
24	0.224	48	9.57E-05	36	7.18E-05	75%	Pass
25	0.228	44	8.77E-05	35	6.98E-05	80%	Pass
26	0.232	41	8.18E-05	35	6.98E-05	85%	Pass
27	0.236	41	8.18E-05	33	6.58E-05	80%	Pass
28	0.240	40	7.98E-05	32	6.38E-05	80%	Pass
29	0.244	40	7.98E-05	31	6.18E-05	78%	Pass
30	0.248	39	7.78E-05	30	5.98E-05	77%	Pass
31	0.252	38	7.58E-05	27	5.38E-05	71%	Pass
32	0.256	36	7.18E-05	24	4.79E-05	67%	Pass
33	0.260	35	6.98E-05	23	4.59E-05	66%	Pass
34	0.264	34	6.78E-05	23	4.59E-05	68%	Pass
35	0.268	32	6.38E-05	21	4.19E-05	66%	Pass
36	0.272	32	6.38E-05	20	3.99E-05	63%	Pass
37	0.276	32	6.38E-05	19	3.79E-05	59%	Pass
38	0.279	32	6.38E-05	19	3.79E-05	59%	Pass
39	0.283	32	6.38E-05	18	3.59E-05	56%	Pass
40	0.287	32	6.38E-05	17	3.39E-05	53%	Pass
41	0.291	32	6.38E-05	17	3.39E-05	53%	Pass
42	0.295	30	5.98E-05	17	3.39E-05	57%	Pass
43	0.299	29	5.78E-05	17	3.39E-05	59%	Pass
44	0.303	27	5.38E-05	17	3.39E-05	63%	Pass
45	0.307	25	4.99E-05	16	3.19E-05	64%	Pass
46	0.311	24	4.79E-05	15	2.99E-05	63%	Pass
47	0.315	22	4.39E-05	14	2.79E-05	64%	Pass
48	0.319	21	4.19E-05	14	2.79E-05	67%	Pass
49	0.323	21	4.19E-05	14	2.79E-05	67%	Pass
50	0.327	20	3.99E-05	14	2.79E-05	70%	Pass
51	0.331	20	3.99E-05	13	2.59E-05	65%	Pass
52	0.335	20	3.99E-05	13	2.59E-05	65%	Pass

Beginning of Interval	Pre-develop. Flow (cfs)	Pre-develop. Hours	Pre-develop. % Time Exceeding	Post-project Hours	Post-project % Time Exceeding	Percentage	Pass/Fail
53	0.339	20	3.99E-05	13	2.59E-05	65%	Pass
54	0.343	20	3.99E-05	13	2.59E-05	65%	Pass
55	0.347	20	3.99E-05	12	2.39E-05	60%	Pass
56	0.350	20	3.99E-05	12	2.39E-05	60%	Pass
57	0.354	20	3.99E-05	12	2.39E-05	60%	Pass
58	0.358	20	3.99E-05	12	2.39E-05	60%	Pass
59	0.362	19	3.79E-05	12	2.39E-05	63%	Pass
60	0.366	19	3.79E-05	12	2.39E-05	63%	Pass
61	0.370	19	3.79E-05	12	2.39E-05	63%	Pass
62	0.374	18	3.59E-05	10	1.99E-05	56%	Pass
63	0.378	18	3.59E-05	10	1.99E-05	56%	Pass
64	0.382	17	3.39E-05	10	1.99E-05	59%	Pass
65	0.386	17	3.39E-05	9	1.79E-05	53%	Pass
66	0.390	17	3.39E-05	8	1.60E-05	47%	Pass
67	0.394	17	3.39E-05	8	1.60E-05	47%	Pass
68	0.398	16	3.19E-05	8	1.60E-05	50%	Pass
69	0.402	16	3.19E-05	8	1.60E-05	50%	Pass
70	0.406	16	3.19E-05	7	1.40E-05	44%	Pass
71	0.410	15	2.99E-05	6	1.20E-05	40%	Pass
72	0.414	15	2.99E-05	5	9.97E-06	33%	Pass
73	0.418	14	2.79E-05	5	9.97E-06	36%	Pass
74	0.421	13	2.59E-05	5	9.97E-06	38%	Pass
75	0.425	13	2.59E-05	4	7.98E-06	31%	Pass
76	0.429	13	2.59E-05	4	7.98E-06	31%	Pass
77	0.433	13	2.59E-05	4	7.98E-06	31%	Pass
78	0.437	12	2.39E-05	3	5.98E-06	25%	Pass
79	0.441	12	2.39E-05	3	5.98E-06	25%	Pass
80	0.445	12	2.39E-05	3	5.98E-06	25%	Pass
81	0.449	12	2.39E-05	3	5.98E-06	25%	Pass
82	0.453	12	2.39E-05	3	5.98E-06	25%	Pass
83	0.457	12	2.39E-05	2	3.99E-06	17%	Pass
84	0.461	12	2.39E-05	2	3.99E-06	17%	Pass
85	0.465	11	2.19E-05	2	3.99E-06	18%	Pass
86	0.469	11	2.19E-05	2	3.99E-06	18%	Pass
87	0.473	10	1.99E-05	2	3.99E-06	20%	Pass
88	0.477	10	1.99E-05	2	3.99E-06	20%	Pass
89	0.481	10	1.99E-05	2	3.99E-06	20%	Pass
90	0.485	10	1.99E-05	2	3.99E-06	20%	Pass
91	0.489	8	1.60E-05	2	3.99E-06	25%	Pass
92	0.493	8	1.60E-05	2	3.99E-06	25%	Pass
93	0.496	7	1.40E-05	2	3.99E-06	29%	Pass
94	0.500	7	1.40E-05	2	3.99E-06	29%	Pass
95	0.504	7	1.40E-05	2	3.99E-06	29%	Pass
96	0.508	7	1.40E-05	2	3.99E-06	29%	Pass
97	0.512	7	1.40E-05	1	1.99E-06	14%	Pass
98	0.516	7	1.40E-05	1	1.99E-06	14%	Pass
99	0.520	6	1.20E-05	1	1.99E-06	17%	Pass
100	0.524	5	9.97E-06	1	1.99E-06	20%	Pass



Flow Duration Curves - POC1
Pre-development Qpeak
Post-project Mitigated Qpeak
Flow (cfs)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
1.0E-01
1.0E+00
% Time Exceeding



Peak Flow Frequency Curves - POC1
Peak Flow (cfs)
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0
1
2
3
4
5
6
7
8
9
10
Return Period in Years
Q10 (0.528 cfs)
Q5 (0.468 cfs)
Q2 (0.267 cfs)
Qlf (0.134 cfs)
Pre-development Qpeak
Post-project Mitigated Qpeak

ATTACHMENT 3
STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

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Project Name: **Access Youth Academy**

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☒ Included See Structural BMP Maintenance Information Checklist.
Attachment 3b	Maintenance Agreement (Form DS-3247) (when applicable)	◉ Included ○ Not Applicable

Project Name: Access Youth Academy

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Preliminary Design / Planning / CEQA level submittal:

- Attachment 3a must identify:

  ☒ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

- Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

Final Design level submittal:

Attachment 3a must identify:

☐ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)

☐ How to access the structural BMP(s) to inspect and perform maintenance

☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)

☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable

☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)

☐ When applicable, frequency of bioretention soil media replacement

☐ Recommended equipment to perform maintenance

☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b must include a Storm Water Management and Discharge Control Maintenance Agreement (Form DS-3247). The following information must be included in the exhibits attached to the maintenance agreement:

☒ Vicinity map

☐ Site design BMPs for which DCV reduction is claimed for meeting the pollutant control obligations.

☒ BMP and HMP location and dimensions

☒ BMP and HMP specifications/cross section/model

☒ Maintenance recommendations and frequency

☐ LID features such as (permeable paver and LS location, dim, SF).

THE CITY OF SAN DIEGO

RECORDING REQUESTED BY:
THE CITY OF SAN DIEGO
AND WHEN RECORDED MAIL TO:

Access Youth Academy
7310 Miramar Road, Suite 405
San Diego, CA 92126

(THIS SPACE IS FOR RECORDER'S USE ONLY)

STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT

APPROVAL NUMBER:	ASSESSORS PARCEL NUMBER:	PROJECT NUMBER:
2021553	548-010-13	572129

This agreement is made by and between the City of San Diego, a municipal corporation [City] and Access Youth Academy, the owner or duly authorized representative of the owner [Property Owner] of property located at

704 Euclid Avenue, San Diego, CA 92114
(PROPERTY ADDRESS)

and more particularly described as: Parcel 1 of Parcel Map No. 2407
(LEGAL DESCRIPTION OF PROPERTY)

in the City of San Diego, County of San Diego, State of California.

Property Owner is required pursuant to the City of San Diego Municipal Code, Chapter 4, Article 3, Division 3, Chapter 14, Article 2, Division 2, and the Land Development Manual, Storm Water Standards to enter into a Storm Water Management and Discharge Control Maintenance Agreement [Maintenance Agreement] for the installation and maintenance of Permanent Storm Water Best Management Practices [Permanent Storm Water BMP's] prior to the issuance of construction permits. The Maintenance Agreement is intended to ensure the establishment and maintenance of Permanent Storm Water BMP's onsite, as described in the attached exhibit(s), the project's Water Quality Technical Report [WQTR] and Grading and/or Improvement Plan Drawing No(s), or Building Plan Project No(s): 40306-D.

Property Owner wishes to obtain a building or engineering permit according to the Grading and/or Improvement Plan Drawing No(s) or Building Plan Project No(s): 40306-D.

(Continued on Page 2)

NOW, THEREFORE, the parties agree as follows:

1. Property Owner shall have prepared, or if qualified, shall prepare an Operation and Maintenance Procedure [OMP] for Permanent Storm Water BMP's, satisfactory to the City, according to the attached exhibit(s), consistent with the Grading and/or Improvement Plan Drawing No(s), or Building Plan Project No(s): 40306-D .

2. Property Owner shall install, maintain and repair or replace all Permanent Storm Water BMP's within their property, according to the OMP guidelines as described in the attached exhibit(s), the project's WQTR and Grading and/or Improvement Plan Drawing No(s), or Building Plan Project No(s) 40306-D .

3. Property Owner shall maintain operation and maintenance records for at least five (5) years. These records shall be made available to the City for inspection upon request at any time.

This Maintenance Agreement shall commence upon execution of this document by all parties named hereon, and shall run with the land.

Executed by the City of San Diego and by Property Owner in San Diego, California.

See Attached Exhibit(s): A - D

(Owner Signature)

Mr. Renato Paiva, Executive Director
(Print Name and Title)

Access Youth Academy
(Company/Organization Name)

05/29/2018
(Date)

APPROVED:

(City Control Engineer Signature)

(Print Name)

(Date)

NOTE: ALL SIGNATURES MUST INCLUDE NOTARY ACKNOWLEDGMENTS PER CIVIL CODE SEC. 1180 ET.SEQ.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Diego

On MAY 29 2018 before me, Ashwin Asher, Notary Public,
Date / Here Insert Name and Title of the Officer

personally appeared Lanapo Cr. Pava
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

ASHWIN ASHER
Commission No. 2096143
NOTARY PUBLIC - CALIFORNIA
SAN DIEGO COUNTY
Commission Expires February 4, 2019
CNB1

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature ______________
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: ______________

Document Date: ______________ Number of Pages: ______________

Signer(s) Other Than Named Above: ______________

Capacity(ies) Claimed by Signer(s)

Signer's Name: ______________
- ☐ Individual
- ☐ Corporate Officer — Title(s): ______________
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: ______________

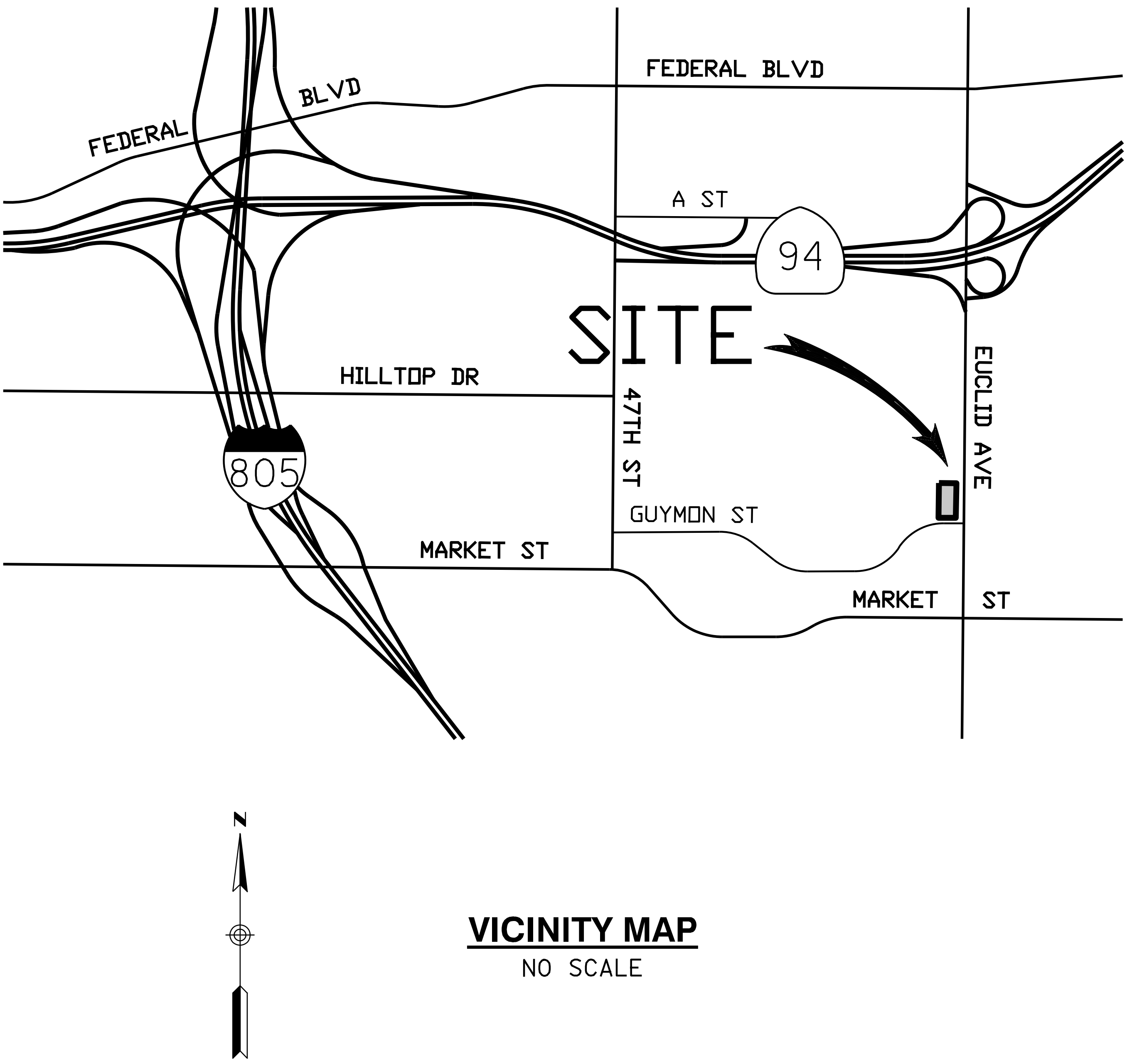
Signer Is Representing: ______________

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name: ______________
- ☐ Individual
- ☐ Corporate Officer — Title(s): ______________
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: ______________

Signer Is Representing: ______________

RIGHT THUMBPRINT OF SIGNER
Top of thumb here



VICINITY MAP

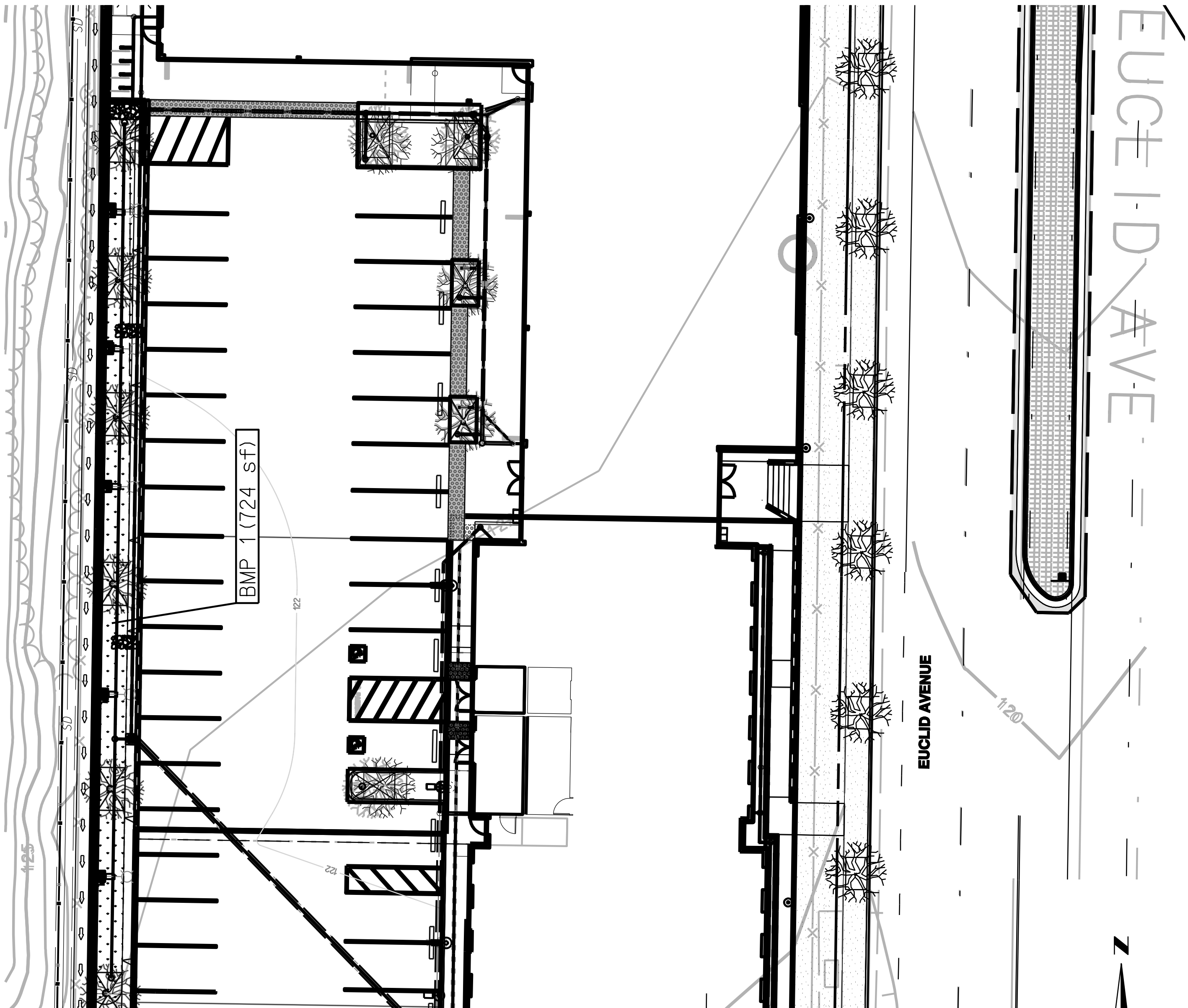
NO SCALE

J-13284FFF
11-02-17

EXHIBIT "A"
ACCESS YOUTH ACADEMY
STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT

SITE DESIGN, SOURCE CONTROL AND POLLUTANT CONTROL BMP OPERATION & MAINTENANCE PROCEDURE							
STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT APPROVAL NO.: 2021553							
O&M RESPONSIBLE PARTY DESIGNEE: ACCESS YOUTH ACADEMY (PROPERTY OWNER)							
BMP DESCRIPTION	INSPECTION FREQUENCY	MAINTENANCE FREQUENCY	MAINTENANCE METHOD	QUANTITY	INCLUDED IN O&M MANUAL		SHEET NUMBER(S)
SITE DESIGN ELEMENTS					YES	NO	
DESCRIPTION: LANDSCAPED AREAS	MONTHLY	AS-NEEDED	TRIMMING AND TRASH REMOVAL		x		
SOURCE CONTROL ELEMENTS							
DESCRIPTION: IRRIGATION	MONTHLY	AS-NEEDED	REPAIR SPRINKLERS & PIPES		x		
POLLUTANT CONTROL BMP(S)							
DESCRIPTION: BIOFILTRATION BASIN W/HMP (0.5" ORIFICE)	MONTHLY	AS-NEEDED	REMOVE TRASH & DEBRIS		x		11

BIOFILTRATION BASIN - BMP 1



LEGEND

PROPOSED BIOFILTRATION BASIN

PROPOSED STORM DRAIN

EXISTING STORM DRAIN — SD —

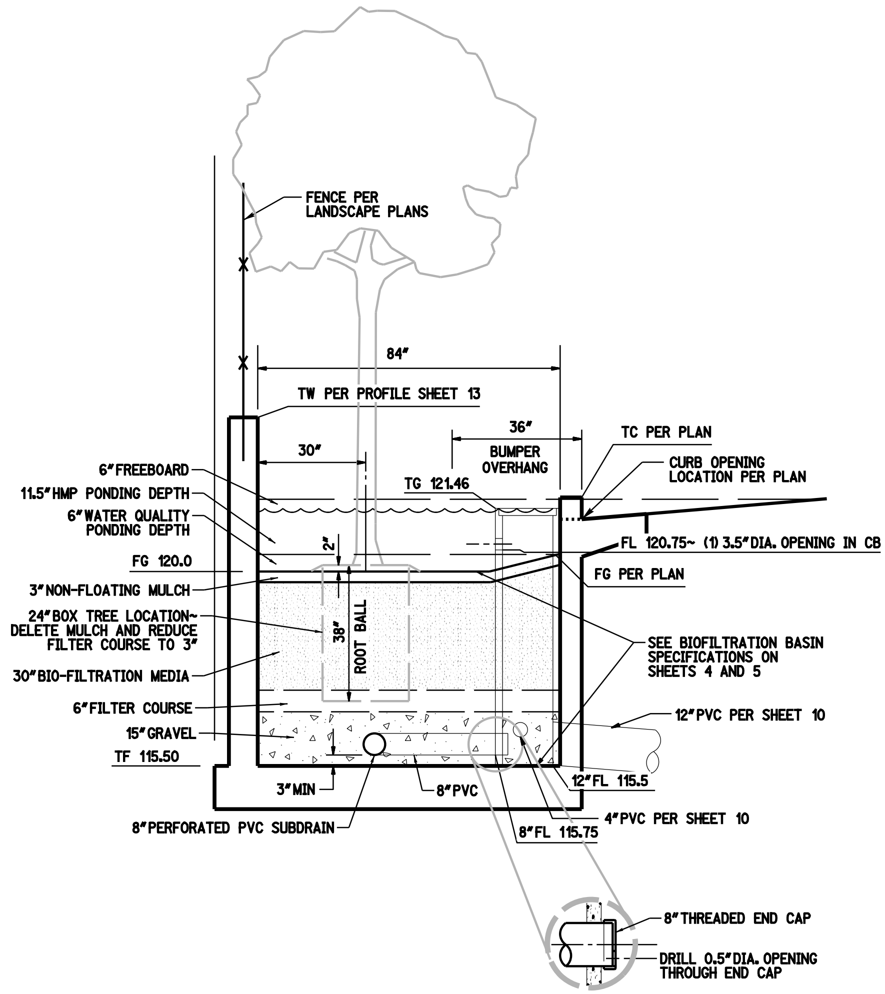
N

SCALE: 1"=30'

J-13284FFF
04-17-18

EXHIBIT "C"
ACCESS YOUTH ACADEMY
STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT

BIOFILTRATION BASIN - BMP 1



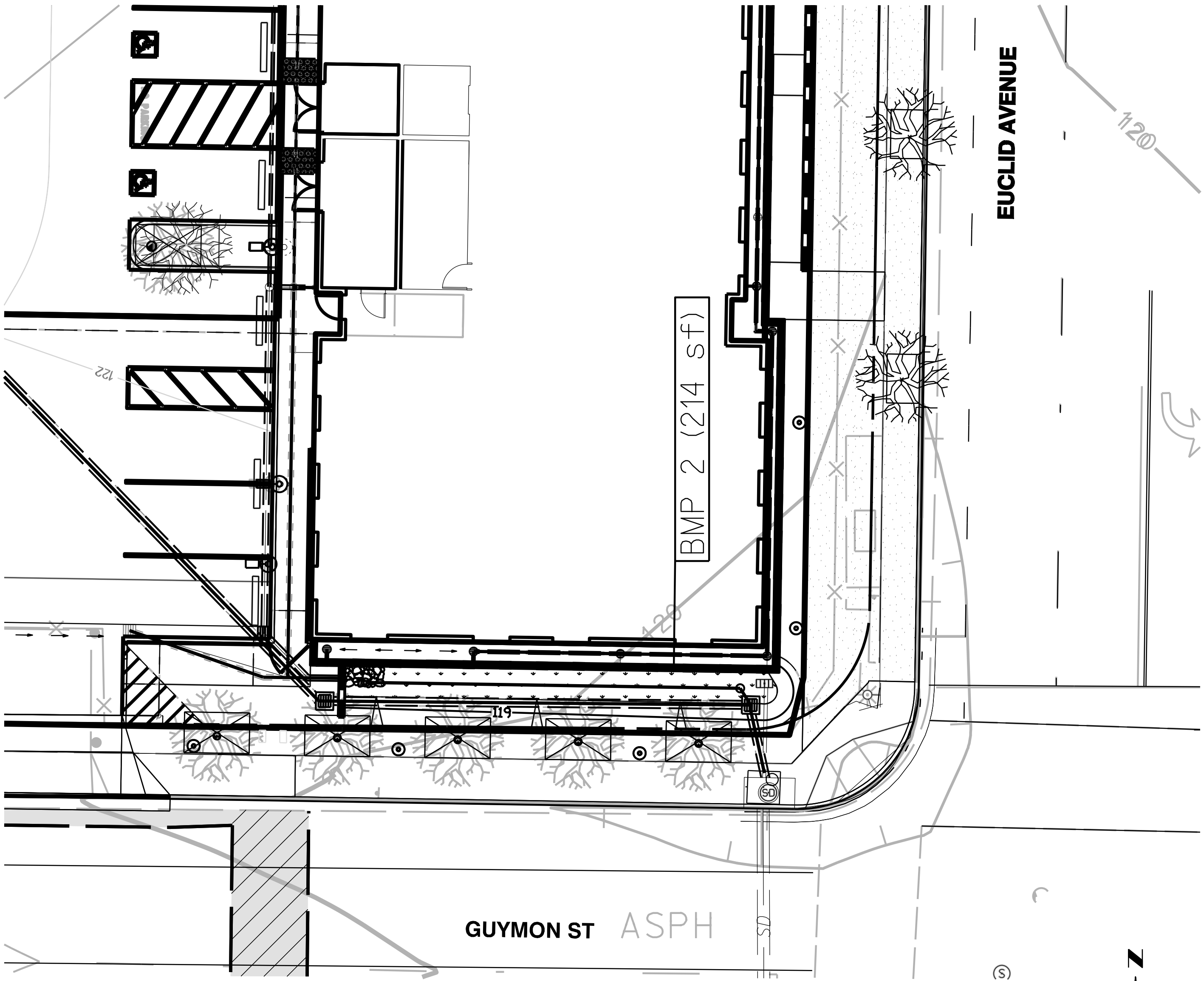
BMP-1 SECTION

NO SCALE

J-13284-FFF
04-17-18

EXHIBIT "C"
ACCESS YOUTH ACADEMY
STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT

BIOFILTRATION BASIN - BMP 2



LEGEND

PROPOSED BIOFILTRATION BASIN

PROPOSED STORM DRAIN

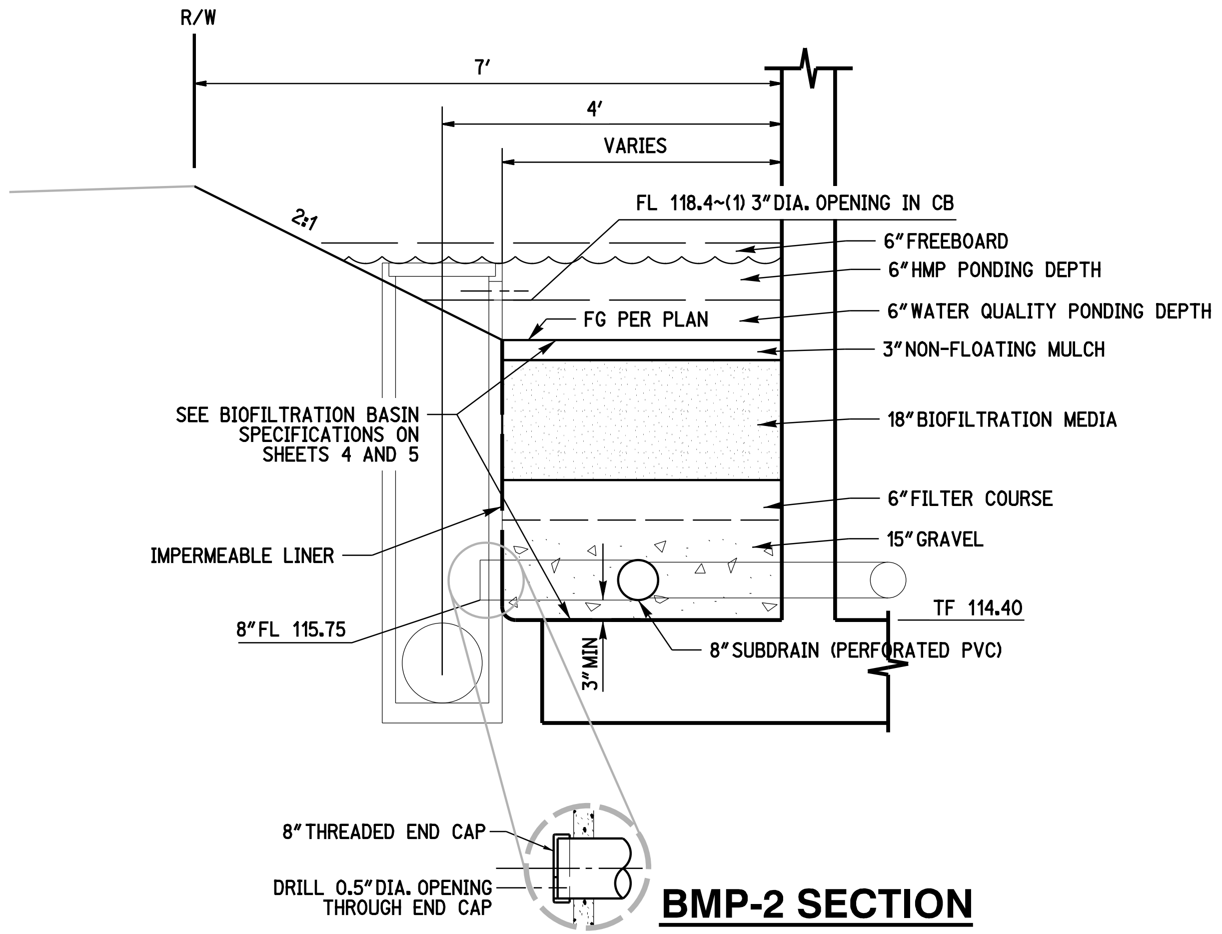
EXISTING STORM DRAIN ——— SD ———

SCALE: 1" =20'

J-13284FFF
04-17-18

EXHIBIT "D"
ACCESS YOUTH ACADEMY
STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT

BIOFILTRATION BASIN - BMP 2



BMP-2 SECTION

NO SCALE

J-13284-FFF
04-17-18

EXHIBIT "D"
ACCESS YOUTH ACADEMY
STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT

O:\13284\13284fff\WaterResources\WaterQuality\SWMDCMA\13284-FFF_SWMDCMA.dgn

ATTACHMENT 4
COPY OF PLAN SHEETS SHOWING PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

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Project Name: **Access Youth Academy**

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- ☐ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- ☐ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☐ Details and specifications for construction of structural BMP(s)
- ☐ Signage indicating the location and boundary of structural BMP(s) as required by the City Engineer
- ☐ How to access the structural BMP(s) to inspect and perform maintenance
- ☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐ Recommended equipment to perform maintenance
- ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☐ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- ☐ All BMPs must be fully dimensioned on the plans
- ☐ When proprietary BMPs are used, site specific cross section with outflow, inflow and model number shall be provided. Brochure photocopies are not allowed.

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CONSTRUCTION NOTES

1. POC ~ SEE BUILDING PLUMBING PLANS FOR CONTINUATION
2. 4"BRASS GRATE, N.D.S. NO.
3. 9"ATRIUM GRATE, N.D.S. NO. 991
4. 12"X12"PRECAST CATCH BASIN
5. 18"X18"PRECAST CATCH BASIN
6. PVC CLEANOUT PER SDS-103
7. STORM DRAIN OUTLET THROUGH WALL
8. CONNECT TO ROOF DRAIN
9. CONNECT TO EXISTING SEWER LINE PER SDS-103

STORM DRAIN DATA

NO.	DELTA OR BRG.	RADIUS	LENGTH	SLOPE	REMARKS
1	N12° 24' 32"W		7.76'	1.0%	18" RCP (PVT)
2	N89° 06' 34"W		52.27'	1.0%	12" PVC (PVT)
3	N44° 06' 09"W		89.93'	1.45%	12" PVC (PVT)
4	N89° 06' 34"W		7.00'	1.0%	8" PVC (PVT)
5	N00° 53' 26"E		40.00'	1.0%	6" PVC (PVT)
6	N89° 06' 34"W		58.78'	1.0%	8" PVC (PVT)

BARRY J. COWAN RCE 46568 DATE

J-13284fff

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619.291.0707
(FAX)619.291.4165
rickengineering.com
Riverside - Orange - San Luis Obispo - Bakersfield - Sacramento - Phoenix - Tucson

REGISTERED PROFESSIONAL ENGINEER
BARRY J. COWAN
No. 46568
CIVIL
STATE OF CALIFORNIA

PRIVATE CONTRACT

UTILITY PLAN FOR:

704 EUCLID AVE

PARCEL 1 OF PARCEL MAP NO. 2407

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET **10** OF 14 SHEETS

I.O. NO. –
P.T.S NO. 572129
V.T.M.

FOR CITY ENGINEER DATE

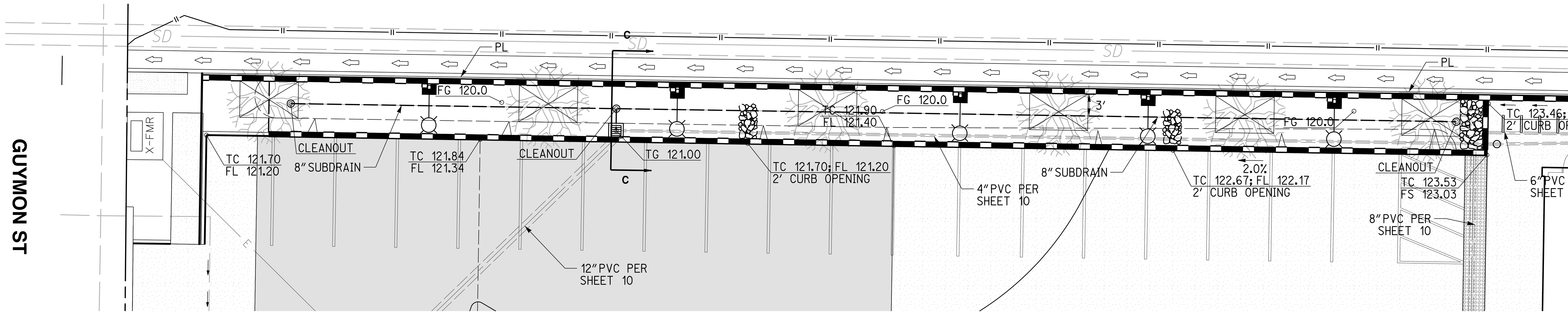
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	REC			

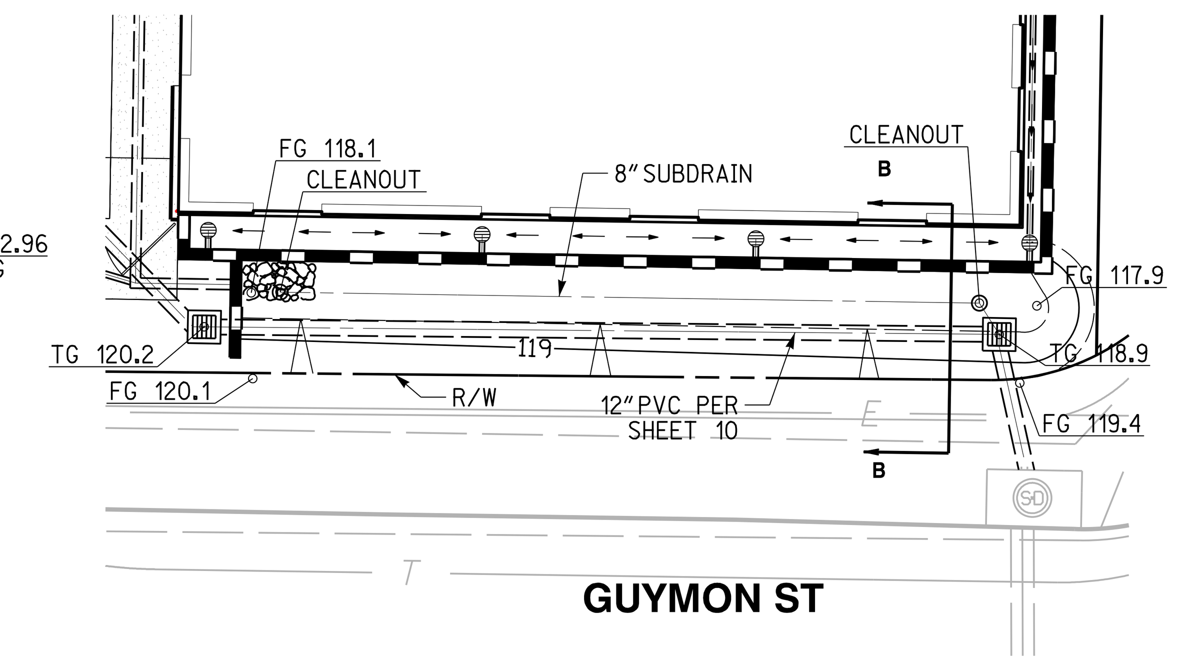
AS-BUILTS

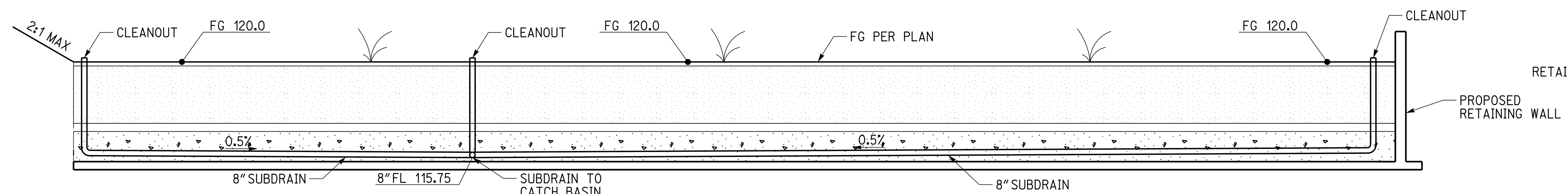
1838-6303
CCS 83 COORDINATES
198-1743
LAMBERT COORDINATES

CONTRACTOR DATE STARTED
INSPECTOR DATE COMPLETED

40306-10-D

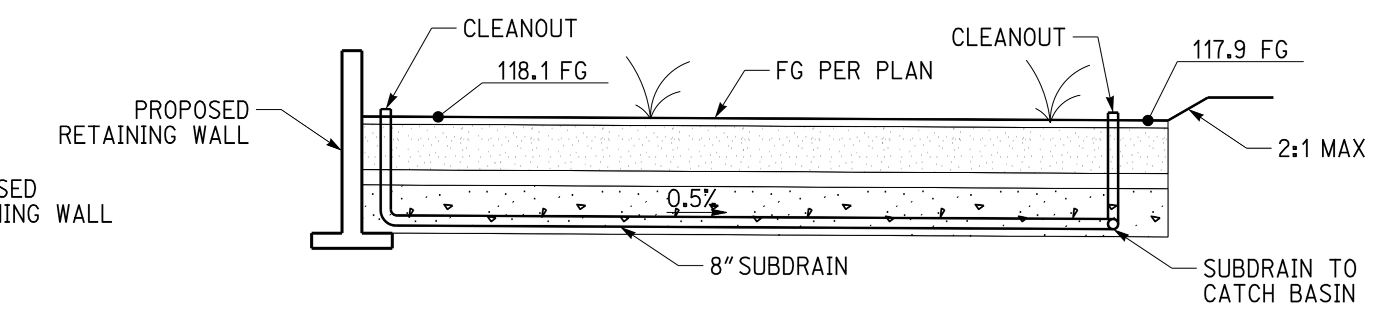






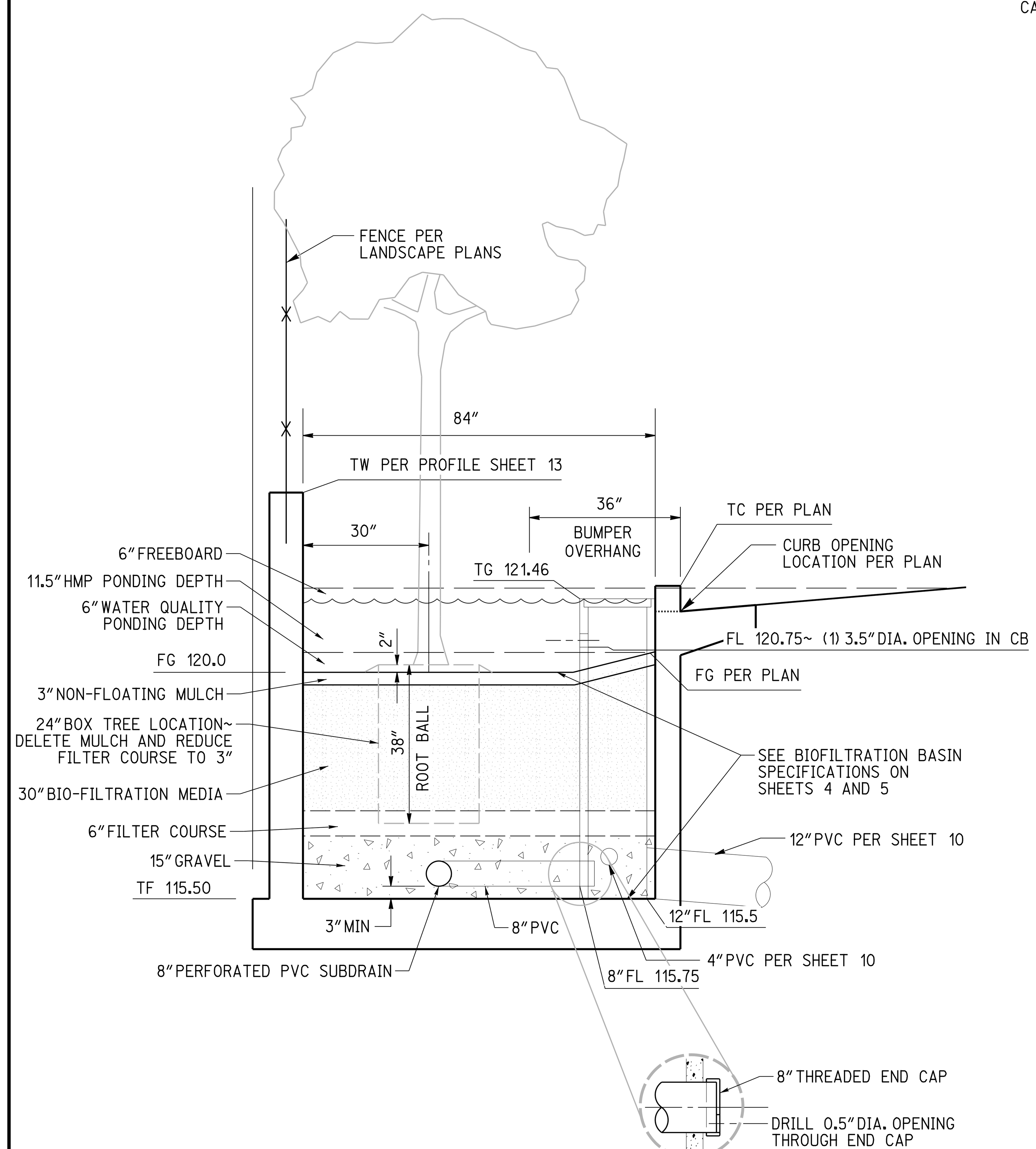
BMP 1

GRAPHIC SCALE 1" = 10'



