HELIX Environmental Planning

11011 Torreyana Road Project

Waste Management Plan

February 2024 | 04907.00001.001

Prepared for:

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Acronyms and Abbreviations

AB	Assembly Bill
APN	Accessor's Parcel Number
C&D	Construction and Demolition
CalRecycle	California Department of Resources Recycling and Recovery
CEQA	California Environmental Quality Act
CUP	Central Utility Plant
CY	cubic yard(s)
DSD	Development Services Department (City of San Diego)
ESD	Environmental Services Department (City of San Diego)
FEMA	Federal Emergency Management Agency
IBC	International Building Code
ICC	International Code Council
IWMP	Integrated Waste Management Plan
lbs	pounds
SB	Senate Bill
SDMC	San Diego Municipal Code
SDP	Site Development Permit
SF	square foot/feet
SRRE	Source Reduction and Recycling Element
SWMC	Solid Waste Management Coordinator
WDM	Waste Diversion Measure
WMP	Waste Management Plan

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

The purpose of this Waste Management Plan (WMP) is to identify the quantity of solid waste that would be generated by the 11011 Torreyana Road Project (project) throughout demolition, construction, and operation, and to identify measures to reduce the potential impacts associated with management of such waste.

Proper separation and diversion of recyclable waste materials is required to divert each material type to a recycling/reuse facility with the highest possible diversion rate. As discussed further in Section 2.0, *Regulatory Framework*, to comply with City of San Diego (City) waste reduction ordinances and the waste diversion goals established by State Assembly Bill (AB) 341, the project must achieve a 75 percent diversion rate during demolition and construction. The City's California Environmental Quality Act (CEQA) Significance Thresholds for solid waste identify criteria that if met require the preparation of a WMP. The criteria are a threshold of 1,500 tons of waste or more during construction and demolition (C&D) for direct solid waste impacts, and 60 tons of waste or more during C&D for potentially significant cumulative solid waste impacts. The City Environmental Services Department's (ESD) Certified C&D Recycling Facility Directory (City 2023; Appendix A) provides guidance on identifying recycling/reuse facility locations, accepted materials, recycling/reuse rates, and associated disposal fees and/or the value of the materials accepted for recycling/reuse.

This WMP has been prepared consistent with applicable federal, State, and local laws, regulations, and standards pertinent to the project. Its goal is to implement an approach for managing waste that conserves landfill space, preserves environmental quality, conserves natural resources, and reduces disposal costs. Responsibility for ensuring ongoing WMP compliance would be under the direction of the Project Solid Waste Management Coordinator (SWMC), as assigned by the Bridgewest Group (Applicant).

1.2 PROJECT LOCATION

The project site is located at 11011 Torreyana Road at the terminus of Torreyana Road, north of Callan Road in the City of San Diego, San Diego County. The project site is located within the University Community Plan area, south of Los Peñasquitos Lagoon, east of the Torrey Pines Golf Course, west of Interstate 5 (I-5), and north of the University of California San Diego (Figure 1, *Regional Location*). The project is located within Township 15 South, Range 3 West, on the Del Mar U.S. Geological Survey (USGS) topographic quadrangle (Figure 2, *USGS Topography*). The project site is comprised of one parcel (Assessor's Parcel Numbers [APNs] 340-010-29-00) totaling approximately 10 acres (Figure 3, *Aerial Photograph*). The eastern portion of the project site occurs within a biological open space easement that was quitclaimed by the City to the State of California (State), according to a Quitclaim Deed recorded in 1984.

1.3 PROJECT DESCRIPTION

The project proposes to demolish the existing building on the property currently occupied by research and development offices totaling approximately 76,694 square feet (SF). The project would construct one new 30-foot-tall structure, totaling 203,096 SF of research and development laboratory and

office space. The project also includes a subterranean parking garage (Figure 4, *Site Plan*). One existing driveway along Torreyana Road currently provides access to the existing uses. The project proposes to retain the exiting driveway for site access and add another driveway on the southwest corner of the site at the intersection of Callan Road and Torreyana Road. Grading is estimated to require 117,500 CY of cut and 5,400 CY of fill, for a total export quantity of 112,100 CY.

Discretionary actions required by the project include a Coastal Development Permit, a Neighborhood Development Permit, and a Site Development Permit to allow for development of the research and development building. The project is proposed to be constructed in one phase, with construction assumed to be completed in 2027.

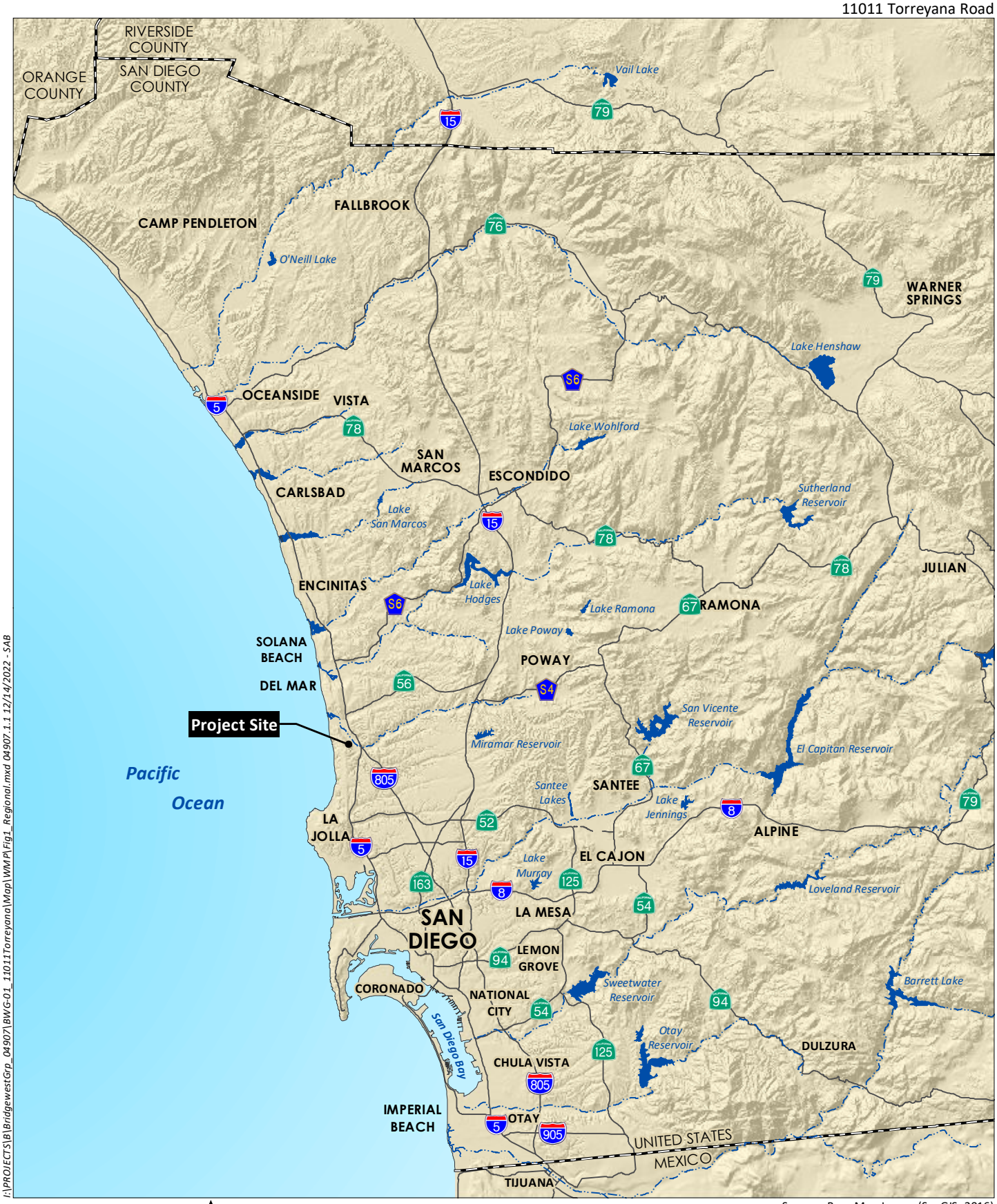
2.0 REGULATORY FRAMEWORK

2.1 STATE OF CALIFORNIA

The State of California (State) Integrated Waste Management Act of 1989 (California Assembly Bill [AB] 939; as modified in 2010 by Senate Bill [SB] 1016), which is administered by the California Department of Resources Recycling and Recovery (CalRecycle), requires counties to develop an Integrated Waste Management Plan (IWMP) that describes local waste diversion and disposal conditions, and identifies realistic programs to achieve waste diversion goals. IWMPs compile Source Reduction and Recycling Elements (SRREs) that are required to be prepared by each local government, including cities. SRREs analyze the local waste stream to determine where to focus diversion efforts and provide a framework to meet waste reduction mandates. The goal of the solid waste management efforts is not to increase recycling, but to decrease the amount of waste entering landfills. AB 939 required all cities and counties to divert a minimum of 50 percent of all solid waste from landfill disposal.

In 2011, the State legislature enacted AB 341 (California Public Resource Code Section 42649.2), increasing the diversion target to 75 percent statewide. AB 341 also requires the provision of recycling service to commercial and residential facilities that generate 4 cubic yards (CY) or more of solid waste per week.

In October 2014, Governor Brown signed AB 1826 Chesbro (Chapter 727, Statutes of 2014), which builds on the success of the mandatory commercial recycling program established by AB 341 by mandating a phased recycling program based on the amount of organic waste businesses generate per week. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. For businesses that generate 8 or more CY of organic waste per week, this requirement begins April 1, 2016, while those that generate 4 CY of organic waste per week must have an organic waste recycling program in place beginning January 1, 2017. This law also requires that on and after January 1, 2016, local jurisdictions across the State implement an organic waste recycling program to divert organic waste generated by businesses, including multi-family residential dwellings that consist of five or more units. This law phases in the mandatory recycling of commercial organics over time, while also offering an exemption process for rural counties.



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Source: Base Map Layers (SanGIS, 2016)

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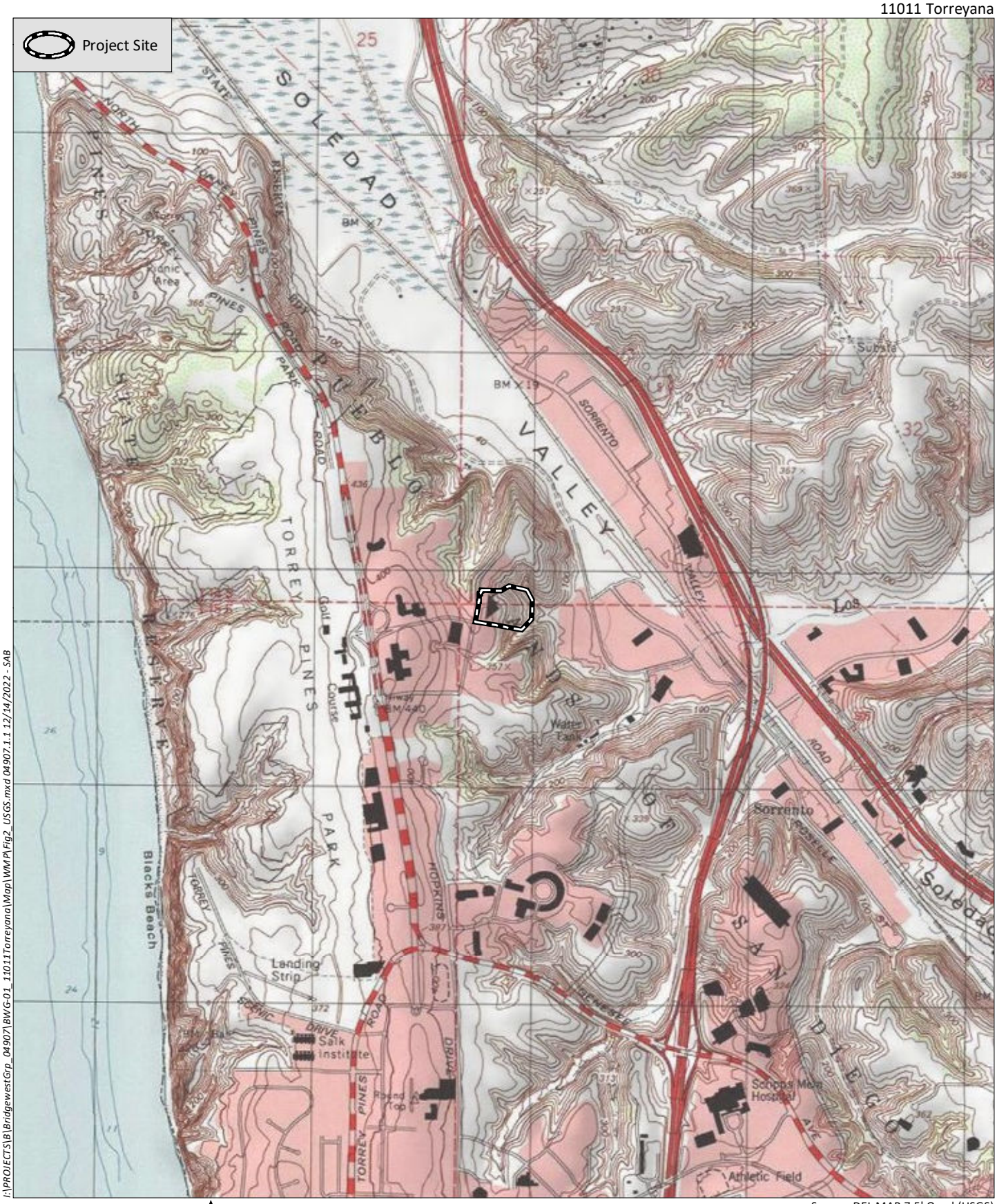
Regional Location

Figure 1



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Source: DEL MAR 7.5' Quad (USGS)

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USGS Topography

Figure 2

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0 150 Feet

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Source: Aerial (NearMap, 2019)

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Aerial Photograph

Figure 3

SITE NOTES

1.REFER TO LANDSCAPE DRAWINGS FOR CONCRETE WALKS, PAVING, BERMS, LANDSCAPING AND IRRIGATION.
2.REFER TO CIVIL DRAWINGS FOR SITE GRADING, DRAINAGE, CATCH BASINS, PAVING DETAILS, SITE UTILITIES, CURB AND GUTTER SWALES, FIRE HYDRANT LOCATIONS AND HORIZONTAL CONTROL DIMENSIONS.
3.REFER TO CIVIL DRAWINGS FOR POINT OF CONNECTIONS TO OFF-SITE UTILITIES. CONTRACTOR TO VERIFY ACTUAL UTILITY LOCATIONS.
4.ALL DIMENSION ON SITE PLAN ARE TO BE FACE OF CONCRETE WALL, FACE OF CONCRETE CURB, PROPERTY LINE OR CENTERLINE OF PARKING STALL, UNLESS OTHERWISE NOTED.
5.FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE LOCAL FIRE DEPARTMENT STANDARDS.
6.ALL PARKING STALL STRIPING SHALL BE PER LOCAL JURISDICTION STANDARDS.
7.CONCRETE WALK SHALL RECEIVE EXPANSION JOINTS AT 50'-0" O.C MAX. AND CONTROL JOINTS T 5'-0" O.C MAX. BETWEEN EXPANSION JOINTS, UNLESS NOTED OTHERWISE.
8.GENERAL CONTRACTOR SHALL COORDINATE SITE PLAN DATA SHOWN ON ARCHITECTURAL, CIVIL, ELECTRICAL, DRY UTILITY AND LANDSCAPE DRAWINGS AND NOTIFY ARCHITECT FOR CLARIFICATION OF AND DISCREPANCIES PRIOR TO ANY CONSTRUCTION.
9. GENERAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SITE CONDITIONS, PROPERTY DIMENSIONS ETC. AND NOTIFY THE ARCHITECT FOR CLARIFICATION OF ANY DISCREPANCIES PRIOR TO ANY CONSTRUCTION.
10. REFERENCE SOILS REPORT FOR RECOMMENDATIONS ON SOIL BEARING VALUES FOUNDATION AND SLAB REINFORCING AND PAVING SECTIONS FOR PARKING STALLS, TRAFFIC AREAS TRUCK LOADING DOCKS.
10. FRONTAGE YARDS USED FOR ALLOWABLE AREA INCREASES PER CBC SECTION 506.0 SHALL BE PERMANENTLY MAINTAINED.
11. FIRE ACCESS ROADWAY SIGNS / RED CURBS SHALL BE INSTALLED.
12. POST INDICATOR VALVES FIRE DEPARTMENT CONNECTIONS AND ALARM BELL ARE TO BE LOCATED ON THE ADDRESS' ACCESS SIDE OF THE STRUCTURE (FC1001.4)
13. SETBACK FOR P.I.V. AND F.D.C SHALL BE FOUR FEET FROM CURB AND 3'X3' CONCRETE PAD POURED AROUND BOTH. SEE CIVIL DRAWINGS.
14. PROVIDE WHITE CURB AT LOADING ZONE.
15. "THE LENGTH OF A PARKING SPACE MAY OVERHANG A RAISED CURB OR WHEEL STOP AND A REQUIRED LANDSCAPE AREA BY MAXIMUM OF 3 FEET, PROVIDED THAT THE HEIGHT OF THE CURB DOES NOT EXCEED 6 INCHES AND THE AREA OF OVERHANG IS NOT PART OF A REQUIRED PEDESTRIAN PATH. "PER SDMC SECTION 142.0506 (H) (5)