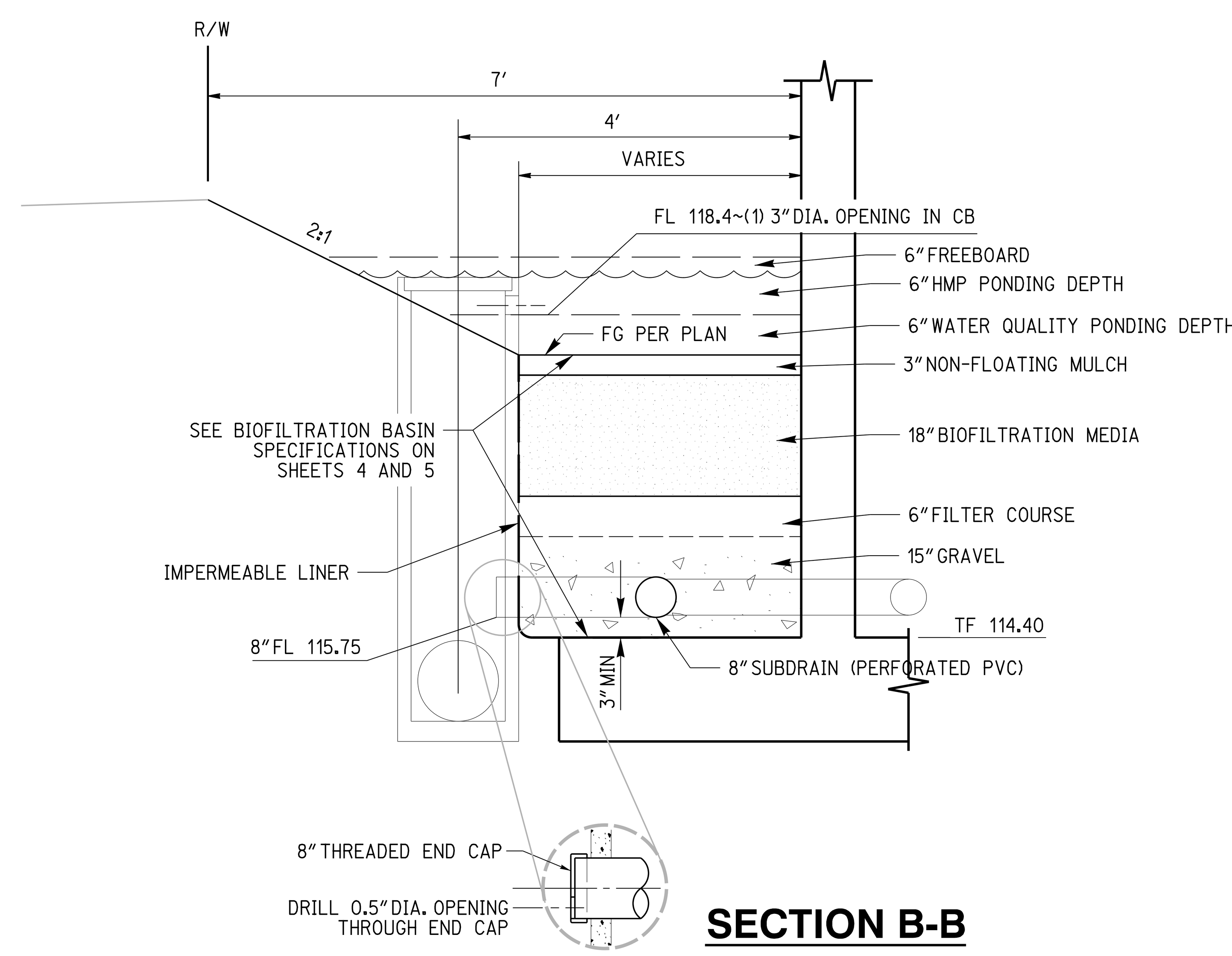
BMP 2

GRAPHIC SCALE 1" = 10'



SECTION C-C

NO SCALE



SECTION B-B

NO SCALE

PRIVATE CONTRACT

BMP PLAN FOR:

704 EUCLID AVE

PARCEL 1 OF PARCEL MAP NO. 2407

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET 11 OF 14 SHEETS

I.O. NO. –
P.T.S NO. 572129
V.T.M.

FOR CITY ENGINEER DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	REC			
AS-BUILTS				

1838-6303
CCS 83 COORDINATES
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LAMBERT COORDINATES

CONTRACTOR ____ DATE STARTED ____
INSPECTOR ____ DATE COMPLETED ____

40306-11-D

BARRY J. COWAN RCE 46568 DATE

J-13284fff

RICK ENGINEERING COMPANY
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5620 FRIARS ROAD
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619.291.0707
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rickengineering.com
Riverside · Orange · San Luis Obispo · Bakersfield · Sacramento · Phoenix · Tucson

REGISTERED PROFESSIONAL ENGINEER
BARRY J. COWAN
No. 46568
CIVIL
STATE OF CALIFORNIA

ATTACHMENT 5
DRAINAGE REPORT

Attach project's drainage report. Refer to Drainage Design Manual to determine the reporting requirements.

RICK
ENGINEERING COMPANY

August 23, 2017
Revised: December 7, 2017
Revised: April 17, 2018

Mr. Renato Paiva
Access Youth Academy
9370 Waples Street, Suite 101
San Diego, California 92121

SUBJECT: DRAINAGE STUDY FOR ACCESS YOUTH ACADEMY
PTS #572129 DWG #40306-D
(RICK ENGINEERING COMPANY JOB NUMBER 13284-FFF)

Dear Mr. Paiva:

This drainage letter report represents a revision to the December 7th, 2017 report in addition to a revision to the August 23, 2017 report pursuant to the first review cycle from the City of San Diego dated 9/22/17. Hydraulic and hydrologic calculations have been revised in accordance with the latest site layout. The project's pre- and post-project drainage exhibits have also been revised to reflect the latest site layout. The 100-year flow rate and flow velocity at the project's discharge point have been provided per the City's request. The 100-year flow velocity was calculated using the Federal Highway Administration's Hydraulic Toolbox software. The backup calculations are included in Attachment 1.

This letter has been prepared in support of the on-site drainage for Access Youth Academy (herein referred to as the "project"). The address of the project is: 704 Euclid Avenue, San Diego, CA and is located adjacent to Horton Elementary School, on the corner of Euclid Avenue and Guymon Street. The project is proposed on what is currently a previously graded lot that features a recreational sports field over the majority of the site and a small parking lot in the northern portion of the project site.

The following narrative addresses drainage characteristics for the project for both the pre-project site condition and the post-project site condition.

<u>Drainage Characteristics based on the Pre-Project Site Condition:</u>

In the pre-project condition, the project site has been divided into two (2) drainage basins, for a total area of 0.9 acres. Basin 1 consists of the western half of the project site, and is 0.6 acres in area. Runoff from Basin 1 drains in a south-easterly direction to an existing catch basin on the southeast corner of the project site.

Basin 2 consists of the eastern half of the project site, and totals 0.3 acres in area. Runoff from Basin 2 also drains in a south-easterly direction towards the street gutters on Euclid Avenue, where it is then directed towards the same existing catch basin on the southeast corner of the project site.

Based on the drainage patterns and runoff coefficients, the peak flow rate for the 100-year storm event for the pre-project condition is 2.1 cubic feet per second (cfs). Hydrologic calculations for the pre-project condition have been presented in Attachment 1. See Table 1 for a comparison of the pre- and post-project 100-yr runoff rates.

Drainage Characteristics based on the Post-Project Site Condition:

The site layout for the post-project condition maintains similar drainage characteristics as compared with the pre-project condition. In the post-project condition, the project site has been divided into three (3) drainage basins for a total area of 0.9 acres. Basin 1 is 0.6 acres in area, consisting of the northern project area and also encompassing some of the western project boundary. Runoff from Basin 1 is proposed to flow in a western direction towards a proposed biofiltration basin on the western project site boundary for water quality and HMP purposes. Flows in excess of HMP will be conveyed via a grate inlet and 12" PVC pipe to an existing catch basin located at the southeast corner of the project site.

Basin 2 is 0.1 acres in size, and encompasses the southwest corner of the project site. Runoff from Basin 2 flows in an easterly direction towards proposed on-site drainage structures that will convey the runoff towards a proposed biofiltration basin near the southeastern boundary of the project site. Overflow from the proposed filtration basin will be conveyed via a grate inlet and 18" RCP towards the existing catch basin at the southeast corner of the project site.

Basin 3 is 0.2 acres in size, and encompasses the southeast corner of the project site. Runoff from Basin 3 is mostly directed in a southerly direction towards the same proposed biofiltration basin on the southeastern project boundary via proposed on-site drainage structures. Overflow from the proposed filtration basin will be conveyed via a grate inlet and 18" RCP to the existing catch basin on the south eastern project boundary.

Based on the drainage patterns and runoff coefficients, the peak flow rate for the 100-Year storm event from for the project site was calculated to be 3.5 cubic feet per second (cfs) in the post-project condition. While there is an increase in the 100-year runoff between the pre- and post-project conditions, the downstream drainage facilities are subject to inundation in a 100-year event from the nearby Chollas Creek and therefore detention has not been provided. Detaining post-project runoff to the pre-project runoff condition would not alleviate the downstream drainage facilities from inundation. Hydrologic calculations for the post-project condition have been presented in Attachment 1. See Table 1 for a comparison of the pre- and post-project runoff rates.

Table 1: Summary of the 100-Yr Flow Rates in the Pre- and Post-Project Conditions

	Area (AC.)	**Runoff Coefficient (C)**	**Q (cfs)**
Pre-Project	0.9	0.56	2.1
Post-Project	0.9	0.86	3.4

Table 2: Summary of the 100-Yr Flow Rate and Flow Velocity at the Project Discharge Point (Post-Project Condition)

100-Yr Flow Rate & Flow Velocity at the Project Discharge Point				
POI ID	**Tributary Area (AC.)**	**Intensity (in/hr) 100-Yr**	**Q_{100} (cfs)**	**V_{100} (fps)**
1	0.9	4.40	3.4	5.3

Hydraulics

Pipe Sizing
On-site pipe sizing was completed using normal depth methods to provide an estimation of storm drain size required to convey runoff from a 100-year storm event; pipe sizing calculations have been included in Attachment 2.

Grate Inlet Sizing
Based on weir flow calculations, two Type-I grate inlets have been sized for the purpose of draining overflow from the proposed biofiltration basins. Grate Inlet sizing calculations have been included in Attachment 2.

Conclusion:

This letter report has been prepared in support of the on-site drainage configuration for Access Youth Academy. Based on the findings of this report, drainage characteristics are expected to change slightly from pre-project conditions, the expected result being an increase in runoff flows due to the addition of impervious areas in the post-project condition. As shown above, the increase is approximately 1.4 cfs; however, the actual increase will be less as a result of incidental flow attenuation that each of the biofiltration basins will provide. Therefore, the minor increase is not anticipated to result in any significant adverse impacts for the downstream drainage facilities. While there is an increase in the 100-year runoff between the pre- and post-, it is also worth noting that the adjacent intersection is subject to inundation in a 100-year event from the nearby South Las Chollas Creek. Detaining post-project runoff to the pre-project runoff condition would not alleviate the downstream drainage facilities from inundation.

Please feel free to contact Ian Cohan or myself if you have any questions and/or concerns at (619) 291-0707.

Sincerely,
RICK ENGINEERING COMPANY

Brendan Hastie
RCE #65809, Exp. 9/19
Associate Principal

REGISTERED PROFESSIONAL ENGINEER
BRENDAN CRAIG HASTIE
NO. 65809
EXP. 7/30/19
CIVIL
STATE OF CALIFORNIA

BH:IC:vs/files/Report/.009

Enclosure

ATTACHMENT 1

Hydrology Calculations

Rational Method for Access Youth Academy (Pre Project Condition)							
Drainage Basin ID	**Area (Ac)**	**Pervious Area (Ac)**	**Impervious Area (Ac)**	**% Impervious**	**Weighted Runoff Coefficient**	**Intensity (in/hr) 100-Yr**	**Q_{100} (cfs)**
1	0.6	0.5	0.1	10%	0.50	4.40	1.3
2	0.3	0.2	0.1	37%	0.62	4.40	0.8
Total	0.9	0.7	0.2	19%	0.56		2.1

1. Weighted Runoff Coefficients were calculated based on guidance from the City of San Diego Drainage Design Manual, dated January 2017.
2. Intensity was calculated using the City of San Diego Drainage Design Manual, dated January 2017.
3. Time of Concentration (T_c) was assumed to be 5 minutes for the pre project condition.

Rational Method for Access Youth Academy (Post Project Condition)							
Drainage Basin ID	**Area (Ac)**	**Pervious Area (Ac)**	**Impervious Area (Ac)**	**% Impervious**	**Weighted Runoff Coefficient**	**Intensity (in/hr) 100-Yr**	**Q_{100} (cfs)**
1	0.6	0.1	0.5	80%	0.85	4.40	2.2
2	0.1	0.02	0.1	83%	0.88	4.40	0.4
3	0.2	0.03	0.2	85%	0.90	4.40	0.8
Total	0.9	0.2	0.7	81%	0.86		3.4

1. Weighted Runoff Coefficients were calculated based on guidance from the City of San Diego Drainage Design Manual, dated January 2017.
2. Intensity was calculated using the City of San Diego Drainage Design Manual, dated January 2017.
3. Time of Concentration (T_c) was assumed to be 5 minutes for the post project condition.

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Date 08/20/2018
Job No. J-13284FFF
Page 1 of
Done By J.C.
Checked By

Rational Method for Drainage Area Tributary to 18" RCP Culvert under Guymon Street

Onsite Tributary Area = 0.9 acres, Offsite Tributary Area = 11.3 acres

· Pre-Project

$A = 11.3$ acres (offsite) + 0.9 acres (onsite) = 12.2 acres

Assume $T_c = 10$ min $\longrightarrow$ Intensity $\cong 3.48$ in/hr

Assume 60% impervious $\longrightarrow C = 0.64$

$$Q = 0.64\,(3.48\text{ in/hr})(12.2\text{ acres}) = \boxed{27.2\text{ cfs}}$$

· Post-Project

$A = 12.2$ acres

Assume $T_c = 10$ min $\longrightarrow$ Intensity $\cong 3.48$ in/hr

Onsite % Impervious = 81%

Offsite % Impervious (assumed) = 60%

Total % Impervious = 62% $\longrightarrow C = 0.66$ $\quad Q = 0.66\,(3.48\text{ in/hr})(12.2\text{ acres}) = \boxed{28.0\text{ cfs}}$

ΔQ_{100} Pre-Project to Post-Project = 0.8 cfs

2.9% Increase

ATTACHMENT 2

Hydraulic Calculations

Grate Inlet Sizing (Weir vs. Orifice)

Weir coefficient, C_w	3.0
Orifice coefficient, C_o	0.60
Available head, h (feet)	0.50

Inlet Type	Capacity based on Weir Equation[3, 4], Q_{cap} (cfs[5])	Capacity based on Orifice Equation[3, 4], Q_{cap} (cfs[5])	Governing Equation
1212 Series - 12"x12" Catch Basin[1]	2.26	1.90	Orifice
1218 Series - 12"x18" Catch Basin[1]	2.61	2.54	Orifice
1818 Series - 18"x18" Catch Basin[1]	2.96	3.22	Weir
2424 Series - 24"x24" Catch Basin[1]	3.83	5.39	Weir
3636 Series - 36"x36" Catch Basin[1]	5.59	11.26	Weir
Type 'I' Catch Basin[2]	4.89	8.27	Weir

Note:

1. Based on Brooks Products, Inc. - H 20-44 Traffic, Steel Grate, not Parkway, Cast-iron grate
2. Based on Drawing Number D-13 & D-15 in the City of San Diego Regional Standard Drawings, dated April 2003
3. A reduction factor of 50% assumed for clogging.
4. Weir equation, $Q = C_w L_e (h)^{3/2}$; Orifice equation, $Q = C_o A_e (2gh)^{1/2}$
5. "cfs" = cubic feet per second

Preliminary Storm Drain Size

The purpose of this table is to provide an estimated pipe size to convey the 100-year flow rates with a sizing factor.

Manning's n: 0.013

Sizing Factor (%): 30

	Slope at:	0.5%		1.0%		2.4%		3.0%	
Q_{100} (cfs[1])	Q_{100} with Sizing Factor (cfs[1])	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size [2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)
2.0	2.6	1.01	12"	0.89	12"	0.75	10"	0.72	10"
5.0	6.5	1.43	18"	1.25	18"	1.06	18"	1.02	18"
7.5	9.8	1.66	24"	1.46	18"	1.24	18"	1.19	18"
10.0	13.0	1.85	24"	1.62	24"	1.38	18"	1.32	18"
16.9	22.0	2.25	30"	1.98	24"	1.68	24"	1.61	24"
20.0	26.0	2.40	30"	2.11	30"	1.79	24"	1.71	24"
24.6	31.9	2.59	36"	2.27	30"	1.93	24"	1.85	24"
30.0	39.0	2.79	36"	2.45	30"	2.08	30"	1.99	24"
35.0	45.5	2.96	36"	2.60	36"	2.20	30"	2.11	30"
40.0	52.0	3.11	42"	2.73	36"	2.32	30"	2.22	30"
50.0	65.0	3.38	42"	2.97	36"	2.52	36"	2.42	30"
60.0	78.0	3.62	48"	3.18	42"	2.70	36"	2.59	36"
70.0	91.0	3.83	48"	3.37	42"	2.86	36"	2.74	36"
80.0	104.0	4.03	54"	3.54	48"	3.00	36"	2.88	36"
90.0	117.0	4.21	54"	3.70	48"	3.14	42"	3.01	42"
110.0	143.0	4.54	60"	3.99	48"	3.39	42"	3.25	42"
145.0	188.5	5.04	72"	4.42	54"	3.75	48"	3.60	48"
170.0	221.0	5.35	72"	4.70	60"	3.99	48"	3.82	48"
240.0	312.0	6.09	84"	5.35	72"	4.54	60"	4.35	54"
350.0	455.0	7.01	96"	6.16	84"	5.23	72"	5.01	72"

Note:

1. "cfs" = cubic feet per second.

2. Minimum pipe sizes are calculated using the Manning's equation and are based on the flow rates with 30% factor.

Hydraulic Analysis Report

Project Data

Project Title: Access Youth Academy - 100-Yr Flow Velocity at Project Discharge Point

Designer:

Project Date: Tuesday, May 01, 2018

Project Units: U.S. Customary Units

Notes:

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.5000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0130

Flow: 3.4000 cfs

Result Parameters

Depth: 0.5869 ft

Area of Flow: 0.6409 ft^2

Wetted Perimeter: 2.0275 ft

Hydraulic Radius: 0.3161 ft

Average Velocity: 5.3048 ft/s

Top Width: 1.4641 ft

Froude Number: 1.4129

Critical Depth: 0.7031 ft

Critical Velocity: 4.1805 ft/s

Critical Slope: 0.0052 ft/ft

Critical Top Width: 1.50 ft

Calculated Max Shear Stress: 0.3663 lb/ft^2

Calculated Avg Shear Stress: 0.1973 lb/ft^2

MAP POCKET 1

Drainage Study Exhibit
For
Access Youth Academy
[Pre-project]

DRAINAGE EXHIBIT
FOR
ACCESS YOUTH ACADEMY
(PRE PROJECT)

J-13284FFF

Date: August 23, 2017
Revised: December 7,2017
Revised: April 17, 2018

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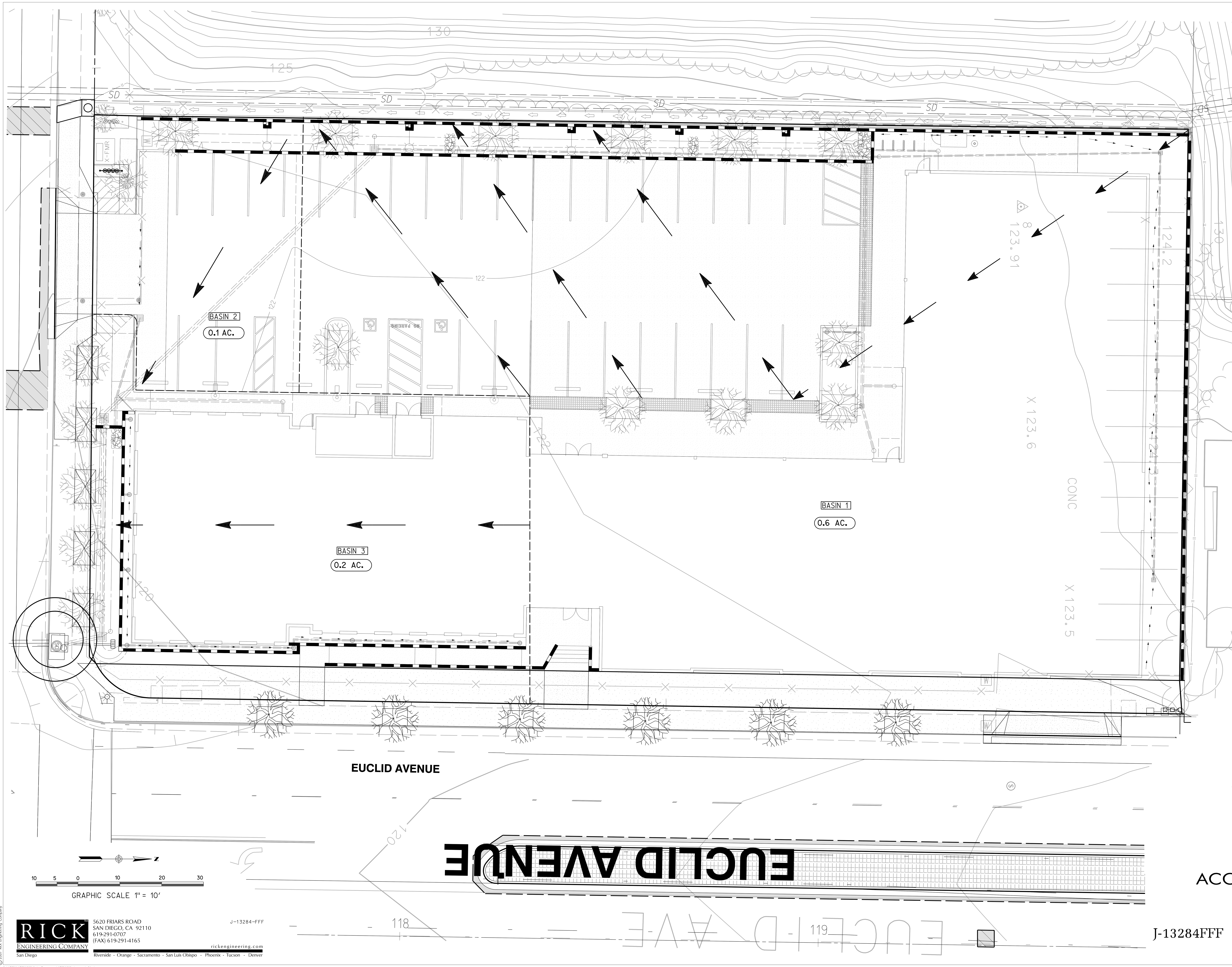
J-13284-FFF

MAP POCKET 2

Drainage Study Exhibit
For
Access Youth Academy
[Post-project]



LEGEND

POI
BASIN 100 BASIN ID
XX.X AC. BASIN AREA
BASIN BOUNDARY
SD EXISTING STORM DRAIN SYSTEM
PROPOSED STORM DRAIN SYSTEM
FLOW PATH

GRAPHIC SCALE 1" = 10'

DRAINAGE EXHIBIT FOR ACCESS YOUTH ACADEMY (POST PROJECT)

J-13284FFF

Date: August 23, 2017
Revised: December 7,2017
Revised: April 17, 2018

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J-13284-FFF

NOT FOR CONSTRUCTION - EXHIBIT FOR DRAINAGE STUDY ONLY

ATTACHMENT 6
GEOTECHNICAL AND GROUNDWATER INVESTIGATION REPORT

Attach project's geotechnical and groundwater investigation report. Refer to Appendix C.4 to determine the reporting requirements.

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704 EUCLID AVENUE
SAN DIEGO, CALIFORNIA

PREPARED FOR:

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August 11, 2017

SCST No. 170270N
Report No. 1

Renato Paiva
Access Youth Academy
9370 Waples Street, Suite 101
San Diego, California 92121

Subject: GEOTECHNICAL INVESTIGATION
ACCESS YOUTH ACADEMY
704 EUCLID AVENUE
SAN DIEGO, CALIFORNIA

Dear Mr. Paiva:

SCST, Inc. (SCST) is pleased to present our report describing the geotechnical investigation performed for the subject project. We conducted the geotechnical investigation in general conformance with the scope of work presented in our proposal dated May 23, 2017. Based on the results of our investigation, we consider the planned construction feasible from a geotechnical standpoint provided the recommendations of this report are followed. If you have any questions, please call us at (619) 280-4321.

Respectfully submitted,
SCST, INC.

REGISTERED PROFESSIONAL ENGINEER
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APPENDICES

Appendix I .... Field Investigation
Appendix II .... Laboratory Testing
Appendix III .... Infiltration Rate Test Results
Appendix IV .... Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

EXECUTIVE SUMMARY

This report presents the results of the geotechnical investigation SCST, Inc. (SCST) performed for the subject project. We understand the project will consist of the design and construction of a two-story building and associated pavements, hardscape, underground utilities, and storm water BMP facilities. The purpose of our work is to provide conclusions and recommendations regarding the geotechnical aspects of the project.

We explored the subsurface conditions by drilling 5 borings and 2 percolation test holes to depths between about 5 and 20 feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow-stem auger. Auger refusal was encountered in one of the borings. An SCST engineer logged the borings and test holes and collected samples of the materials encountered for laboratory testing. SCST tested selected samples from the borings and test holes to evaluate pertinent soil classification and engineering properties to assist in developing geotechnical conclusions and recommendations.

The materials encountered in the borings and percolation test holes consist of fill, old alluvial flood-plain deposits, and San Diego Formation. The fill extends to depths up to about 11 feet below the existing ground surface and consists of loose to medium dense clayey sand to clayey gravel and very stiff sandy clay with cobbles and concrete debris. The old alluvial flood-plain deposits consist of dense clayey sand and hard sandy clay. The San Diego Formation consists of medium dense to very dense, weakly cemented silty sandstone. Groundwater was not observed in the borings or test holes.

We performed two borehole percolation tests. Tested infiltration rates of 0.0 inch per hour were measured at both locations. The tested infiltration rates do not support infiltration of storm water in any appreciable quantity. Onsite storm water BMP facilities should be lined with an impermeable liner and a subdrain and collection pipe system installed to reduce the potential for lateral migration of the introduced water beneath structures and improvements.

The main geotechnical consideration affecting the planned construction is the presence of potentially compressible fill. To reduce the potential for settlement, the existing fill should be excavated in its entirety below the planned structure, settlement sensitive improvement and new fills. Additionally, old alluvial flood-plain deposits or San Diego Formation within 3 feet of the deepest planned footing bottom level should be excavated. Excavations up to 11 feet below the existing ground surface should be expected. We anticipate that the excavated material free of oversized cobbles and debris can be used as compacted fill. Material with an expansion index of 50 or less should be placed from 3 feet below the deepest planned footing bottom level to finished pad grade. Hardscape should be underlain by at least 2 feet of material with an expansion index less of 50 or less. The planned building can be supported on shallow spread footings with bottoms levels on compacted fill. The recommendations presented herein may need to be updated once final plans are developed.

1. INTRODUCTION

This report presents the results of the geotechnical investigation SCST, Inc. (SCST) performed for the subject project. We understand the project will consist of the design and construction of a two-story building and associated pavements, hardscape, underground utilities, and storm water BMP facilities. The purpose of our work is to provide conclusions and recommendations regarding the geotechnical aspects of the project. Figure 1 presents a site vicinity map.

2. SCOPE OF WORK

2.1 FIELD INVESTIGATION

We explored the subsurface conditions by drilling 5 borings and 2 percolation test holes to depths between about 5 and 20 feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow-stem auger. Auger refusal was encountered in one of the borings. Figure 2 shows the approximate locations of the borings and percolation tests. An SCST engineer logged the borings and percolation test holes and collected samples of the materials encountered for laboratory testing. Logs of the borings and test holes are presented in Appendix I. Soils are classified according to the Unified Soil Classification System illustrated on Figure I-1.

2.2 LABORATORY TESTING

Selected samples obtained from the borings and percolation test holes were tested to evaluate pertinent soil classification and engineering properties and enable development of geotechnical conclusions and recommendations. The laboratory tests consisted of in situ moisture and density, grain size distribution, Atterberg limits, R-value, expansion index, and corrosivity. The results of the laboratory tests and brief explanations of the test procedures are presented in Appendix II.

2.3 ANALYSIS AND REPORT

The results of the field and laboratory tests were evaluated to develop conclusions and recommendations regarding:

- Subsurface conditions beneath the site
- Potential geologic hazards
- Criteria for seismic design in accordance with the 2016 California Building Code (CBC)
- Site preparation and grading
- Foundation alternatives and geotechnical engineering criteria for design of the foundations
- Estimated foundation settlements
- Support for concrete slabs-on-grade
- Lateral pressures for the design of retaining walls
- Pavement sections
- Soil corrosivity
- Infiltration feasibility

3. SITE DESCRIPTION

The subject site is located west of Euclid Avenue and north of Guymon Street in the Chollas View community of the City of San Diego, California. Existing site improvements consist of a playfield, a basketball court, and a paved parking lot. The site is bordered on the west by an ascending slope about 20 feet in height and inclined at about 2:1 (horizontal:vertical). Site elevations range from about 124 feet at the northwest corner of the site to about 120 feet at the southeast corner.

4. PROPOSED DEVELOPMENT

We understand the project will consist of the design and construction of a two-story building and associated pavements, hardscape, underground utilities, and storm water BMP facilities. As currently planned, the building will have a finish floor elevation of 123.20 feet. Minor site grading will be needed to achieve finish site grades.

5. GEOLOGY AND SUBSURFACE CONDITIONS

The materials encountered in the borings and percolation test holes consist of fill, old alluvial flood-plain deposits, and San Diego Formation. Descriptions of the materials are presented below. Figure 2 presents the site-specific geology. Figure 3 presents a geologic cross section. Figure 4 presents the regional geology in the vicinity of the site.

Fill: Fill was encountered in each of the borings. The fill consists loose to medium dense clayey sand with gravel and clayey gravel with sand and very stiff sandy clay. Cobbles and concrete debris were encountered within the fill. The fill encountered in our borings extends to depths varying from about 3½ feet to 11 feet below the existing ground surface. The existing fill is considered compressible and unsuitable for support of the planned structure.

Old Alluvial Flood-Plain Deposits: Old alluvial flood-plain deposits were encountered beneath the fill in borings B-1, B-3, and B-5. The old alluvial flood-plain deposits consist of dense clayey sand and hard sandy clay.

San Diego Formation: San Diego Formation underlies the site. The San Diego Formation consists of medium dense to very dense, weakly cemented silty sandstone.

Groundwater: Groundwater was not encountered in the borings or percolation test holes. The groundwater table is expected to be below a depth that will influence planned construction. However, groundwater levels may fluctuate in the future due to rainfall, irrigation, broken pipes, or changes in site drainage. Because groundwater rise or seepage is difficult to predict, such conditions are typically mitigated if and when they occur.

6. GEOLOGIC HAZARDS

6.1 CITY OF SAN DIEGO SEISMIC SAFETY STUDY

Figure 5 shows the site location on the City of San Diego (2008) Seismic Safety Study map. The site is located in Geologic Hazard Category 52, which is defined as other level areas, gently sloping to steep terrain, favorable geologic structure, and low risk. In our opinion, the geologic risk is low.

6.2 FAULTING AND SURFACE RUPTURE

The closest known active fault is the Rose Canyon fault zone (Silver Strand fault) located about 4.3 miles (7.0 kilometers) west-southwest of the site. The site is not located in an Alquist-Priolo Earthquake Fault Zone. No active faults are known to underlie or project toward the site. Therefore, the probability of fault rupture at the site is low.

6.3 CBC SEISMIC DESIGN PARAMETERS

A geologic hazard likely to affect the project is ground shaking as a result of movement along an active fault zone in the vicinity of the subject site. The site coefficients and maximum considered earthquake (MCE_R) spectral response acceleration parameters in accordance with the 2016 CBC are presented below:

Site Coordinates: Latitude 32.71285°
Longitude -117.08541°
Site Class: D
Site Coefficients, F_a = 1.105
F_v = 1.648
Mapped Spectral Response Acceleration at Short Period, S_s = 0.989g
Mapped Spectral Response Acceleration at 1-Second Period, S_1 = 0.376g
Design Spectral Acceleration at Short Period, S_{DS} = 0.728g
Design Spectral Acceleration at 1-Second Period, S_{D1} = 0.413g
Site Peak Ground Acceleration, PGA_M = 0.447g

6.4 LIQUEFACTION AND DYNAMIC SETTLEMENT

Liquefaction occurs when loose, saturated sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid, resulting in large total and differential ground surface settlements and possible lateral spreading during an earthquake. Given the relatively dense nature of the materials beneath the site, and provided the recommended remedial grading is performed, the potential for liquefaction and dynamic settlement to occur at the site is low.

6.5 LANDSLIDES AND SLOPE STABILITY

Evidence of landslides or slope instabilities was not observed. The potential for landslides or slope instabilities to occur at the site is considered low.

6.6 TSUNAMIS, SEICHES AND FLOODING

The site is not located within a mapped area on the State of California Tsunami Inundation Maps (Cal EMA, 2009); therefore, damage due to tsunamis is considered negligible. Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays, or reservoirs. The site is not located adjacent to any lakes or confined bodies of water; therefore, the potential for a seiche to affect the site is low. However, the southeast corner of the site is located within a 0.2% annual chance flood area (FEMA, 2012) associated with Chollas Creek.

6.7 SUBSIDENCE

The site is not located in an area of known subsidence associated with fluid withdrawal (groundwater or petroleum); therefore, the potential for subsidence due to the extraction of fluids is negligible.

6.8 HYDRO-CONSOLIDATION

Hydro-consolidation can occur in recently deposited sediments (less than 10,000 years old) that were deposited in a semi-arid environment. Examples of such sediments are aeolian sands, alluvial fan deposits, and mudflow sediments deposited during flash floods. The pore spaces between the particle grains can re-adjust when inundated by groundwater causing the material to consolidate. The relatively dense materials underlying the site are not considered susceptible to hydro-consolidation.

7. CONCLUSIONS

Based on the results of our investigation, we consider the planned construction feasible from a geotechnical standpoint provided the recommendations of this report are followed. The main geotechnical consideration affecting the planned development is the presence of potentially compressible fill. Remedial grading will need to be performed to reduce the potential for distress to the planned building and improvements. Remedial grading recommendations are provided herein. The planned building can be supported on shallow spread footings with bottoms levels on compacted fill. The recommendations presented herein may need to be updated once final plans are developed.

8. RECOMMENDATIONS

8.1 SITE PREPARATION AND GRADING

8.1.1 Site Preparation

Site preparation should begin with the removal of existing improvements, topsoil, vegetation and debris. Subsurface improvements that are to be abandoned should be removed and the resulting excavations should be backfilled and compacted in accordance with the recommendations of this report. Pipeline abandonment can consist of capping or rerouting at the project perimeter and removal within the project perimeter. If appropriate, abandoned pipelines can be filled with grout or slurry as recommended by and observed by the geotechnical consultant.

8.1.2 Remedial Grading

To reduce the potential for settlement, the existing fill should be excavated in its entirety beneath the planned building, settlement sensitive improvements, and new fills. Additionally, old alluvial flood-plain deposits or San Diego Formation within 3 feet of the deepest planned footing bottom level should be excavated. Excavations up to 11 feet below the existing ground surface should be anticipated. Horizontally, the excavations should extend at least 5 feet outside the planned perimeter foundations, at least 2 feet outside the planned hardscape and pavements, or up to existing improvements or the project boundary, whichever is less. A SCST representative should observe conditions exposed in the bottom of the excavation to determine if additional excavation is required.

8.1.3 Compacted Fill

Excavated material, except for roots, debris and rocks greater than 6 inches, can be used as compacted fill. We expect that some of the existing fill will need to be screened to remove oversized rock and debris prior to being placed as compacted fill. Material with an expansion index of 50 or less determined in accordance with ASTM D4829 should be placed from 3 feet below the deepest planned footing bottom level to finished pad grade. Hardscape should be underlain by at least 2 feet of material with an expansion index of 50 or less. Based on our laboratory test results, we expect that most of the onsite soils will meet the expansion index criteria.

The material exposed in the bottom of the excavation should be scarified to a depth of 6 to 8 inches, moisture conditioned, and compacted to at least 90% relative compaction. Fill should be placed in horizontal lifts at a thickness appropriate for the equipment spreading, mixing, and compacting the material, but generally should not exceed 8 inches in loose thickness. Fill should be moisture conditioned to near optimum moisture content and compacted to at least 90% relative compaction. The maximum dry density and optimum moisture content for evaluating relative compaction should be determined in accordance with ASTM D 1557. Utility trench backfill beneath structures, pavements and hardscape should be compacted to at least 90% relative compaction. The top 12 inches of subgrade beneath pavements should be compacted to at least 95%.

8.1.4 Expansive Soil

The onsite soils tested have a very low to low expansion potential. The foundation recommendations presented in this report reflect a low expansion potential.

8.1.5 Imported Soil

Imported soil should consist of predominately granular soil free of organic matter and rocks greater than 6 inches. Imported soil should be observed and, if appropriate, tested by SCST prior to transport to the site to determine suitability for the intended use.

8.1.6 Excavation Characteristics

It is anticipated that excavations can be achieved with conventional earthwork equipment in good working order. Cobbles and debris should be anticipated in the fill. Difficult excavation should be anticipated in cemented zones within the San Diego Formation.