SPECIAL GEOTECHNICAL NOTES

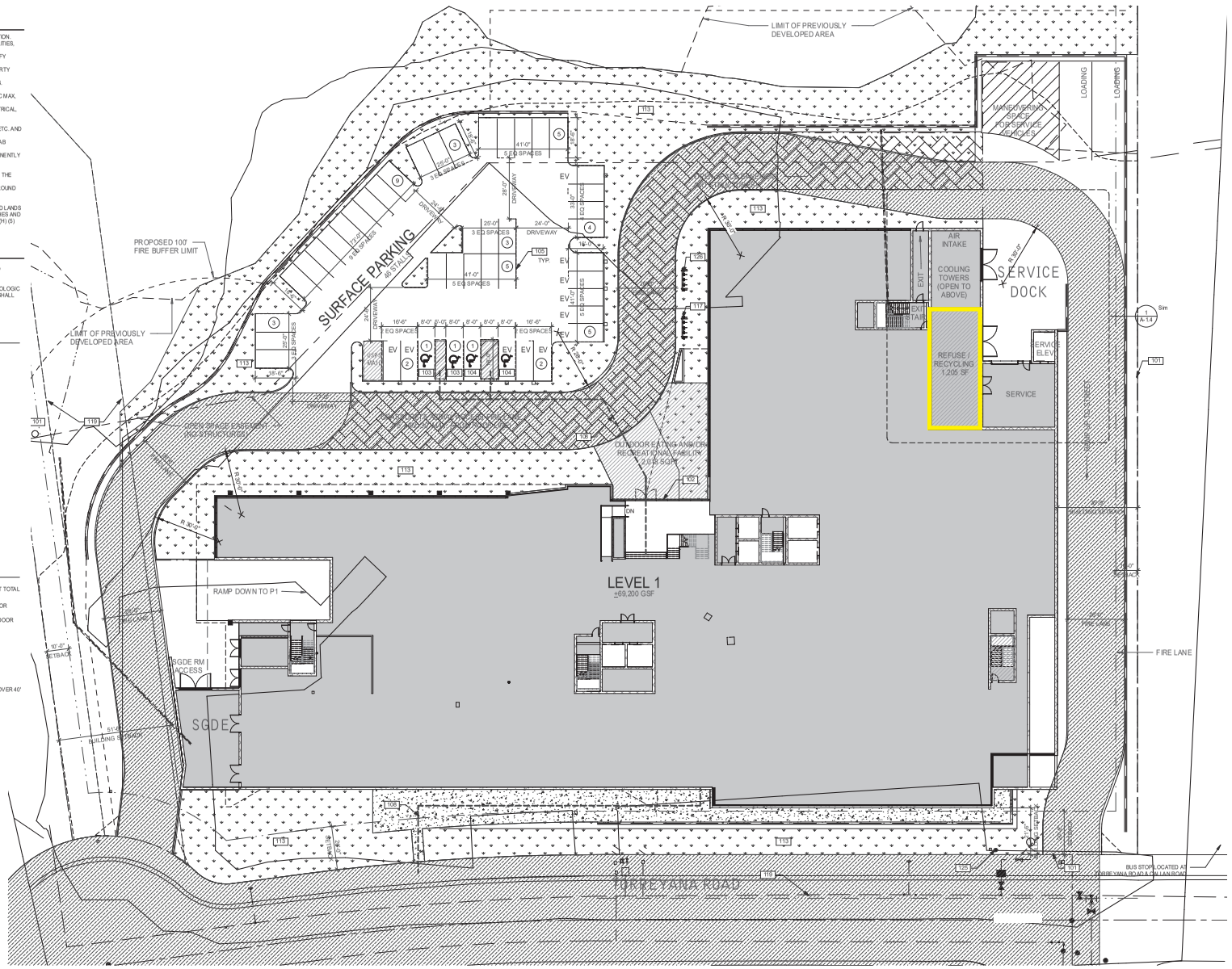
1. THE GEOTECHNICAL CONSULTANT SHALL CONDUCT GEOLOGIC MAPPING/ LOGGING DURING PERMITTED EXCAVATIONS FAULTS, IF DISCOVERED, SHALL BE EVALUATED AND ANALYZED FOR ACTIVITY LEVEL BY THE GEOTECHNICAL CONSULTANT.
2. A DETAILED AS GRADED GEOTECHNICAL REPORT SHALL BE SUBMITTED THAT INCLUDES A DETAILED GEOLOGIC MAP AND LOGS OF THE PERMITTED EXCAVATION IF FAULTING IS DISCOVERED, THE AS GRADED REPORT SHALL ADDRESS THE ACTIVITY OF FAULTING AND INDICATE IF STRUCTURAL SETBACKS ARE RECOMMENDED THE PRECISE LOCATION OF FAULT(S), IF DISCOVERED, SHALL BE SHOWN ON THE FINAL AS BUILT PLANS.

KEYNOTES:

101 PROPERTY LINE.
102 ACCESSIBLE ENTRY SIGNAGE.
103 ACCESSIBLE PARKING STALL WITH SIGNAGE.
104 VAN ACCESSIBLE PARKING STALL WITH SIGNAGE.
105 PAINTED PARKING STRIPING PER CITY STANDARDS.
106 2'-0" PARKING OVERHANG.
107 PRECAST CONCRETE WHEEL STOP.
108 ACCESSIBLE PATH OF TRAVEL, 1:20 MAX. SLOPE, 2% MAX. CROSS SLOPE.
109 ACCESSIBLE CURB RAMP WITH TRUNCATED DOMES.
110 FIRELANE ENTRY SIGNAGE.
111 FIRELANE SIGNAGE.
112 FIRELANE CURB, DASHED LINE INDICATES EXTENT OF CONTINUOUS CURB TO BE PAINTED RED.
113 LANDSCAPE AND IRRIGATION AREA.
114 CONCRETE SIDEWALK.
115 CONCRETE RAMP.
116 CONCRETE RETAINING WALL.
117 BIKE RACK.
118 TRASH ENCLOSURE WITH RECYCLE BIN.
119 EASEMENT LINE.
120 ACCESSIBLE DIRECTIONAL SIGN.
121 STRIPE 5'x20' MINIMUM AREA FOR PASSENGER DROP-OFF AND LOADING ZONE.
122 TRUNCATED DOMES.
123 CLEAN AIR/VANPOOL/EV DESIGNATED PARKING STALL.
124 SHORT-TERM AND LONG TERM BIKE PARKING FOR THE PUBLIC AND EMPLOYEES.
125 EXISTING FIRE HYDRANT TO REMAIN
126 BIKE SHARE STORAGE.

LEGEND

- ACCESSIBLE PATH OF TRAVEL, 1:20 MAX. SLOPE, 2% MAX. CROSS SLOPE.
- PROPERTY LINE.
- EASEMENT LINE.
- POLE MOUNTED LIGHT FIXTURE.
- WALLPACK LIGHT FIXTURE.
- TRANSFORMER WITH CONCRETE PAD. (PROVIDE PROTECTION BOLLARDS PER LOCAL UTILITY OR PUBLIC WORK STANDARDS)
- LANDSCAPE AND IRRIGATION AREA.
- OUTDOOR EATING AND/OR RECREATIONAL FACILITY
- PARKING STALL COUNT TOTAL
- DOCK HIGH TRUCK DOOR
- GRADE LEVEL TRUCK DOOR
- FIRE HYDRANT
- P.I.V. WITH TAMPER
- FIRE LANE (HATCHED)
- FACADE OF BUILDING OVER 40' IN HEIGHT



Source: Ware Malcomb, 2022

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Site Plan

Figure 4

In September 2016, SB 1383 (Chapter 395, Statues of 2016) was approved, requiring a statewide reduction of organic waste disposal. Specifically, SB 1383 requires a 50 percent reduction of the statewide disposal of organic waste from the 2014 level by 2020, and a 75 percent reduction of the 2014 level by 2025. SB 1383 requires cities and counties to adopt regulations to achieve the specified targets for reducing organic waste in landfills. Further, CalRecycle adopted regulations in November 2020 and took effect in January 2022.

2.2 LOCAL REGULATIONS

The City has enacted codes and policies directed at the achievement of State-required diversion levels, including the Refuse, Organic Waste, and Recyclable Materials Storage Regulations (City 2022a; Municipal Code Chapter 14, Article 2 Division 8), Recycling Ordinance (City 2022b; Municipal Code Chapter 6, Article 6, Division 7), and the Construction and Demolition Debris Deposit Ordinance (City 2016a; Municipal Code Chapter 6, Article 6, Division 6). The City's Zero Waste Plan, a component of the City's Climate Action Plan, was approved and adopted by the City Council on July 13, 2015. The Zero Waste Plan identifies goals and strategies to achieve 75 percent diversion by 2020, 90 percent diversion by 2035, and "zero" waste by 2040 (City 2015). Additionally, the City is in the process of implementing extensive procedural changes to comply with SB 1383, including developing collection operations, adopting purchasing policies, amending the City's Municipal Recycling Code, enacting building requirements, preparing enforcement responsibilities, and strategizing public education and outreach efforts. As part of this effort, starting in 2022, the City and City-certified private waste haulers will expand organic waste collection services for residents and businesses to meet the organic waste reduction goals set by SB 1383. This is reflected in the new updates to the Refuse, Organic Waste, and Recyclable Materials Storage Regulations and the Recycling Ordinance.

As stated in the City Development Services Department (DSD) CEQA Significance Determination Thresholds (City 2022c), implementation of these regulations and ordinances alone is not projected to achieve a 50 percent diversion rate, far below the current 75 percent diversion level targeted by the State and identified in the Zero Waste Plan for 2020. The City's ESD estimates that compliance with existing City ordinances and regulations alone achieves only an approximate 30 and 40 percent diversion rate for small and large projects, respectively (City 2013). Therefore, discretionary projects must undertake additional measures to comply with existing regulations.

2.2.1 City of San Diego CEQA Significance Determination Thresholds

The City's CEQA Significance Determination Thresholds establish solid waste generation thresholds for discretionary projects which act as criteria for the preparation of a WMP (City 2022c). Proposed projects that involve construction, demolition, and/or renovation that meet or exceed the thresholds described below are considered to have potentially significant solid waste impacts and require the preparation of a WMP.

Direct Impacts

A project would require preparation of a WMP if it would generate 1,500 tons of waste or more during demolition and construction. Projects that include the construction, demolition, or renovation of 1,000,000 SF or more of building space are considered by the City to have the potential to generate this amount of waste, and therefore may have direct impacts on solid waste services.

Additional considerations are as follows:

- The generation of large amounts of waste result in direct impacts that bring facilities closer to daily throughput limits, shorten facility lifespans, require increased numbers of trucks and other equipment, and make it difficult for the City to achieve required waste reduction levels. Waste management planning is based on a steady rate of waste generation and does not assume increased waste generation due to growth.

- While all projects are required to comply with the City's waste management ordinances, projects that meet the criteria according to the City thresholds must implement project specific WMPs, which may reduce solid waste impacts to below a level of significance.

- For projects over 1,000,000 SF, a significant direct and cumulative solid waste impact would result if the compliance with the City's ordinances and the WMP fail to reduce the impacts of such projects to below a level of significance and/or if a WMP for the project is not prepared and conceptually approved by the ESD prior to distribution of the draft environmental document for public review.

Cumulative Impacts

A project would require the preparation of a WMP if it would generate 60 tons of waste or more per year. Projects that include the construction, demolition, and/or renovation of 40,000 SF or more of building space are considered by the City to potentially generate this amount of waste, and therefore may have cumulative impacts on solid waste services. Other projects such as new single-family residences on public streets or projects creating a demand for litter bin service may also cumulatively impact solid waste services.

While all projects are required to comply with the City's waste management ordinances, projects that meet the criteria according to the City thresholds must implement a project specific WMP that reduces solid waste impacts to below a level of significance.

Project Potential Impacts

The project does not propose the construction, demolition, or renovation of 1,000,000 SF or more of building space; however, the project has the potential to generate more than 1,500 tons of solid waste materials during demolition and construction and therefore may exceed the City's criteria for the requirement of a WMP. The project proposes construction of more than 40,000 SF, thereby exceeding the City's criteria for cumulative solid waste impacts without implementation of solid waste diversion measures.

Because implementation of the project without waste diversion measures may exceed direct and cumulative solid waste thresholds, the City has required preparation of this WMP in compliance with CEQA and City Guidelines, to ensure that the project contribution to the overall waste produced within the City would be reduced sufficiently to allow the City to comply with the waste reduction targets established in the Public Resources Code and State statutes.

2.2.2 City of San Diego Refuse and Recyclable Materials Storage Ordinance

San Diego Municipal Code (SDMC) Section 142.0801 et seq. contains the language of the City Refuse, Organic Waste, and Recyclable Materials Storage Regulations (Storage Ordinance), an ordinance that is required by State law. The Storage Ordinance was adopted in December 1997. An amendment to the ordinance was approved by the City Council on January 27, 2022 (effective February 26, 2022). The purpose of the Storage Ordinance is to provide permanent, adequate, and convenient space for the storage and collection of refuse, organic waste, and recyclable material (City 2022a). The storage required for the project would meet the general regulations detailed within the Storage Ordinance and the total storage area requirement would be based on the gross floor area of the nonresidential buildings on the premises. Additionally, the Project would provide at least one exterior refuse, organic waste, and recyclable material storage area for each building. Table 1, *Minimum Exterior Refuse, Organic Waste, and Recyclable Material Storage Areas for Nonresidential Development*, (SDMC Table 142 08C) provides information on minimum exterior refuse and recyclable material storage areas for non-residential development.

Table 1
MINIMUM EXTERIOR REFUSE, ORGANIC WASTE, ND RECYCLABLE MATERIAL STORAGE AREAS FOR NONRESIDENTIAL DEVELOPMENT

Gross Floor Area Per Development (SF)	Minimum Refuse Storage Area Per Development (SF)	Minimum *Recyclable Material* Storage Area Per Development (SF)	Minimum Organic Waste Storage Area Per Development (SF)	Total Minimum Area Per Development (SF)
0-5,000	12	12	12	36
5,001-10,000	24	24	24	72
10,001-25,000	48	48	48	144
25,001-50,000	96	96	96	288
50,001-75,000	144	144	144	432
75,001-100,000	192	192	192	576
100,001+	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	576 plus 144 square feet for every 25,000 square feet of building area above 100,001

SF = square feet

2.2.3 City of San Diego Recycling Ordinance

The City's Recycling Ordinance, found in SDMC Section 66.0701 et seq., was adopted in November 2007 (City 2022b). An amendment to the ordinance was approved by the City Council on May 5, 2022 (effective June 8, 2022). The Recycling Ordinance requires the provision of recycling service for all commercial facilities, all single-family residences, and multi-family residences. The ordinance states that for nonresidential development, or additions to existing nonresidential development where the gross floor area would be increased by 30 percent or more, shall provide at least one exterior refuse, organic waste, and recyclable material storage area for each building. The Ordinance also provides an exemption for multi-family residential facilities, commercial facilities, and mixed use facilities that generate 0.001 cubic yard or less per week of solid waste including recyclable materials mixed with solid

waste. This requirement makes the provision of recycling service a virtually universal requirement. In addition, the Recycling Ordinance requires that businesses and institutional facilities recycle Organic waste food scraps, food-soiled paper, yard trimmings and nonhazardous wood waste and provide weekly collection services.

The Recycling Ordinance also requires development of educational materials to ensure occupants are informed about the City's ordinance and recycling services, including information on types of recyclable materials accepted.

2.2.4 City of San Diego Construction and Demolition Debris Deposit Ordinance

On July 1, 2008, the City's C&D Debris Deposit Ordinance became effective (City 2008). An amendment to the ordinance and revisions to the associated C&D deposit schedule were approved by the City Council on December 10, 2013 (effective January 1, 2014) and on April 19, 2016 (effective June 22, 2016). The C&D Debris Deposit Ordinance is designed to keep C&D materials out of local landfills and ensure that materials are diverted from disposal. The ordinance creates an economic incentive to recycle C&D debris through the collection of fully refundable deposits that are returned, in whole or in part, upon proof of the amount of C&D debris the project applicant diverted from landfill disposal. The ordinance requires that the majority of construction, demolition and remodeling projects requiring building, combination, and demolition permits pay a refundable C&D Debris Recycling Deposit and divert at least 65 percent of their debris by recycling, reusing, or donating usable materials. The deposit is held until the applicant provides receipts demonstrating that a minimum 65 percent of the material generated has been diverted from disposal in landfills.

The C&D Ordinance stipulates that projects will be required to divert 75 percent of their wastes when mixed debris facilities with a permitted daily tonnage capacity of at least 1,000 tons maintain a 75 percent diversion rate for three consecutive calendar year quarters. Greater than 75 percent diversion also may be required for a project if a higher goal is specified during discretionary permitting. Mixed debris recyclers in San Diego County currently achieve between 65 and 88 percent diversion rates at their facilities (City 2023; Appendix A). This is because not everything that comes through the door is usable or marketable. While some of the facilities achieve a diversion rate equal to or greater than 88 percent, six facilities have a diversion rate of 65 percent. For a project that would dispose of mixed debris at the facility that achieves a 65 percent diversion rate, virtually all clean C&D waste from a project must be source separated and sent to a material-specific recycling facility, such as aggregate and metal recyclers, to achieve an overall diversion rate of 75 percent. Higher diversion rates can also be accomplished by salvage and/or on-site reuse of C&D materials. The City's C&D thresholds and deposit amounts are shown below in Table 2, *City C&D Deposit Schedule*.