8.1.7 Oversized Material

Excavations may generate oversized material. Oversized material is defined as rocks or cemented clasts greater than 6 inches in largest dimension. Oversized material should be broken down to no greater than 6 inches in largest dimension for use in fill, used as landscape material, or disposed offsite.

8.1.8 Temporary Excavation

Temporary excavations 3 feet deep or less can be made vertically. Deeper temporary excavations should be laid back no steeper than 1:1 (horizontal:vertical). The faces of temporary slopes should be inspected daily by the contractor's Competent Person before personnel are allowed to enter the excavation. Any zones of potential instability, sloughing or raveling should be brought to the attention of the Engineer and corrective action implemented before personnel begin working in the excavation. Excavated soils should not be stockpiled behind temporary excavations within a distance equal to the depth of the excavation. SCST should be notified if other surcharge loads are anticipated so that lateral load criteria can be developed for the specific situation. If temporary slopes are to be maintained during the rainy season, berms are recommended along the tops of slopes to prevent runoff water from entering the excavation and eroding the slope faces.

Slopes steeper than those described above will require shoring. Additionally, temporary excavations that extend below a plane inclined at 1½:1 (horizontal:vertical) downward from the outside bottom edge of existing structures or improvements will require shoring or underpinning. Soldier piles and lagging, internally braced shoring or trench boxes could be used. If trench boxes are used, the soil immediately adjacent to the trench box is not directly supported. Ground surface deformations immediately adjacent to the pit or trench could be greater where trench boxes are used compared to other methods of shoring.

As an alternative to shoring/underpinning, maximum 10-foot wide slots can be excavated and immediately backfilled adjacent to existing structures and improvement. Care should be taken to not undermine existing footings. Slot excavations should be filled prior to performing adjacent excavations.

8.1.9 Temporary Shoring

For design of cantilevered shoring, an active soil pressure equal to a fluid weighing 35 pcf can be used for level retained ground or 55 pcf for 2:1 (horizontal:vertical) sloping ground. The surcharge loads on shoring from traffic and construction equipment adjacent to the excavation can be modeled by assuming an additional 2 feet of soil behind the shoring. For design of soldier piles, an allowable passive pressure of 350 psf per foot of embedment over twice the pile diameter up to a maximum of 5,000 psf can be used. Soldier piles should be spaced at least three pile diameters, center to center. Continuous lagging will be required throughout. The soldier piles should be designed for the full anticipated lateral pressure; however, the pressure on the lagging will be less due to arching in the soils. For design of lagging, the earth pressure but can be limited to a maximum value of 400 psf.

8.1.10 Temporary Dewatering

Groundwater seepage may occur locally due to broken pipes, local irrigation or following heavy rain. Groundwater should be anticipated in the planned excavations. Dewatering can be accomplished by sloping the excavation bottom to a sump and pumping from the sump. A layer of gravel about 6 inches thick placed in the bottom of the excavation will facilitate groundwater flow and can be used as a working platform.

8.1.11 Slopes

All permanent slopes should be constructed no steeper than 2:1 (horizontal:vertical). Faces of fill slopes should be compacted either by rolling with a sheep-foot roller or other suitable equipment, or by overfilling and cutting back to design grade. Fills should be benched into sloping ground inclined steeper than 5:1 (horizontal:vertical). It is our opinion that cut slopes constructed no steeper than 2:1 (horizontal:vertical) will possess an adequate factor of safety. An engineering geologist should observe all cut slopes during grading to ascertain that no unforeseen adverse geologic conditions are encountered that require revised recommendations. All slopes are susceptible to surficial slope failure and erosion. Water should not be allowed to flow over the top of slope. Additionally, slopes should be planted with vegetation that will reduce the potential for erosion.

8.1.12 Surface Drainage

Final surface grades around structures should be designed to collect and direct surface water away from the structure and toward appropriate drainage facilities. The ground around the structure should be graded so that surface water flows rapidly away from the structure without ponding. In general, we recommend that the ground adjacent to the structure slope away at a gradient of at least 2%. Densely vegetated areas where runoff can be impaired should have a minimum gradient of at least 5% within the first 5 feet from the structure. Roof gutters with downspouts that discharge directly into a closed drainage system are recommended on structures. Drainage patterns established at the time of fine grading should be maintained throughout the life of the proposed structures. Site irrigation should be limited to the minimum necessary to sustain landscape growth. Should excessive irrigation, impaired drainage, or unusually high rainfall occur, saturated zones of perched groundwater can develop.

8.1.13 Grading Plan Review

SCST should review the grading plans and earthwork specifications to ascertain whether the intent of the recommendations contained in this report have been implemented, and that no revised recommendations are needed due to changes in the development scheme.

8.2 FOUNDATIONS

8.2.1 Shallow Spread Footings

The planned building can be supported on shallow spread footings with bottoms levels on granular compacted fill. Footings should extend at least 24 inches below lowest adjacent finished grade. Continuous footings should be at least 12 inches wide. Isolated or retaining wall footings should be at least 24 inches wide. An allowable bearing capacity of 2,500 psf can be used. The bearing capacity can be increased by 500 psf for each foot of depth below the minimum and 250 psf for each foot of width beyond the minimum up to a maximum of 5,000 psf. The bearing value can be increased by ⅓ when considering the total of all loads, including wind or seismic forces. Footings located adjacent to or within slopes should be extended to a depth such that a minimum horizontal distance of 7 feet exists between the lower outside footing edge and the face of the slope.

Lateral loads will be resisted by friction between the bottoms of footings and passive pressure on the faces of footings and other structural elements below grade. An allowable coefficient of friction of 0.35 can be used. Passive pressure can be computed using an allowable lateral pressure of 350 psf per foot of depth below the ground surface for level ground conditions. Reductions for sloping ground should be made. The passive pressure can be increased by ⅓ when considering the total of all loads, including wind or seismic forces. The upper 1 foot of soil should not be relied on for passive support unless the ground is covered with pavements or slabs.

8.2.2 Settlement Characteristics

Total foundation settlements are estimated to be less than 1 inch. Differential settlements between adjacent columns and across continuous footings are estimated to be less than ¾ inch over a distance of 40 feet. Settlements should be completed shortly after structural loads are applied.

8.2.3 Foundation Plan Review

SCST should review the foundation plans to ascertain that the intent of the recommendations in this report has been implemented and that revised recommendations are not necessary as a result of changes after this report was completed.

8.2.4 Foundation Excavation Observations

A representative from SCST should observe the foundation excavations prior to forming or placing reinforcing steel.

8.3 SLABS-ON-GRADE

8.3.1 Interior Slabs-on-Grade

The project structural engineer should design the interior concrete slabs-on-grade floor. However, we recommend that building slabs be at least 5 inches thick and reinforced with at least No. 4 bars at 18 inches on center each way.

Moisture protection should be installed beneath slabs where moisture sensitive floor coverings will be used. The project architect should review the tolerable moisture transmission rate of the proposed floor covering and specify an appropriate moisture protection system. Typically, a plastic vapor barrier is used. Minimum 10-mil plastic is recommended. The plastic should comply with ASTM E1745. The vapor barrier installation should comply with ASTM E1643. Construction practice often includes placement of a 2-inch thick sand cushion between the bottom of the concrete slab and the moisture vapor retarder/barrier. This cushion can provide some protection to the vapor retarder/barrier during construction, and may assist in reducing the potential for edge curling in the slab during curing. However, the sand layer also provides a source of moisture to the underside of the slab that can increase the time required to reduce vapor emissions to limits acceptable for the type of floor covering placed on top of the slab. The slab can be placed directly on the vapor retarder/barrier.

8.3.2 Exterior Slabs-on-Grade

Exterior slabs should be at least 4 inches thick and reinforced with at least No. 3 bars at 18 inches on center each way. Slabs should be provided with weakened plane joints. Joints should be placed in accordance with the American Concrete Institute (ACI) guidelines. The project architect should select the final joint patterns. A 1-inch maximum size aggregate mix is recommended for concrete for exterior slabs. The corrosion potential of on-site soils with respect to reinforced concrete will need to be taken into account in concrete mix design. Coarse and fine aggregate in concrete should conform to the “Greenbook” Standard Specifications for Public Works Construction.

8.4 CONVENTIONAL RETAINING WALLS

8.4.1 Foundations

The recommendations provided in the foundation section of this report are also applicable to conventional retaining walls.

8.4.2 Lateral Earth Pressures

The active earth pressure for the design of unrestrained retaining walls with level backfill can be taken as equivalent to the pressure of a fluid weighing 35 pcf. The at-rest earth pressure for the design of restrained retaining walls with level backfills can be taken as equivalent to the pressure of a fluid weighing 55 pcf. These values assume a granular and drained backfill condition. Higher lateral earth pressures would apply if walls retain expansive clay soils. An additional 20 pcf should be added to these values for walls with a 2:1 (horizontal:vertical) sloping backfill. An increase in earth pressure equivalent to an additional 2 feet of retained soil can be used to account for surcharge loads from light traffic. The above values do not include a factor of safety. Appropriate factors of safety should be incorporated into the design. If any other surcharge loads are anticipated, SCST should be contacted for the necessary increase in soil pressure.

Retaining walls should be designed to resist hydrostatic pressures or be provided with a backdrain to reduce the accumulation of hydrostatic pressures. Backdrains may consist of a 2-foot wide zone of ¾-inch crushed rock. The backdrain should be separated from the adjacent soils using a non-woven filter fabric, such as Mirafi 140N or equivalent. Weep holes should be provided or a perforated pipe should be installed at the base of the backdrain and sloped to discharge to a suitable storm drain facility. As an alternative, a geocomposite drainage system such as Miradrain 6000 or equivalent placed behind the wall and connected to a suitable storm drain facility can be used. The project architect should provide waterproofing specifications and details. Figure 6 presents typical conventional retaining wall backdrain details.

8.4.3 Seismic Earth Pressure

If required, the seismic earth pressure can be taken as equivalent to the pressure of a fluid weighing 16 pcf. This value is for level backfill and does not include a factor of safety. Appropriate factors of safety should be incorporated into the design. This pressure is in addition to the un-factored, static active earth pressure. The passive pressure and bearing capacity can be increased by ⅓ in determining the seismic stability of the wall.

8.4.4 Backfill

Wall backfill should consist of granular, free-draining material having an expansion index of 20 or less. The backfill zone is defined by a 1:1 plane projected upward from the heel of the wall. Expansive or clayey soil should not be used. We anticipate that most of the onsite soils will not be suitable for wall backfill. Additionally, backfill within 3 feet from the back of the wall should not contain rocks greater than 3 inches in dimension. Backfill should be compacted to at least 90% relative compaction. Backfill should not be placed until walls have achieved adequate structural strength. Compaction of wall backfill will be necessary to minimize settlement of the backfill and overlying settlement sensitive improvements. However, some settlement should still be anticipated. Provisions should be made for some settlement of concrete slabs and pavements supported on backfill. Additionally, any utilities supported on backfill should be designed to tolerate differential settlement.

8.5 MECHANICALLY STABILIZED EARTH RETAINING WALLS

The following soil parameters can be used for design of mechanically stabilized earth (MSE) retaining walls.

MSE Wall Design Parameters

Soil Parameter	Reinforced Soil	Retained Soil	Foundation Soil
Internal Friction Angle (degrees)	32°	32°	32°
Cohesion (psf)	0	0	0
Moist Unit Weight (pcf)	130	130	130

The reinforced soil should consist of granular, free-draining material with an expansion index of 20 or less. The bottom of MSE walls should extend to such a depth that a total of 5 feet exists between the bottom of the wall and the face of the slope. Figure 7 presents a typical MSE retaining wall backdrain detail. MSE retaining walls may experience lateral movement over time. The wall engineer should review the configuration of proposed improvements adjacent to the wall and provide measures to help reduce the potential for distress to these improvements from lateral movement.

8.6 PIPELINES

8.6.1 Thrust Blocks

For level ground conditions, a passive earth pressure of 350 psf per foot of depth below the lowest adjacent final grade can be used to compute allowable thrust block resistance. A value of 150 psf per foot should be used below groundwater level, if encountered.

8.6.2 Modulus of Soil Reaction

A modulus of soil reaction (E’) of 2,000 psi can be used to evaluate the deflection of buried flexible pipelines. This value assumes that granular bedding material is placed adjacent to the pipe and is compacted to at least 90% relative compaction.

8.6.3 Pipe Bedding

Pipe bedding as specified in the “Greenbook” Standard Specifications for Public Works Construction can be used. Bedding material should consist of clean sand having a sand equivalent not less than 30 and should extend to at least 12 inches above the top of pipe. Alternative materials meeting the intent of the bedding specifications are also acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. The onsite materials are not expected to meet “Greenbook” bedding specifications. The pipe bedding material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No voids or uncompacted areas should be left beneath the pipe haunches. Ponding or jetting the pipe bedding should not be allowed.

8.6.4 Backfill

Excavated materials free of organic debris and rocks greater than 6 inches in any dimension are generally expected to be suitable for use as utility trench backfill, unless beneath structures or hardscape. Imported material should not contain rocks greater than 3 inches in any dimension or organic debris. Imported material should have an expansion index of 20 or less. SCST should observe and, if appropriate, test proposed import materials before they are delivered to the site. Backfill should be placed in lifts 8 inches or less in loose thickness, moisture conditioned to optimum moisture content or slightly above, and compacted to at least 90% relative compaction. The top 12 inches of soil beneath pavement subgrade should be compacted to at least 95% relative compaction.

8.7 PAVEMENT SECTION RECOMMENDATIONS

The pavement support characteristics of the soils encountered during our investigation are considered medium. An R-value of 26 was assumed for design of preliminary pavement sections. The actual R-value of the subgrade soils should be determined after grading and final pavement sections be provided. Based on an R-value of 26, the following pavement structural sections are recommended for the assumed Traffic Indices.

Flexible Pavement Sections

Traffic Type	Traffic Index	Asphalt Concrete (inches)	Aggregate Base* (inches)
Parking Stalls	4.5	3	5
Drive Lanes	6.0	4	8
Fire Lanes	7.5	4	12

Portland Cement Concrete Pavement Sections

Traffic Type	Traffic Index	Full-Depth JPCP* (inches)
Parking Stalls	4.5	6
Drive Lanes	6.0	6½
Heavy Traffic Areas	7.5	7

***Jointed Plain Concrete Pavement**

The top 12 inches of subgrade should be scarified, moisture conditioned to near optimum moisture content and compacted to at least 95% relative compaction. All soft or yielding areas should be removed and replaced with compacted fill or aggregate base. Aggregate base and asphalt concrete should conform to the Caltrans Standard Specifications or the “Greenbook” and should be compacted to at least 95% relative compaction. Aggregate base should have an R-value of not less than 78. All materials and methods of construction should conform to good engineering practices and the minimum standards of the City of San Diego.

8.8 PERVIOUS PAVEMENT SECTION RECOMMENDATIONS

Pervious pavement section recommendations are based on Caltrans (2014) pavement structural design guidelines. The pavement sections below are based on the strength of the materials. However, the actual thickness of the sections may be controlled by the reservoir layer design, which the project civil engineer should determine.

Pervious Asphalt Pavement

Traffic Type	Category	*Asphalt Treated Permeable Base (ATPB) (inches)	Class 4 Aggregate Base (inches)
Parking Stalls	B	5	6

***1¼ inches of an open graded friction course (OGFC) should be placed on top of the ATPB.**

Pervious Concrete Pavement

Traffic Type	Category	Pervious Concrete (inches)	Class 4 Aggregate Base (inches)
Parking Stalls	B	6	6

Permeable Interlocking Concrete Pavers (PICP)

Traffic Type	Category	PICP (inches)	Class 3 Permeable (inches)	Class 4 Aggregate Base (inches)
Parking Stalls	B	3⅛	5	6

The top 12 inches of subgrade should be scarified, moisture conditioned to near optimum moisture content and compacted to at least 95% relative compaction. All soft or yielding subgrade areas should be removed and replaced with compacted fill or permeable base. All materials and methods of construction should conform to good engineering practices and the minimum local standards.

Pervious pavement sections should be lined with an impermeable geomembrane to reduce the potential for water-related distress to adjacent structures or improvements. A suitable subdrain system should be installed at the base of the pervious section.

8.9 SOIL CORROSIVITY

A representative sample of the onsite soils were tested to evaluate corrosion potential. The test results are presented in Appendix II. The project design engineer can use the sulfate results in conjunction with ACI 318 to specify the water/cement ratio, compressive strength and cementitious material types for concrete exposed to soil. A corrosion engineer should be contacted to provide specific corrosion control recommendations.

8.10 INFILTRATION FEASIBILITY

We performed two borehole percolation tests at the approximate locations shown on Figure 2 to assess storm water infiltration feasibility. Appendix III presents the field data and test results. The table below presents the tested infiltration rates.

Infiltration Rate Test Results

Test Location	Test Depth (feet)	Material Type at Test Depth (USCS Classification)	Infiltration Rate (inch/hour)
P-1	5	CLAYEY SAND with GRAVEL (SC)	0.0
P-2	5	CLAYEY SAND with GRAVEL (SC)	0.0

The tested infiltration rates do not support storm water infiltration in any appreciable quantity. Based on our test results, the feasibility screening category is No Infiltration. BMP facilities should be lined with an impermeable geomembrane to reduce the potential for water-related distress to adjacent structures or improvements. A subdrain system should be installed at the bottom of BMP facilities. Foundations should be set back at least 10 feet from BMP facilities, or the foundation should be deepened to a depth that extends below the bottom of the BMP.

9. GEOTECHNICAL ENGINEERING DURING CONSTRUCTION

The geotechnical engineer should review project plans and specifications prior to bidding and construction to check that the intent of the recommendations in this report has been incorporated. Observations and tests should be performed during construction. If the conditions encountered during construction differ from those anticipated based on the subsurface exploration program, the presence of the geotechnical engineer during construction will enable an evaluation of the exposed conditions and modifications of the recommendations in this report or development of additional recommendations in a timely manner.

10. CLOSURE

SCST should be advised of any changes in the project scope so that the recommendations contained in this report can be evaluated with respect to the revised plans. Changes in recommendations will be verified in writing. The findings in this report are valid as of the date of this report. Changes in the condition of the site can, however, occur with the passage of time, whether they are due to natural processes or work on this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report may be invalidated wholly or in part by changes beyond our control. This report should not be relied upon after a period of two years without a review by us verifying the suitability of the conclusions and recommendations to site conditions at that time.

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the boring location, and that our data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data, interpretations, and recommendations, but shall not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

11. REFERENCES

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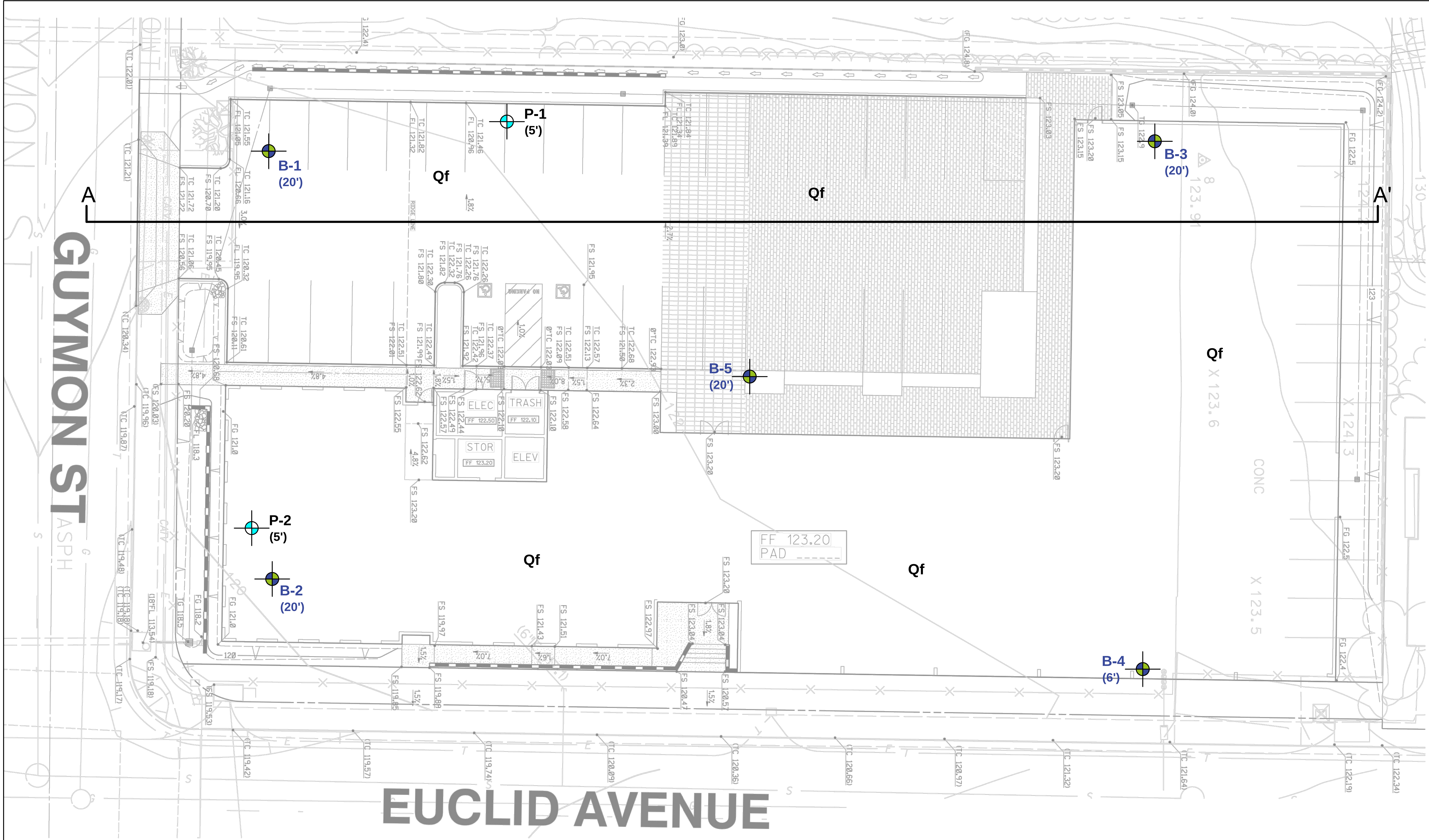
SCST, Inc.

SITE VICINITY MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

Date:	August, 2017
By:	MAW
Job No.:	170270N4-1

Figure: 1



SCST LEGEND:

B-5 (20') Approximate Location of Boring (Depth in Feet)

P-2 (5') Approximate Location of Percolation Test (Depth in Feet)

A A' Approximate Location of Geologic Cross Section

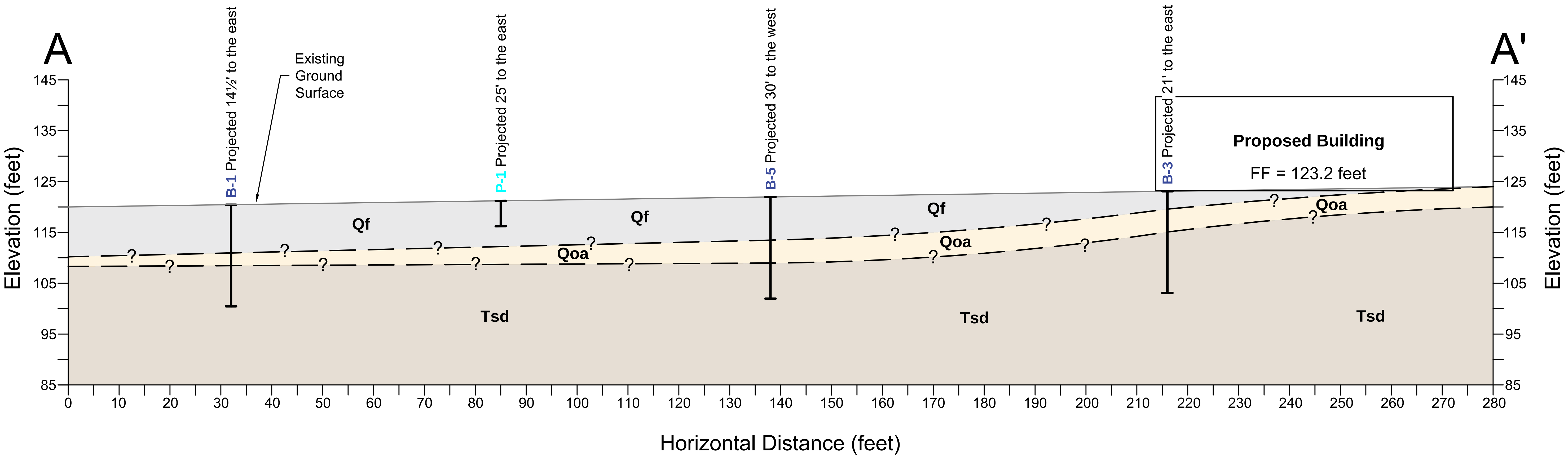
Qf Fill

Date: August, 2017
By: MAW
Job No.: 170270N4-1

GEOTECHNICAL MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

SCST, Inc.

Figure:
2



SCST LEGEND:

B-5 Approximate Location of Boring

P-1 Approximate Location of Percolation Test

? Approximate Location of Geologic Contact, Queried Where Uncertain

Qf Fill

Qoa Old alluvial flood-plain deposits

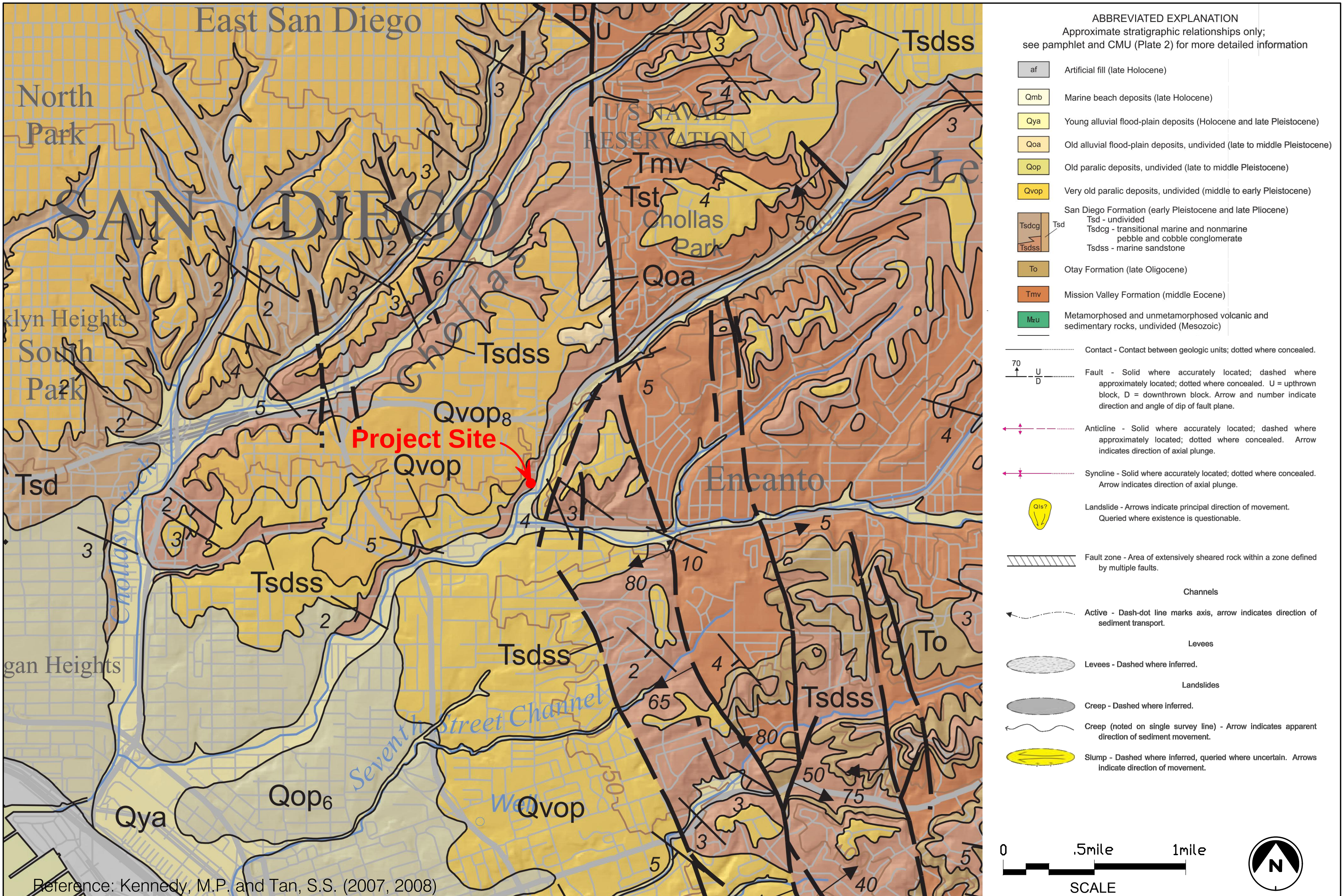
Tsd San Diego Formation

Date: August, 2017
By: MAW
Job No.: 170270N4-1

GEOLOGIC CROSS SECTION
Access Youth Academy
704 Euclid Avenue
San Diego, California

SCST, Inc.

Figure:
3

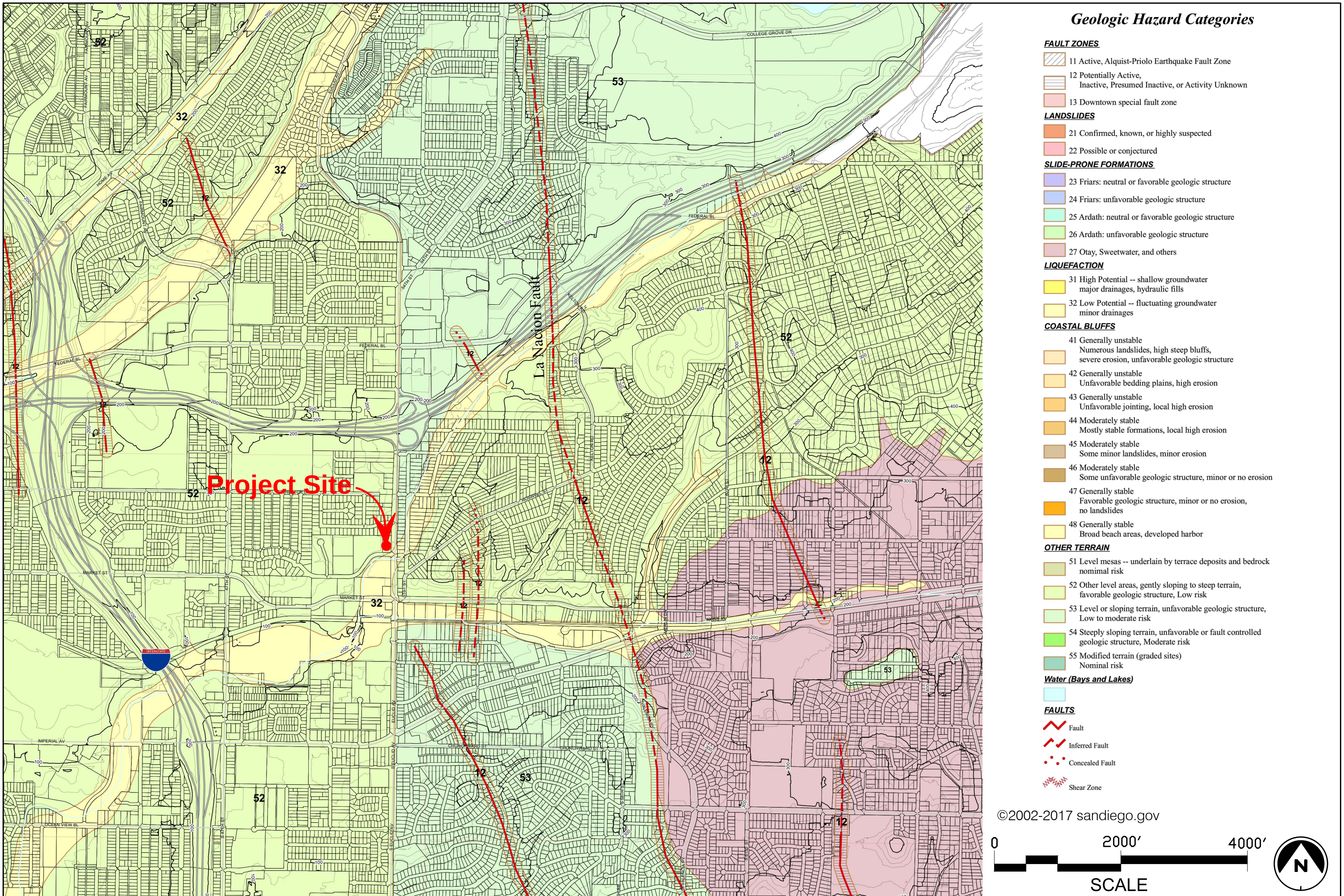


SCST, Inc.

REGIONAL GEOLOGY MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

Date: August, 2017
By: MAW
Job No.: 170270N4-1

Figure: 4

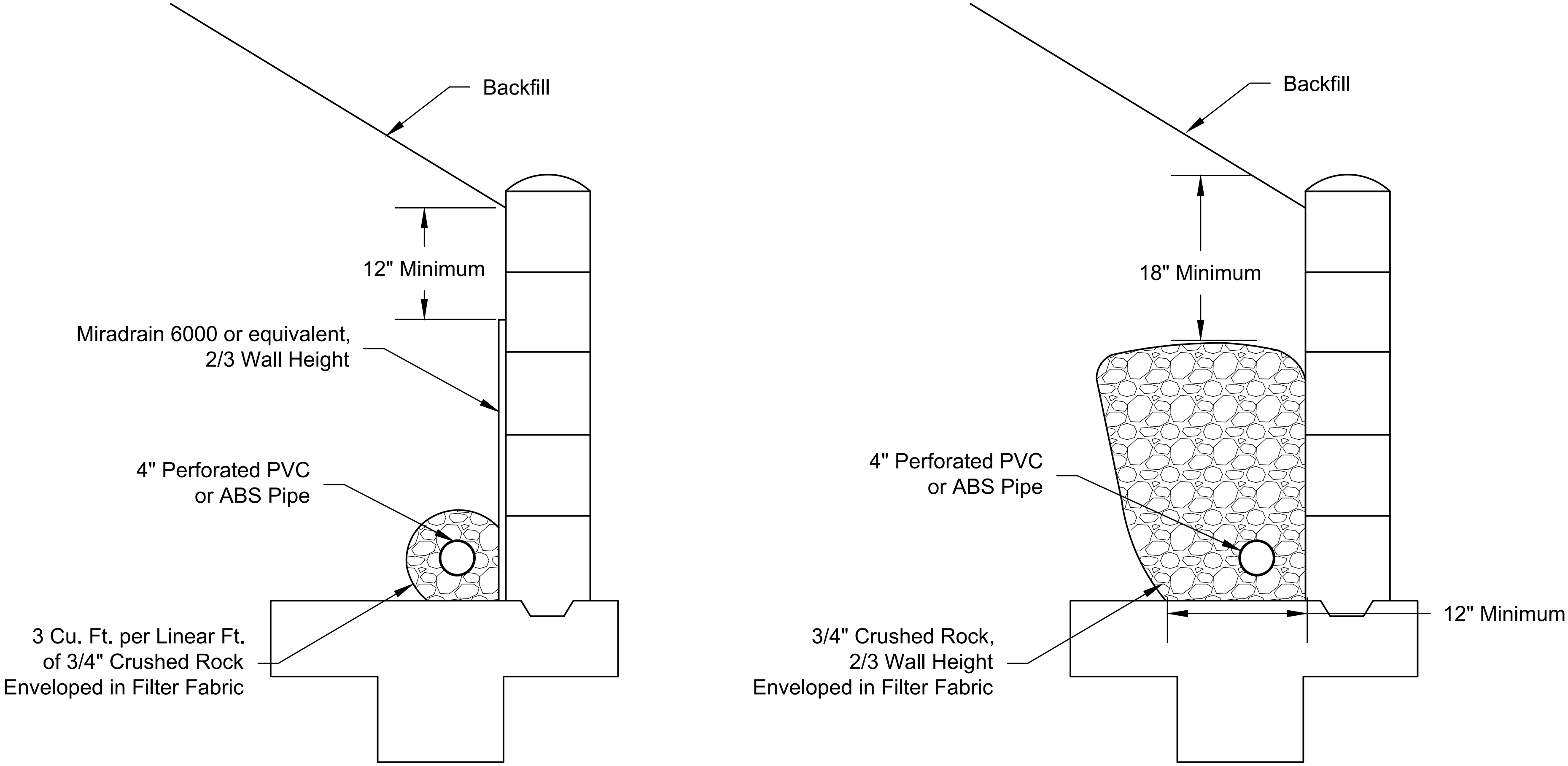


SCST, Inc.

CITY OF SAN DIEGO SEISMIC SAFETY STUDY MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

Date: August, 2017
By: MAW
Job No.: 170270N4-1

Figure: 5

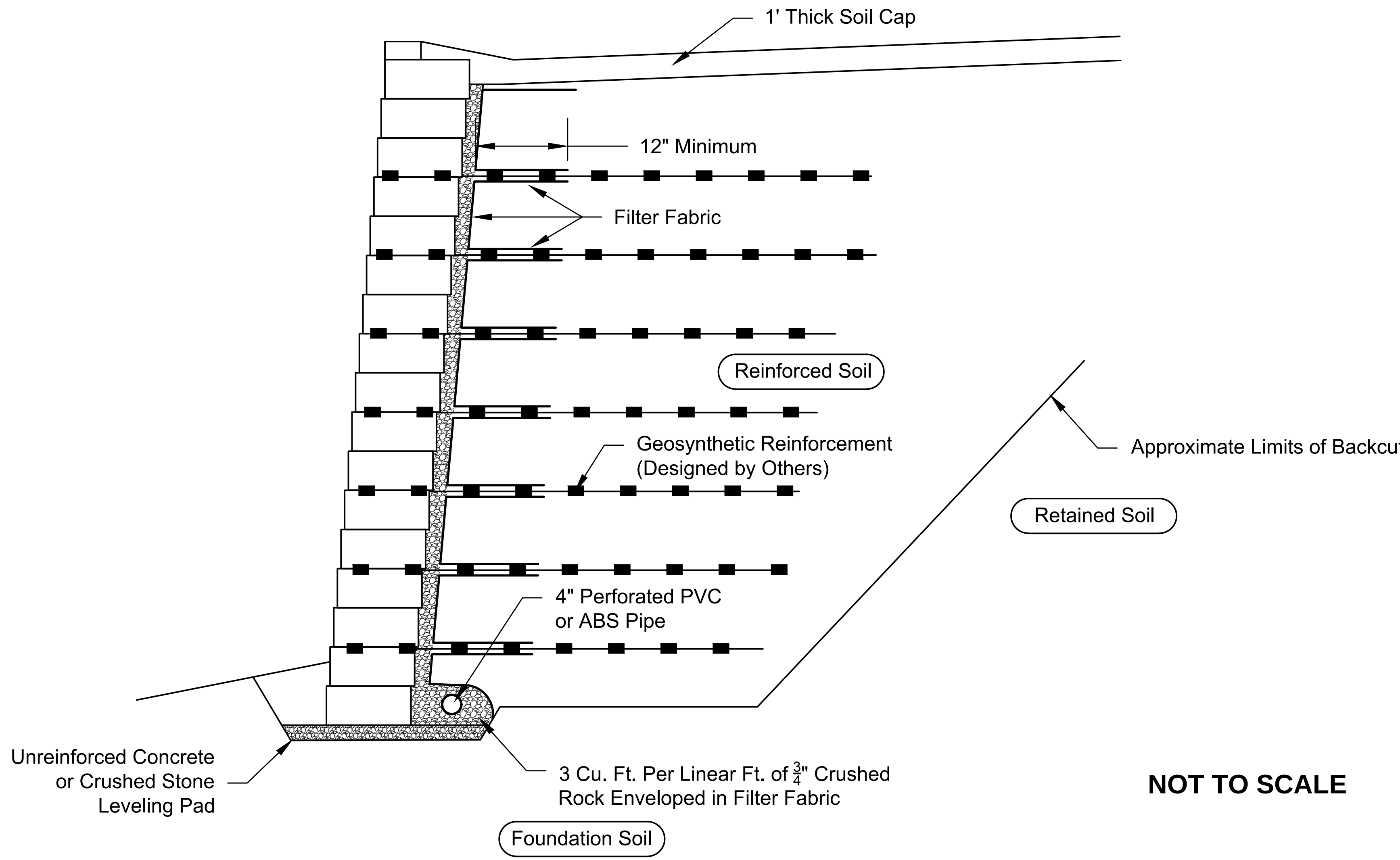


NOT TO SCALE

NOTES:

1) Dampproof or waterproof back of wall following architect's specifications.
2) 4" minimum perforated pipe, SDR35 or equivalent, holes down, 1% fall to outlet. Provide solid outlet pipe at suitable locations.
3) Drain installation and outlet connection should be observed by the geotechnical consultant.

SCST, Inc.	TYPICAL RETAINING WALL BACKDRAIN DETAILS Access Youth Academy 704 Euclid Avenue San Diego, California	Date: August, 2017 By: MAW Job No.: 170270N4-1	Figure: 6



NOT TO SCALE

NOTES:

1) Backcut as recommended by the geotechnical report or field evaluation
2) Additional drain at excavation backcut may be recommended base on conditions obsewrved during construction.
3) Filter fabric should be installed between crushed rock and soil. Filter farbric should consist of Mirafi 140N or equivalent. Filter fabric should be overlapped approximately 6 inches.
4) Perforated pipe should outlet through a solid pipe to an appropriate gravity outfall. Perforated pipe and outlet pipe should have a fall of at least 1%.