Table 2
CITY C&D DEPOSIT SCHEDULE

Building Category	Deposit per Square Foot[1]	Minimum Square Feet Subject to Ordinance	Maximum Square Feet Subject to Ordinance	Range of Deposits
Residential New Construction, Non-residential Alterations, Demolition	$0.40	1,000	100,000	$400-$40,000
Non-residential New Construction	$0.20	1,000	50,000	$200-$10,000
Flat Rate				
Residential Alterations	$1,000	1,000	6,999	$1,000

Source: City 2016a

[1] Deposit amounts are applied to the entire area(s) where work will be performed and are calculated based on square footage.

3.0 PRE-CONSTRUCTION WASTE

Prior to initiation of the project's construction activities, site preparation would require clearing/ grubbing and demolition. Clearing and grubbing would require removal of existing ornamental vegetation associated with the existing buildings. Project construction would require demolition of the building, paved areas, and other improvements within the existing site.

All C&D-generated waste would be subject to compliance with the source separation and diversion requirements contained in this WMP to divert, recycle, and/or re-use these materials to the maximum degree possible. As identified in the City's Certified C&D Recycling Facility Directory (City 2023; Appendix A), "Mixed C&D Debris" recyclers attain at most an 88 percent diversion rate, whereas "source separated" material recyclers can attain nearly 100 percent diversion rates (City 2023). As a result, to achieve the highest level of waste diversion from landfills, and highest dollar value for the quality of materials, the project would source separate (segregate) clean recyclable materials on site by material type, to the maximum extent practicable, and divert them for recycling or reuse at City-certified facilities specializing in each material type (refer to Appendix A).

3.1 DEMOLITION

3.1.1 Building Demolition

The existing development includes one main two-story building that is proposed to be demolished, the 76,694-SF building at 11011 Torreyana Road. The building is Type III-B construction, which is combustible and typically built with block or brick walls and a wooden roof.

Salvage

No salvage of materials in the existing buildings is proposed at this time. It is conservatively assumed that there would be no salvage of the existing building materials.

Recycling

The overall estimated quantity of debris from the building is based on the "General Building Formula" contained in the Federal Emergency Management Agency's (FEMA) Debris Estimating Field Guide (2010). The formula multiplies building length, width, and height (in feet) by a constant of 0.33 to account for air space in the building, and divides the resulting number by 27 to convert cubic feet to cubic yards (FEMA 2010):

$$\frac{\text{Length x Width x Height x 0.33}}{27} = \text{CY}$$

The existing building was assumed to have a total approximate height of 40 feet. The square footage listed in Section 3.1.1, above, equals their length times width for both stories. To fit into the FEMA formula, the buildings were divided in two to get the length times with of a single story, which was then multiplied by the total height of the building. Using these dimensions, structural debris for the 11011 Torreyana Road building is estimated as follows:

$$\left(\frac{\text{76,694 SF/2 x 40 feet x 0.33}}{27}\right) = \textbf{18,747 CY}$$

As specific materials contained in the existing building are not known, estimates were pulled from the Military Base Closure Handbook - A Guide to Construction and Demolition Materials Recovery (CalRecycle 2002). According to this handbook, demolition of typical brick (Type III) structures results in a C&D waste stream (by volume) as follows:[1]

- 73 percent brick
- 23 percent wood
- 3 percent paperboard
- 2 percent metal

In addition to the percentages listed above, it is assumed that there are other recyclable "mixed debris" materials present in unknown quantities, which are estimated to comprise 20 percent of the total demolition debris. These materials would be too damaged or mixed to be source separated into clean materials and would be disposed of accordingly. An additional eight percent of non-recyclable "waste" also was factored into the total waste stream anticipated for demolition of the buildings. Factoring in the 28 percent mixed debris and trash that would be generated during demolition, the concrete, brick, wood, paperboard, and metal breakdown provided in the Military Base Closure Handbook would account for the remaining 72 percent of total waste.

The complete breakdown of waste types and volumes of demolition waste anticipated to be generated are shown in Table 3, *Existing Structure Demolition Waste Content*.

[1] The *Military Base Closure Handbook – A Guide to Construction and Demolition Materials Recovery* has the percentage total of waste equaling 101 percent. This is likely due to rounding that was not disclosed in the document. To allow for balanced equations, the percentages were adjusted for brick, wood, paperboard, and metal materials in the calculations.

Table 3
EXISTING STRUCTURE DEMOLITION WASTE CONTENT

Material	Percent Waste by Material (%)[1]	Volume Waste by Material (Cubic Yards)[2]
Structures		
Concrete	0%	0
Brick	53%	9,936
Wood – Clean[3]	8%	1,500
Wood – Treated[3]	8%	1,500
Paperboard	2%	375
Metal	1%	187
Mixed debris	20%	3,749
Trash	8%	1,500
Structures Total	**100 %**	**18,747**

Sources: FEMA 2010; CalRecycle 2002

1 Estimated percentages for concrete, brick, wood, paperboard, and metal provided by the Military Base Closure Handbook – A Guide to Construction and Demolition Materials Recovery (CalRecycle 2002) were broken down from the 72 percent of demolition materials remaining after subtracting 20 percent mixed debris and 8 percent trash. For example, the percent waste by material for brick was generated by multiplying 72 percent by 73 percent (the brick composition in brick structures) to yield 53 percent of the total waste generated during demolition.

2 Table information subject to field verification during demolition.

3 For estimation purposes, wood waste materials are split 50 percent clean, and 50 percent treated to conservatively account for inability to recycle treated wood.

It is assumed that treated wood, in addition to approximately eight percent of demolition waste, would not be recyclable. These materials would be disposed of at a local landfill at a zero percent diversion rate. The additional 20 percent of "mixed debris" demolition materials would be disposed of at a City-approved mixed debris materials recycling facility at a minimum 65 percent diversion rate (City 2023; Appendix A).

3.1.2 Pavement Demolition

Pavement demolition is expected to occur within areas paved with concrete and asphalt throughout the site during project construction, including demolition of existing concrete walkways/sidewalks, curbs/gutters, and the asphalt parking lot. In total, the project would include the removal of 26,630 SF of concrete and 44,550 SF of asphalt. Demolition estimates for these materials have been calculated based on the following assumptions:

- The demolition estimate for concrete assumes it is 4 inches thick and 150 pounds (lbs) per cubic foot. This would equate to approximately 1,331,500 lbs, or 666 tons, based on the 26,630 SF of existing on-site concrete to be demolished.

- The demolition estimate for asphalt assumes it is 5 inches thick and 142 lbs per cubic foot. This would equate to approximately 2,635,875 lbs, or 1,318 tons, based on the 44,550 SF of existing on-site asphalt to be demolished.

Therefore, the project would result in a combined total of 3,967,375 lbs, or 1,984 tons, of concrete and asphalt to be demolished.

Salvage

Concrete may have the potential to be salvaged and reused on-site. As a conservative estimate, it is assumed that all pavement material will be removed from the site.

Recycling

Quantities of paved concrete and asphalt materials are estimated to total approximately 1,984 tons. The diversion rate for asphalt and concrete is 100 percent. Therefore, by adding 100 percent of the asphalt (1,318 tons) and 100 percent of the concrete (666 tons), the quantity diverted and recycled is estimated to total 1,984 tons.

3.2 CLEARING AND GRUBBING

Clearing and grubbing involves the removal of existing vegetation. Based on information provided by the Applicant, the project is anticipated to require a net export of approximately 4,920 CY of removed vegetation consisting of brush, landscaping, trees, and grass during the clearing and grubbing process. Based on the City's C&D Debris Conversion Rate Table, which identifies a weight of 0.15 tons/CY of vegetation (City 2016b; Appendix B), the net export of removed brush, landscaping, trees, and grass during the clearing and grubbing process is anticipated to be approximately 738 tons. Other waste materials associated with the clearing and grubbing are anticipated to include relatively negligible amounts of waste generated by contractors working on the site during the clearing and grubbing process.

Salvage

There is potential for some existing landscaping to be retained and reused on site. However, due to the quantities being unknown at this time, the existing ornamental landscaping within the project is assumed to be removed.

Recycling

Vegetation would be processed and recycled at a target rate of 100 percent diversion at Miramar Greenery, a City-certified green waste recycling facility. The City's Certified C&D Recycling Facility Directory (City 2023; Appendix A) states the diversion rate for clean source-separated materials shall be 100 percent. Therefore, the project would recycle 738 tons of vegetation. Other waste materials associated with the clearing and grubbing are anticipated to include negligible amounts of waste generated by contractors working on the site during the clearing and grubbing process.

3.3 GRADING

According to information provided by the Applicant, grading is anticipated to require a total soil export of 112,100 CY, or 145,730 tons, which would be exported off site. Estimates were based on the City's C&D Debris Conversion Rate Table, which identifies an excavated soil weight of 1.30 tons/CY (City 2016b; Appendix B). Excavated soil is designated as 100 percent for reuse or recycling. Excavated soil not reused is anticipated to be diverted at a rate of 100 percent to one of the facilities from the City's Certified C&D Recycling Facility Directory (City 2023; Appendix A).

Certified facilities include:

- Alpine Asphalt and Concrete Recycling, 5690 Willows Road, Alpine, CA 91901
- Alpine Asphalt and Concrete Recycling, 0 Duro Road, Escondido, CA 92028
- Enniss Inc, 12421 Vigilante Road, Lakeside CA 92040
- Hanson Aggregates West, Miramar, 9229 Harris Plant Road, San Diego, CA 92126
- Moody's, 3210 Oceanside Boulevard, Oceanside, CA 92056
- Robertson's Ready Mix, 2094 Willow Glen Drive, El Cajon, CA 92019
- Terra Bella Nursery, 302 Hollister Street, San Diego, CA 92154
- Vulcan Carol Canyon Landfill and Recycle Site, 10051 Black Mountain Road, San Diego, CA 92126

Other waste materials associated with grading are anticipated to include negligible amounts of waste generated by contractors working on site during the grading process.

3.4 SUMMARY OF PRE-CONSTRUCTION WASTE GENERATION AND DIVERSION

As discussed above, the waste materials to be generated during demolition, clearing and grubbing, and grading for project implementation would be source-separated for recycling or reuse at City-certified facilities specializing in each material type, as applicable. A summary of anticipated waste generation volumes and diversion rates for pre-construction activities is provided in Table 4, *Pre-Construction Demolition, Clearing/Grubbing, and Grading Solid Waste Generation, Diversion Rates, and Facilities*. As shown in the table, during pre-construction the project would generate 160,756 tons and divert 158,699 tons.

3.4.1 Summary of Salvage Material

Demolition of the buildings, parking lot, and curb/gutter/sidewalk would generate salvageable materials such as concrete to be used for aggregate, soils, etc. However, the values of salvage and recycling are not defined for the existing buildings, no specific inventory of reusable items has been conducted at this preliminary stage, and no salvage plan has been prepared. Therefore, the amount of salvage is undefined.

3.4.2 Summary of Recycled Material

Materials generated during pre-construction demolition, clearing and grubbing, and grading that are designated for recycling would be source separated onsite during these activities. The City's Certified C&D Recycling Facility Directory, updated quarterly, states the diversion rate for these materials shall be 100 percent, except mixed C&D debris, which achieves a maximum 88 percent diversion rate at the Otay C&D/Inert Debris Processing Facility (City 2023).

Table 4
PRE-CONSTRUCTION DEMOLITION, CLEARING/GRUBBING, AND GRADING SOLID WASTE GENERATION, DIVERSION RATES, AND FACILITIES

Source of Material	Material	Volume (CY)	Tons/Unit Conversion Factor	Tons	Diversion Rate (Percent)	Facility/ Destination of Materials	Tons Diverted	Tons Disposed
Building Demolition	Concrete	--	1.2	--	100%	A	0	0
	Brick	9,936	0.7	6,955	100%	A	6,955	0
	Clean Wood	1,500	0.15	225	100%	B	225	0
	Treated Wood	1,50	0.15	225	0%	C	0	225
	Paperboard	1,427	0.05	71	100%	A	71	0
	Metal	187	0.51	96	100%	A	96	0
	Mixed Debris	3,749	1.19	4,462	65%	A	2,900	1,562
	Trash	1,500	0.18	270	0%	C	0	270
Pavement Demolition	Asphalt/ Concrete	--	--	1,984	100%	A	1,984	0
Clearing/Grubbing	Vegetation	4,920	0.15	738	100%	B	738	0
Grading	Earth/Soil	112,100	1.3	145,730	100%	A	145,730	0
			TOTAL	**160,756**	**99%**	--	**158,699**	**2,057**

Sources: City's Certified C&D Recycling Facility Directory (City 2023; Appendix A), City's C&D Debris Conversion Rate Table (City 2016b; Appendix B)
Facility/Destination Key:
A. Appropriate facility on City's Certified C&D Recycling Facility Directory
B. Miramar Greenery, 5180 Convoy Street, San Diego, CA 92111
C. Sycamore Landfill, 8514 Mast Boulevard, Santee, CA 92071
Notes:

- Table information subject to field verification during pre-construction.
- The Applicant would contract with source separating recycling facilities listed in the City's Certified C&D Recycling Facility Directory (City 2023) with an equal or greater diversion rate to ensure diversion rates meet those estimated in this table.
- The Tons/Unit Conversion Factor for concrete/steel was not provided in the City's C&D Debris Conversion Rate Table; therefore, concrete's factor of 1.2 was used in the estimates.
- Total diversion rate based on the percentage of total tons of waste diverted over the total tons of waste generated.

CF = cubic feet; CY = cubic yards

4.0 CONSTRUCTION WASTE

To estimate the quantity of waste generated during construction, City ESD staff recommends assuming each material type (carpet, ceiling tiles, etc.) would approximately equal the square footage of the structure. This square footage can then be multiplied by the weight of the material and divided by 10 to account for 10 percent waste generated during the construction process. A 10 percent construction waste generation rate is a very conservative figure based on the following reasoning.[2]

- The cost of purchasing construction materials in excess of the quantity required is prohibitive.
- Many materials, such as metal studs, come prefabricated in specific sizes, such that the contractor can accurately predict and purchase the specific quantity that would be required.
- Contractors can return unused and unneeded items (such as metal studs, appliances, fixtures, etc.) and/or utilize materials (such as brick or drywall) on other projects.
- Not all materials would be utilized throughout project square footage, so generation rates based on the total square footage are bound to be overestimated.

The project proposes to build one main structure, a 203,096-SF building containing laboratory and office space and the installation of 7,000 SF of sidewalk, 14,600 SF of heavy-duty concrete, 9,500 SF of Grasscrete,[3] and 20,170 SF of asphalt. The building includes subterranean parking.

In the International Building Code (IBC), the International Code Council (ICC) classifies buildings into five categories based on their type of construction (ICC 2015). Construction Type I buildings are considered to be fire resistive, often by using non-combustible materials such as steel with a fire-resistant coating and concrete. Construction Type II buildings typically have non-combustible walls but are not considered to be fire resistive. Construction Type III buildings are combustible, typically built with block or brick walls and a wooden roof. Buildings that utilize heavy timber in their framework are classified as Construction Type IV. Construction Type V buildings have wooden frames that are considered to be combustible. The proposed building would be Type III-B construction (combustible).

Based on the proposed structures and common areas, the following building materials that may generate waste are likely to be used during construction:

- Wood/Heavy timber
- Drywall
- Carpet/Carpet padding
- Metals
- Concrete
- Asphalt
- Ceramic tile
- Ceiling tile
- Brick/Masonry
- Roofing materials

[2] The Waste Generation Rate is the conservative estimate of how much of each material type would not be directly used in the building construction and would therefore be waste. Table 5 breaks down how the calculated weight (10% of construction materials) of waste would be managed.

[3] Grasscrete is defined as continually reinforced, ready mixed concrete that has a defined pattern of voids achieved using a disposable form that once removed and replaced with stone or grassed soil allows water to pass through the concrete. Grasscrete is commonly known as Void Structured Concrete (SPS 2022).

Other waste generated would consist of packaging materials from construction material, appliances, windows, etc., including:

- Corrugated cardboard (packaging)
- Industrial plastics (plastic wrap, fasteners, etc.)
- Styrofoam (appliance packaging, not peanuts)

4.1 ESTIMATE CONSTRUCTION WASTE GENERATION AND DIVERSION

The City uses a rule of thumb of 3 lbs/SF of waste materials generated during construction (3 lbs = 0.0015 tons). Material quantities are based on City guidance as follows:

- Total project SF x each material type = Total quantity of construction materials required
- Total construction material required x 10 percent = Anticipated quantity of construction waste generated

Anticipated project construction waste generation is shown in Table 5, *Construction Solid Waste Generation, Diversion Rates, and Facilities*.

Table 5
CONSTRUCTION SOLID WASTE GENERATION, DIVERSION RATES, AND FACILITIES

Source of Material	New GSF	Material	Diversion Rate (Percent)[1]	Tons Diverted[2]	Tons Disposed
Building Construction	203,096	Metals	100%	30	0
		Concrete/Asphalt	100%	30	0
		Wood	100%	30	0
		Brick/Masonry	65%	20	11
		Drywall	65%	20	11
		Carpet	65%	20	11
		Carpet Padding	65%	20	11
		Mixed Debris	65%	20	11
		Trash	0%	0	30
Hardscapes	52,270	Concrete/Asphalt	100%	8	0
		TOTAL	**71%**	**178**	**73**

[1] Trash would be taken to a local landfill at a zero percent diversion rate. All other construction debris would be taken to an appropriate facility listed on the City's Certified C&D Recycling Facility Directory. Facilities that process metals, concrete/asphalt, and wood all achieve a 100 percent diversion rate for these materials. Facilities that process mixed debris achieve a minimum 65 percent diversion rate, which was conservatively assumed for this project (City 2023; Appendix A).