SCST, Inc.	TYPICAL MSE RETAINING WALL DETAIL Access Youth Academy 704 Euclid Avenue San Diego, California	Date: August, 2017 By: MAW Job No.: 170270N4-1	Figure: 7

APPENDIX I
FIELD INVESTIGATION

Our field investigation consisted of drilling 5 borings and 2 percolation test holes on July 10, 2017 to depths between about 5 and 20 feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow-stem auger. Auger refusal was encountered in one of the borings. Figure 2 shows the approximate locations of the borings and percolation tests. The field investigation was performed under the observation of an SCST engineer who also logged the boring and test holes and obtained samples of the materials encountered.

Relatively undisturbed samples were obtained using a modified California (CAL) sampler, which is a ring-lined split tube sampler with a 3-inch outer diameter and 2½-inch inner diameter. Standard Penetration Tests (SPT) were performed using a 2-inch outer diameter and 1⅜-inch inner diameter split tube sampler. The CAL and SPT samplers were driven with a 140-pound weight dropping 30 inches. The number of blows needed to drive the samplers the final 12 inches of an 18-inch drive is noted on the boring logs as "Driving Resistance (blows/ft. of drive)." SPT and CAL sampler refusal was encountered when 50 blows were applied during any one of the three 6-inch intervals, a total of 100 blows was applied, or there was no discernible sampler advancement during the application of 10 successive blows. The SPT penetration resistance was normalized to a safety hammer (cathead and rope) with a 60% energy transfer ratio in accordance with ASTM D6066. The normalized SPT penetration resistance is noted on the boring logs as "N_{60}." Disturbed bulk samples were obtained from the SPT sampler and the drill cuttings.

The soils are classified in accordance with the Unified Soil Classification System as illustrated on Figure I-1. Logs of the borings and test holes are presented on Figures I-2 through I-8.

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION CHART

SOIL DESCRIPTION		GROUP SYMBOL	TYPICAL NAMES
I. COARSE GRAINED, more than 50% of material is larger than No. 200 sieve size.			
GRAVELS More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".	CLEAN GRAVELS	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 (Appreciable amount of fines)	GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
		GC	Clayey gravels, poorly graded gravel-sand, clay mixtures.
SANDS More than half of coarse fraction is smaller than No. 4 sieve size.	CLEAN SANDS	SW	Well graded sand, gravelly sands, little or no fines.
		SP	Poorly graded sands, gravelly sands, little or no fines.
		SM	Silty sands, poorly graded sand and silty mixtures.
		SC	Clayey sands, poorly graded sand and clay mixtures.
II. FINE GRAINED, 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, sandy silt or clayey-silt-sand mixtures 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 or low plasticity.
	SILTS AND CLAYS (Liquid Limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
		OH	Organic clays of medium to high plasticity.
III. HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.

SAMPLE SYMBOLS

- ☒ - Bulk Sample
- CAL - Modified California sampler
- CK - Undisturbed Chunk sample
- MS - Maximum Size of Particle
- ST - Shelby Tube
- SPT - Standard Penetration Test sampler

GROUNDWATER SYMBOLS

- ▽ - Water level at time of excavation or as indicated
- - Water seepage at time of excavation or as indicated

LABORATORY TEST SYMBOLS

- AL - Atterberg Limits
- CON - Consolidation
- COR - Corrosivity Tests (Resistivity, pH, Chloride, Sulfate)
- DS - Direct Shear
- EI - Expansion Index
- MAX - Maximum Density
- RV - R-Value
- SA - Sieve Analysis
- UC - Unconfined Compression

SCST, Inc.	Access Youth Academy San Diego, CA			
	By:	BG	Date:	August, 2017
	Job Number:	170270N-1	Figure:	I-1

LOG OF BORING B-1

Date Drilled: 7/10/2017 | Logged by: BG

Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger | Project Manager: TBC

Elevation (ft): 121 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0–1	SC	**FILL (Qf)**: CLAYEY SAND with GRAVEL, light brown, fine to medium grained, moist, loose to medium dense.		X (0–5)					
2									RV
4			CAL		20		--	--	
9			CAL		78/10"		11.2	102.6	
9.5	CL	**OLD ALLUVIAL FLOOD-PLAIN DEPOSITS (Qoa)**: SANDY CLAY, dark brown, fine to medium grained, moist, hard, white mineral precipitate deposits.							
12		**SAN DIEGO FORMATION (Tsd)**: SILTY SANDSTONE, light yellowish brown, fine grained, moist, very dense, weakly cemented.							
14			SPT		51	67			
19		Dense.	SPT		32	42			
20									

BORING TERMINATED AT 20 FEET

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-2

LOG OF BORING B-2

Date Drilled: 7/10/2017 — Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger — Project Manager: TBC
Elevation (ft): 120 — Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0–3	SC	**FILL (Qf)**: CLAYEY SAND with GRAVEL, light brown, fine to medium grained, moist, loose to medium dense.		X					EI
4		Disturbed sample.	CAL	X	78		--	--	
8.5	CL	SANDY CLAY, dark brown and bluish green, fine to medium grained, moist, very stiff.	CAL		28		11.0	111.5	
11		**SAN DIEGO FORMATION (Tsd)**: SILTY SANDSTONE, yellowish brown, fine to medium grained, moist, dense to very dense, weakly cemented.							
14			SPT		38	50			
19			SPT		35	46			

BORING TERMINATED AT 20 FEET

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-3

LOG OF BORING B-3

Date Drilled: 7/10/2017
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger
Elevation (ft): 124

Logged by: BG
Project Manager: TBC
Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0	SC	**FILL (Qf):** CLAYEY SAND with GRAVEL, light brown, fine to medium grained, some cobbles, low plasticity, moist, loose to medium dense.		X (0–5)					SA AL EI COR
1									
2									
3									
3.5	CL	**OLD ALLUVIAL FLOOD-PLAIN DEPOSITS (Qoa):** SANDY CLAY, yellowish brown, fine to medium grained, moist, hard, white mineral precipitate deposits.							
4			CAL		27		13.1	109.1	
5									
6									
7									
8		**SAN DIEGO FORMATION (Qsd)**: SILTY SANDSTONE, yellowish brown, fine to medium grained, some gravel, moist, very dense, weakly cemented.							
9			CAL		82/10"		15.8	111.6	
10									
11									
12									
13									
14		Dense.	SPT		32	42			
15									
16									
17									
18									
19		Medium dense.	SPT		18	23			
20									

BORING TERMINATED AT 20 FEET

SCST, Inc.

Access Youth Academy San Diego, California			
By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-4

LOG OF BORING B-4

Date Drilled: 7/10/2017
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger
Elevation (ft): 123

Logged by: BG
Project Manager: TBC
Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0	GC	**<u>FILL (Qf)</u>:** CLAYEY GRAVEL with SAND, light brown, fine to medium grained, some cobbles, moist, loose to medium dense, concrete debris.		X					
4		No sample recovery.	CAL		94		--	--	
6		**AUGER REFUSAL AT 6 FEET**							

SCST, Inc.	Access Youth Academy San Diego, California
By: BG	Date: August, 2017
Job Number: 170270N-1	Figure: I-5

LOG OF BORING B-5

Date Drilled: 7/10/2017 | Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger | Project Manager: TBC
Elevation (ft): 122 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVEN	SAMPLES BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0	SC	**FILL (Qf):** CLAYEY SAND with GRAVEL, dark brown, fine to medium grained, some cobbles, moist, loose to medium dense.							
1–5				X (1–5 ft)					SA AL EI COR
4			CAL		27		--	--	
8.5	SC	**OLD ALLUVIAL FLOOD-PLAIN DEPOSITS (Qoa):** CLAYEY SAND, dark brown and gray, fine grained, moist, dense, white mineral precipitate deposits.							
9			CAL		50		--	--	
13		**SAN DIEGO FORMATION (Tsd):** SITLY SANDSTONE, yellowish brown, fine to medium grained, moist, medium dense, weakly cemented.							
14			SPT		22	29			
19		Dense.	SPT		32	41			
20									

BORING TERMINATED AT 20 FEET

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-6

LOG OF BORING P-1

Date Drilled: 7/10/2017
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger
Elevation (ft): 122

Logged by: BG
Project Manager: TBC
Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0	SC	**FILL (Qf)**: CLAYEY SAND with GRAVEL, light brown, fine to medium grained, some cobbles, moist, medium dense.		X					
1									
2									SA AL
3									
4			SPT		20	26			
5		**BORING TERMINATED AT 5 FEET**							
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-7

LOG OF BORING P-2

Date Drilled: 7/10/2017 | Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger | Project Manager: TBC
Elevation (ft): 120 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
	SC	**FILL (Qf)**: CLAYEY SAND with GRAVEL, light brown, fine to medium grained, some cobbles, moist, loose to medium dense.		X					
1									
2									SA AL
3									
4			SPT		33	43			
5		**BORING TERMINATED AT 5 FEET**							
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

SCST, Inc.

Access Youth Academy San Diego, California			
By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-8

APPENDIX II
LABORATORY TESTING

Laboratory tests were performed to provide geotechnical parameters for engineering analyses. The following tests were performed:

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.

- **IN SITU MOISTURE AND DENSITY:** The in situ moisture content and dry unit weight were determined on samples collected from the borings. The test results are presented on the boring logs in Appendix I.

- **GRAIN SIZE DISTRIBUTION:** The grain size distribution was determined on four samples in accordance with ASTM D422. Figures II-1 through II-4 present the test results.

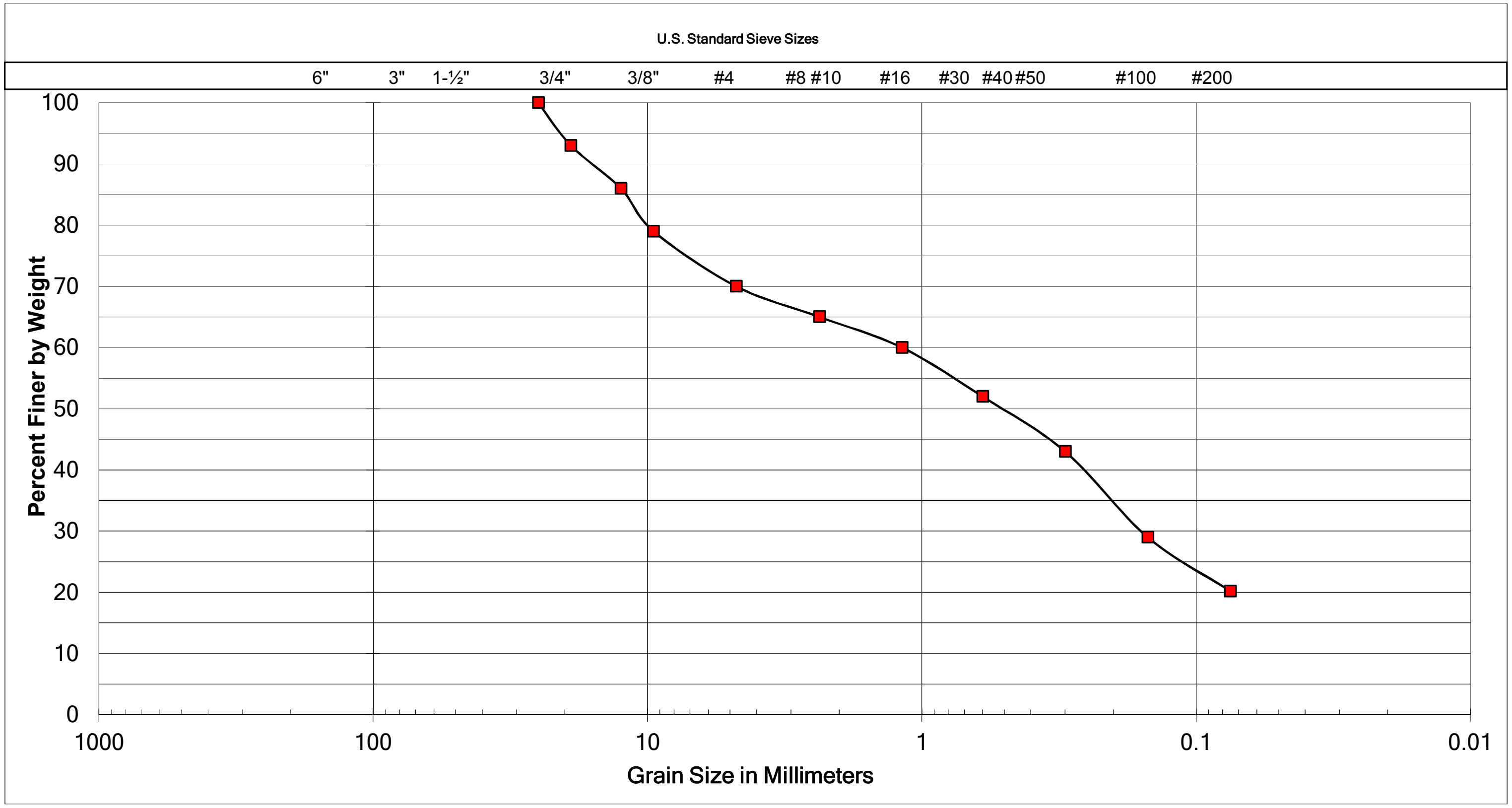
- **ATTERBERG LIMITS:** The Atterberg limits were determined on four soil samples in accordance with ASTM D4318. Figures II-1 through II-4 present the test results.

- **R-VALUE:** An R-value test was performed on one soil sample in accordance with California Test Method 301. Figure II-5 presents the test result.

- **EXPANSION INDEX:** The expansion index was determined on three soil samples in accordance with ASTM D4829. Figure II-5 presents the test results.

- **CORROSIVITY**: Corrosivity tests were performed on two soil samples. The pH and minimum resistivity were determined in general accordance with California Test 643. The soluble sulfate content was determined in accordance with California Test 417. The total chloride ion content was determined in accordance with California Test 422. Figure II-5 presents the test results.

Soil samples not tested are now stored in our laboratory for future reference and analysis, if needed. Unless notified to the contrary, all samples will be disposed of 30 days from the date of this report.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

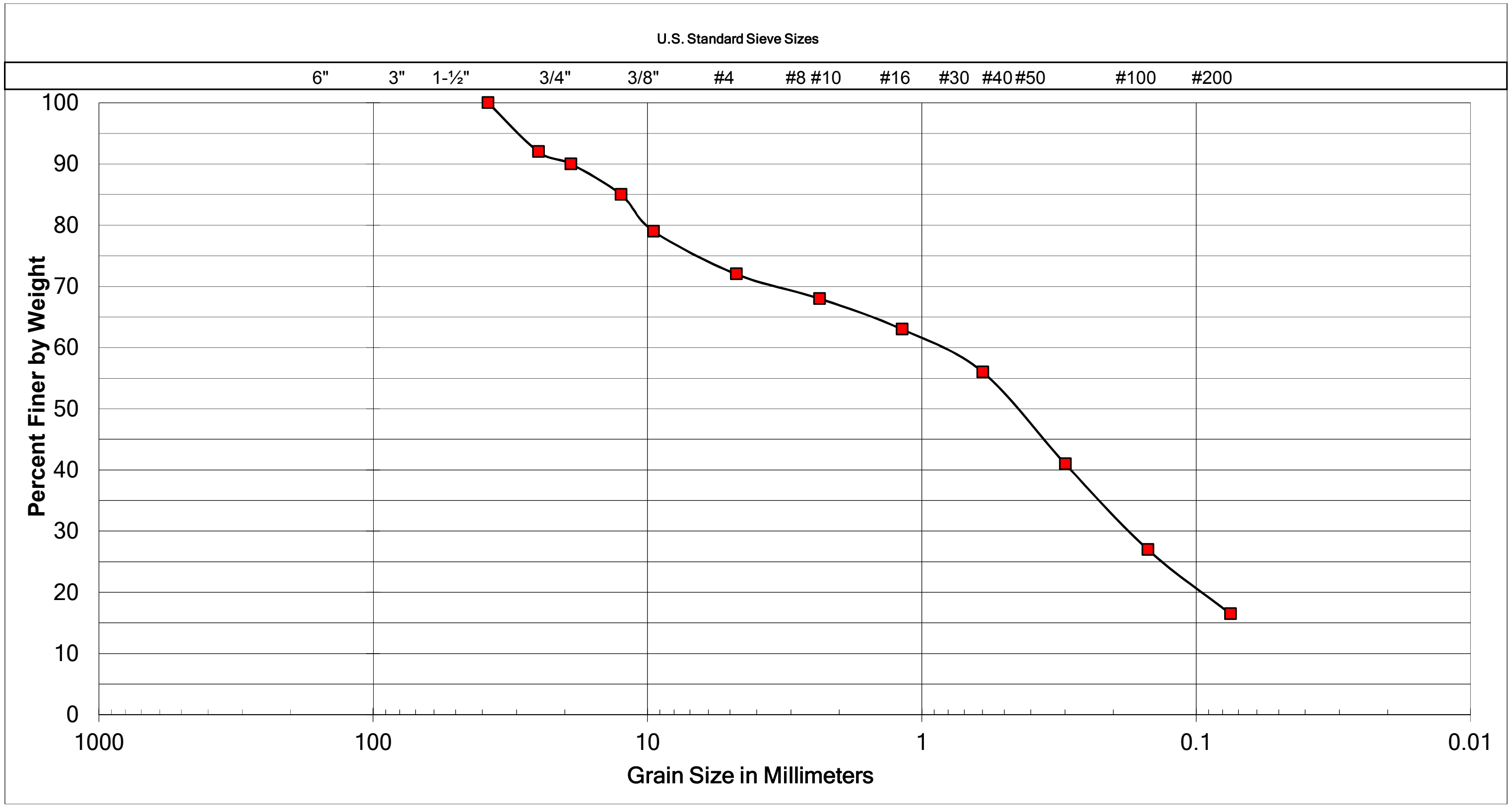
SAMPLE LOCATION
B-3 at 0 to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	34
PLASTIC LIMIT	20
PLASTICITY INDEX	14

SCST, Inc.

Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-5 at 1 to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	26
PLASTIC LIMIT	18
PLASTICITY INDEX	8

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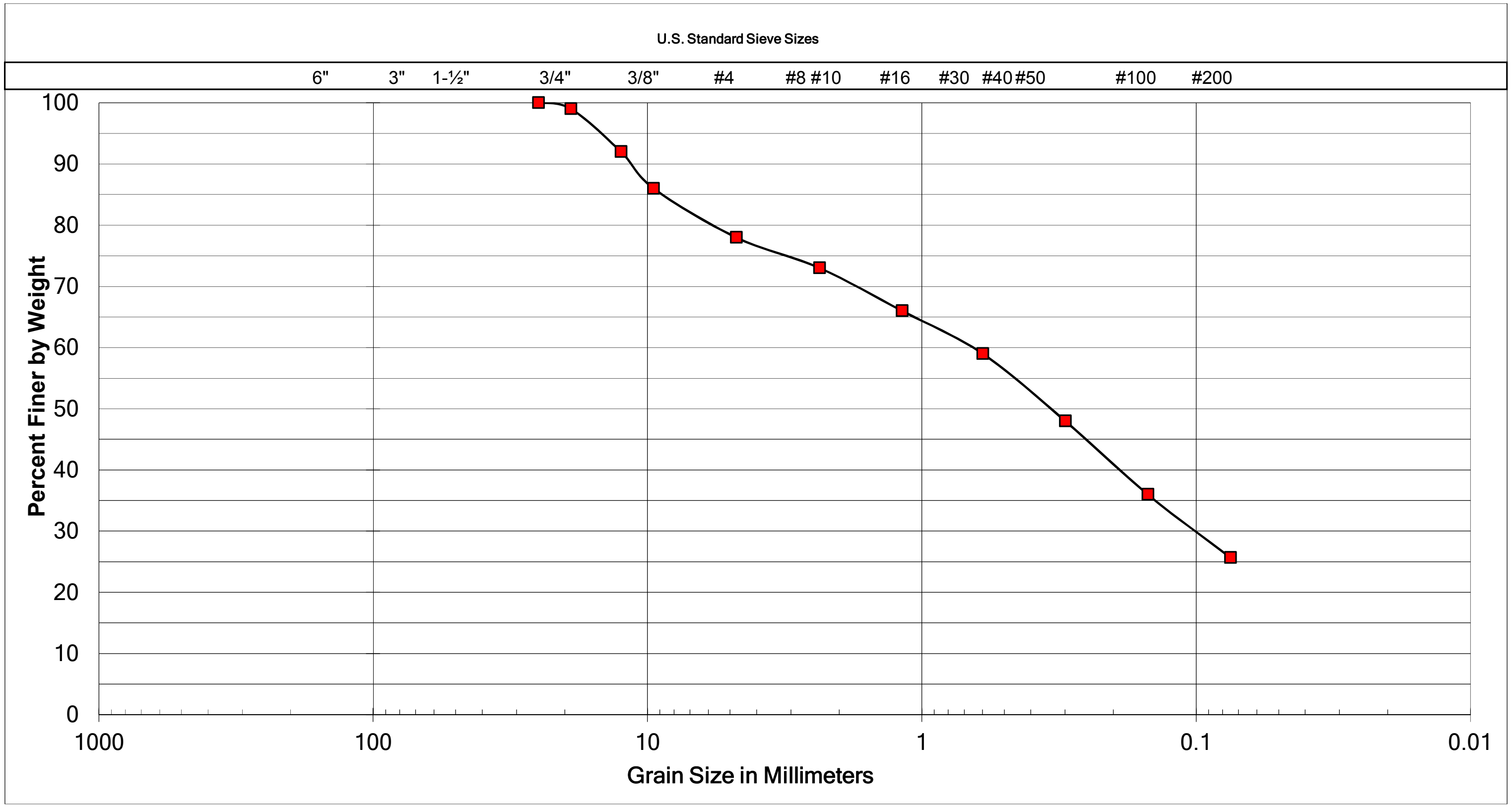
Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-2



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

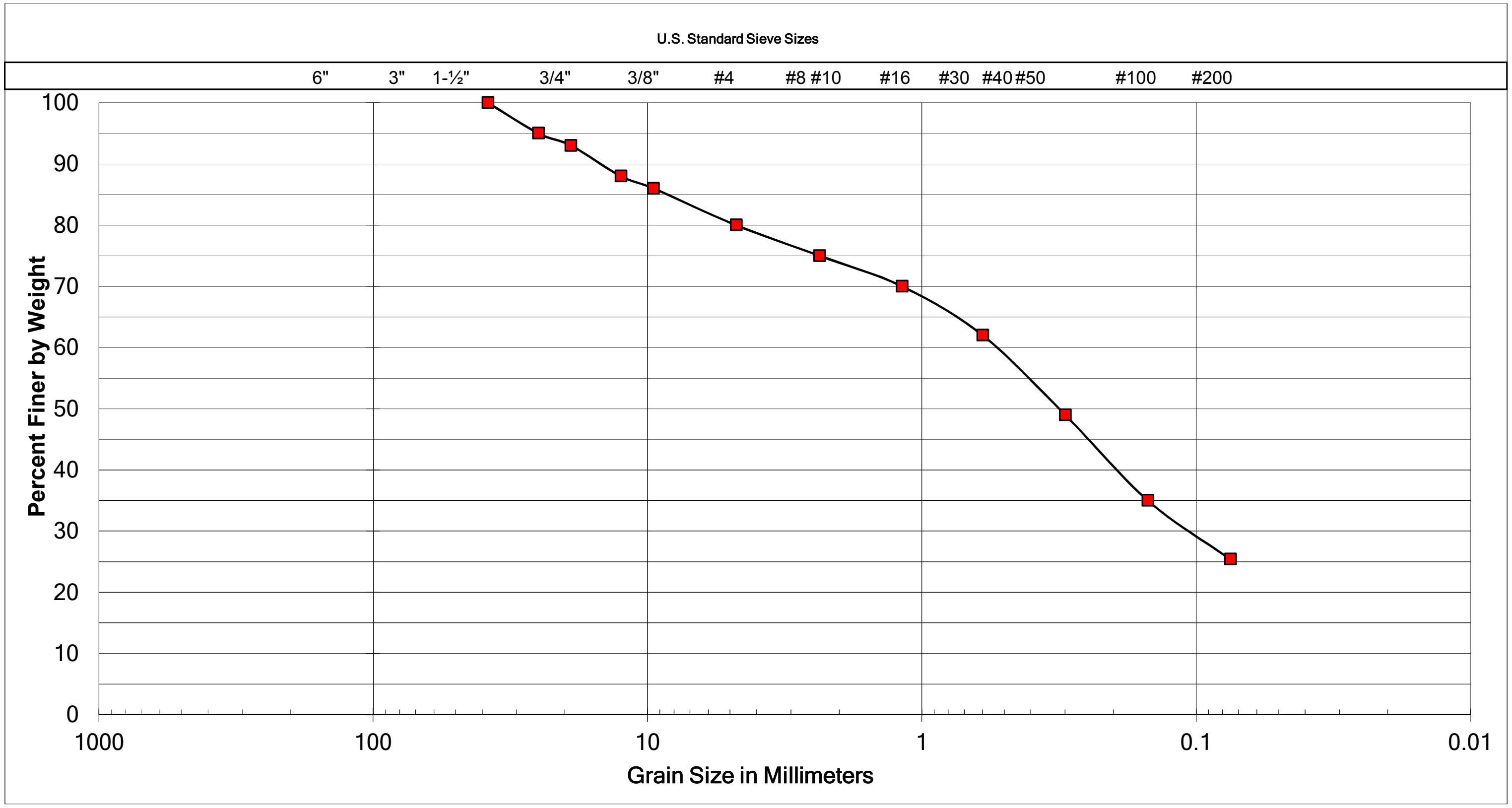
SAMPLE LOCATION
P-1 at 0 to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	39
PLASTIC LIMIT	23
PLASTICITY INDEX	16

SCST, Inc.

Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-3



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
P-2 at 3½ to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	28
PLASTIC LIMIT	17
PLASTICITY INDEX	11

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Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-4

R-VALUE

CALIFORNIA TEST 301

SAMPLE	DESCRIPTION	R- VALUE
B-1 at 0 to 5 feet	CLAYEY SAND with GRAVEL, light brown	26

EXPANSION INDEX

ASTM D2489

SAMPLE	DESCRIPTION	EXPANSION INDEX
B-2 at 0 to 5 feet	CLAYEY SAND with GRAVEL, light brown	32
B-3 at 0 to 5 feet	CLAYEY SAND with GRAVEL, light brown	34
B-5 at 1 to 5 feet	CLAYEY SAND with GRAVEL, dark brown	12

CLASSIFICATION OF EXPANSIVE SOIL [1]

EXPANSION INDEX	POTENTIAL EXPANSION
1 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

1. ASTM - D4829

RESISTIVITY, pH, SOLUBLE CHLORIDE and SOLUBLE SULFATE

SAMPLE	RESISTIVITY (Ω-cm)	pH	CHLORIDE (%)	SULFATE (%)
B-3 at 0 to 5 feet	1,110	6.58	0.006	0.009
B-5 at 1 to 5 feet	794	8.20	0.004	0.072

SULFATE EXPOSURE CLASSES [2]

Class	Severity	Water-Soluble Sulfate (SO_4) in Soil, Percent by Mass
S0	Not applicable	$SO_4 < 0.10$
S1	Moderate	$0.10 \leq SO_4 < 0.20$
S2	Severe	$0.20 \leq SO_4 \leq 2.00$
S3	Very Severe	$SO_4 > 2.00$

2. ACI 318, Table 19.3.1.1

APPENDIX III
INFILTRATION RATE TEST RESULTS

We performed borehole percolation testing at two locations (P-1 and P-2) in general conformance with the City of San Diego BMP Design Manual. Prior to starting the testing, the test holes were presoaked with clean potable water for about 23 to 24 hours. The infiltration tests were performed after presoaking by placing clean potable water in the holes and measuring the drop in the water level. Because water remained in the holes after presoaking, the water level was adjusted and the testing performed for two readings 30 minutes apart. Figures III-1 and III-2 present the results of the testing.

Report of Borehole Percolation Testing

Storm Water Infiltration

Project Name:	Access Youth Academy	Test Number:	**P-1**
Job Number:	170270N	Tested By:	MAN/BG
Date Drilled:	7/10/2017	Date Tested:	7/11/2017
Drilling Method:	8-inch Diameter Hollow-Stem Auger	Presoak Time:	24 hours
Drilled Depth (feet):	5		
Test Hole Diameter (inches):	8		
Gravel Pack:	Yes		
Pipe Diameter (inches):	4		

Trial No.	Time	Time Interval, ΔT (min)	Initial Water Height, H_o (ft)	Final Water Height, H_f (ft)	Change in Water Height, ΔH (in)	Percolation Rate (min/in)
1	7:35 8:05	0:30	1.50	1.50	0.0	0
2	8:05 8:35	0:30	1.50	1.50	0.0	0
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
Observed Percolation Rate:					0 min/in 0.0 in/hr	
Gravel Correction Factor:					1.82	
Corrected Percolation Rate:					0 min/in 0.0 in/hr	
***Tested Infiltation Rate, I_t:**					**0 in/hr**	

*Tested infiltration rate using the Porchet Method:

$$I_t = \frac{\Delta H(60r)}{\Delta T(r + 2H_{avg})}$$

ΔH = Change in water head height over the time interval [in] = 0.0

r = Test hole radius [in] = 4

ΔT = Time interval [min] = 30

H_{avg} = Average water height over time interval = $12(H_o + H_f)/2$ [in] = 18.0

SCST, Inc.

Access Youth Academy San Diego, California			
By:	MAN/BG	Date:	August, 2017
Job No:	170270N-1	Figure:	III-1

Report of Borehole Percolation Testing

Storm Water Infiltration

Project Name:	Access Youth Academy, GI
Job Number:	170270N
Date Drilled:	7/10/2017
Drilling Method:	8-inch Diameter Hollow-Stem Auger
Drilled Depth (feet):	5
Test Hole Diameter (inches):	8
Gravel Pack:	Yes
Pipe Diameter (inches):	4

Test Number:	**P-2**
Tested By:	MAN/BG
Date Tested:	7/11/2017
Presoak Time:	23 hours

Trial No.	Time	Time Interval, ΔT (min)	Initial Water Height, H_o (ft)	Final Water Height, H_f (ft)	Change in Water Height, ΔH (in)	Percolation Rate (min/in)
1	9:45 10:15	0:30	2.00	2.00	0.0	0
2	10:15 10:45	0:30	2.00	2.00	0.0	0
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
Observed Percolation Rate:						0 min/in 0.0 in/hr
Gravel Correction Factor:						1.95
Corrected Percolation Rate:						0 min/in 0.0 in/hr
***Tested Infiltation Rate, I_t:**						**0 in/hr**

*Tested infiltration rate using the Porchet Method:

$$I_t = \frac{\Delta H(60r)}{\Delta T(r + 2H_{avg})}$$

ΔH = Change in water head height over the time interval [in] = 0.0

r = Test hole radius [in] = 4

ΔT = Time interval [min] = 30

H_{avg} = Average water height over time interval = $12(H_o + H_f)/2$ [in] = 24.0

SCST, Inc.

Access Youth Academy San Diego, California			
By:	MAN/BG	Date:	August, 2017
Job No:	170270N	Figure:	III-2

APPENDIX IV
WORKSHEET C.4-1: CATEGORIZATION OF INFILTRATION FEASIBILITY CONDITION

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☑
Provide basis: The upper materials present at the site are fill soils consisting of clayey sand. The tested materials are believed to be generally representative of the materials that will be encountered below the proposed storm water BMPs. The tested infiltration rates were 0.0 inch per hour. In our opinion, the tested infiltration rates do not support a reliable infiltration rate of greater than 0.5 inch per hour. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☑
Provide basis: The tested infiltration rates do not support a reliable infiltration of greater than 0.5 inch per hour. Allowing infiltration greater than 0.5 inch per hour will increase the risk of geotechnical hazards including increased surface runoff on the project site and onto adjacent properties, uncontrolled lateral and vertical migration of groundwater beneath adjacent structures and improvements, and uncontrolled lateral and vertical migration of groundwater through permeable bedding material of utilities within the public right-of-way (Euclid Avenue and Guymon Street). SCST does not recommend allowing infiltration greater than 0.5 inch per hour at the site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☑
Provide basis: The tested infiltration rates at the site indicate that the onsite soils do not support reliable infiltration of greater than 0.5 inch per hour. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☐
Provide basis: The project design engineer is responsible for completing this criteria. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by [City Engineer] to substantiate findings.

Worksheet C.4-1 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☑

Provide basis:

The upper materials present at the site are fill soils consisting of clayey sand. The tested materials are believed to be generally representative of the materials that will be encountered below the proposed storm water BMPs. The tested infiltration rates were 0.0 inch per hour. In our opinion, the tested infiltration rates do not support a reliable infiltration rate of any appreciable quantity.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Criteria	Screening Question	Yes	No
6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☑

Provide basis:

In our opinion partial infiltration of less than 0.5 inch per hour should not be allowed without increasing the risk of geotechnical hazards. Lateral migration of subsurface water is anticipated, potentially resulting in moisture issues beneath adjacent structures and improvements and in downslope properties where excessive moisture was not present previously.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

<table>
<tr><th colspan="4">Worksheet C.4-1 Page 4 of 4</th></tr>
<tr><th>Criteria</th><th>Screening Question</th><th>Yes</th><th>No</th></tr>
<tr><td>7</td><td>Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td>☑</td><td>☐</td></tr>
<tr><td colspan="4">Provide basis:
Partial infiltration of less than 0.5 inch per hour could be allowed without posing significant risk for groundwater related concerns as long as the BMP system is designed to pretreat effluent.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>8</td><td>Can infiltration be allowed without violating downstream water rights? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td>☐</td><td>☐</td></tr>
<tr><td colspan="4">Provide basis:
The project design engineer is responsible for completing this criteria.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>Part 2 Result*</td><td colspan="2">If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration.

If any answer from row 5-8 is no, then infiltration of any volume is considered to be infeasible within the drainage area. The feasibility screening category is No Infiltration.</td><td>No Infiltration</td></tr>
</table>

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

City of San Diego
Development Services
1222 First Ave., MS-302
San Diego, CA 92101
(619) 446-5000

Storm Water Requirements Applicability Checklist

FORM DS-560
OCTOBER 2016

Project Address: 704 Euclid Avenue, San Diego, CA 92114	Project Number *(for City Use Only)*:

SECTION 1. Construction Storm Water BMP Requirements:

All construction sites are required to implement construction BMPs in accordance with the performance standards in the Storm Water Standards Manual. Some sites are additionally required to obtain coverage under the State Construction General Permit (CGP)[1], which is administered by the State Water Resources Control Board.

For all projects complete PART A: If project is required to submit a SWPPP or WPCP, continue to PART B.

PART A: Determine Construction Phase Storm Water Requirements.

1. Is the project subject to California's statewide General NPDES permit for Storm Water Discharges Associated with Construction Activities, also known as the State Construction General Permit (CGP)? (Typically projects with land disturbance greater than or equal to 1 acre.)

☐ Yes; SWPPP required, skip questions 2-4 ☒ No; next question

2. Does the project propose construction or demolition activity, including but not limited to, clearing, grading, grubbing, excavation, or any other activity resulting in ground disturbance and contact with storm water runoff?

☒ Yes; WPCP required, skip 3-4 ☐ No; next question

3. Does the project propose routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility? (Projects such as pipeline/utility replacement)

☐ Yes; WPCP required, skip 4 ☒ No; next question

4. Does the project only include the following Permit types listed below?

- Electrical Permit, Fire Alarm Permit, Fire Sprinkler Permit, Plumbing Permit, Sign Permit, Mechanical Permit, Spa Permit.
- Individual Right of Way Permits that exclusively include only ONE of the following activities: water service, sewer lateral, or utility service.
- Right of Way Permits with a project footprint less than 150 linear feet that exclusively include only ONE of the following activities: curb ramp, sidewalk and driveway apron replacement, pot holing, curb and gutter replacement, and retaining wall encroachments.

☐ Yes; no document required

Check one of the boxes below, and continue to PART B:

☐ If you checked "Yes" for question 1, **a SWPPP is REQUIRED. Continue to PART B**

☒ If you checked "No" for question 1, and checked "Yes" for question 2 or 3, **a WPCP is REQUIRED.** If the project proposes less than 5,000 square feet of ground disturbance AND has less than a 5-foot elevation change over the entire project area, a Minor WPCP may be required instead. **Continue to PART B.**

☐ If you checked "No" for all questions 1-3, and checked "Yes" for question 4 PART B **does not apply and no document is required. Continue to Section 2.**

1. More information on the City's construction BMP requirements as well as CGP requirements can be found at: www.sandiego.gov/stormwater/regulations/index.shtml

PART B: Determine Construction Site Priority

This prioritization must be completed within this form, noted on the plans, and included in the SWPPP or WPCP. The city reserves the right to adjust the priority of projects both before and after construction. Construction projects are assigned an inspection frequency based on if the project has a "high threat to water quality." The City has aligned the local definition of "high threat to water quality" to the risk determination approach of the State Construction General Permit (CGP). The CGP determines risk level based on project specific sediment risk and receiving water risk. Additional inspection is required for projects within the Areas of Special Biological Significance (ASBS) watershed. **NOTE:** The construction priority does **NOT** change construction BMP requirements that apply to projects; rather, it determines the frequency of inspections that will be conducted by city staff.

Complete PART B and continued to Section 2

1. ☐ **ASBS**
   a. Projects located in the ASBS watershed.

2. ☐ **High Priority**
   a. Projects 1 acre or more determined to be Risk Level 2 or Risk Level 3 per the Construction General Permit and not located in the ASBS watershed.
   b. Projects 1 acre or more determined to be LUP Type 2 or LUP Type 3 per the Construction General Permit and not located in the ASBS watershed.

3. ☐ **Medium Priority**
   a. Projects 1 acre or more but not subject to an ASBS or high priority designation.
   b. Projects determined to be Risk Level 1 or LUP Type 1 per the Construction General Permit and not located in the ASBS watershed.

4. ☒ **Low Priority**
   a. Projects requiring a Water Pollution Control Plan but not subject to ASBS, high, or medium priority designation.

SECTION 2. Permanent Storm Water BMP Requirements.

Additional information for determining the requirements is found in the Storm Water Standards Manual.

PART C: Determine if Not Subject to Permanent Storm Water Requirements.

Projects that are considered maintenance, or otherwise not categorized as "new development projects" or "redevelopment projects" according to the Storm Water Standards Manual are not subject to Permanent Storm Water BMPs.

If "yes" is checked for any number in Part C, proceed to Part F and check "Not Subject to Permanent Storm Water BMP Requirements".

If "no" is checked for all of the numbers in Part C continue to Part D.

1.	Does the project only include interior remodels and/or is the project entirely within an existing enclosed structure and does not have the potential to contact storm water?	☐ Yes ☒ No
2.	Does the project only include the construction of overhead or underground utilities without creating new impervious surfaces?	☐ Yes ☒ No
3.	Does the project fall under routine maintenance? Examples include, but are not limited to: roof or exterior structure surface replacement, resurfacing or reconfiguring surface parking lots or existing roadways without expanding the impervious footprint, and routine replacement of damaged pavement (grinding, overlay, and pothole repair).	☐ Yes ☒ No

PART D: PDP Exempt Requirements.

PDP Exempt projects are required to implement site design and source control BMPs.

If "yes" was checked for any questions in Part D, continue to Part F and check the box labeled "PDP Exempt."

If "no" was checked for all questions in Part D, continue to Part E.

1. **Does the project ONLY include new or retrofit sidewalks, bicycle lanes, or trails that:**
   - **Are designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas? Or;**
   - **Are designed and constructed to be hydraulically disconnected from paved streets and roads? Or;**
   - **Are designed and constructed with permeable pavements or surfaces in accordance with the Green Streets guidance in the City's Storm Water Standards manual?**

   ☐ Yes; PDP exempt requirements apply ☒ No; next question

2. Does the project ONLY include retrofitting or redeveloping existing paved alleys, streets or roads designed and constructed in accordance with the Green Streets guidance in the City's Storm Water Standards Manual?

   ☐ Yes; PDP exempt requirements apply ☒ No; project not exempt.

PART E: Determine if Project is a Priority Development Project (PDP).
Projects that match one of the definitions below are subject to additional requirements including preparation of a Storm Water Quality Management Plan (SWQMP).

If "yes" is checked for any number in PART E, continue to PART F and check the box labeled "Priority Development Project".

If "no" is checked for every number in PART E, continue to PART F and check the box labeled "Standard Development Project".

1. **New Development that creates 10,000 square feet or more of impervious surfaces collectively over the project site.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☒ Yes ☐ No
2. **Redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surfaces on an existing site of 10,000 square feet or more of impervious surfaces.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☐ Yes ☒ No
3. **New development or redevelopment of a restaurant.** Facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC 5812), and where the land development creates and/or replace 5,000 square feet or more of impervious surface. ☐ Yes ☒ No
4. **New development or redevelopment on a hillside.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site) and where the development will grade on any natural slope that is twenty-five percent or greater. ☐ Yes ☒ No
5. **New development or redevelopment of a parking lot that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).** ☒ Yes ☐ No
6. **New development or redevelopment of streets, roads, highways, freeways, and driveways.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site). ☐ Yes ☒ No

7. **New development or redevelopment discharging directly to an Environmentally Sensitive Area.** The project creates and/or replaces 2,500 square feet of impervious surface (collectively over project site), and discharges directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). ☐ Yes ☒ No

8. **New development or redevelopment projects of a retail gasoline outlet (RGO) that create and/or replaces 5,000 square feet of impervious surface.** The development project meets the following criteria: (a) 5,000 square feet or more or (b) has a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. ☐ Yes ☒ No

9. **New development or redevelopment projects of an automotive repair shops that creates and/or replaces 5,000 square feet or more of impervious surfaces.** Development projects categorized in any one of Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, or 7536-7539. ☐ Yes ☒ No

10. **Other Pollutant Generating Project.** The project is not covered in the categories above, results in the disturbance of one or more acres of land and is expected to generate pollutants post construction, such as fertilizers and pesticides. This does not include projects creating less than 5,000 sf of impervious surface and where added landscaping does not require regular use of pesticides and fertilizers, such as slope stabilization using native plants. Calculation of the square footage of impervious surface need not include linear pathways that are for infrequent vehicle use, such as emergency maintenance access or bicycle pedestrian use, if they are built with pervious surfaces of if they sheet flow to surrounding pervious surfaces. ☒ Yes ☐ No

PART F: Select the appropriate category based on the outcomes of PART C through PART E.

1. The project is **NOT SUBJECT TO PERMANENT STORM WATER REQUIREMENTS.** ☐

2. The project is a **STANDARD DEVELOPMENT PROJECT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance. ☐

3. The project is **PDP EXEMPT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance. ☐

4. The project is a **PRIORITY DEVELOPMENT PROJECT**. Site design, source control, and structural pollutant control BMP requirements apply. See the Storm Water Standards Manual for guidance on determining if project requires a hydromodification plan management ☒

RENATO PAIVA

Name of Owner or Agent *(Please Print)*

EXECUTIVE DIRECTOR

Title

Signature

10/29/18

Date

RICK
ENGINEERING COMPANY
Traffic Division

August 3, 2017

Mr. Scott Maas
Safdie Rabines Architects
925 Fort Stockton Drive
San Diego, California 92103

SUBJECT: ACCESS YOUTH ACADEMY
TRAFFIC/PARKING GENERATION ASSESSMENT
(RICK ENGINEERING COMPANY JOB NUMBER 13284-FFF)

Dear Mr. Maas:

The following assessment letter was prepared to help estimate traffic and parking generation rates for the existing Access Youth Academy (AYA) facility located at 9370 Waples Street. This data is proposed to be utilized for calculating traffic generation and parking supply for a proposed AYA facility located at 704 Euclid Avenue within the Encanto community. Since the City of San Diego, SANDAG or ITE (Institute of Transportation Engineers) have no published trip generation rate and parking rate for this type of facility, an existing facility located at 9370 Waples Street was counted to help determine these rates. AYA currently leases space from San Diego Squash (Suite 101), in which AYA instructors and students utilize as classroom space and San Diego Squash courts as part of the AYA after school program. AYA and San Diego Squash each have their own door to enter/exit the building. Per coordination with City Transportation Development staff, a minimum of three days of traffic and parking data should be collected at the site, during typical site operations. Upon review of the Preuss School and after school program schedules, it was determined that the three representative data collection days would be Tuesday, June 13, 2017 through Thursday, June 15, 2017. (See **Attachment A** and **Attachment B**) The last day of student attendance for Preuss School before the summer break was June 23, 2017.

Since the existing Access Youth Academy is not standalone site, as it shares the site with other uses offices/buildings, the traffic and parking counts were also supplemented with attendance (**Attachment C**) data to help segregate the uses not related to the AYA and San Diego Squash facility and operations. All the traffic and parking site count data was collected by Accurate Video Counts.

EXISTING AYA AND SAN DIEGO SQUASH OPERATIONS

At the 9370 Waples Street site, AYA operates their facility with a staff of 5 and 3 volunteers with up to 3 occasional visitors. AYA staff arrives between 9:30am and 10:00am and leave the office between 5:30 pm and 6:00 pm. The program currently has a maximum of 25 students, all of which are transported to the site from the Preuss School at UCSD via 2 vans. The vans typically arrive at the site around 2:45pm and leave when the program ends at 4:55pm.

The following student attendance data was provided by AYA for the days the traffic and parking data were being collected:

	AYA Attendance
Tuesday, June 13, 2017	18 students
Wednesday, June 14, 2017	19 students
Thursday, June 15, 2017	24 students

The San Diego Squash facility hours of operation are 6:30am to 9:00pm, Monday through Thursday; 6:30am to 8:00 pm on Friday and 7:30am to 2:00pm, Saturday and Sundays. The facility has a staff of 3 that help operate 4 single squash courts. There are regular club memberships and guest memberships available for this facility.

EXISTING PROJECT TRAFFIC GENERATION

Table 1 and Table 2 summarizes the trip generation data for the AYA and San Diego Squash site based on the three days of data that were collected, respectively. For the purposes of this exercise, the trip rates for the AYA facility were calculated with a trip rate per student and the trip rates for the San Diego Squash Facility were calculated as a trip rate per squash courts. It is important to note that during the three days of data collection, an average of 20 students were in attendance and all were taken to/from the site via two passenger vans and is accounted for in the calculated AYA trip rate.

Table 1
ACCESS YOUTH ACADEMY TRIP GENERATION

LAND USE	SIZE	CALCULATED TRIP RATE	ADT	AM PEAK (7-9am)			PM PEAK (4-6pm)		
				% OF ADT	VOLUME		% OF ADT	VOLUME	
					IN	OUT		IN	OUT
Access Youth Academy	20 students	**2 trips/student**	40	30%	1	0	10%	1	3

Table 2
SAN DIEGO SQUASH TRIP GENERATION

LAND USE	SIZE	CALCULATED TRIP RATE	ADT	AM PEAK (7-9am)			PM PEAK (4-6pm)		
				% OF ADT	VOLUME		% OF ADT	VOLUME	
					IN	OUT		IN	OUT
San Diego Squash	4 courts	**18 trips/court**	72	6%	1	3	17%	7	5

EXISTING PARKING GENERATION

Similarly, **Table 3 and Table 4** summarize the parking generation data for the AYA and San Diego Squash, respectively. These rates represent peak parking demand rates based on the actual site counts. The peak parking demand for AYA facility occurred at 3:00 pm when all employees and students were on-site. The peak parking demand for San Diego Squash occurred at 6:00 pm. It is important to note that these peak parking demand for these two facilities do not occur at the same time.

Table 3
ACCESS YOUTH ACADEMY PARKING GENERATION

LAND USE	SIZE	CALCULATED PARKING RATE	PEAK PARKING OCCUPANCY (3 PM)
Access Youth Academy	20 students	**0.5 spaces /student**	10 spaces

Table 4
SAN DIEGO SQUASH ACADEMY PARKING GENERATION

LAND USE	SIZE	CALCULATED PARKING RATE	PEAK PARKING OCCUPANCY (6 PM)
San Diego Squash	4 courts	**3.5 spaces /court**	14 spaces

CONCLUSIONS/RECOMMENDATIONS

Based on the site specific traffic and parking data collected for the AYA and San Diego Squash facility (9370 Waples Street), the above calculated trip rates and parking rates can be utilized to help estimate traffic generation and parking supply for the proposed AYA facility.

The proposed AYA facility located on 704 Euclid Avenue anticipates to operate similarly to the existing facility on Waples Street. The program students are still proposed to be shuttled into the new site via 2 vans. The following lists the planned components for the proposed AYA facility:

- 12 Staff/Instructors
- Up to 3 volunteers
- Up to 3 visitors
- 36 program students
- 8 squash courts (7 single courts and 1 doubles court)

Applying the above calculated site specific trip and parking rates for the proposed AYA facility, the anticipated trip generation and peak parking demand calculations are shown in **Table 5** and **Table 6**, respectively.

Table 5
PROPOSED ACCESS YOUTH ACADEMY TRIP GENERATION

LAND USE	SIZE	CALCULATED TRIP RATE	ADT	AM PEAK (7-9am)			PM PEAK (4-6pm)		
				% OF ADT	VOLUME		% OF ADT	VOLUME	
					IN	OUT		IN	OUT
704 Euclid Avenue									
Access Youth Academy	36 students	**2 trips/student**	72	3%	2	0	10%	2	6
Non-Program (Community, Youth & Adults)	8 courts	**18 trips/court**	144	6%	2	6	17%	14	10
TOTAL:			**216**		**4**	**6**		**16**	**16**

Table 6
PROPOSED ACCESS YOUTH ACADEMY PEAK PARKING DEMAND

LAND USE	SIZE	CALCULATED PARKING RATE	PEAK PARKING DEMAND
704 Euclid Avenue			
Access Youth Academy	36 students	**0.5 spaces/student**	18 spaces (at 3:00 pm)
Non-Program (Community, Youth & Adults)	8 courts	**3.5 spaces/court**	28 spaces (at 6:00 pm)

Based on the estimated trip generation for the proposed AYA facility, it is anticipated that the single project access point along Guymon Street can accommodate the site's peak hour project trips (only 36 trips during the PM peak hour).

In addition, it is recommended that the project site provide a minimum of 28 parking spaces to accommodate peak hour parking demands for both the programmed (AYA students) and non-programmed uses. With the site proposing a total of 36 total parking spaces (per the current proposed site plan shown in **Attachment D**), there should be ample parking to meet peak parking demands.

It should be noted that since the proposed site is relatively close (about 800 feet) to the existing Euclid Avenue Transit Center at the southwest corner of the Euclid Avenue/Market Street intersection, transit ridership opportunities could potentially decrease the traffic and parking generation for this facility.

Should you have any questions, please contact me at (619)291-0707.

Sincerely,

RICK ENGINEERING COMPANY

REGISTERED PROFESSIONAL ENGINEER
MARK MEDINA JUGAR
No. 2175
Exp. 6-30-19
TRAFFIC
STATE OF CALIFORNIA

Mark Jugar, P.E., T.E., PTOE

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Attachments

ATTACHMENT A

Existing Site Traffic Count Data

3-Day Segment Counts Summary

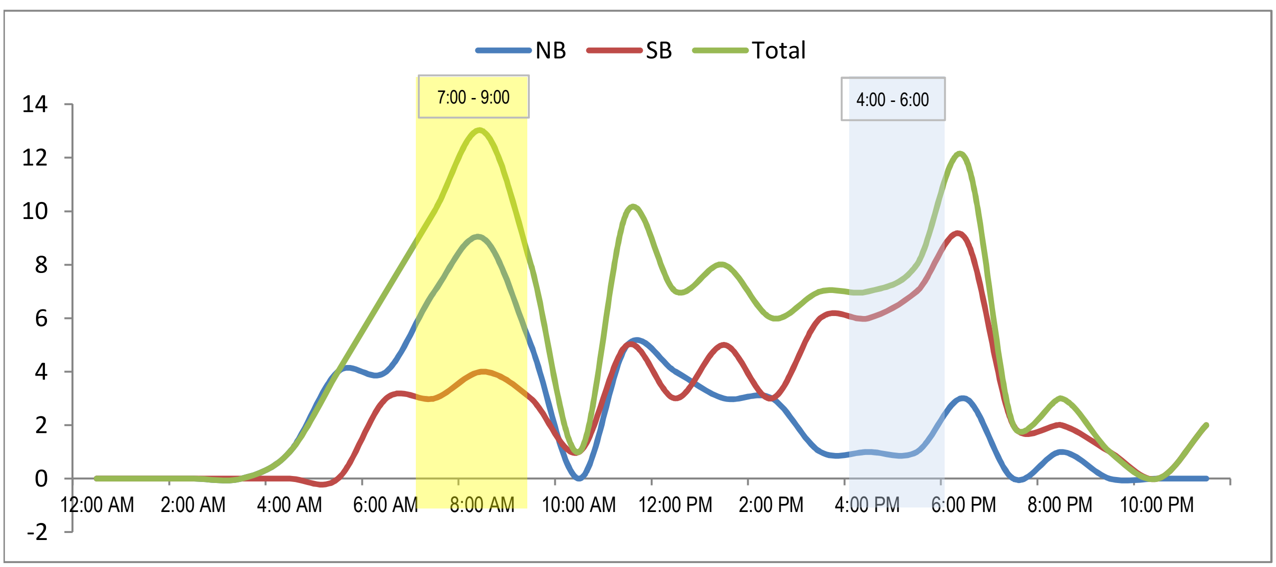
RICK ENGINEERING COMPANY
Traffic Division

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location:	Loc 01 Access - San Diego Squash Driveway
Orientation:	*North-South*
Date of Count:	*Tuesday, June 13, 2017*
Analysts:	*DASH*
Weather:	*Sunny*
AVC Proj. No:	*17-0700*

24 Hour Segment Volume							***117***
Time	**Hourly Volume**			**Time**	**Hourly Volume**		
	NB	**SB**	**Total**		**NB**	**SB**	**Total**
12:00 AM - 1:00 AM	0	0	0	12:00 PM - 1:00 PM	4	3	7
1:00 AM - 2:00 AM	0	0	0	1:00 PM - 2:00 PM	3	5	8
2:00 AM - 3:00 AM	0	0	0	2:00 PM - 3:00 PM	3	3	6
3:00 AM - 4:00 AM	0	0	0	3:00 PM - 4:00 PM	1	6	7
4:00 AM - 5:00 AM	1	0	1	4:00 PM - 5:00 PM	1	6	7
5:00 AM - 6:00 AM	4	0	4	5:00 PM - 6:00 PM	1	7	8
6:00 AM - 7:00 AM	4	3	7	6:00 PM - 7:00 PM	3	9	12
7:00 AM - 8:00 AM	7	3	10	7:00 PM - 8:00 PM	0	2	2
8:00 AM - 9:00 AM	9	4	13	8:00 PM - 9:00 PM	1	2	3
9:00 AM - 10:00 AM	5	3	8	9:00 PM - 10:00 PM	0	1	1
10:00 AM - 11:00 AM	0	1	1	10:00 PM - 11:00 PM	0	0	0
11:00 AM - 12:00 PM	5	5	10	11:00 PM - 12:00 AM	0	2	2
Total	**35**	**19**	**54**	**Total**	**17**	**46**	**63**

24-Hour	***NB***	***Volume***	***52***	***24-Hour***	***SB***	***Volume***	***65***



RICK ENGINEERING COMPANY
Traffic Division

3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Loc 01 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Wednesday, June 14, 2017*

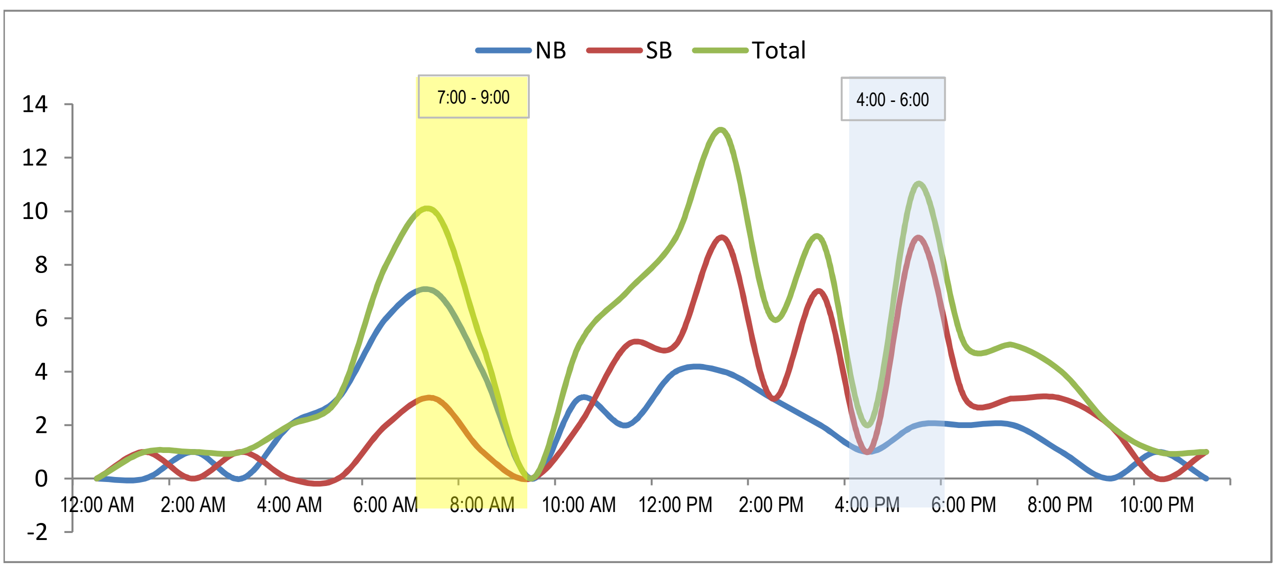
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume									111
Time		Hourly Volume			Time		Hourly Volume		
		NB	SB	Total			NB	SB	Total
12:00 AM	1:00 AM	0	0	0	12:00 PM	1:00 PM	4	5	9
1:00 AM	2:00 AM	0	1	1	1:00 PM	2:00 PM	4	9	13
2:00 AM	3:00 AM	1	0	1	2:00 PM	3:00 PM	3	3	6
3:00 AM	4:00 AM	0	1	1	3:00 PM	4:00 PM	2	7	9
4:00 AM	5:00 AM	2	0	2	4:00 PM	5:00 PM	1	1	2
5:00 AM	6:00 AM	3	0	3	5:00 PM	6:00 PM	2	9	11
6:00 AM	7:00 AM	6	2	8	6:00 PM	7:00 PM	2	3	5
7:00 AM	8:00 AM	7	3	10	7:00 PM	8:00 PM	2	3	5
8:00 AM	9:00 AM	4	1	5	8:00 PM	9:00 PM	1	3	4
9:00 AM	10:00 AM	0	0	0	9:00 PM	10:00 PM	0	2	2
10:00 AM	11:00 AM	3	2	5	10:00 PM	11:00 PM	1	0	1
11:00 AM	12:00 PM	2	5	7	11:00 PM	12:00 AM	0	1	1
Total		**28**	**15**	**43**	**Total**		**22**	**46**	**68**

24-Hour NB Volume	50	24-Hour SB Volume	61



3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

RICK ENGINEERING COMPANY
Traffic Division

Location: Loc 01 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Thursday, June 15, 2017*

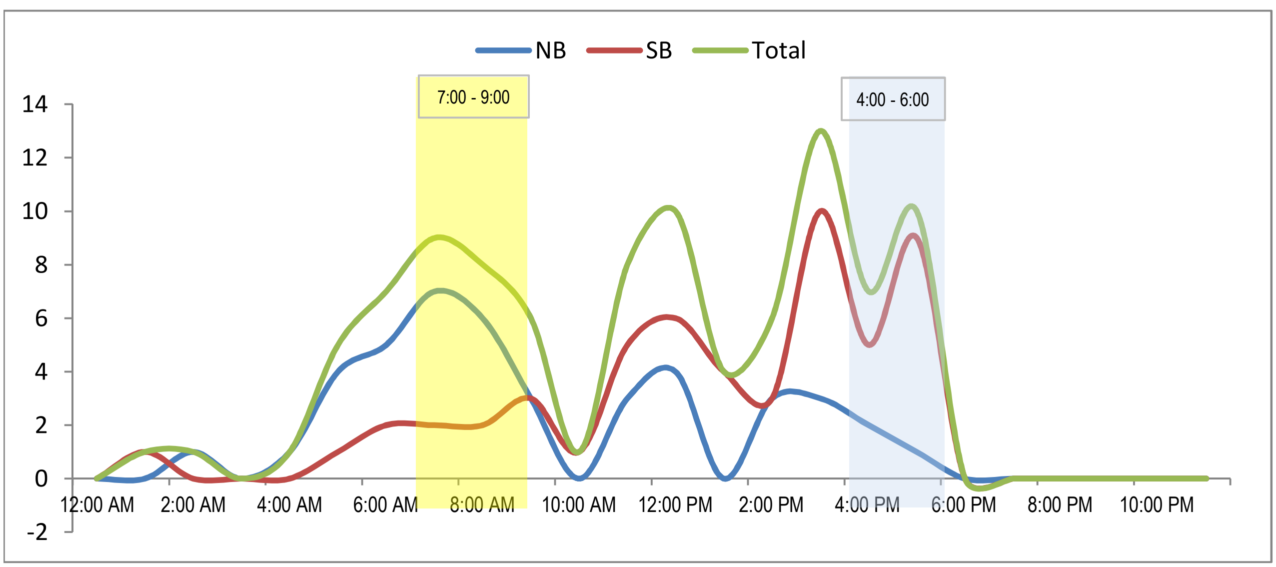
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume								97
Time	Hourly Volume				Time	Hourly Volume		
	NB	SB	Total			NB	SB	Total
12:00 AM - 1:00 AM	0	0	0		12:00 PM - 1:00 PM	4	6	10
1:00 AM - 2:00 AM	0	1	1		1:00 PM - 2:00 PM	0	4	4
2:00 AM - 3:00 AM	1	0	1		2:00 PM - 3:00 PM	3	3	6
3:00 AM - 4:00 AM	0	0	0		3:00 PM - 4:00 PM	3	10	13
4:00 AM - 5:00 AM	1	0	1		4:00 PM - 5:00 PM	2	5	7
5:00 AM - 6:00 AM	4	1	5		5:00 PM - 6:00 PM	1	9	10
6:00 AM - 7:00 AM	5	2	7		6:00 PM - 7:00 PM	0	0	0
7:00 AM - 8:00 AM	7	2	9		7:00 PM - 8:00 PM	0	0	0
8:00 AM - 9:00 AM	6	2	8		8:00 PM - 9:00 PM	0	0	0
9:00 AM - 10:00 AM	3	3	6		9:00 PM - 10:00 PM	0	0	0
10:00 AM - 11:00 AM	0	1	1		10:00 PM - 11:00 PM	0	0	0
11:00 AM - 12:00 PM	3	5	8		11:00 PM - 12:00 AM	0	0	0
Total	**30**	**17**	**47**		**Total**	**13**	**37**	**50**

24-Hour NB Volume	43	24-Hour SB Volume	54



3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Loc 02 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Tuesday, June 13, 2017*

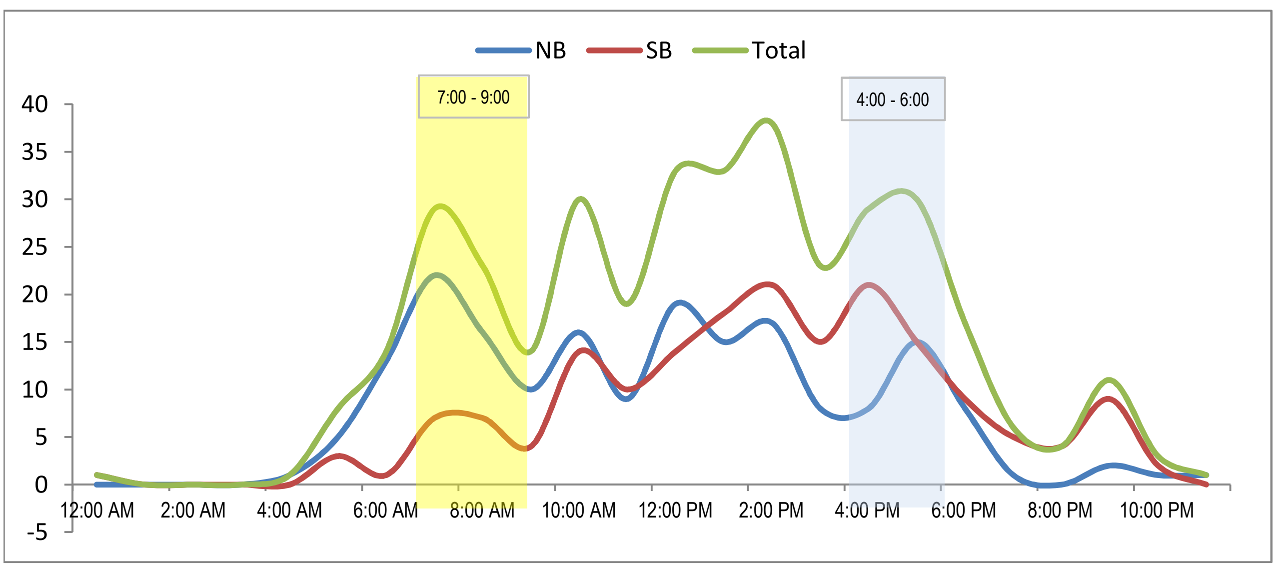
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume								367
Time	Hourly Volume			Time	Hourly Volume			
	NB	SB	Total		NB	SB	Total	
12:00 AM - 1:00 AM	0	1	1	12:00 PM - 1:00 PM	19	14	33	
1:00 AM - 2:00 AM	0	0	0	1:00 PM - 2:00 PM	15	18	33	
2:00 AM - 3:00 AM	0	0	0	2:00 PM - 3:00 PM	17	21	38	
3:00 AM - 4:00 AM	0	0	0	3:00 PM - 4:00 PM	8	15	23	
4:00 AM - 5:00 AM	1	0	1	4:00 PM - 5:00 PM	8	21	29	
5:00 AM - 6:00 AM	5	3	8	5:00 PM - 6:00 PM	15	15	30	
6:00 AM - 7:00 AM	13	1	14	6:00 PM - 7:00 PM	8	9	17	
7:00 AM - 8:00 AM	22	7	29	7:00 PM - 8:00 PM	1	5	6	
8:00 AM - 9:00 AM	16	7	23	8:00 PM - 9:00 PM	0	4	4	
9:00 AM - 10:00 AM	10	4	14	9:00 PM - 10:00 PM	2	9	11	
10:00 AM - 11:00 AM	16	14	30	10:00 PM - 11:00 PM	1	2	3	
11:00 AM - 12:00 PM	9	10	19	11:00 PM - 12:00 AM	1	0	1	
Total	**92**	**47**	**139**	**Total**	**95**	**133**	**228**	

24-Hour	NB	Volume	187	24-Hour	SB	Volume	180



RICK ENGINEERING COMPANY
Traffic Division

3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Loc 02 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Wednesday, June 14, 2017*

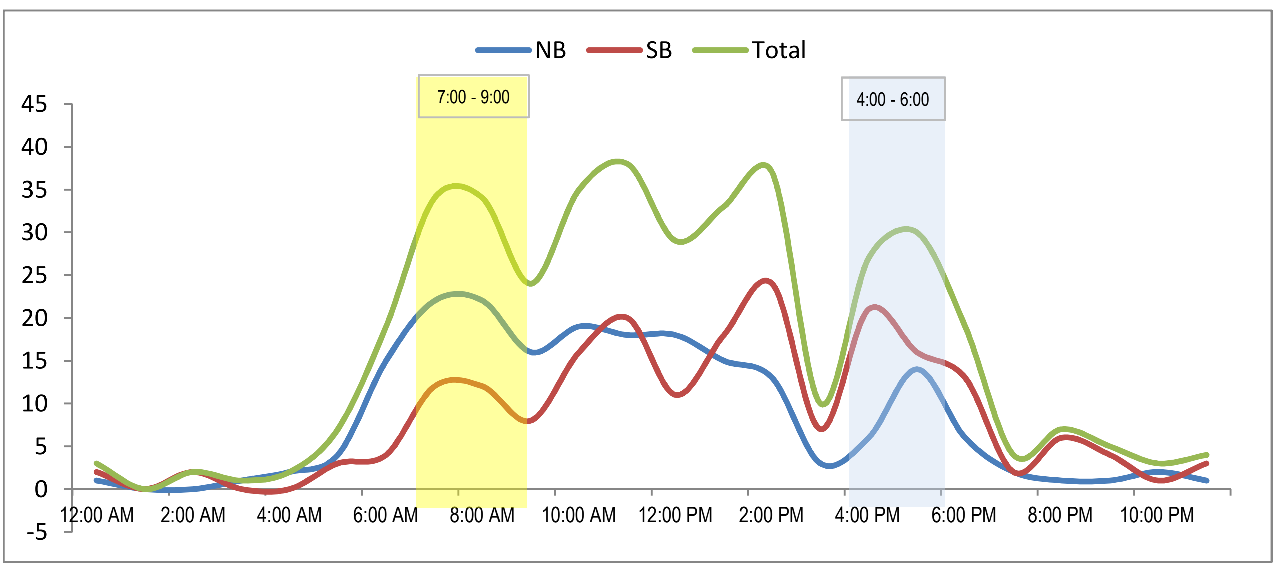
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume								407
Time	Hourly Volume			Time	Hourly Volume			
	NB	SB	Total		NB	SB	Total	
12:00 AM - 1:00 AM	1	2	3	12:00 PM - 1:00 PM	18	11	29	
1:00 AM - 2:00 AM	0	0	0	1:00 PM - 2:00 PM	15	18	33	
2:00 AM - 3:00 AM	0	2	2	2:00 PM - 3:00 PM	13	24	37	
3:00 AM - 4:00 AM	1	0	1	3:00 PM - 4:00 PM	3	7	10	
4:00 AM - 5:00 AM	2	0	2	4:00 PM - 5:00 PM	6	21	27	
5:00 AM - 6:00 AM	4	3	7	5:00 PM - 6:00 PM	14	16	30	
6:00 AM - 7:00 AM	15	4	19	6:00 PM - 7:00 PM	6	13	19	
7:00 AM - 8:00 AM	22	12	34	7:00 PM - 8:00 PM	2	2	4	
8:00 AM - 9:00 AM	22	12	34	8:00 PM - 9:00 PM	1	6	7	
9:00 AM - 10:00 AM	16	8	24	9:00 PM - 10:00 PM	1	4	5	
10:00 AM - 11:00 AM	19	16	35	10:00 PM - 11:00 PM	2	1	3	
11:00 AM - 12:00 PM	18	20	38	11:00 PM - 12:00 AM	1	3	4	
Total	**120**	**79**	**199**	**Total**	**82**	**126**	**208**	

24-Hour	NB	Volume	202	24-Hour	SB	Volume	205



3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Loc 02 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Thursday, June 15, 2017*

Analysts: *DASH*

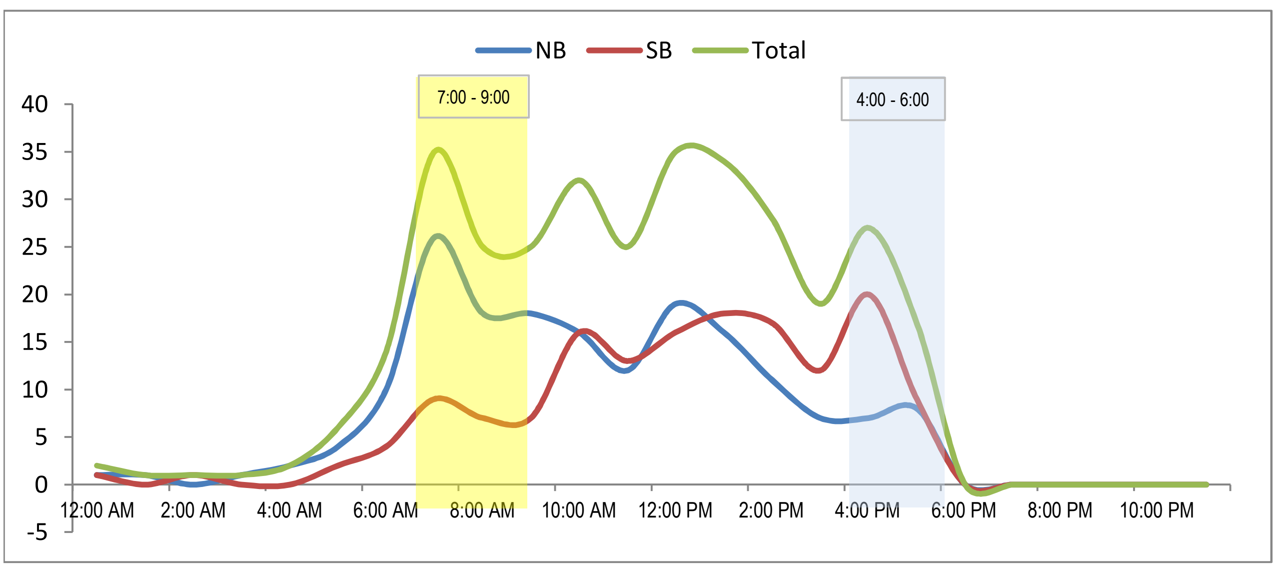
Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume 329

Time	Hourly Volume			Time	Hourly Volume		
	NB	SB	Total		NB	SB	Total
12:00 AM - 1:00 AM	1	1	2	12:00 PM - 1:00 PM	19	16	35
1:00 AM - 2:00 AM	1	0	1	1:00 PM - 2:00 PM	16	18	34
2:00 AM - 3:00 AM	0	1	1	2:00 PM - 3:00 PM	11	17	28
3:00 AM - 4:00 AM	1	0	1	3:00 PM - 4:00 PM	7	12	19
4:00 AM - 5:00 AM	2	0	2	4:00 PM - 5:00 PM	7	20	27
5:00 AM - 6:00 AM	4	2	6	5:00 PM - 6:00 PM	8	9	17
6:00 AM - 7:00 AM	10	4	14	6:00 PM - 7:00 PM	0	0	0
7:00 AM - 8:00 AM	26	9	35	7:00 PM - 8:00 PM	0	0	0
8:00 AM - 9:00 AM	18	7	25	8:00 PM - 9:00 PM	0	0	0
9:00 AM - 10:00 AM	18	7	25	9:00 PM - 10:00 PM	0	0	0
10:00 AM - 11:00 AM	16	16	32	10:00 PM - 11:00 PM	0	0	0
11:00 AM - 12:00 PM	12	13	25	11:00 PM - 12:00 AM	0	0	0
Total	**109**	**60**	**169**	**Total**	**68**	**92**	**160**

24-Hour NB Volume 177 **24-Hour SB Volume 152**



RICK ENGINEERING COMPANY
Traffic Division

3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Loc 03 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Tuesday, June 13, 2017*

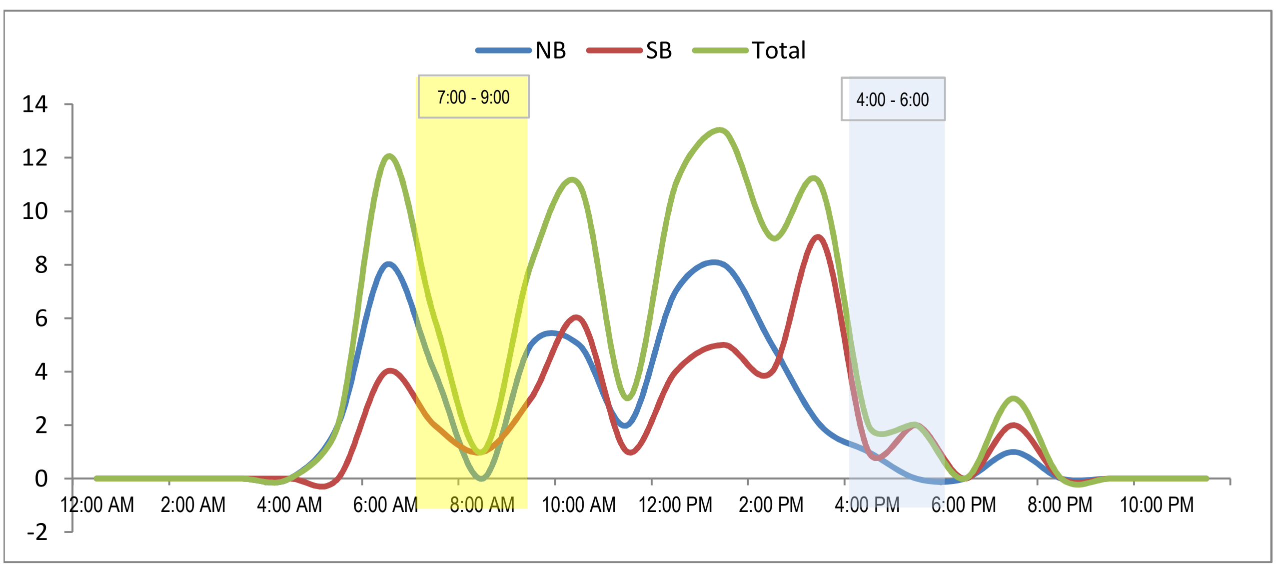
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume									94
Time		Hourly Volume			Time		Hourly Volume		
		NB	SB	Total			NB	SB	Total
12:00 AM	1:00 AM	0	0	0	12:00 PM	1:00 PM	7	4	11
1:00 AM	2:00 AM	0	0	0	1:00 PM	2:00 PM	8	5	13
2:00 AM	3:00 AM	0	0	0	2:00 PM	3:00 PM	5	4	9
3:00 AM	4:00 AM	0	0	0	3:00 PM	4:00 PM	2	9	11
4:00 AM	5:00 AM	0	0	0	4:00 PM	5:00 PM	1	1	2
5:00 AM	6:00 AM	2	0	2	5:00 PM	6:00 PM	0	2	2
6:00 AM	7:00 AM	8	4	12	6:00 PM	7:00 PM	0	0	0
7:00 AM	8:00 AM	4	2	6	7:00 PM	8:00 PM	1	2	3
8:00 AM	9:00 AM	0	1	1	8:00 PM	9:00 PM	0	0	0
9:00 AM	10:00 AM	5	3	8	9:00 PM	10:00 PM	0	0	0
10:00 AM	11:00 AM	5	6	11	10:00 PM	11:00 PM	0	0	0
11:00 AM	12:00 PM	2	1	3	11:00 PM	12:00 AM	0	0	0
Total		**26**	**17**	**43**	**Total**		**24**	**27**	**51**

24-Hour	NB	Volume	50	24-Hour	SB	Volume	44



RICK
ENGINEERING COMPANY
Traffic Division

3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Loc 03 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Wednesday, June 14, 2017*

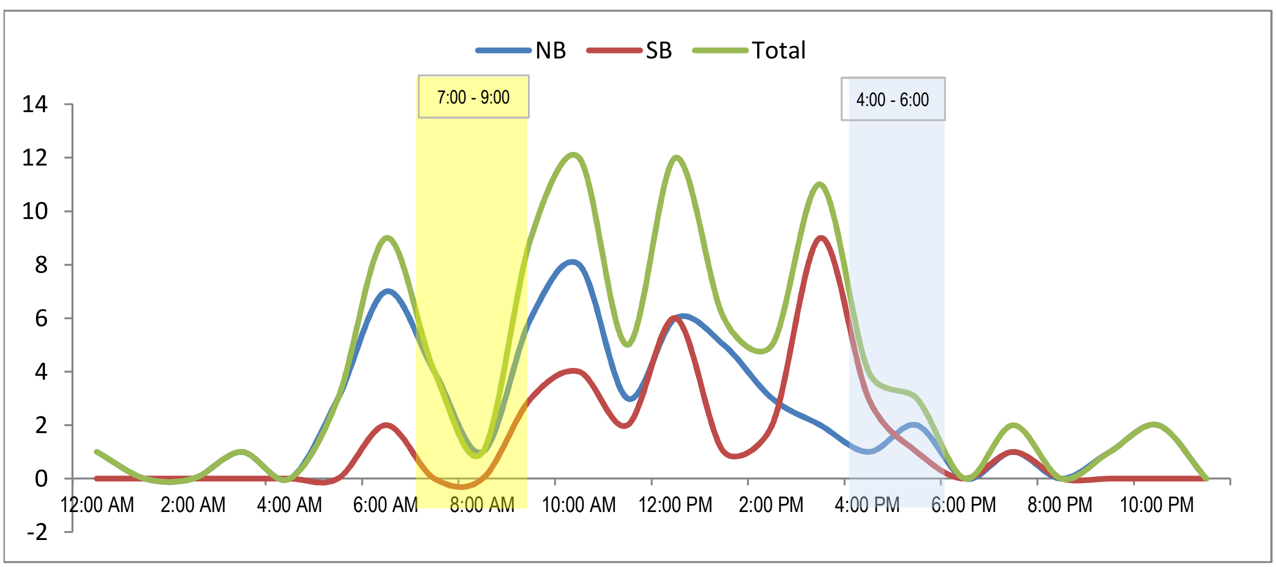
Analysts: *DASH*

Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume								91
Time	Hourly Volume				Time	Hourly Volume		
	NB	SB	Total			NB	SB	Total
12:00 AM - 1:00 AM	1	0	1		12:00 PM - 1:00 PM	6	6	12
1:00 AM - 2:00 AM	0	0	0		1:00 PM - 2:00 PM	5	1	6
2:00 AM - 3:00 AM	0	0	0		2:00 PM - 3:00 PM	3	2	5
3:00 AM - 4:00 AM	1	0	1		3:00 PM - 4:00 PM	2	9	11
4:00 AM - 5:00 AM	0	0	0		4:00 PM - 5:00 PM	1	3	4
5:00 AM - 6:00 AM	3	0	3		5:00 PM - 6:00 PM	2	1	3
6:00 AM - 7:00 AM	7	2	9		6:00 PM - 7:00 PM	0	0	0
7:00 AM - 8:00 AM	4	0	4		7:00 PM - 8:00 PM	1	1	2
8:00 AM - 9:00 AM	1	0	1		8:00 PM - 9:00 PM	0	0	0
9:00 AM - 10:00 AM	6	3	9		9:00 PM - 10:00 PM	1	0	1
10:00 AM - 11:00 AM	8	4	12		10:00 PM - 11:00 PM	2	0	2
11:00 AM - 12:00 PM	3	2	5		11:00 PM - 12:00 AM	0	0	0
Total	**34**	**11**	**45**		**Total**	**23**	**23**	**46**