[2] For each material type, construction waste quantities are calculated based on:
Three lbs of waste per building SF (e.g., 203,096 SF for the building x 3 lbs/SF = 609,288 lbs, or 306 tons);
Total construction material required x 10 percent = anticipated quantity of construction waste generated (30.6 tons)

Note that numbers may not total due to rounding.
lbs = pounds; GSF = gross square feet/footage

4.1.1 Proposed Post-Consumer Content Construction Materials

To further minimize waste, the project would utilize recycled content construction materials, where feasible. Given the preliminary nature of the project plans, a minimum target of five percent is anticipated, with verification of purchase of materials equating to this target to be provided prior to or during the pre-construction meeting. See Section 6.1, for the construction waste management, coordination, and oversight measures that would be implemented pursuant to this WMP.

5.0 OCCUPANCY WASTE

5.1 STORAGE

The project would be managed by the Applicant or its designee(s). The City's Storage Ordinance (Municipal Code Section 142.0801 et seq.) requires the provision of separate bins for recyclable waste and organic waste products to be separated from non-recyclable solid waste. To comply with the Storage Ordinance, recycling containers would be provided at convenient locations throughout the development, meeting or exceeding the minimums shown in Table 1.

5.2 WASTE GENERATION – EXISTING USES

The project site's existing uses that would be demolished as part of the project include office and educational laboratory uses. To understand the change in waste generated during occupancy, estimates of existing waste generation of buildings that will be demolished were calculated. The City's ESD provides a list of waste generation factors for the occupancy phase of development, included as Appendix C of this report (City 2012). Table 6, *Estimated Annual Solid Waste Generation and Diversion Rates – Existing Building*, shows the estimated waste generation and diversion for the existing building on the site.

Table 6
ESTIMATED ANNUAL SOLID WASTE GENERATION AND DIVERSION RATES – EXISTING BUILDING

Source of Material	Square Footage	Existing Building Use	Waste Generation Factor[1]	Tons Generated (per year)	Expected Percent Diverted from Source-Separated Recycling[2]	Tons Diverted (per year)	Tons Disposed (per year)
Existing Building	76,964	Office	0.0017	130	50%	65	65
			TOTAL	**130**	**--**	**65**	**65**

[1] Waste generation factors provided in Appendix C to this WMP; for buildings providing a variety of uses, the most conservative waste generation factor was used.
[2] Reflects compliance with existing City Storage Ordinance and City Recycling Ordinance (City 2013) and SB 1383.

As shown in the table, the existing building planned to be demolished currently generates approximately 130 tons of waste. With compliance with the City's Recycling Ordinance and SB 1383, the existing buildings are assumed to divert 50 percent, which estimates that 65 tons of waste generated by the existing use would be disposed and 65 tons would be diverted. These estimates are based on the

City's 2012 waste generation factors, and do not consider any additional sustainability measures and recycling or organic waste diversion programs that may be implemented by current vendors.

5.3 WASTE GENERATION – PROJECT USES

The estimated waste generation and diversion for the proposed building is shown in Table 7, *Estimated Annual Solid Waste Generation and Diversion Rates – Proposed Building*.

Table 7
ESTIMATED ANNUAL SOLID WASTE GENERATION AND DIVERSION RATES – PROPOSED BUILDING

Source of Material	Square Footage	Proposed Building Use[1]	Waste Generation Factor[1]	Tons Generated (per year)	Expected Percent Diverted from Source-Separated Recycling[2,3]	Tons Diverted (per year)	Tons Disposed (per year)
New Building	203,096	Office	0.0017	345	50%	173	173
			TOTAL	**345**	**--**	**173**	**173**

1 Waste generation factors provided in Appendix C to this report; for buildings providing a variety of uses, the most conservative waste generation factor was used.
2 Reflects compliance with existing City Storage Ordinance and City Recycling Ordinance (City 2013) and SB 1383.
3 The Applicant would contract with City-approved recycling haulers and disposal facilities.

As shown in the table, it is anticipated that at full buildout, approximately 173 tons of waste are anticipated to be disposed of annually, and approximately 173 tons are estimated to be diverted in association with the new building and associated structures. These estimates are based on the City's 2012 waste generation factors, which do not take into consideration additional sustainability measures and recycling and organic waste diversion programs that may be implemented at the project and exceed the overall 50 percent diversion estimated by the City for occupancy. In addition, where a mix of uses is proposed, the most conservative waste generation factor was used since the anticipated square footage for each use is not currently known at this time. For example, the project would have a mix of office and educational laboratory space, but a waste generation factor of 0.0017 for offices was applied for the new building (compared to a waste generation rate of 0.0013 for education space). Because it is unlikely that the buildings would exclusively contain office space, the actual waste generation may be lower than the estimated waste generation rates.

5.4 CHANGE IN WASTE GENERATION

Based on the difference between the existing buildings' waste generation and the proposed project's waste generation, the project would result in a net increase of 224 tons of waste. Using an estimated 50 percent diversion rate, which accounts for compliance with the City's Storage Ordinance and Recycling Ordinance and SB 1383, 112 tons would be disposed, and 112 tons would be diverted from the landfill. As noted, these estimates are conservative based on the assigned building uses, and do not consider potential additional sustainability programs that are proposed to be implemented by the project, as discussed in Chapter 6.0, below.

While the City's Recycling Ordinance currently requires recycling of recyclable materials generated by residential and commercial facilities, the City is in the process of implementing extensive procedural changes to comply with SB 1383 to increase diversion of organic waste starting in 2022, which is

reflected in the 2022 updates to the Recycling ordinance and the Storage ordinance. (City 2022b). Studies show that approximately 17 percent of the waste generated in the City and delivered for landfill disposal is paper and 32 percent is compostable organics (City 2022b; Municipal Code Section 66.0701). The City's Zero Waste Plan evaluates the composition of the City's waste-stream, with waste materials for commercial uses such as the proposed project characterized as approximately 23.3 percent C&D materials; 21.5 percent paper; 17.4 percent food scraps; 14.2 percent organics (e.g., green waste); 11.6 percent plastic; and 11.8 percent other waste types such as special waste, metal, glass, mixed residue, electronics, and household hazardous waste (City 2015).

Assuming compliance with the City's changes in organic waste diversion pursuant to SB 1383, the project would divert a minimum of 50 percent of organic waste generated on site. The project would add organic waste disposal bins accompanied by educational information explaining how to dispose of compostable waste to building occupants. Additionally, organic waste generated by the project's routine landscaping would be diverted from the landfill. Therefore, project operation may exceed the 50 percent diversion rate; however, a 50 percent diversion is conservatively used in this analysis. Additional waste reduction, recycling, and diversion measures that would further reduce the project's operational waste disposal are described in Section 6.3.

6.0 WASTE REDUCTION, RECYCLING, AND DIVERSION MEASURES

The Applicant is committed to waste reduction during all aspects of project demolition, grading, construction, and operation, and would incorporate the Waste Diversion Measures (WDM) described below to ensure compliance with applicable solid waste disposal and waste reduction regulations and ordinances. Mandatory compliance with these measures shall be included in all project contractor agreements, clearly reflected on project plans, and verifiable by City ESD staff through written submittals and/or site inspections as described below.

6.1 CONSTRUCTION WASTE MANAGEMENT, COORDINATION, AND OVERSIGHT

6.1.1 Contractor Agreements and City Coordination

All WDM described herein shall be included as part of contractor agreements and clearly reflected on project plans identifying activities required to be undertaken during clearing, grading, and construction. These measures shall also be provided in checklist format to City ESD staff prior to the initiation of any activities identified in the WMP. ESD staff shall be allowed access to the project site, project plans, and contractor education program meetings and materials (described below) to verify conformance with these measures.

6.1.2 Designation of a Solid Waste Management Coordinator

Prior to initiation of any construction, clearing, grading, or grubbing activities on site, the Applicant shall designate a SWMC for the property with the authority to provide guidelines and procedures for contractor(s) and staff to implement waste reduction and recycling efforts. These responsibilities shall include, but are not limited to, the following:

- Prepare a Contractor Education Program on the waste separation and diversion/disposal procedures specified in this WMP. The Contractor Education Program shall contain, at a minimum, the following information:
    - Written and visual description of each waste type required to be source separated
    - Written and graphic description of how each waste type must be treated prior to and during source separation
    - Direction on which waste types go to mixed-debris facilities
    - Direction on which waste types go to the landfill
    - Direction on materials requiring special handling, such as hazardous materials
    - Contact for designated contractor in case of questions or emergency
    - Contact at City ESD in case of questions or emergency
    - Phone number, address, and telephone contact information for each contracted hauler and disposal/diversion facility to be utilized
- Ensure the correct number and signage of bins, as specified in this WMP.
- Ensure a maximum 5 percent contamination by different waste types/non-recyclable materials by weight in the bins.
- Ensure no overtopping of bins occurs.
- Work with contractor(s) to refine estimated quantities of each type of material that would be recycled, reused, or disposed of as waste, then assist contractor(s) with documentation of that waste through receipts at each recycling and landfill facility identified in this WMP, or as otherwise agreed to by ESD staff.
- Issue stop work orders if procedures and standards specified in this WMP are not being followed/met.
- Coordinate with ESD and/or Mitigation Monitoring staff, including regular communication and invitations to the work site, and ensure appropriate staff members are involved at every stage.
- Ensure ESD staff attendance at the contractor education meeting and pre-construction meetings of each phase of the development.