24-Hour	NB	Volume	57	24-Hour	SB	Volume	34



RICK ENGINEERING COMPANY
Traffic Division

3-Day Segment Counts Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Loc 03 Access - San Diego Squash Driveway

Orientation: *North-South*

Date of Count: *Thursday, June 15, 2017*

Analysts: *DASH*

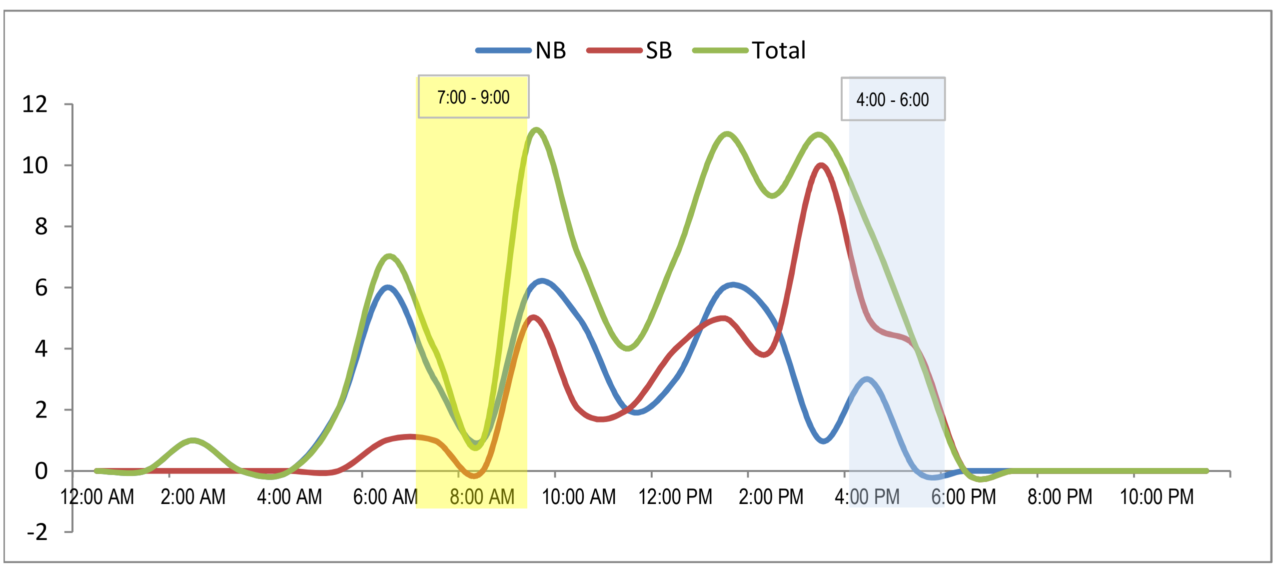
Weather: *Sunny*

AVC Proj. No: *17-0700*

24 Hour Segment Volume: 87

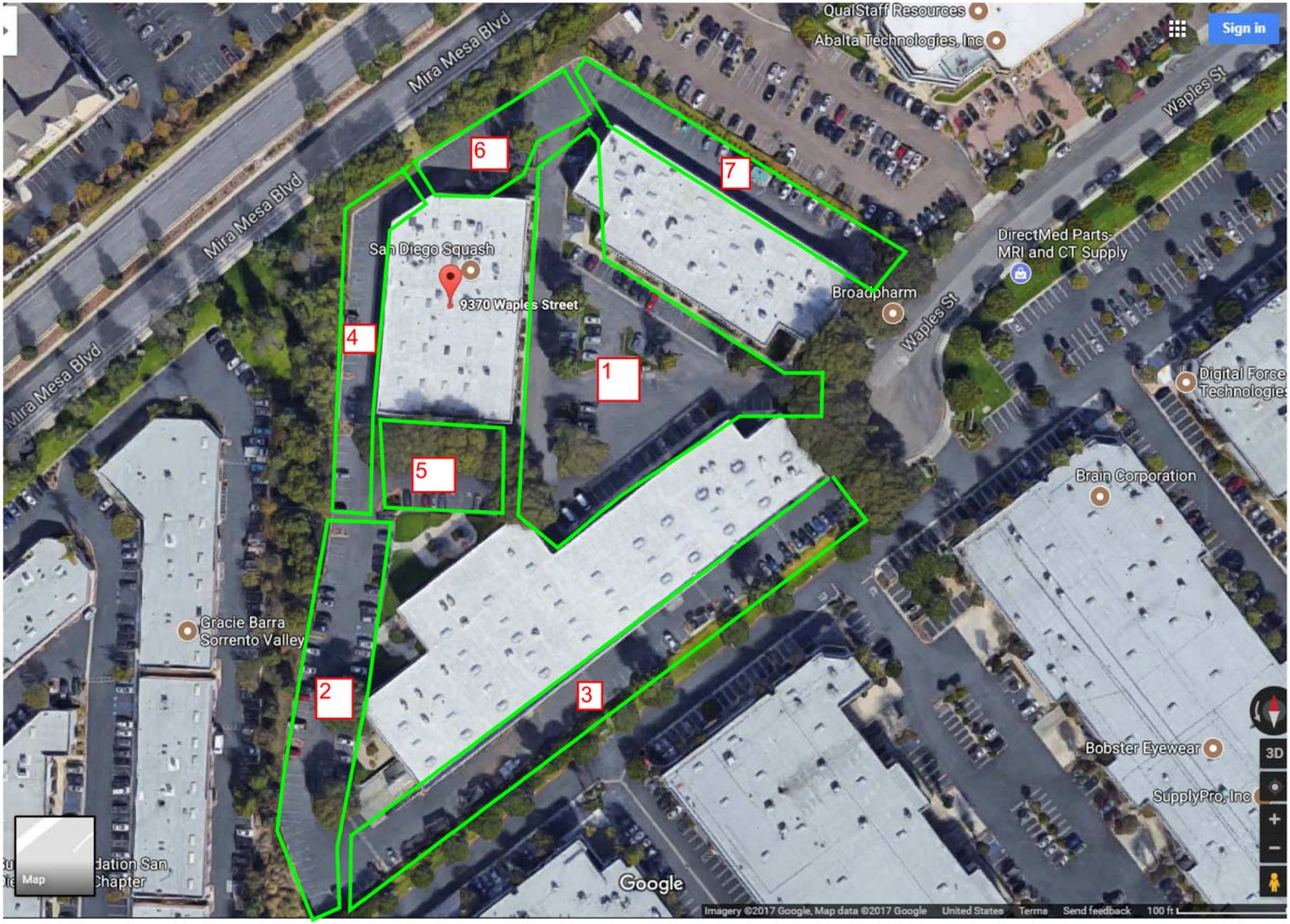
Time	Hourly Volume NB	SB	Total	Time	Hourly Volume NB	SB	Total
12:00 AM - 1:00 AM	0	0	0	12:00 PM - 1:00 PM	3	4	7
1:00 AM - 2:00 AM	0	0	0	1:00 PM - 2:00 PM	6	5	11
2:00 AM - 3:00 AM	1	0	1	2:00 PM - 3:00 PM	5	4	9
3:00 AM - 4:00 AM	0	0	0	3:00 PM - 4:00 PM	1	10	11
4:00 AM - 5:00 AM	0	0	0	4:00 PM - 5:00 PM	3	5	8
5:00 AM - 6:00 AM	2	0	2	5:00 PM - 6:00 PM	0	4	4
6:00 AM - 7:00 AM	6	1	7	6:00 PM - 7:00 PM	0	0	0
7:00 AM - 8:00 AM	3	1	4	7:00 PM - 8:00 PM	0	0	0
8:00 AM - 9:00 AM	1	0	1	8:00 PM - 9:00 PM	0	0	0
9:00 AM - 10:00 AM	6	5	11	9:00 PM - 10:00 PM	0	0	0
10:00 AM - 11:00 AM	5	2	7	10:00 PM - 11:00 PM	0	0	0
11:00 AM - 12:00 PM	2	2	4	11:00 PM - 12:00 AM	0	0	0
Total	**26**	**11**	**37**	**Total**	**18**	**32**	**50**

24-Hour NB Volume 44 | **24-Hour SB Volume 43**



ATTACHMENT B

Existing Site Parking Count Data



PARKING ZONES
9370 WAPLES STREET

Rick Engineering Company Parking Evaluation June 13, 2017

9370 Waples Street, San Diego AVC 17-0700

Supply	74	60	70	27	22	27	36
316	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
7:00	15	8	7	0	5	2	10
8:00	15	12	15	1	6	4	16
9:00	21	13	17	3	7	7	16
10:00	24	14	16	2	7	8	18
11:00	27	14	18	4	5	9	16
12:00	28	13	17	5	3	9	17
13:00	30	14	19	5	3	9	18
14:00	27	15	18	4	3	10	20
15:00	25	17	13	4	3	9	15
16:00	19	6	12	4	4	10	9
17:00	13	4	4	4	2	9	8
18:00	15	2	2	3	2	4	3
19:00	19	2	1	1	2	1	3
20:00	15	2	1	1	3	1	3
21:00	10	2	1	1	3	1	2

Rick Engineering Company Parking Evaluation June 14, 2017

Supply	74	60	70	27	22	27	36
316	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
7:00	14	10	4	1	5	1	9
8:00	16	10	14	2	9	2	16
9:00	18	12	16	4	9	8	18
10:00	24	11	17	4	8	8	18
11:00	28	12	18	5	5	8	19
12:00	31	14	15	6	5	7	19
13:00	31	12	15	5	6	10	21
14:00	27	14	16	4	6	9	19
15:00	23	13	13	4	5	10	16
16:00	16	3	10	5	5	10	5
17:00	14	3	2	4	3	8	4
18:00	13	2	2	3	3	6	1
19:00	9	2	1	2	3	4	3
20:00	9	2	1	2	4	2	2
21:00	3	2	1	2	3	0	2

Rick Engineering Company Parking Evaluation June 15, 2017

Supply	74	60	70	27	22	27	36
316	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
7:00	10	6	4	1	4	2	9
8:00	16	9	14	2	9	3	13
9:00	18	12	14	4	10	7	18
10:00	22	13	14	3	9	9	18
11:00	26	12	15	4	7	8	17
12:00	26	12	13	5	4	8	18
13:00	30	14	15	5	4	10	19
14:00	20	12	14	6	7	10	16
15:00	20	13	14	5	3	14	15
16:00	12	5	13	6	4	9	9
17:00	9	2	6	5	3	10	9
18:00	12	2	2	3	4	5	1
19:00	8	2	1	2	3	4	1
20:00	8	2	1	2	3	2	1
21:00	2	2	1	1	3	1	1

ATTACHMENT C

Access Youth Academy and San Diego Squash Attendance Data

RICK ENGINEERING COMPANY - 9370 WAPLES STREET - DOOR COUNTS

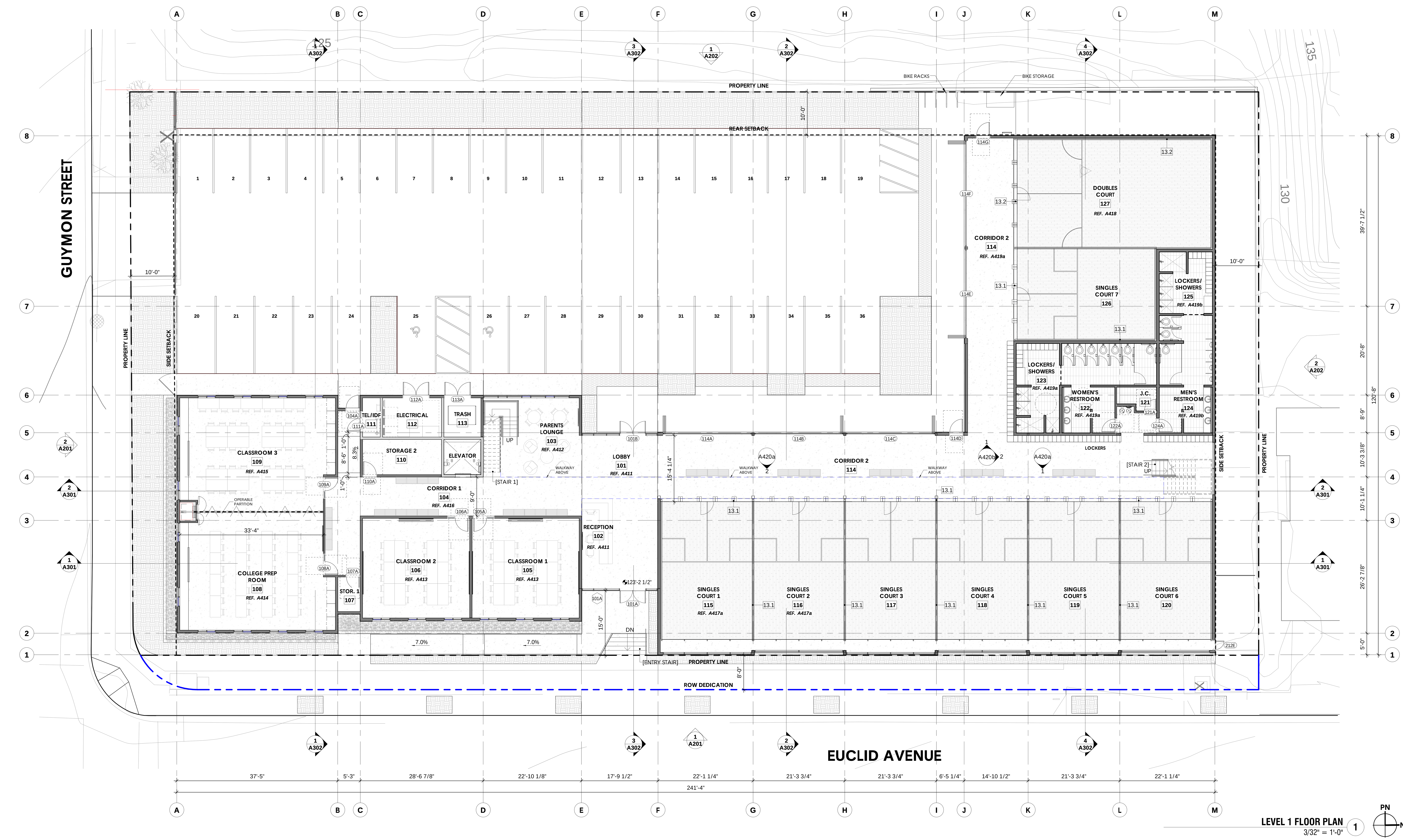
Time Interval	Tuesday, June 13, 2017 S D Squash IN	S D Squash OUT	ACCESS IN	ACCESS OUT
7:00	0	0	1	0
7:15	0	0	0	0
7:30	0	0	1	0
7:45	0	0	0	0
8:00	0	1	0	0
8:15	0	1	0	0
8:30	0	0	0	0
8:45	1	0	1	1
9:00	0	1	0	0
9:15	0	0	0	0
9:30	0	0	0	0
9:45	1	0	0	0
10:00	1	0	1	0
10:15	0	0	1	1
10:30	1	0	1	0
10:45	0	0	0	0
11:00	0	0	0	0
11:15	0	0	1	1
11:30	0	0	1	0
11:45	2	0	0	1
12:00	1	1	0	0
12:15	1	1	1	0
12:30	3	1	0	0
12:45	1	0	0	0
13:00	0	1	0	1
13:15	0	1	0	1
13:30	0	4	0	4
13:45	1	2	1	2
14:00	0	0	0	0
14:15	0	1	0	1
14:30	0	1	0	1
14:45	0	0	0	0
15:00	0	0	0	0
15:15	1	1	1	1
15:30	3	1	3	1
15:45	2	0	2	0
16:00	0	0	0	0
16:15	0	0	0	0
16:30	0	0	0	0
16:45	1	2	1	2
17:00	1	0	1	0
17:15	2	0	2	0
17:30	2	0	2	0
17:45	2	0	2	0
18:00	1	0	1	0
18:15	1	0	1	0
18:30	4	0	4	0
18:45	2	2	2	2
19:00	0	1	0	1
19:15	0	1	0	1
19:30	0	0	0	0
19:45	0	2	0	2
20:00	0	0	0	0
20:15	0	1	0	1
20:30	0	1	0	1
20:45	0	2	0	2
TOTALS	35	30	32	28

Time Interval	Wednesday, June 14, 2017 S D Squash IN	S D Squash OUT	ACCESS IN	ACCESS OUT
7:00	0	0	0	0
7:15	0	0	0	0
7:30	0	0	1	0
7:45	0	0	0	0
8:00	0	3	0	0
8:15	1	1	0	0
8:30	0	0	0	0
8:45	0	0	0	0
9:00	0	0	0	0
9:15	0	0	0	0
9:30	0	0	2	1
9:45	0	0	1	0
10:00	2	0	1	0
10:15	1	0	0	0
10:30	1	0	2	2
10:45	1	0	2	1
11:00	0	0	1	1
11:15	0	0	0	0
11:30	1	0	1	1
11:45	2	2	0	0
12:00	2	0	1	1
12:15	0	0	0	0
12:30	1	0	0	0
12:45	2	2	0	0
13:00	1	1	1	1
13:15	2	1	0	0
13:30	0	2	0	0
13:45	0	0	1	0
14:00	1	3	0	2
14:15	1	2	0	0
14:30	0	0	6	0
14:45	1	2	16	1
15:00	0	0	1	0
15:15	0	0	0	0
15:30	0	0	0	0
15:45	0	0	0	0
16:00	1	0	2	2
16:15	1	0	0	0
16:30	0	0	0	0
16:45	2	7	0	17
17:00	0	0	0	1
17:15	2	0	0	0
17:30	4	4	1	2
17:45	1	1	0	1
18:00	4	1	0	0
18:15	0	4	0	0
18:30	2	0	0	1
18:45	1	2	0	0
19:00	0	1	0	0
19:15	0	0	0	0
19:30	0	0	0	0
19:45	0	0	0	0
20:00	0	1	0	0
20:15	0	0	0	0
20:30	0	3	0	0
20:45	0	1	0	0
TOTALS	38	44	40	35

Time Interval	Thursday, June 15, 2017 S D Squash IN	S D Squash OUT	ACCESS IN	ACCESS OUT
7:00	0	0	0	0
7:15	0	0	0	0
7:30	0	0	0	0
7:45	0	0	0	0
8:00	0	1	0	0
8:15	0	1	0	0
8:30	0	0	0	0
8:45	0	0	0	0
9:00	0	0	0	0
9:15	0	0	0	0
9:30	0	0	0	0
9:45	0	0	1	0
10:00	0	0	1	0
10:15	1	0	0	0
10:30	4	1	1	3
10:45	0	0	0	0
11:00	0	0	0	0
11:15	2	0	1	0
11:30	1	0	0	0
11:45	1	1	0	0
12:00	3	2	0	0
12:15	1	0	1	1
12:30	4	2	1	1
12:45	0	1	1	1
13:00	0	2	0	0
13:15	0	2	0	0
13:30	0	3	0	1
13:45	0	0	1	2
14:00	0	0	0	0
14:15	0	0	0	0
14:30	1	0	15	1
14:45	4	1	11	6
15:00	0	0	0	0
15:15	1	3	3	1
15:30	0	2	2	0
15:45	2	0	0	1
16:00	0	0	0	0
16:15	1	0	0	1
16:30	0	0	0	0
16:45	4	5	1	24
17:00	3	0	0	0
17:15	0	0	0	0
17:30	0	0	0	0
17:45	0	0	2	1
18:00	3	0	0	0
18:15	0	0	0	1
18:30	0	0	0	0
18:45	1	2	0	0
19:00	0	1	0	0
19:15	0	1	0	0
19:30	0	0	0	0
19:45	0	1	0	0
20:00	0	0	0	0
20:15	0	0	0	0
20:30	0	2	0	0
20:45	0	1	0	0
TOTALS	37	35	42	45

ATTACHMENT D

Proposed Site Plan
Access Youth Academy
704 Euclid Avenue



LEVEL 1 FLOOR PLAN 1
3/32" = 1'-0"

GENERAL NOTES

1. NOTES ON THIS SHEET ARE AN ACCUMULATION OF ITEMS ON THE PLANS, ELEVATIONS, & SECTIONS PLAN SHEETS, NOT ALL ITEMS ARE FOUND ON EACH SHEET.
2. DIMENSIONS SHOWN ARE TYPICAL OF THIS SHEET ONLY, UNLESS NOTED OTHERWISE.
3. GRID LINES ARE MEASURED FROM EXTERIOR FACE OF STUD, CMU, & CONCRETE AND FROM THE CENTERLINE OF STEEL MEMBERS, U.N.O.
4. OVERALL FLOOR PLAN - INTERIOR DIMENSIONS ARE MEASURED TO FACE OF STUD, U.N.O.
5. ENLARGED INTERIOR PLANS, ENLARGED INTERIOR ELEVATIONS, ENLARGED INTERIOR SECTIONS/DETAILS ARE MEASURED TO FACE/EDGE OF FINISHED SURFACE, U.N.O.
6. FINISHED FLOOR ELEVATION CALL-OUTS ARE BASED OFF OF 0'-0" AMSL.
7. NOT ALL UNDERGROUND & ABOVE GROUND UTILITIES & EQUIPMENT ARE SHOWN IN THESE DRAWINGS.
8. NOT ALL PROJECT ITEMS ARE SHOWN IN THESE DRAWINGS. ITEMS SHOWN ARE FOR GRAPHIC PURPOSES AND SHALL BE VERIFIED WITH THE APPROPRIATE DISCIPLINE'S DOCUMENTS FOR ADDITIONAL DETAILED INFORMATION. CONTRACTOR TO COORDINATE ALL PROJECT ITEMS.
9. REFER TO WALL, FLOOR, AND CEILING TYPES FOR R-VALUES.
10. THIS PROJECT SHALL COMPY WITH THE CITY OF SAN DIEGO LIGHTING ORDINANCE.
11. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
12. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
13. ALL ROOFING TO BE CLASS 'A' FIRE RATED.
14. REFER TO DETAIL SHEETS A900'S FOR TYPICAL DETAILS NOT SPECIFICALLY REFERENCED ON THESE DRAWINGS.
15. ARCHITECT TO APPROVE FINAL TILE LAYOUT PRIOR TO INSTALLATION.

KEYNOTES

- * COORDINATE FINAL SELECTIONS OF EQUIPMENT, SYSTEMS, MATERIAL, COLOR, FINISH AND SIMILAR ELEMENTS WITH ARCHITECT
- 5.1 GLASS GUARDRAIL SYSTEM
- 5.2 DECORATIVE METAL HANDRAIL AND/OR GUARDRAIL SYSTEM
- 5.6 METAL TRELLIS SYSTEM
- 7.2 ALUM. BREAK METAL PANEL
- 8.1 ALUM. STOREFRONT WINDOW SYSTEM; REF. SCHED.
- 8.3 ALUM. STOREFRONT DOOR SYSTEM; REF. SCHED.
- 8.4 DOOR SYSTEM; REF. SCHED.
- 8.5 ALUM. BI-FOLDING DOOR SYSTEM; REF SCHED.
- 9.4 CEMENT PLASTER STUCCO; 3-COAT SYSTEM W/ ACRYLIC TOPCOAT - WHITE
- 9.7 HORIZONTAL SIDING
- 13.1 SINGLES SQUASH COURT SYSTEM - PER COURT BUILDER
- 13.2 DOUBLES SQUASH COURT SYSTEM - PER COURT BUILDER
- 22.1f PLUMBING FIXTURE - DRINKING FOUNTAIN W/ BOTTLE FILLING STATION

LEGEND

- CONCRETE - FINISH PER SCHEDULE
- PORCELAIN TILE FLOORING - REF SCHEDULE
- WOOD SPORTS FLOORING - PER COURT BUILDER
- PAVING 01 - REF LANDSCAPE
- PAVING 02 - REF LANDSCAPE
- LANDSCAPE PLANTING - REF LANDSCAPE

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NO. C 24394
1-31-19
STATE OF CALIFORNIA

REVISIONS

No.	Description	Date
01	100% SD Submittal	06/15/17

Issue Date	Scale
06/15/2017	As indicated

SRA Project Number
1703

FLOOR PLAN - LEVEL 1

A101

RICK™
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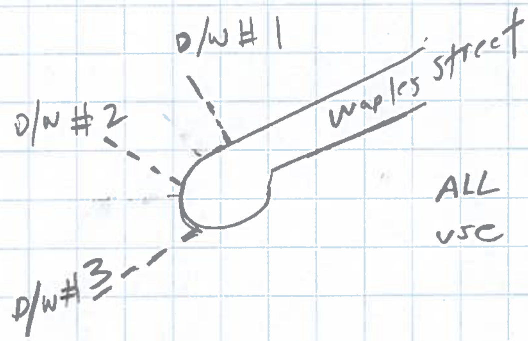
Job No. 13284-PFF
Page 1/3
Done By MY
Checked By

9370 Waples St site

General site observations/Notes



ALL AYA and San Diego Squash patrons use D/W #2 only (not D/W #1 & D/W #2).

- AYA staff park in area 5
- 2 AYA vans park in area 1
- San Diego Squash patrons park in AREA 1
- other office patrons within the site also park in AREAS 1 + 5 during normal working hours (8AM-5PM)
- AFTER 5PM, CARS parked in AREA 1 ARE San Diego Squash patrons

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TRIP GENERATION CALCULATIONS

* conservatively assumes one person entering the AYA and sawport facility, represent one inbound vehicle trip (no carpooling), with the exception of AYA students, who arrive in 2 vans

	TUESDAY 6/13/17	WEDNESDAY 6/14/17	THURSDAY 6/15/17	AVG TRIP RATE
AYA	32 enter door − 18 AYA students 14 inbound trips ×2 28 ADT +4 ADT (2 VANS × 2 TRIPS) 32 ADT	40 enter door − 19 AYA students 21 inbound trips ×2 42 ADT + 4 ADT (2 VANS ×2 TRIPS) 46 ADT	42 enter door − 24 AYA students 18 inbound TRIPS ×2 36 ADT +4 ADT (2 Vans ×2) 40 ADT	20 AYA students 40 ADT 40 ADT / 20 students = 2 ADT/student
SD SQUASH	35 enter door ×2 70 ADT	38 enter door ×2 76 ADT	37 enter door ×2 74 ADT	73 ADT 73 ADT / 4 courts = 18 ADT/station

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PEAK PARKING DEMAND CALCULATIONS

	TUES 6/13/17	WED 6/14/17	THU 6/15/17	AVG
AYA PEAK PARKING DEMAND - 5 employees - 2 VANS - 3 visitors or volunteers 3:00 PM PEAK	9	10	10	10 vehicles parked 20 students $\frac{10 \text{ veh}}{20 \text{ students}} = 0.5$ spaces/student
SAN DIEGO SQUASH 4 COURTS 6:00 PM PEAK	15	13	12	14 vehicles parked 4 courts $\frac{14 \text{ veh}}{4 \text{ courts}} = 3.5$ spaces/court

SDVOSB . DVBE

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GEOTECHNICAL INVESTIGATION
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August 11, 2017

SCST No. 170270N
Report No. 1

Renato Paiva
Access Youth Academy
9370 Waples Street, Suite 101
San Diego, California 92121

Subject: GEOTECHNICAL INVESTIGATION
ACCESS YOUTH ACADEMY
704 EUCLID AVENUE
SAN DIEGO, CALIFORNIA

Dear Mr. Paiva:

SCST, Inc. (SCST) is pleased to present our report describing the geotechnical investigation performed for the subject project. We conducted the geotechnical investigation in general conformance with the scope of work presented in our proposal dated May 23, 2017. Based on the results of our investigation, we consider the planned construction feasible from a geotechnical standpoint provided the recommendations of this report are followed. If you have any questions, please call us at (619) 280-4321.

Respectfully submitted,
SCST, INC.

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Exp. 6/30/19
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Appendix II .... Laboratory Testing
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EXECUTIVE SUMMARY

This report presents the results of the geotechnical investigation SCST, Inc. (SCST) performed for the subject project. We understand the project will consist of the design and construction of a two-story building and associated pavements, hardscape, underground utilities, and storm water BMP facilities. The purpose of our work is to provide conclusions and recommendations regarding the geotechnical aspects of the project.

We explored the subsurface conditions by drilling 5 borings and 2 percolation test holes to depths between about 5 and 20 feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow-stem auger. Auger refusal was encountered in one of the borings. An SCST engineer logged the borings and test holes and collected samples of the materials encountered for laboratory testing. SCST tested selected samples from the borings and test holes to evaluate pertinent soil classification and engineering properties to assist in developing geotechnical conclusions and recommendations.

The materials encountered in the borings and percolation test holes consist of fill, old alluvial flood-plain deposits, and San Diego Formation. The fill extends to depths up to about 11 feet below the existing ground surface and consists of loose to medium dense clayey sand to clayey gravel and very stiff sandy clay with cobbles and concrete debris. The old alluvial flood-plain deposits consist of dense clayey sand and hard sandy clay. The San Diego Formation consists of medium dense to very dense, weakly cemented silty sandstone. Groundwater was not observed in the borings or test holes.

We performed two borehole percolation tests. Tested infiltration rates of 0.0 inch per hour were measured at both locations. The tested infiltration rates do not support infiltration of storm water in any appreciable quantity. Onsite storm water BMP facilities should be lined with an impermeable liner and a subdrain and collection pipe system installed to reduce the potential for lateral migration of the introduced water beneath structures and improvements.

The main geotechnical consideration affecting the planned construction is the presence of potentially compressible fill. To reduce the potential for settlement, the existing fill should be excavated in its entirety below the planned structure, settlement sensitive improvement and new fills. Additionally, old alluvial flood-plain deposits or San Diego Formation within 3 feet of the deepest planned footing bottom level should be excavated. Excavations up to 11 feet below the existing ground surface should be expected. We anticipate that the excavated material free of oversized cobbles and debris can be used as compacted fill. Material with an expansion index of 50 or less should be placed from 3 feet below the deepest planned footing bottom level to finished pad grade. Hardscape should be underlain by at least 2 feet of material with an expansion index less of 50 or less. The planned building can be supported on shallow spread footings with bottoms levels on compacted fill. The recommendations presented herein may need to be updated once final plans are developed.

1. INTRODUCTION

This report presents the results of the geotechnical investigation SCST, Inc. (SCST) performed for the subject project. We understand the project will consist of the design and construction of a two-story building and associated pavements, hardscape, underground utilities, and storm water BMP facilities. The purpose of our work is to provide conclusions and recommendations regarding the geotechnical aspects of the project. Figure 1 presents a site vicinity map.

2. SCOPE OF WORK

2.1 FIELD INVESTIGATION

We explored the subsurface conditions by drilling 5 borings and 2 percolation test holes to depths between about 5 and 20 feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow-stem auger. Auger refusal was encountered in one of the borings. Figure 2 shows the approximate locations of the borings and percolation tests. An SCST engineer logged the borings and percolation test holes and collected samples of the materials encountered for laboratory testing. Logs of the borings and test holes are presented in Appendix I. Soils are classified according to the Unified Soil Classification System illustrated on Figure I-1.

2.2 LABORATORY TESTING

Selected samples obtained from the borings and percolation test holes were tested to evaluate pertinent soil classification and engineering properties and enable development of geotechnical conclusions and recommendations. The laboratory tests consisted of in situ moisture and density, grain size distribution, Atterberg limits, R-value, expansion index, and corrosivity. The results of the laboratory tests and brief explanations of the test procedures are presented in Appendix II.

2.3 ANALYSIS AND REPORT

The results of the field and laboratory tests were evaluated to develop conclusions and recommendations regarding:

- Subsurface conditions beneath the site
- Potential geologic hazards
- Criteria for seismic design in accordance with the 2016 California Building Code (CBC)
- Site preparation and grading
- Foundation alternatives and geotechnical engineering criteria for design of the foundations
- Estimated foundation settlements
- Support for concrete slabs-on-grade
- Lateral pressures for the design of retaining walls
- Pavement sections
- Soil corrosivity
- Infiltration feasibility

3. SITE DESCRIPTION

The subject site is located west of Euclid Avenue and north of Guymon Street in the Chollas View community of the City of San Diego, California. Existing site improvements consist of a playfield, a basketball court, and a paved parking lot. The site is bordered on the west by an ascending slope about 20 feet in height and inclined at about 2:1 (horizontal:vertical). Site elevations range from about 124 feet at the northwest corner of the site to about 120 feet at the southeast corner.

4. PROPOSED DEVELOPMENT

We understand the project will consist of the design and construction of a two-story building and associated pavements, hardscape, underground utilities, and storm water BMP facilities. As currently planned, the building will have a finish floor elevation of 123.20 feet. Minor site grading will be needed to achieve finish site grades.

5. GEOLOGY AND SUBSURFACE CONDITIONS

The materials encountered in the borings and percolation test holes consist of fill, old alluvial flood-plain deposits, and San Diego Formation. Descriptions of the materials are presented below. Figure 2 presents the site-specific geology. Figure 3 presents a geologic cross section. Figure 4 presents the regional geology in the vicinity of the site.

Fill: Fill was encountered in each of the borings. The fill consists loose to medium dense clayey sand with gravel and clayey gravel with sand and very stiff sandy clay. Cobbles and concrete debris were encountered within the fill. The fill encountered in our borings extends to depths varying from about 3½ feet to 11 feet below the existing ground surface. The existing fill is considered compressible and unsuitable for support of the planned structure.

Old Alluvial Flood-Plain Deposits: Old alluvial flood-plain deposits were encountered beneath the fill in borings B-1, B-3, and B-5. The old alluvial flood-plain deposits consist of dense clayey sand and hard sandy clay.

San Diego Formation: San Diego Formation underlies the site. The San Diego Formation consists of medium dense to very dense, weakly cemented silty sandstone.

Groundwater: Groundwater was not encountered in the borings or percolation test holes. The groundwater table is expected to be below a depth that will influence planned construction. However, groundwater levels may fluctuate in the future due to rainfall, irrigation, broken pipes, or changes in site drainage. Because groundwater rise or seepage is difficult to predict, such conditions are typically mitigated if and when they occur.

6. GEOLOGIC HAZARDS

6.1 CITY OF SAN DIEGO SEISMIC SAFETY STUDY

Figure 5 shows the site location on the City of San Diego (2008) Seismic Safety Study map. The site is located in Geologic Hazard Category 52, which is defined as other level areas, gently sloping to steep terrain, favorable geologic structure, and low risk. In our opinion, the geologic risk is low.

6.2 FAULTING AND SURFACE RUPTURE

The closest known active fault is the Rose Canyon fault zone (Silver Strand fault) located about 4.3 miles (7.0 kilometers) west-southwest of the site. The site is not located in an Alquist-Priolo Earthquake Fault Zone. No active faults are known to underlie or project toward the site. Therefore, the probability of fault rupture at the site is low.

6.3 CBC SEISMIC DESIGN PARAMETERS

A geologic hazard likely to affect the project is ground shaking as a result of movement along an active fault zone in the vicinity of the subject site. The site coefficients and maximum considered earthquake (MCE_R) spectral response acceleration parameters in accordance with the 2016 CBC are presented below:

Site Coordinates: Latitude 32.71285°
Longitude -117.08541°
Site Class: D
Site Coefficients, F_a = 1.105
F_v = 1.648
Mapped Spectral Response Acceleration at Short Period, S_s = 0.989g
Mapped Spectral Response Acceleration at 1-Second Period, S_1 = 0.376g
Design Spectral Acceleration at Short Period, S_{DS} = 0.728g
Design Spectral Acceleration at 1-Second Period, S_{D1} = 0.413g
Site Peak Ground Acceleration, PGA_M = 0.447g

6.4 LIQUEFACTION AND DYNAMIC SETTLEMENT

Liquefaction occurs when loose, saturated sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid, resulting in large total and differential ground surface settlements and possible lateral spreading during an earthquake. Given the relatively dense nature of the materials beneath the site, and provided the recommended remedial grading is performed, the potential for liquefaction and dynamic settlement to occur at the site is low.

6.5 LANDSLIDES AND SLOPE STABILITY

Evidence of landslides or slope instabilities was not observed. The potential for landslides or slope instabilities to occur at the site is considered low.

6.6 TSUNAMIS, SEICHES AND FLOODING

The site is not located within a mapped area on the State of California Tsunami Inundation Maps (Cal EMA, 2009); therefore, damage due to tsunamis is considered negligible. Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays, or reservoirs. The site is not located adjacent to any lakes or confined bodies of water; therefore, the potential for a seiche to affect the site is low. However, the southeast corner of the site is located within a 0.2% annual chance flood area (FEMA, 2012) associated with Chollas Creek.

6.7 SUBSIDENCE

The site is not located in an area of known subsidence associated with fluid withdrawal (groundwater or petroleum); therefore, the potential for subsidence due to the extraction of fluids is negligible.

6.8 HYDRO-CONSOLIDATION

Hydro-consolidation can occur in recently deposited sediments (less than 10,000 years old) that were deposited in a semi-arid environment. Examples of such sediments are aeolian sands, alluvial fan deposits, and mudflow sediments deposited during flash floods. The pore spaces between the particle grains can re-adjust when inundated by groundwater causing the material to consolidate. The relatively dense materials underlying the site are not considered susceptible to hydro-consolidation.

7. CONCLUSIONS

Based on the results of our investigation, we consider the planned construction feasible from a geotechnical standpoint provided the recommendations of this report are followed. The main geotechnical consideration affecting the planned development is the presence of potentially compressible fill. Remedial grading will need to be performed to reduce the potential for distress to the planned building and improvements. Remedial grading recommendations are provided herein. The planned building can be supported on shallow spread footings with bottoms levels on compacted fill. The recommendations presented herein may need to be updated once final plans are developed.

8. RECOMMENDATIONS

8.1 SITE PREPARATION AND GRADING

8.1.1 Site Preparation

Site preparation should begin with the removal of existing improvements, topsoil, vegetation and debris. Subsurface improvements that are to be abandoned should be removed and the resulting excavations should be backfilled and compacted in accordance with the recommendations of this report. Pipeline abandonment can consist of capping or rerouting at the project perimeter and removal within the project perimeter. If appropriate, abandoned pipelines can be filled with grout or slurry as recommended by and observed by the geotechnical consultant.

8.1.2 Remedial Grading

To reduce the potential for settlement, the existing fill should be excavated in its entirety beneath the planned building, settlement sensitive improvements, and new fills. Additionally, old alluvial flood-plain deposits or San Diego Formation within 3 feet of the deepest planned footing bottom level should be excavated. Excavations up to 11 feet below the existing ground surface should be anticipated. Horizontally, the excavations should extend at least 5 feet outside the planned perimeter foundations, at least 2 feet outside the planned hardscape and pavements, or up to existing improvements or the project boundary, whichever is less. A SCST representative should observe conditions exposed in the bottom of the excavation to determine if additional excavation is required.

8.1.3 Compacted Fill

Excavated material, except for roots, debris and rocks greater than 6 inches, can be used as compacted fill. We expect that some of the existing fill will need to be screened to remove oversized rock and debris prior to being placed as compacted fill. Material with an expansion index of 50 or less determined in accordance with ASTM D4829 should be placed from 3 feet below the deepest planned footing bottom level to finished pad grade. Hardscape should be underlain by at least 2 feet of material with an expansion index of 50 or less. Based on our laboratory test results, we expect that most of the onsite soils will meet the expansion index criteria.

The material exposed in the bottom of the excavation should be scarified to a depth of 6 to 8 inches, moisture conditioned, and compacted to at least 90% relative compaction. Fill should be placed in horizontal lifts at a thickness appropriate for the equipment spreading, mixing, and compacting the material, but generally should not exceed 8 inches in loose thickness. Fill should be moisture conditioned to near optimum moisture content and compacted to at least 90% relative compaction. The maximum dry density and optimum moisture content for evaluating relative compaction should be determined in accordance with ASTM D 1557. Utility trench backfill beneath structures, pavements and hardscape should be compacted to at least 90% relative compaction. The top 12 inches of subgrade beneath pavements should be compacted to at least 95%.

8.1.4 Expansive Soil

The onsite soils tested have a very low to low expansion potential. The foundation recommendations presented in this report reflect a low expansion potential.

8.1.5 Imported Soil

Imported soil should consist of predominately granular soil free of organic matter and rocks greater than 6 inches. Imported soil should be observed and, if appropriate, tested by SCST prior to transport to the site to determine suitability for the intended use.

8.1.6 Excavation Characteristics

It is anticipated that excavations can be achieved with conventional earthwork equipment in good working order. Cobbles and debris should be anticipated in the fill. Difficult excavation should be anticipated in cemented zones within the San Diego Formation.

8.1.7 Oversized Material

Excavations may generate oversized material. Oversized material is defined as rocks or cemented clasts greater than 6 inches in largest dimension. Oversized material should be broken down to no greater than 6 inches in largest dimension for use in fill, used as landscape material, or disposed offsite.

8.1.8 Temporary Excavation

Temporary excavations 3 feet deep or less can be made vertically. Deeper temporary excavations should be laid back no steeper than 1:1 (horizontal:vertical). The faces of temporary slopes should be inspected daily by the contractor’s Competent Person before personnel are allowed to enter the excavation. Any zones of potential instability, sloughing or raveling should be brought to the attention of the Engineer and corrective action implemented before personnel begin working in the excavation. Excavated soils should not be stockpiled behind temporary excavations within a distance equal to the depth of the excavation. SCST should be notified if other surcharge loads are anticipated so that lateral load criteria can be developed for the specific situation. If temporary slopes are to be maintained during the rainy season, berms are recommended along the tops of slopes to prevent runoff water from entering the excavation and eroding the slope faces.

Slopes steeper than those described above will require shoring. Additionally, temporary excavations that extend below a plane inclined at 1½:1 (horizontal:vertical) downward from the outside bottom edge of existing structures or improvements will require shoring or underpinning. Soldier piles and lagging, internally braced shoring or trench boxes could be used. If trench boxes are used, the soil immediately adjacent to the trench box is not directly supported. Ground surface deformations immediately adjacent to the pit or trench could be greater where trench boxes are used compared to other methods of shoring.

As an alternative to shoring/underpinning, maximum 10-foot wide slots can be excavated and immediately backfilled adjacent to existing structures and improvement. Care should be taken to not undermine existing footings. Slot excavations should be filled prior to performing adjacent excavations.

8.1.9 Temporary Shoring

For design of cantilevered shoring, an active soil pressure equal to a fluid weighing 35 pcf can be used for level retained ground or 55 pcf for 2:1 (horizontal:vertical) sloping ground. The surcharge loads on shoring from traffic and construction equipment adjacent to the excavation can be modeled by assuming an additional 2 feet of soil behind the shoring. For design of soldier piles, an allowable passive pressure of 350 psf per foot of embedment over twice the pile diameter up to a maximum of 5,000 psf can be used. Soldier piles should be spaced at least three pile diameters, center to center. Continuous lagging will be required throughout. The soldier piles should be designed for the full anticipated lateral pressure; however, the pressure on the lagging will be less due to arching in the soils. For design of lagging, the earth pressure but can be limited to a maximum value of 400 psf.

8.1.10 Temporary Dewatering

Groundwater seepage may occur locally due to broken pipes, local irrigation or following heavy rain. Groundwater should be anticipated in the planned excavations. Dewatering can be accomplished by sloping the excavation bottom to a sump and pumping from the sump. A layer of gravel about 6 inches thick placed in the bottom of the excavation will facilitate groundwater flow and can be used as a working platform.

8.1.11 Slopes

All permanent slopes should be constructed no steeper than 2:1 (horizontal:vertical). Faces of fill slopes should be compacted either by rolling with a sheep-foot roller or other suitable equipment, or by overfilling and cutting back to design grade. Fills should be benched into sloping ground inclined steeper than 5:1 (horizontal:vertical). It is our opinion that cut slopes constructed no steeper than 2:1 (horizontal:vertical) will possess an adequate factor of safety. An engineering geologist should observe all cut slopes during grading to ascertain that no unforeseen adverse geologic conditions are encountered that require revised recommendations. All slopes are susceptible to surficial slope failure and erosion. Water should not be allowed to flow over the top of slope. Additionally, slopes should be planted with vegetation that will reduce the potential for erosion.

8.1.12 Surface Drainage

Final surface grades around structures should be designed to collect and direct surface water away from the structure and toward appropriate drainage facilities. The ground around the structure should be graded so that surface water flows rapidly away from the structure without ponding. In general, we recommend that the ground adjacent to the structure slope away at a gradient of at least 2%. Densely vegetated areas where runoff can be impaired should have a minimum gradient of at least 5% within the first 5 feet from the structure. Roof gutters with downspouts that discharge directly into a closed drainage system are recommended on structures. Drainage patterns established at the time of fine grading should be maintained throughout the life of the proposed structures. Site irrigation should be limited to the minimum necessary to sustain landscape growth. Should excessive irrigation, impaired drainage, or unusually high rainfall occur, saturated zones of perched groundwater can develop.

8.1.13 Grading Plan Review

SCST should review the grading plans and earthwork specifications to ascertain whether the intent of the recommendations contained in this report have been implemented, and that no revised recommendations are needed due to changes in the development scheme.

8.2 FOUNDATIONS

8.2.1 Shallow Spread Footings

The planned building can be supported on shallow spread footings with bottoms levels on granular compacted fill. Footings should extend at least 24 inches below lowest adjacent finished grade. Continuous footings should be at least 12 inches wide. Isolated or retaining wall footings should be at least 24 inches wide. An allowable bearing capacity of 2,500 psf can be used. The bearing capacity can be increased by 500 psf for each foot of depth below the minimum and 250 psf for each foot of width beyond the minimum up to a maximum of 5,000 psf. The bearing value can be increased by ⅓ when considering the total of all loads, including wind or seismic forces. Footings located adjacent to or within slopes should be extended to a depth such that a minimum horizontal distance of 7 feet exists between the lower outside footing edge and the face of the slope.

Lateral loads will be resisted by friction between the bottoms of footings and passive pressure on the faces of footings and other structural elements below grade. An allowable coefficient of friction of 0.35 can be used. Passive pressure can be computed using an allowable lateral pressure of 350 psf per foot of depth below the ground surface for level ground conditions. Reductions for sloping ground should be made. The passive pressure can be increased by ⅓ when considering the total of all loads, including wind or seismic forces. The upper 1 foot of soil should not be relied on for passive support unless the ground is covered with pavements or slabs.

8.2.2 Settlement Characteristics

Total foundation settlements are estimated to be less than 1 inch. Differential settlements between adjacent columns and across continuous footings are estimated to be less than ¾ inch over a distance of 40 feet. Settlements should be completed shortly after structural loads are applied.

8.2.3 Foundation Plan Review

SCST should review the foundation plans to ascertain that the intent of the recommendations in this report has been implemented and that revised recommendations are not necessary as a result of changes after this report was completed.

8.2.4 Foundation Excavation Observations

A representative from SCST should observe the foundation excavations prior to forming or placing reinforcing steel.

8.3 SLABS-ON-GRADE

8.3.1 Interior Slabs-on-Grade

The project structural engineer should design the interior concrete slabs-on-grade floor. However, we recommend that building slabs be at least 5 inches thick and reinforced with at least No. 4 bars at 18 inches on center each way.

Moisture protection should be installed beneath slabs where moisture sensitive floor coverings will be used. The project architect should review the tolerable moisture transmission rate of the proposed floor covering and specify an appropriate moisture protection system. Typically, a plastic vapor barrier is used. Minimum 10-mil plastic is recommended. The plastic should comply with ASTM E1745. The vapor barrier installation should comply with ASTM E1643. Construction practice often includes placement of a 2-inch thick sand cushion between the bottom of the concrete slab and the moisture vapor retarder/barrier. This cushion can provide some protection to the vapor retarder/barrier during construction, and may assist in reducing the potential for edge curling in the slab during curing. However, the sand layer also provides a source of moisture to the underside of the slab that can increase the time required to reduce vapor emissions to limits acceptable for the type of floor covering placed on top of the slab. The slab can be placed directly on the vapor retarder/barrier.

8.3.2 Exterior Slabs-on-Grade

Exterior slabs should be at least 4 inches thick and reinforced with at least No. 3 bars at 18 inches on center each way. Slabs should be provided with weakened plane joints. Joints should be placed in accordance with the American Concrete Institute (ACI) guidelines. The project architect should select the final joint patterns. A 1-inch maximum size aggregate mix is recommended for concrete for exterior slabs. The corrosion potential of on-site soils with respect to reinforced concrete will need to be taken into account in concrete mix design. Coarse and fine aggregate in concrete should conform to the “Greenbook” Standard Specifications for Public Works Construction.

8.4 CONVENTIONAL RETAINING WALLS

8.4.1 Foundations

The recommendations provided in the foundation section of this report are also applicable to conventional retaining walls.

8.4.2 Lateral Earth Pressures

The active earth pressure for the design of unrestrained retaining walls with level backfill can be taken as equivalent to the pressure of a fluid weighing 35 pcf. The at-rest earth pressure for the design of restrained retaining walls with level backfills can be taken as equivalent to the pressure of a fluid weighing 55 pcf. These values assume a granular and drained backfill condition. Higher lateral earth pressures would apply if walls retain expansive clay soils. An additional 20 pcf should be added to these values for walls with a 2:1 (horizontal:vertical) sloping backfill. An increase in earth pressure equivalent to an additional 2 feet of retained soil can be used to account for surcharge loads from light traffic. The above values do not include a factor of safety. Appropriate factors of safety should be incorporated into the design. If any other surcharge loads are anticipated, SCST should be contacted for the necessary increase in soil pressure.

Retaining walls should be designed to resist hydrostatic pressures or be provided with a backdrain to reduce the accumulation of hydrostatic pressures. Backdrains may consist of a 2-foot wide zone of ¾-inch crushed rock. The backdrain should be separated from the adjacent soils using a non-woven filter fabric, such as Mirafi 140N or equivalent. Weep holes should be provided or a perforated pipe should be installed at the base of the backdrain and sloped to discharge to a suitable storm drain facility. As an alternative, a geocomposite drainage system such as Miradrain 6000 or equivalent placed behind the wall and connected to a suitable storm drain facility can be used. The project architect should provide waterproofing specifications and details. Figure 6 presents typical conventional retaining wall backdrain details.

8.4.3 Seismic Earth Pressure

If required, the seismic earth pressure can be taken as equivalent to the pressure of a fluid weighing 16 pcf. This value is for level backfill and does not include a factor of safety. Appropriate factors of safety should be incorporated into the design. This pressure is in addition to the un-factored, static active earth pressure. The passive pressure and bearing capacity can be increased by ⅓ in determining the seismic stability of the wall.

8.4.4 Backfill

Wall backfill should consist of granular, free-draining material having an expansion index of 20 or less. The backfill zone is defined by a 1:1 plane projected upward from the heel of the wall. Expansive or clayey soil should not be used. We anticipate that most of the onsite soils will not be suitable for wall backfill. Additionally, backfill within 3 feet from the back of the wall should not contain rocks greater than 3 inches in dimension. Backfill should be compacted to at least 90% relative compaction. Backfill should not be placed until walls have achieved adequate structural strength. Compaction of wall backfill will be necessary to minimize settlement of the backfill and overlying settlement sensitive improvements. However, some settlement should still be anticipated. Provisions should be made for some settlement of concrete slabs and pavements supported on backfill. Additionally, any utilities supported on backfill should be designed to tolerate differential settlement.

8.5 MECHANICALLY STABILIZED EARTH RETAINING WALLS

The following soil parameters can be used for design of mechanically stabilized earth (MSE) retaining walls.

MSE Wall Design Parameters

Soil Parameter	Reinforced Soil	Retained Soil	Foundation Soil
Internal Friction Angle (degrees)	32°	32°	32°
Cohesion (psf)	0	0	0
Moist Unit Weight (pcf)	130	130	130

The reinforced soil should consist of granular, free-draining material with an expansion index of 20 or less. The bottom of MSE walls should extend to such a depth that a total of 5 feet exists between the bottom of the wall and the face of the slope. Figure 7 presents a typical MSE retaining wall backdrain detail. MSE retaining walls may experience lateral movement over time. The wall engineer should review the configuration of proposed improvements adjacent to the wall and provide measures to help reduce the potential for distress to these improvements from lateral movement.

8.6 PIPELINES

8.6.1 Thrust Blocks

For level ground conditions, a passive earth pressure of 350 psf per foot of depth below the lowest adjacent final grade can be used to compute allowable thrust block resistance. A value of 150 psf per foot should be used below groundwater level, if encountered.

8.6.2 Modulus of Soil Reaction

A modulus of soil reaction (E') of 2,000 psi can be used to evaluate the deflection of buried flexible pipelines. This value assumes that granular bedding material is placed adjacent to the pipe and is compacted to at least 90% relative compaction.

8.6.3 Pipe Bedding

Pipe bedding as specified in the "Greenbook" Standard Specifications for Public Works Construction can be used. Bedding material should consist of clean sand having a sand equivalent not less than 30 and should extend to at least 12 inches above the top of pipe. Alternative materials meeting the intent of the bedding specifications are also acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. The onsite materials are not expected to meet "Greenbook" bedding specifications. The pipe bedding material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No voids or uncompacted areas should be left beneath the pipe haunches. Ponding or jetting the pipe bedding should not be allowed.

8.6.4 Backfill

Excavated materials free of organic debris and rocks greater than 6 inches in any dimension are generally expected to be suitable for use as utility trench backfill, unless beneath structures or hardscape. Imported material should not contain rocks greater than 3 inches in any dimension or organic debris. Imported material should have an expansion index of 20 or less. SCST should observe and, if appropriate, test proposed import materials before they are delivered to the site. Backfill should be placed in lifts 8 inches or less in loose thickness, moisture conditioned to optimum moisture content or slightly above, and compacted to at least 90% relative compaction. The top 12 inches of soil beneath pavement subgrade should be compacted to at least 95% relative compaction.

8.7 PAVEMENT SECTION RECOMMENDATIONS

The pavement support characteristics of the soils encountered during our investigation are considered medium. An R-value of 26 was assumed for design of preliminary pavement sections. The actual R-value of the subgrade soils should be determined after grading and final pavement sections be provided. Based on an R-value of 26, the following pavement structural sections are recommended for the assumed Traffic Indices.

Flexible Pavement Sections

Traffic Type	Traffic Index	Asphalt Concrete (inches)	Aggregate Base* (inches)
Parking Stalls	4.5	3	5
Drive Lanes	6.0	4	8
Fire Lanes	7.5	4	12

Portland Cement Concrete Pavement Sections

Traffic Type	Traffic Index	Full-Depth JPCP* (inches)
Parking Stalls	4.5	6
Drive Lanes	6.0	6½
Heavy Traffic Areas	7.5	7

***Jointed Plain Concrete Pavement**

The top 12 inches of subgrade should be scarified, moisture conditioned to near optimum moisture content and compacted to at least 95% relative compaction. All soft or yielding areas should be removed and replaced with compacted fill or aggregate base. Aggregate base and asphalt concrete should conform to the Caltrans Standard Specifications or the “Greenbook” and should be compacted to at least 95% relative compaction. Aggregate base should have an R-value of not less than 78. All materials and methods of construction should conform to good engineering practices and the minimum standards of the City of San Diego.

8.8 PERVIOUS PAVEMENT SECTION RECOMMENDATIONS

Pervious pavement section recommendations are based on Caltrans (2014) pavement structural design guidelines. The pavement sections below are based on the strength of the materials. However, the actual thickness of the sections may be controlled by the reservoir layer design, which the project civil engineer should determine.

Pervious Asphalt Pavement

Traffic Type	Category	*Asphalt Treated Permeable Base (ATPB) (inches)	Class 4 Aggregate Base (inches)
Parking Stalls	B	5	6

***1¼ inches of an open graded friction course (OGFC) should be placed on top of the ATPB.**

Pervious Concrete Pavement

Traffic Type	Category	Pervious Concrete (inches)	Class 4 Aggregate Base (inches)
Parking Stalls	B	6	6

Permeable Interlocking Concrete Pavers (PICP)

Traffic Type	Category	PICP (inches)	Class 3 Permeable (inches)	Class 4 Aggregate Base (inches)
Parking Stalls	B	3⅛	5	6

The top 12 inches of subgrade should be scarified, moisture conditioned to near optimum moisture content and compacted to at least 95% relative compaction. All soft or yielding subgrade areas should be removed and replaced with compacted fill or permeable base. All materials and methods of construction should conform to good engineering practices and the minimum local standards.

Pervious pavement sections should be lined with an impermeable geomembrane to reduce the potential for water-related distress to adjacent structures or improvements. A suitable subdrain system should be installed at the base of the pervious section.

8.9 SOIL CORROSIVITY

A representative sample of the onsite soils were tested to evaluate corrosion potential. The test results are presented in Appendix II. The project design engineer can use the sulfate results in conjunction with ACI 318 to specify the water/cement ratio, compressive strength and cementitious material types for concrete exposed to soil. A corrosion engineer should be contacted to provide specific corrosion control recommendations.

8.10 INFILTRATION FEASIBILITY

We performed two borehole percolation tests at the approximate locations shown on Figure 2 to assess storm water infiltration feasibility. Appendix III presents the field data and test results. The table below presents the tested infiltration rates.

Infiltration Rate Test Results

Test Location	Test Depth (feet)	Material Type at Test Depth (USCS Classification)	Infiltration Rate (inch/hour)
P-1	5	CLAYEY SAND with GRAVEL (SC)	0.0
P-2	5	CLAYEY SAND with GRAVEL (SC)	0.0

The tested infiltration rates do not support storm water infiltration in any appreciable quantity. Based on our test results, the feasibility screening category is No Infiltration. BMP facilities should be lined with an impermeable geomembrane to reduce the potential for water-related distress to adjacent structures or improvements. A subdrain system should be installed at the bottom of BMP facilities. Foundations should be set back at least 10 feet from BMP facilities, or the foundation should be deepened to a depth that extends below the bottom of the BMP.

9. GEOTECHNICAL ENGINEERING DURING CONSTRUCTION

The geotechnical engineer should review project plans and specifications prior to bidding and construction to check that the intent of the recommendations in this report has been incorporated. Observations and tests should be performed during construction. If the conditions encountered during construction differ from those anticipated based on the subsurface exploration program, the presence of the geotechnical engineer during construction will enable an evaluation of the exposed conditions and modifications of the recommendations in this report or development of additional recommendations in a timely manner.

10. CLOSURE

SCST should be advised of any changes in the project scope so that the recommendations contained in this report can be evaluated with respect to the revised plans. Changes in recommendations will be verified in writing. The findings in this report are valid as of the date of this report. Changes in the condition of the site can, however, occur with the passage of time, whether they are due to natural processes or work on this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report may be invalidated wholly or in part by changes beyond our control. This report should not be relied upon after a period of two years without a review by us verifying the suitability of the conclusions and recommendations to site conditions at that time.

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the boring location, and that our data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data, interpretations, and recommendations, but shall not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

11. REFERENCES

American Concrete Institute (ACI) (2012), Building Code Requirements for Structural Concrete (ACI 318-11) and Commentary, August.

California Emergency Management Agency, California Geological Survey, University of Southern California (Cal EMA) (2009), Tsunami Inundation Map for Emergency Planning, National City Quadrangle, June 1.

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Public Works Standards, Inc. (2015), The “Greenbook,” Standard Specifications for Public Works Construction, 2015 Edition.

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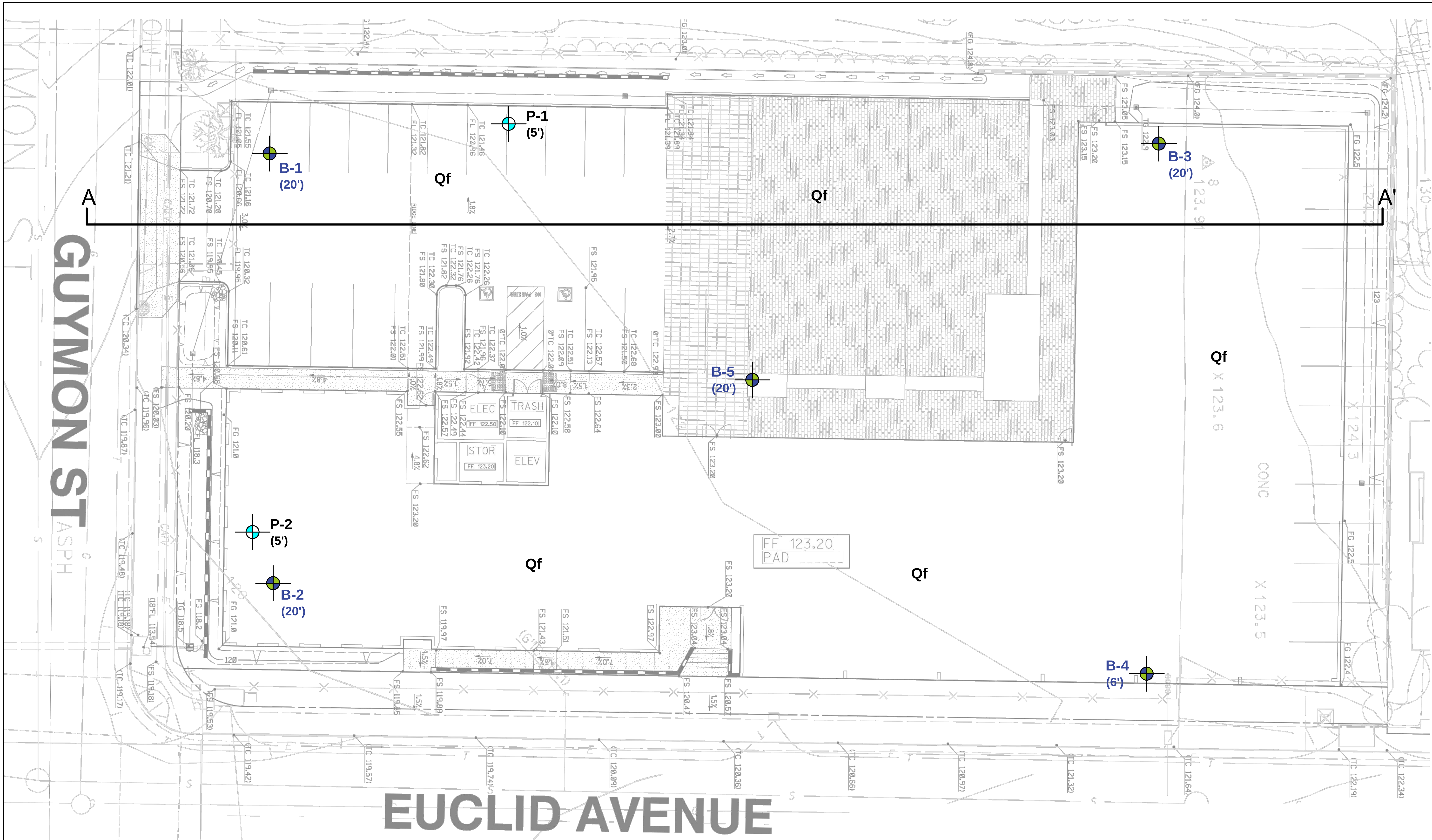
SITE VICINITY MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

Date: August, 2017
By: MAW
Job No.: 170270N4-1

Figure:
1



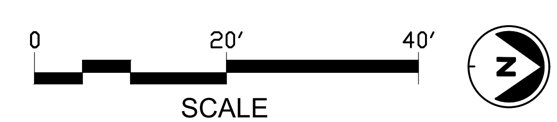
SCST LEGEND:

B-5 (20') — Approximate Location of Boring (Depth in Feet)

P-2 (5') — Approximate Location of Percolation Test (Depth in Feet)

A A' — Approximate Location of Geologic Cross Section

Qf — Fill

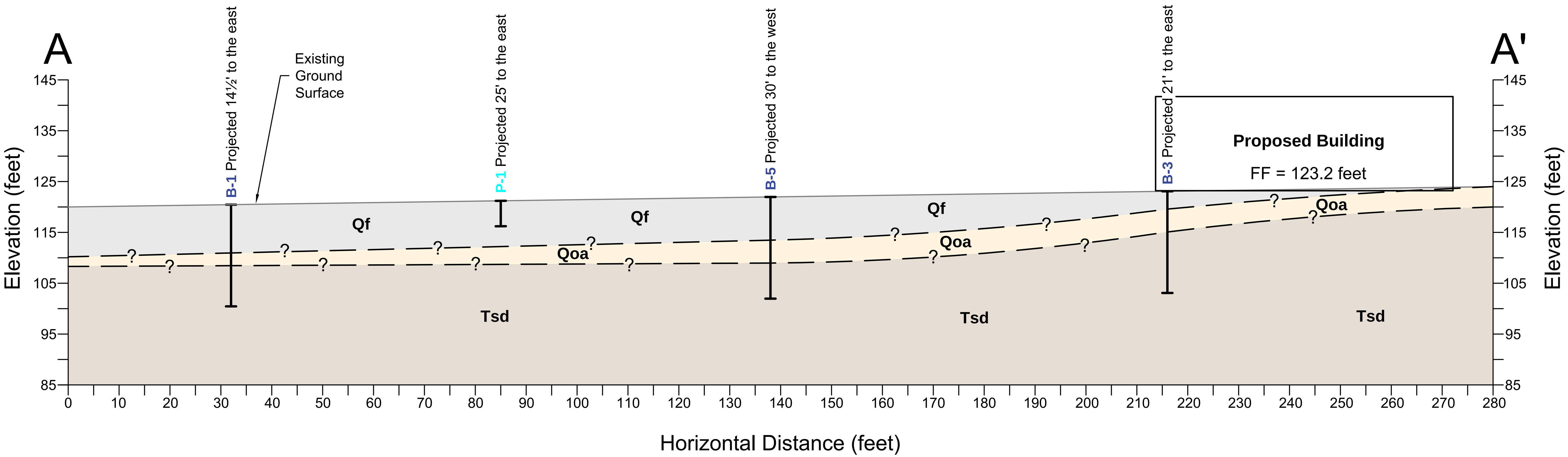


Date: August, 2017
By: MAW
Job No.: 170270N4-1

GEOTECHNICAL MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

SCST, Inc.

Figure:
2



SCST LEGEND:

B-5 Approximate Location of Boring

P-1 Approximate Location of Percolation Test

?— Approximate Location of Geologic Contact, Queried Where Uncertain

Qf Fill

Qoa Old alluvial flood-plain deposits

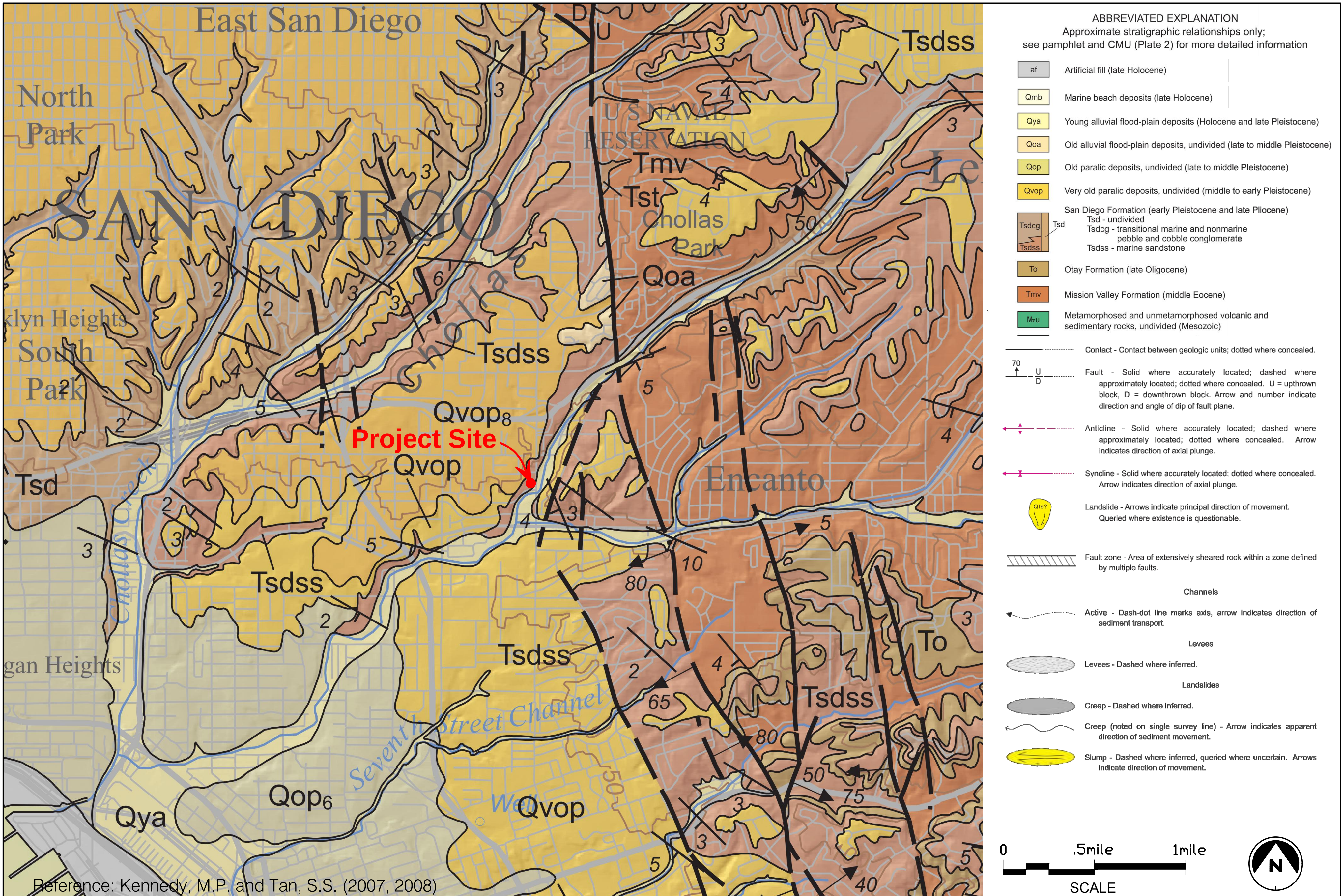
Tsd San Diego Formation

Date: August, 2017
By: MAW
Job No.: 170270N4-1

GEOLOGIC CROSS SECTION
Access Youth Academy
704 Euclid Avenue
San Diego, California

SCST, Inc.

Figure:
3

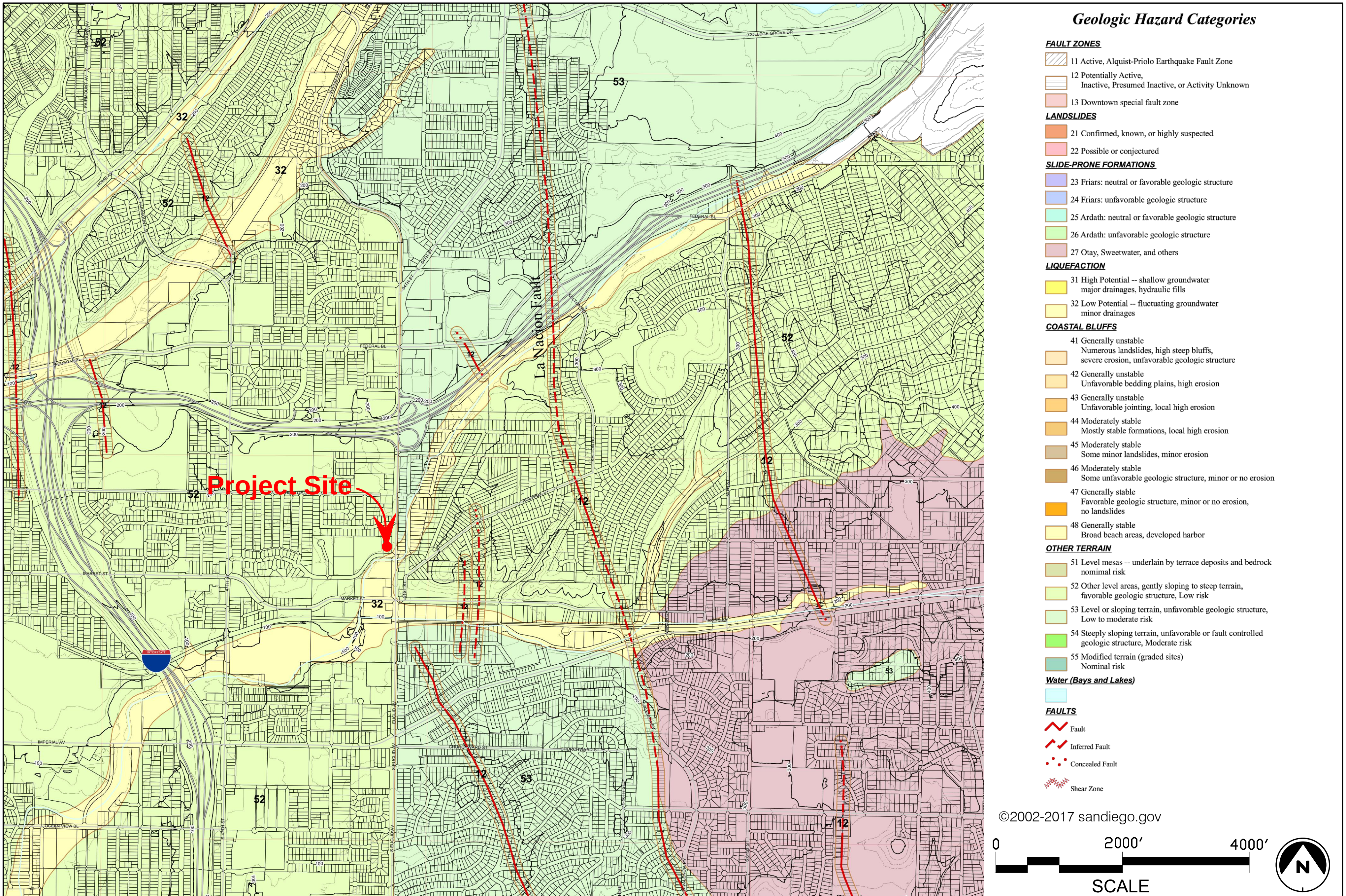


SCST, Inc.

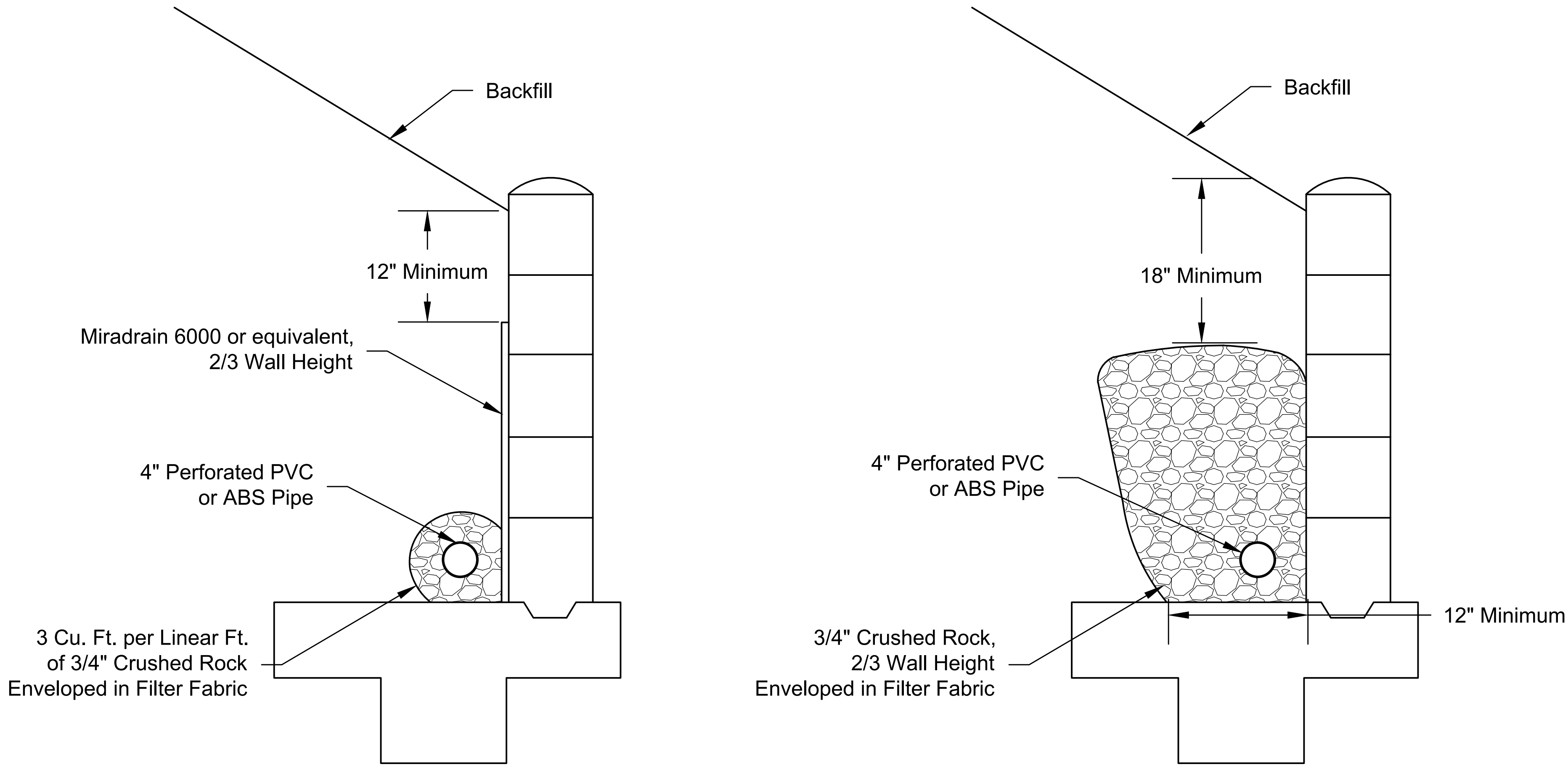
REGIONAL GEOLOGY MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

Date: August, 2017
By: MAW
Job No.: 170270N4-1

Figure: 4



SCST, Inc.	CITY OF SAN DIEGO SEISMIC SAFETY STUDY MAP Access Youth Academy 704 Euclid Avenue San Diego, California	Date: August, 2017 By: MAW Job No.: 170270N4-1	Figure: 5

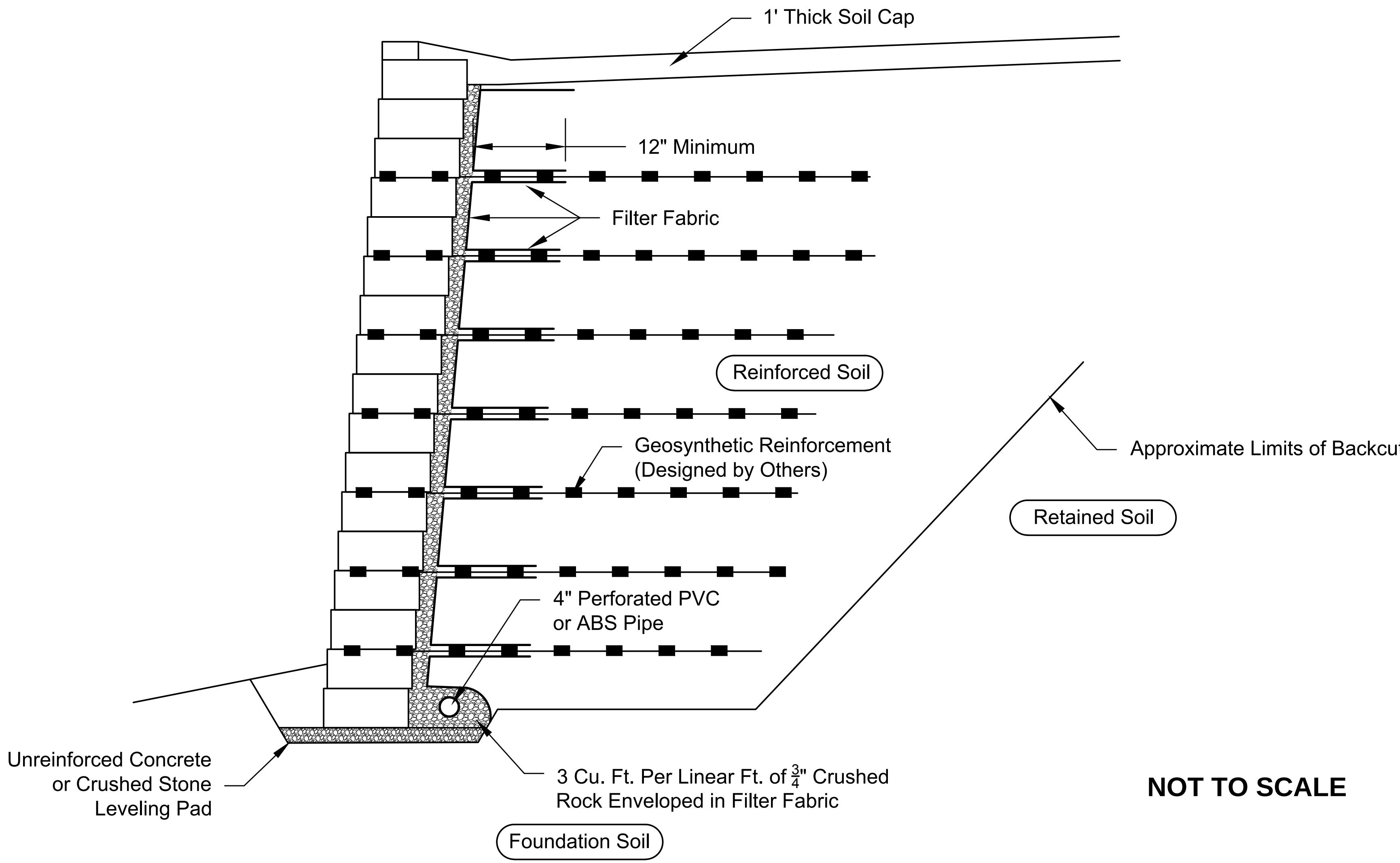


NOT TO SCALE

NOTES:

1) Dampproof or waterproof back of wall following architect's specifications.
2) 4" minimum perforated pipe, SDR35 or equivalent, holes down, 1% fall to outlet. Provide solid outlet pipe at suitable locations.
3) Drain installation and outlet connection should be observed by the geotechnical consultant.

SCST, Inc.	TYPICAL RETAINING WALL BACKDRAIN DETAILS Access Youth Academy 704 Euclid Avenue San Diego, California	Date: August, 2017 By: MAW Job No.: 170270N4-1	Figure: 6



NOT TO SCALE

NOTES:

1) Backcut as recommended by the geotechnical report or field evaluation
2) Additional drain at excavation backcut may be recommended base on conditions obsewrved during construction.
3) Filter fabric should be installed between crushed rock and soil. Filter farbric should consist of Mirafi 140N or equivalent. Filter fabric should be overlapped approximately 6 inches.
4) Perforated pipe should outlet through a solid pipe to an appropriate gravity outfall. Perforated pipe and outlet pipe should have a fall of at least 1%.

SCST, Inc.	TYPICAL MSE RETAINING WALL DETAIL Access Youth Academy 704 Euclid Avenue San Diego, California	Date: August, 2017 By: MAW Job No.: 170270N4-1	Figure: 7

APPENDIX I
FIELD INVESTIGATION

Our field investigation consisted of drilling 5 borings and 2 percolation test holes on July 10, 2017 to depths between about 5 and 20 feet below the existing ground surface using a truck-mounted drill rig equipped with a hollow-stem auger. Auger refusal was encountered in one of the borings. Figure 2 shows the approximate locations of the borings and percolation tests. The field investigation was performed under the observation of an SCST engineer who also logged the boring and test holes and obtained samples of the materials encountered.

Relatively undisturbed samples were obtained using a modified California (CAL) sampler, which is a ring-lined split tube sampler with a 3-inch outer diameter and 2½-inch inner diameter. Standard Penetration Tests (SPT) were performed using a 2-inch outer diameter and 1⅜-inch inner diameter split tube sampler. The CAL and SPT samplers were driven with a 140-pound weight dropping 30 inches. The number of blows needed to drive the samplers the final 12 inches of an 18-inch drive is noted on the boring logs as "Driving Resistance (blows/ft. of drive)." SPT and CAL sampler refusal was encountered when 50 blows were applied during any one of the three 6-inch intervals, a total of 100 blows was applied, or there was no discernible sampler advancement during the application of 10 successive blows. The SPT penetration resistance was normalized to a safety hammer (cathead and rope) with a 60% energy transfer ratio in accordance with ASTM D6066. The normalized SPT penetration resistance is noted on the boring logs as "N_{60}." Disturbed bulk samples were obtained from the SPT sampler and the drill cuttings.

The soils are classified in accordance with the Unified Soil Classification System as illustrated on Figure I-1. Logs of the borings and test holes are presented on Figures I-2 through I-8.

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION CHART

SOIL DESCRIPTION		GROUP SYMBOL	TYPICAL NAMES
I. COARSE GRAINED, more than 50% of material is larger than No. 200 sieve size.			
GRAVELS More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".	CLEAN GRAVELS	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 (Appreciable amount of fines)	GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
		GC	Clayey gravels, poorly graded gravel-sand, clay mixtures.
SANDS More than half of coarse fraction is smaller than No. 4 sieve size.	CLEAN SANDS	SW	Well graded sand, gravelly sands, little or no fines.
		SP	Poorly graded sands, gravelly sands, little or no fines.
		SM	Silty sands, poorly graded sand and silty mixtures.
		SC	Clayey sands, poorly graded sand and clay mixtures.
II. FINE GRAINED, 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, sandy silt or clayey-silt-sand mixtures 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 or low plasticity.
	SILTS AND CLAYS (Liquid Limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
		OH	Organic clays of medium to high plasticity.
III. HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.

SAMPLE SYMBOLS

☒	- Bulk Sample
CAL	- Modified California sampler
CK	- Undisturbed Chunk sample
MS	- Maximum Size of Particle
ST	- Shelby Tube
SPT	- Standard Penetration Test sampler

GROUNDWATER SYMBOLS

▽ - Water level at time of excavation or as indicated

- Water seepage at time of excavation or as indicated

LABORATORY TEST SYMBOLS

AL	- Atterberg Limits
CON	- Consolidation
COR	- Corrosivity Tests (Resistivity, pH, Chloride, Sulfate)
DS	- Direct Shear
EI	- Expansion Index
MAX	- Maximum Density
RV	- R-Value
SA	- Sieve Analysis
UC	- Unconfined Compression

SCST, Inc.

Access Youth Academy San Diego, CA			
By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-1

LOG OF BORING B-1

Date Drilled: 7/10/2017 — Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger — Project Manager: TBC
Elevation (ft): 121 — Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
	SC	**<u>FILL (Qf)</u>:** CLAYEY SAND with GRAVEL, light brown, fine to medium grained, moist, loose to medium dense.							
1									
2									RV
3									
4			CAL		20		--	--	
5									
6									
7									
8									
9			CAL		78/10"		11.2	102.6	
10	CL	**<u>OLD ALLUVIAL FLOOD-PLAIN DEPOSITS (Qoa)</u>:** SANDY CLAY, dark brown, fine to medium grained, moist, hard, white mineral precipitate deposits.							
11									
12		**<u>SAN DIEGO FORMATION (Tsd)</u>:** SILTY SANDSTONE, light yellowish brown, fine grained, moist, very dense, weakly cemented.							
13									
14			SPT		51	67			
15									
16									
17									
18									
19		Dense.	SPT		32	42			
20									

BORING TERMINATED AT 20 FEET

LOG OF BORING B-2

Date Drilled: 7/10/2017 | Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger | Project Manager: TBC
Elevation (ft): 120 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0	SC	**FILL (Qf):** CLAYEY SAND with GRAVEL, light brown, fine to medium grained, moist, loose to medium dense.		X (0–5)					
1									
2									
3									EI
4		Disturbed sample.	CAL		78		--	--	
5									
6									
7									
8									
8.5	CL	SANDY CLAY, dark brown and bluish green, fine to medium grained, moist, very stiff.							
9			CAL		28		11.0	111.5	
10									
11		**SAN DIEGO FORMATION (Tsd):** SILTY SANDSTONE, yellowish brown, fine to medium grained, moist, dense to very dense, weakly cemented.							
12									
13									
14			SPT		38	50			
15									
16									
17									
18									
19			SPT		35	46			
20									

BORING TERMINATED AT 20 FEET

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-3

LOG OF BORING B-3

Date Drilled: 7/10/2017 — Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger — Project Manager: TBC
Elevation (ft): 124 — Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0–4	SC	**FILL (Qf):** CLAYEY SAND with GRAVEL, light brown, fine to medium grained, some cobbles, low plasticity, moist, loose to medium dense.		X (0–5)					SA AL EI COR
4–8	CL	**OLD ALLUVIAL FLOOD-PLAIN DEPOSITS (Qoa):** SANDY CLAY, yellowish brown, fine to medium grained, moist, hard, white mineral precipitate deposits.	CAL (4–5)		27		13.1	109.1	
8–20		**SAN DIEGO FORMATION (Qsd)**: SILTY SANDSTONE, yellowish brown, fine to medium grained, some gravel, moist, very dense, weakly cemented.	CAL (9–10)		82/10"		15.8	111.6	
14		Dense.	SPT		32	42			
19		Medium dense.	SPT		18	23			

BORING TERMINATED AT 20 FEET

SCST, Inc.

Access Youth Academy San Diego, California			
By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-4

LOG OF BORING B-4

Date Drilled: 7/10/2017 | Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger | Project Manager: TBC
Elevation (ft): 123 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVEN	SAMPLES BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0–4	GC	**FILL (Qf)**: CLAYEY GRAVEL with SAND, light brown, fine to medium grained, some cobbles, moist, loose to medium dense, concrete debris.		X					
4		No sample recovery.	CAL	X	94		--	--	
6		**AUGER REFUSAL AT 6 FEET**							

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

LOG OF BORING B-5

Date Drilled: 7/10/2017 | Logged by: BG
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger | Project Manager: TBC
Elevation (ft): 122 | Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0	SC	**FILL (Qf):** CLAYEY SAND with GRAVEL, dark brown, fine to medium grained, some cobbles, moist, loose to medium dense.							
1–5				X (1–5 ft)					SA AL EI COR
4			CAL		27		--	--	
8.5	SC	**OLD ALLUVIAL FLOOD-PLAIN DEPOSITS (Qoa):** CLAYEY SAND, dark brown and gray, fine grained, moist, dense, white mineral precipitate deposits.							
9			CAL		50		--	--	
13		**SAN DIEGO FORMATION (Tsd):** SITLY SANDSTONE, yellowish brown, fine to medium grained, moist, medium dense, weakly cemented.							
14			SPT		22	29			
19		Dense.	SPT		32	41			
20		**BORING TERMINATED AT 20 FEET**							

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-6

LOG OF BORING P-1

Date Drilled: 7/10/2017
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger
Elevation (ft): 122

Logged by: BG
Project Manager: TBC
Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES DRIVEN	SAMPLES BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0–5	SC	**<u>FILL (Qf)</u>:** CLAYEY SAND with GRAVEL, light brown, fine to medium grained, some cobbles, moist, medium dense.		X					SA AL
4			SPT		20	26			
5		**BORING TERMINATED AT 5 FEET**							

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-7

LOG OF BORING P-2

Date Drilled: 7/10/2017
Equipment: CME-75 with 8-inch Diameter Hollow-Stem Auger
Elevation (ft): 120

Logged by: BG
Project Manager: TBC
Depth to Groundwater (ft): Not Encountered

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVEN	SAMPLES: BULK	DRIVING RESISTANCE (blows/ft of drive)	N_{60}	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LABORATORY TESTS
0–5	SC	**FILL (Qf)**: CLAYEY SAND with GRAVEL, light brown, fine to medium grained, some cobbles, moist, loose to medium dense.		X					SA AL
4			SPT		33	43			
5		**BORING TERMINATED AT 5 FEET**							

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

SCST, Inc.

Access Youth Academy
San Diego, California

By:	BG	Date:	August, 2017
Job Number:	170270N-1	Figure:	I-8

APPENDIX II
LABORATORY TESTING

Laboratory tests were performed to provide geotechnical parameters for engineering analyses. The following tests were performed:

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.

- **IN SITU MOISTURE AND DENSITY:** The in situ moisture content and dry unit weight were determined on samples collected from the borings. The test results are presented on the boring logs in Appendix I.

- **GRAIN SIZE DISTRIBUTION:** The grain size distribution was determined on four samples in accordance with ASTM D422. Figures II-1 through II-4 present the test results.

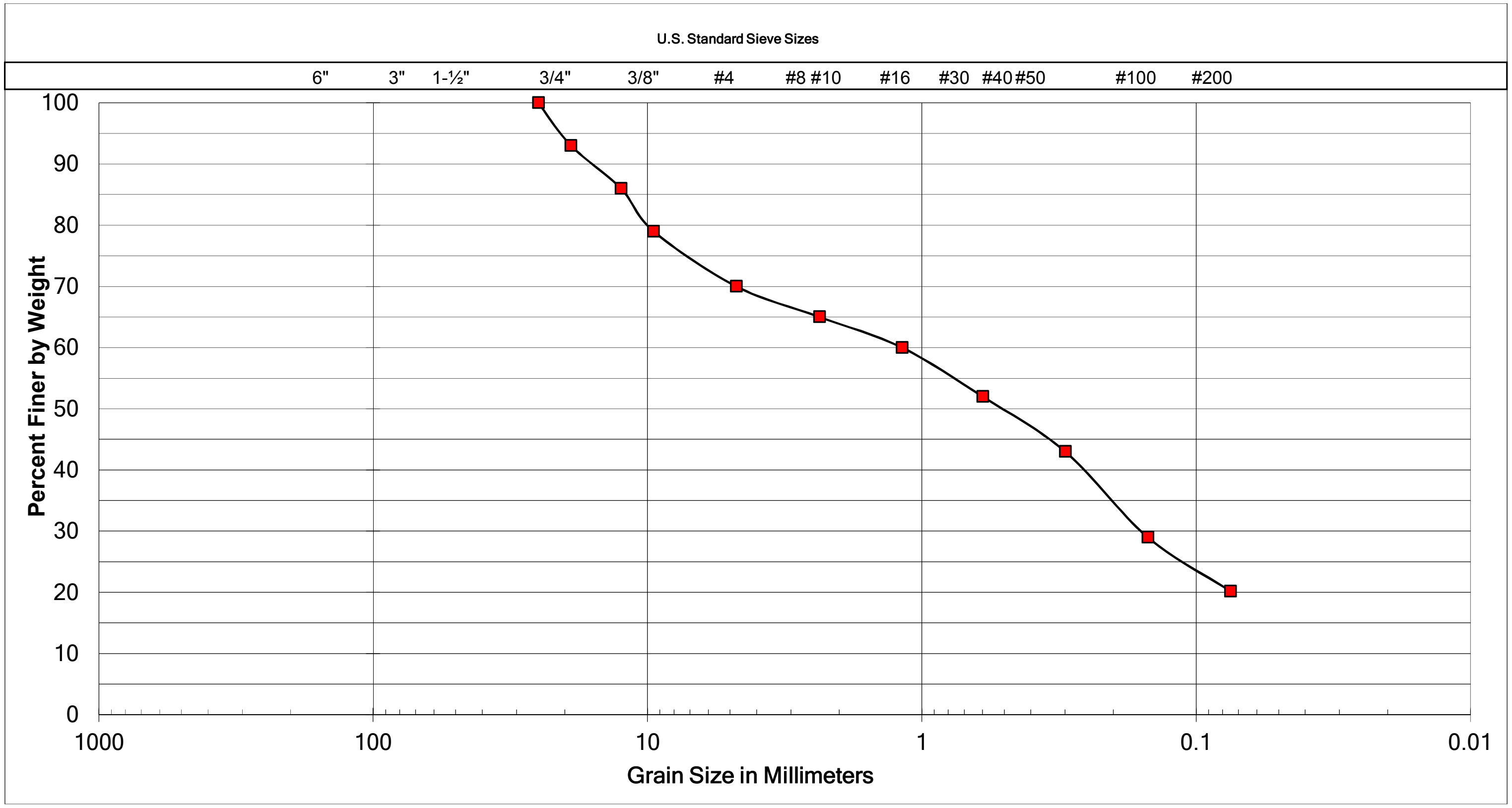
- **ATTERBERG LIMITS:** The Atterberg limits were determined on four soil samples in accordance with ASTM D4318. Figures II-1 through II-4 present the test results.

- **R-VALUE:** An R-value test was performed on one soil sample in accordance with California Test Method 301. Figure II-5 presents the test result.

- **EXPANSION INDEX:** The expansion index was determined on three soil samples in accordance with ASTM D4829. Figure II-5 presents the test results.

- **CORROSIVITY**: Corrosivity tests were performed on two soil samples. The pH and minimum resistivity were determined in general accordance with California Test 643. The soluble sulfate content was determined in accordance with California Test 417. The total chloride ion content was determined in accordance with California Test 422. Figure II-5 presents the test results.

Soil samples not tested are now stored in our laboratory for future reference and analysis, if needed. Unless notified to the contrary, all samples will be disposed of 30 days from the date of this report.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

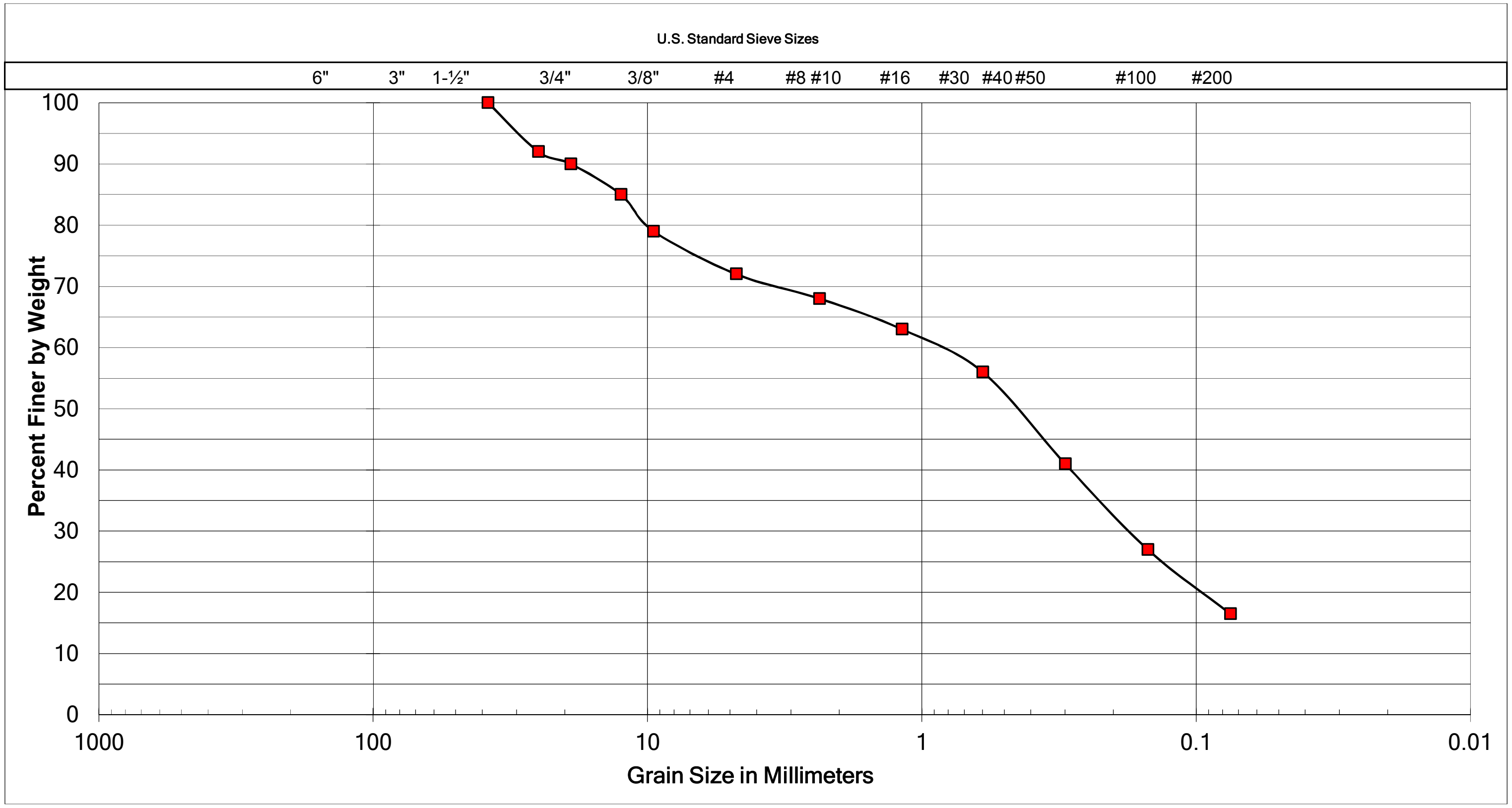
SAMPLE LOCATION
B-3 at 0 to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	34
PLASTIC LIMIT	20
PLASTICITY INDEX	14

SCST, Inc.

Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

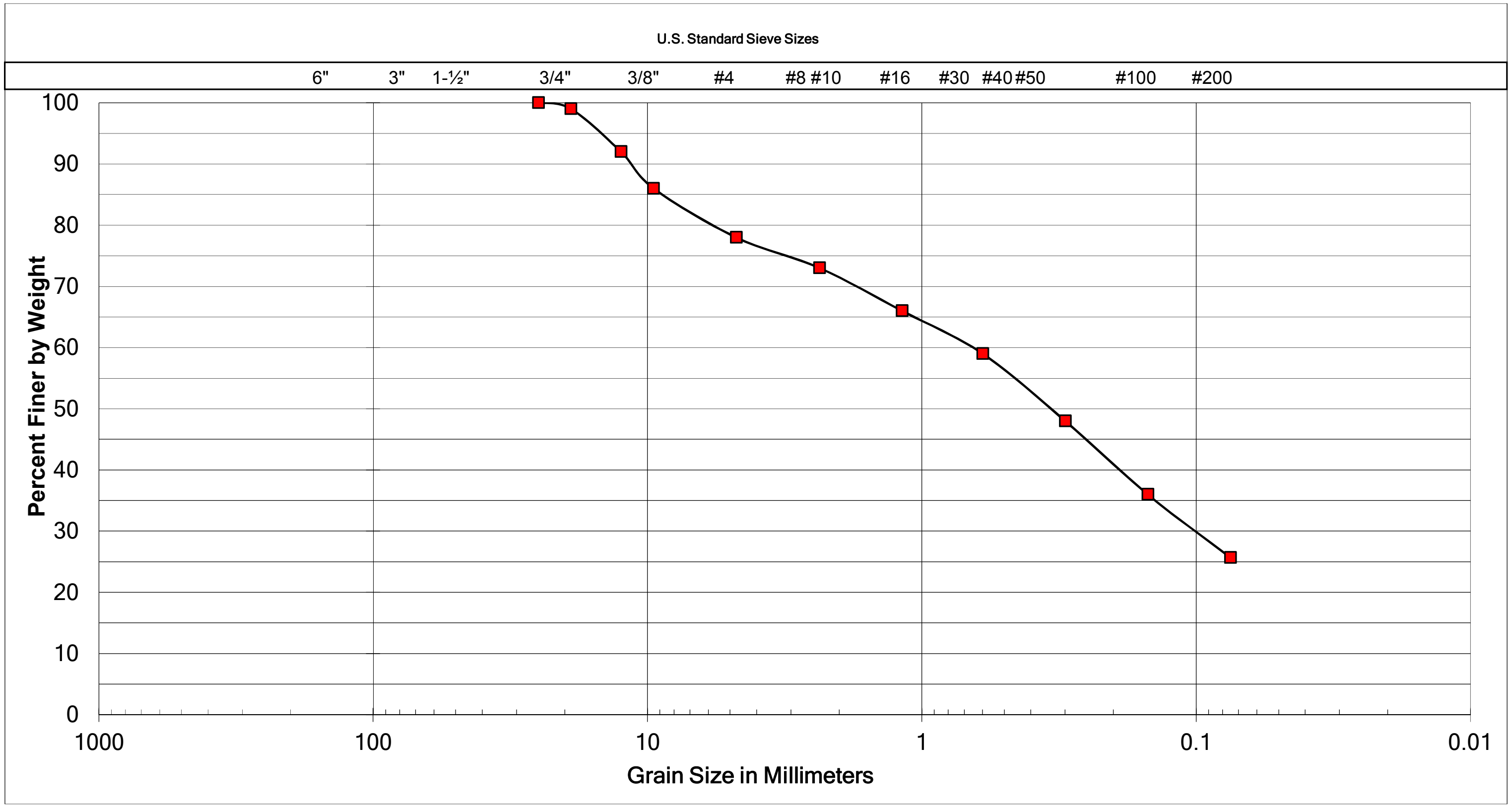
SAMPLE LOCATION
B-5 at 1 to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	26
PLASTIC LIMIT	18
PLASTICITY INDEX	8

SCST, Inc.

Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-2



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

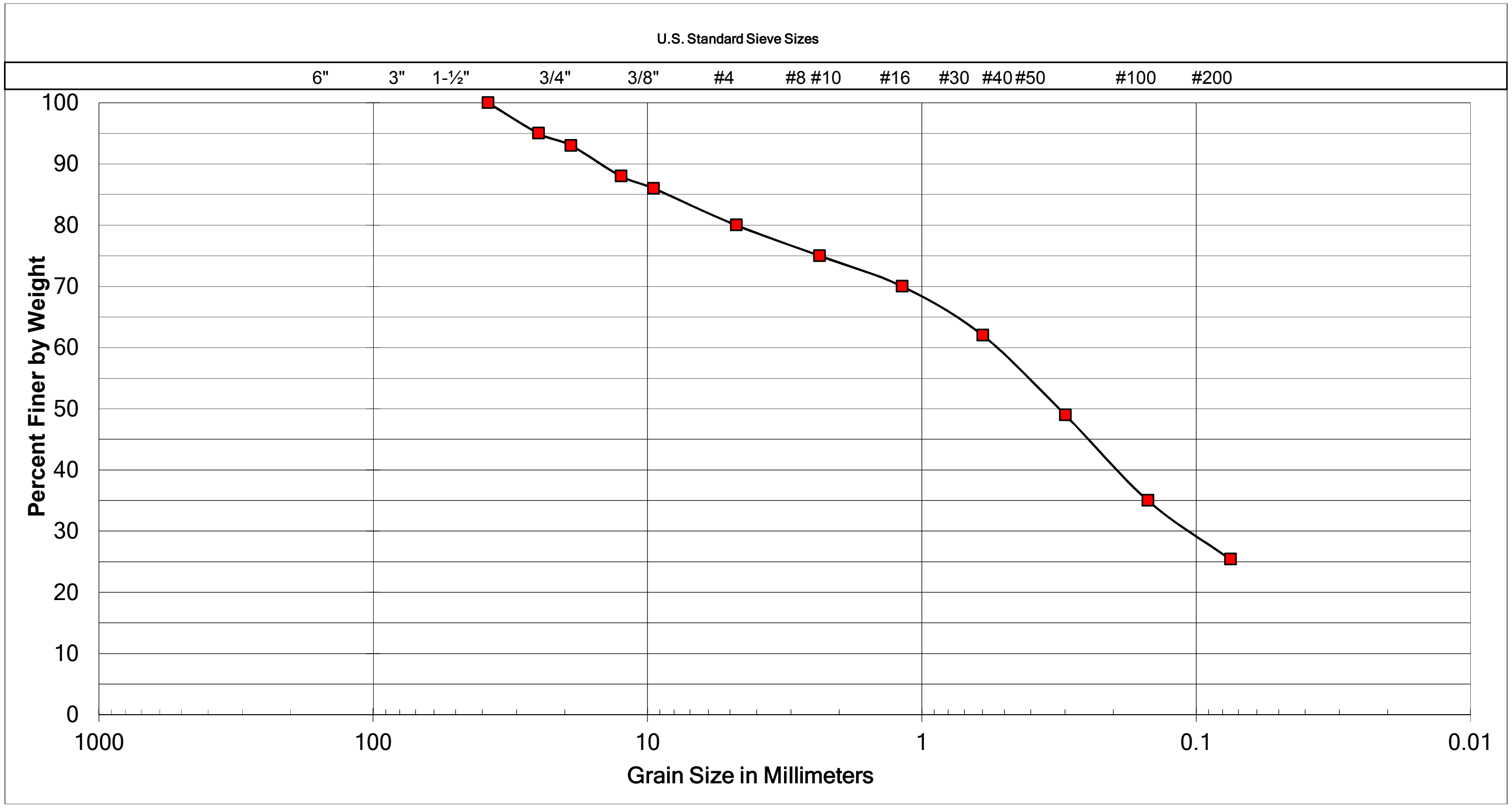
SAMPLE LOCATION
P-1 at 0 to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	39
PLASTIC LIMIT	23
PLASTICITY INDEX	16

SCST, Inc.

Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-3



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
P-2 at 3½ to 5 feet

UNIFIED SOIL CLASSIFICATION:	SC
DESCRIPTION	Clayey Sand with Gravel

ATTERBERG LIMITS	
LIQUID LIMIT	28
PLASTIC LIMIT	17
PLASTICITY INDEX	11

SCST, Inc.

Access Youth Academy San Diego, California			
By:	TBC	Date:	August, 2007
Job Number:	170270N-1	Figure:	II-4

R-VALUE

CALIFORNIA TEST 301

SAMPLE	DESCRIPTION	R- VALUE
B-1 at 0 to 5 feet	CLAYEY SAND with GRAVEL, light brown	26

EXPANSION INDEX

ASTM D2489

SAMPLE	DESCRIPTION	EXPANSION INDEX
B-2 at 0 to 5 feet	CLAYEY SAND with GRAVEL, light brown	32
B-3 at 0 to 5 feet	CLAYEY SAND with GRAVEL, light brown	34
B-5 at 1 to 5 feet	CLAYEY SAND with GRAVEL, dark brown	12

CLASSIFICATION OF EXPANSIVE SOIL [1]

EXPANSION INDEX	POTENTIAL EXPANSION
1 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

1. ASTM - D4829

RESISTIVITY, pH, SOLUBLE CHLORIDE and SOLUBLE SULFATE

SAMPLE	RESISTIVITY (Ω-cm)	pH	CHLORIDE (%)	SULFATE (%)
B-3 at 0 to 5 feet	1,110	6.58	0.006	0.009
B-5 at 1 to 5 feet	794	8.20	0.004	0.072

SULFATE EXPOSURE CLASSES [2]

Class	Severity	Water-Soluble Sulfate (SO_4) in Soil, Percent by Mass
S0	Not applicable	$SO_4 < 0.10$
S1	Moderate	$0.10 \leq SO_4 < 0.20$
S2	Severe	$0.20 \leq SO_4 \leq 2.00$
S3	Very Severe	$SO_4 > 2.00$

2. ACI 318, Table 19.3.1.1

APPENDIX III
INFILTRATION RATE TEST RESULTS

We performed borehole percolation testing at two locations (P-1 and P-2) in general conformance with the City of San Diego BMP Design Manual. Prior to starting the testing, the test holes were presoaked with clean potable water for about 23 to 24 hours. The infiltration tests were performed after presoaking by placing clean potable water in the holes and measuring the drop in the water level. Because water remained in the holes after presoaking, the water level was adjusted and the testing performed for two readings 30 minutes apart. Figures III-1 and III-2 present the results of the testing.

Report of Borehole Percolation Testing

Storm Water Infiltration

Project Name:	Access Youth Academy	Test Number:	**P-1**
Job Number:	170270N	Tested By:	MAN/BG
Date Drilled:	7/10/2017	Date Tested:	7/11/2017
Drilling Method:	8-inch Diameter Hollow-Stem Auger	Presoak Time:	24 hours
Drilled Depth (feet):	5		
Test Hole Diameter (inches):	8		
Gravel Pack:	Yes		
Pipe Diameter (inches):	4		

Trial No.	Time	Time Interval, ΔT (min)	Initial Water Height, H_o (ft)	Final Water Height, H_f (ft)	Change in Water Height, ΔH (in)	Percolation Rate (min/in)
1	7:35 8:05	0:30	1.50	1.50	0.0	0
2	8:05 8:35	0:30	1.50	1.50	0.0	0
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
Observed Percolation Rate:					0 min/in 0.0 in/hr	
Gravel Correction Factor:					1.82	
Corrected Percolation Rate:					0 min/in 0.0 in/hr	
***Tested Infiltation Rate, I_t:**					**0 in/hr**	

*Tested infiltration rate using the Porchet Method:

$$I_t = \frac{\Delta H(60r)}{\Delta T(r + 2H_{avg})}$$

ΔH = Change in water head height over the time interval [in]	= 0.0
r = Test hole radius [in]	= 4
ΔT = Time interval [min]	= 30
H_{avg} = Average water height over time interval = $12(H_o + H_f)/2$ [in]	= 18.0

Report of Borehole Percolation Testing

Storm Water Infiltration

Project Name:	Access Youth Academy, GI	Test Number:	**P-2**
Job Number:	170270N	Tested By:	MAN/BG
Date Drilled:	7/10/2017	Date Tested:	7/11/2017
Drilling Method:	8-inch Diameter Hollow-Stem Auger	Presoak Time:	23 hours
Drilled Depth (feet):	5		
Test Hole Diameter (inches):	8		
Gravel Pack:	Yes		
Pipe Diameter (inches):	4		

Trial No.	Time	Time Interval, ΔT (min)	Initial Water Height, H_o (ft)	Final Water Height, H_f (ft)	Change in Water Height, ΔH (in)	Percolation Rate (min/in)
1	9:45 10:15	0:30	2.00	2.00	0.0	0
2	10:15 10:45	0:30	2.00	2.00	0.0	0
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
		-	-	-	-	-
Observed Percolation Rate:						0 min/in 0.0 in/hr
Gravel Correction Factor:						1.95
Corrected Percolation Rate:						0 min/in 0.0 in/hr
***Tested Infiltation Rate, I_t:**						**0 in/hr**

*Tested infiltration rate using the Porchet Method:

$$I_t = \frac{\Delta H(60r)}{\Delta T(r + 2H_{avg})}$$

ΔH = Change in water head height over the time interval [in] = 0.0

r = Test hole radius [in] = 4

ΔT = Time interval [min] = 30

H_{avg} = Average water height over time interval = $12(H_o + H_f)/2$ [in] = 24.0

APPENDIX IV
WORKSHEET C.4-1: CATEGORIZATION OF INFILTRATION FEASIBILITY CONDITION

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition	Worksheet C.4-1

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☑

Provide basis:

The upper materials present at the site are fill soils consisting of clayey sand. The tested materials are believed to be generally representative of the materials that will be encountered below the proposed storm water BMPs. The tested infiltration rates were 0.0 inch per hour. In our opinion, the tested infiltration rates do not support a reliable infiltration rate of greater than 0.5 inch per hour.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Criteria	Screening Question	Yes	No
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☑

Provide basis:

The tested infiltration rates do not support a reliable infiltration of greater than 0.5 inch per hour. Allowing infiltration greater than 0.5 inch per hour will increase the risk of geotechnical hazards including increased surface runoff on the project site and onto adjacent properties, uncontrolled lateral and vertical migration of groundwater beneath adjacent structures and improvements, and uncontrolled lateral and vertical migration of groundwater through permeable bedding material of utilities within the public right-of-way (Euclid Avenue and Guymon Street). SCST does not recommend allowing infiltration greater than 0.5 inch per hour at the site.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☑
Provide basis: The tested infiltration rates at the site indicate that the onsite soils do not support reliable infiltration of greater than 0.5 inch per hour. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☐
Provide basis: The project design engineer is responsible for completing this criteria. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by [City Engineer] to substantiate findings.

Worksheet C.4-1 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☑

Provide basis:

The upper materials present at the site are fill soils consisting of clayey sand. The tested materials are believed to be generally representative of the materials that will be encountered below the proposed storm water BMPs. The tested infiltration rates were 0.0 inch per hour. In our opinion, the tested infiltration rates do not support a reliable infiltration rate of any appreciable quantity.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Criteria	Screening Question	Yes	No
6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☑

Provide basis:

In our opinion partial infiltration of less than 0.5 inch per hour should not be allowed without increasing the risk of geotechnical hazards. Lateral migration of subsurface water is anticipated, potentially resulting in moisture issues beneath adjacent structures and improvements and in downslope properties where excessive moisture was not present previously.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

<table>
<tr><th colspan="4">Worksheet C.4-1 Page 4 of 4</th></tr>
<tr><th>Criteria</th><th>Screening Question</th><th>Yes</th><th>No</th></tr>
<tr><td>7</td><td>Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td>☑</td><td>☐</td></tr>
<tr><td colspan="4">Provide basis:
Partial infiltration of less than 0.5 inch per hour could be allowed without posing significant risk for groundwater related concerns as long as the BMP system is designed to pretreat effluent.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>8</td><td>Can infiltration be allowed without violating downstream water rights? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.</td><td>☐</td><td>☐</td></tr>
<tr><td colspan="4">Provide basis:
The project design engineer is responsible for completing this criteria.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>Part 2 Result*</td><td colspan="2">If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration.

If any answer from row 5-8 is no, then infiltration of any volume is considered to be infeasible within the drainage area. The feasibility screening category is No Infiltration.</td><td>No Infiltration</td></tr>
</table>

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

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SDVOSB . DVBE

December 20, 2017

SCST No. 170270N
Report No. 2

Renato Paiva
Access Youth Academy
9370 Waples Street, Suite 101
San Diego, California 92121

Subject: UPDATE LETTER AND RESPONSES TO CITY REVIEW COMMENTS
ACCESS YOUTH ACADEMY
704 EUCLID AVENUE
SAN DIEGO, CALIFORNIA

References: Rick Engineering Company (2017), Grading & Improvement Plans for: 704 Euclid Ave, Parcel 1 of Parcel Map No. 2407, Drawing 40306-D, plotted December 19.

SCST, Inc. (2017), Geotechnical Investigation, Access Youth Academy, 704 Euclid Avenue, San Diego, California, SCST No. 170270N-1, August 11.

Dear Mr. Paiva:

SCST, Inc. (SCST) prepared this letter to respond to review comments from Jacobe Washburn of The City of San Diego for the subject project. We responded to the geotechnical issues. The review comments and our responses are provided below.

Issue No. 2: *Submit an addendum geotechnical report or update letter that specifically addresses the referenced grading plan set and the following:*

Response: This letter serves as the update letter. The grading plan set is referenced above.

Issue No. 3: *The project's geotechnical consultant indicates remedial grading is required at the subject site. Provide an updated geologic/geotechnical map which delineates the area(s) of recommended remedial grading.*

Response: Figures 1 presents the updated geotechnical map.

Issue No. 4: *The project's geotechnical consultant should provide a conclusion regarding if the proposed construction/grading will destabilize or result in settlement of adjacent property or the Right-of-Way.*

Response: In our opinion, the proposed construction/grading will not destabilize or result in settlement of adjacent property or the Right-of-Way provided the recommendations contained in our referenced geotechnical report are followed.

If you have questions, please call us at (619) 280-4321.

Respectfully submitted,
SCST, INC.

REGISTERED PROFESSIONAL ENGINEER
THOMAS B. CANADY
No. 50057
Exp. 6/30/19
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL GEOLOGIST
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CERTIFIED ENGINEERING GEOLOGIST
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TBC:DAS

Attachment: Figure 1 - Geotechnical Map

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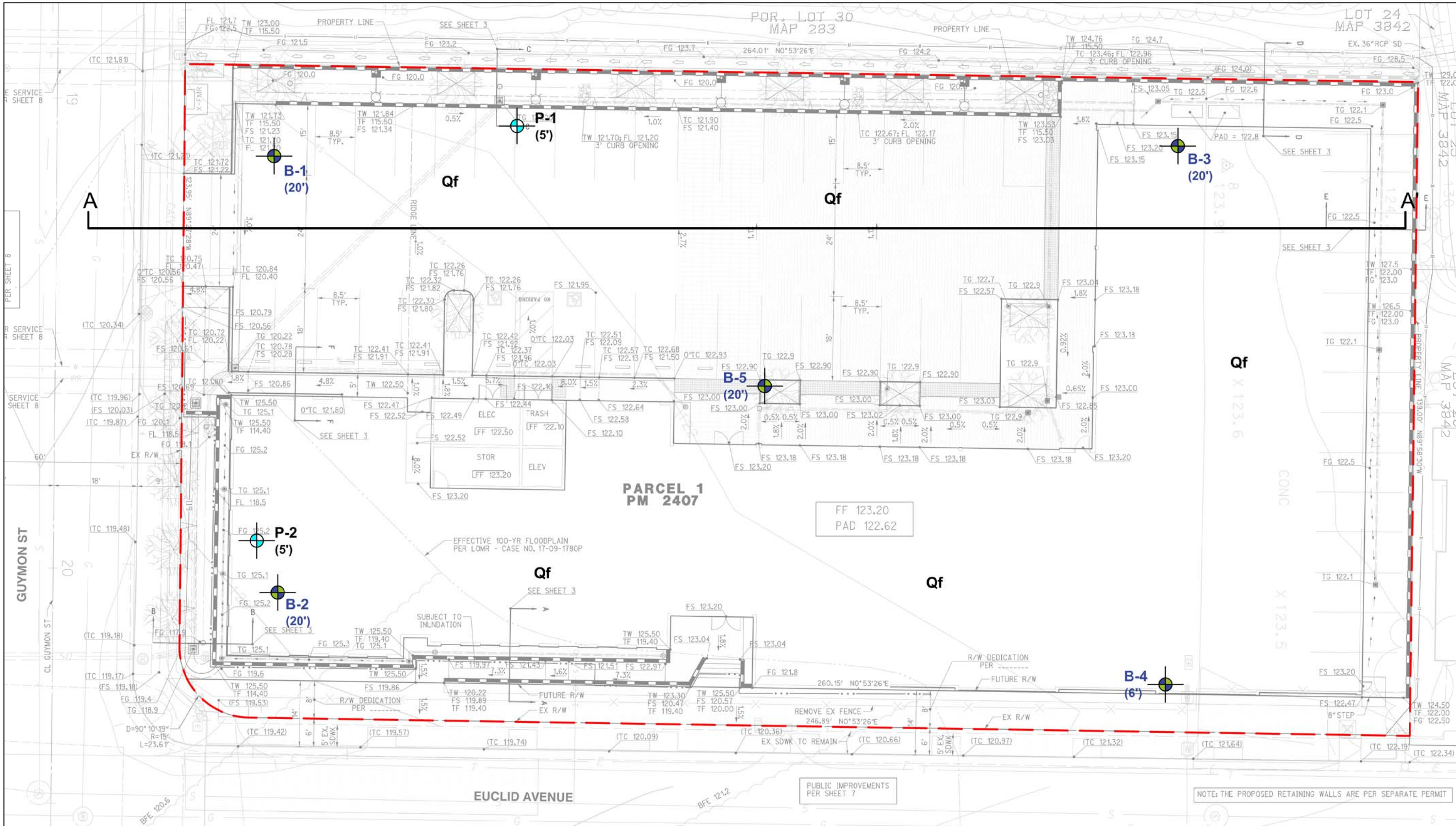

SCST LEGEND:

- B-5 (20') — Approximate Location of Boring (Depth in Feet)
- P-2 (5') — Approximate Location of Percolation Test (Depth in Feet)
- A A' — Approximate Location of Geologic Cross Section
- Qf — Fill
- Approximate Limits of Remedial Grading

0 20' 40'
SCALE

Date: December, 2017
By: MAW
Job No.: 170270N4-2

GEOTECHNICAL MAP
Access Youth Academy
704 Euclid Avenue
San Diego, California

SCST, Inc.

Figure:
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