6.1.3 Contractor Waste Management Training

The project's SWMC or an ESD-approved contractor designee shall carry out Contractor Education Program presentations ensuring all project personnel are trained regarding content and requirements of this WMP. Prior to beginning work on any portion of the project, each member of the team, including all workers, subcontractors, and suppliers, shall be provided with a copy of the WMP, and undergo training on proper waste management procedures applicable to the project.

- The project's SMWC, or ESD-approved Contractor-designee shall carry out contractor waste management training presentations for each new group or individual hired, contracted, or assigned to work on the project.

- The SMWC and/or Contractor-designee shall ensure that each person working on the project has completed the waste management training by maintaining a written log to be signed and dated by each trainee upon completion of the training program. Copies of this written log, along with a list of all applicable personnel, shall be provided to City ESD staff for verification during each phase of project activities.

6.1.4 Daily Site Inspections by Contractor(s)

The project contractor(s) shall conduct daily inspections of the construction site to ensure compliance with the requirements of this WMP and with all other applicable laws and ordinances. Daily inspections shall include verifying the availability and number of dumpsters based on amount of debris being generated, verifying trash and recycled materials dumpsters are correctly labeled, ensuring proper sorting and segregation of materials, and ensuring excess materials are properly salvaged. The project contractor(s) shall report the results of the daily site inspections to the SWMC.

6.1.5 Regular Removal of Waste Materials

The project contractor(s) shall ensure removal of construction waste materials in sufficient frequency to prevent over-topping of bins. The accumulation and burning of on-site grading/land-clearing and construction waste materials shall be prohibited.

6.1.6 City Verification

The Applicant shall ensure a representative of the City's ESD attends pre-construction meetings prior to clearing, grading, and construction to ensure that the following items are verified:

- Material segregation, recycling, and reuse is occurring per the WMP;
- Soil is being transported to an appropriate facility for reuse;
- Grubbed materials are sent to a suitable green waste recycling facility;
- Contract documents have appropriate estimates and constraints to avoid "overbuying" construction materials;
- Contract documents specify methods to achieve five percent post-consumer content goal;
- Contamination levels (i.e., different waste types/non-recyclable materials) do not exceed five percent by weight;
- An appropriate diversion rate (as specified in this WMP) has been included on the deposit form;
- Contract documents specify agreements for each recyclable/reusable material type to be taken to an appropriate recycling/reuse facility, as specified in this WMP; and
- Minimum exterior refuse and recyclable material storage areas have been incorporated into project plans, as a requirement of the City Storage Ordinance (Municipal Code Section 142.0801 et seq.).

6.2 CONSTRUCTION WASTE REDUCTION, DIVERSION COMPLIANCE, AND VERIFICATION

6.2.1 Identification, Separation, and Diversion of Recyclable/Reusable Materials

The Applicant shall ensure that:

- Throughout project activities, waste materials shall be source separated on site into the appropriate bin based on materials type, according to the categories in this WMP. Materials generated during clearing, grading, and construction that would-be source separated and recycled are listed below:
    - Mixed C&D (wood, dirt, concrete, drywall, brick, metals, rock, asphalt, tile, cardboard)
    - Metals
    - Concrete/Asphalt
    - Brick/Masonry
    - Wood
    - Drywall
    - Carpet/Carpet padding
    - Clean fill dirt
    - Green waste
- A separate bin for each clean waste material type to be generated during each phase of clearing, grading, and construction activity shall be provided on the site, subject to the following requirements:
    - Containers shall be clearly labeled, with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
    - The collection containers for recyclable grading/land-clearing and construction waste shall contain no more than five percent non-recyclable materials, by weight.
    - Regular visual inspections of dumpsters and recycling bins shall be conducted to remove contaminants.
    - Recycling areas shall be clearly identified with large signs. Lists of acceptable and unacceptable materials shall be posted on recycling bins and throughout the project site and all recycled material signage shall be visible on at least two sides of haul containers.
    - Recycling bins shall be placed in areas that would be readily accessible and would minimize misuse or contamination. The SWMC shall be responsible for these efforts and they shall be reviewed at pre-construction meetings and/or during contractor education meetings, if conducted separately.

Recyclable and/or reusable waste materials collected in source-separated bins shall be diverted to recycling/reuse facilities as designated in Tables 4 and 5 of this WMP, or to another facility listed on the City's *Certified C&D Recycling Facility Directory*, should the designated facilities not be available.

6.2.2 Source Reduction Measures

Project contractors and subcontractors, in cooperation with the project's SWMC and ESD staff, as applicable, shall coordinate to minimize the over-purchasing of construction materials to lower the amount of materials taken to recycling and disposal facilities. The project shall minimize over-purchasing through purchase of pre-cut materials, whenever feasible. The following steps shall be undertaken:

- Detailed material estimates shall be used to reduce the risk of unplanned and potentially wasteful material cuts.

- Contractor and subcontractor material purchasing agreements shall include a waste reduction provision requesting that: materials and equipment be delivered in packaging made of recyclable material; vendors reduce the amount of packaging; packaging be taken back by vendors for reuse or recycling; and vendors take back all unused product. Contracts containing this language shall be made available to ESD staff during ESD site visits for inspection.

- Post-consumer content products shall be employed in the design and construction of the new building and associated structures, with the goal of achieving five percent post-consumer content materials. Efforts to use post-consumer content may include using products manufactured with post-consumer content materials (i.e., products that were bought, used, and recycled by consumers), such as natural textiles, aggregate, or concrete. Receipts demonstrating post-consumer content shall be provided to ESD staff at or prior to the pre-construction meetings.

- Prior to submittal, final project plans shall indicate the anticipated source and quantity of materials to be reused on site, and the source, quantity, and percentage of post-consumer content waste products anticipated to be utilized for project construction.

- Contractors shall include the anticipated source and quantity of post-consumer content products proposed for reuse or purchase in their project bid.

- Final project plans inclusive of the information above shall be provided to ESD for verification.

6.3 OPERATIONAL WASTE MANAGEMENT AND DIVERSION MEASURES

The Applicant shall undertake and/or shall specify in contract language and/or sales/lease agreements with any tenant, operator, and/or future owner, a list of recycling and organic waste composting requirements with which the Applicant or future tenants, operators, and/or owners shall be obligated to comply, including, but not limited to, the following:

- Recycling and organic waste composting areas shall be clearly identified with large signs.

- Lists of acceptable and unacceptable materials shall be posted on recycling and compost bins.

- All recycled and organic material signage shall be visible on at least two sides of containers.

- Recycling and compost bins shall be placed in areas that would be readily accessible and would minimize misuse or contamination.

- Prepare and distribute recycling and composting educational materials for inspection by ESD prior to certificate of occupancy.

- After materials are approved, distribute to all project site owners/occupants.

- Green waste generated by ongoing landscaping and landscape maintenance activities shall be source separated by the landscaping contractor and diverted to Miramar Greenery.

- Vendor(s) for on-site custodial duties shall be educated regarding the appropriate waste diversion program to ensure the proper handling of waste.

- Pursuant to SB 1383 and the Recycling Ordinance, all tenants, operators, and/or future owners shall subscribe to a City-certified organic waste collection service that either "source-separates" the waste (e.g., separate bins), or transports all unsegregated waste to a facility that recovers 75 percent of the organic content collected from the system.

- Organic waste shall be collected in separate container(s) for pick up weekly for yard trimmings non-hazardous wood waste, food scraps, and food-soiled paper.

Prior to issuance of any certificate of occupancy/tentative certificate of occupancy, the Applicant shall invite a representative of the City ESD to:

- Inspect and approve storage areas that have been provided consistent with the City's Storage Ordinance;

- Ensure that a hauler has been retained to provide recyclable and organic materials collection, and, if applicable, landscape waste collection; and

- Inspect and approve education materials for building tenants/owners that are required pursuant to the City's Recycling Ordinance.

For specialized product purchasing (e.g., with recycled content) to be used during occupancy, the Applicant shall provide for inspection by ESD the documentation that would be used to carry out this requirement.

7.0 CONCLUSION

As discussed under Regulatory Framework, a project may result in a significant direct impact under the City CEQA Significance Thresholds if it generates more than 1,500 tons of solid waste materials during construction and demolition. Projects that include the construction, demolition, and/or renovation of 40,000 SF or more of building space or generate approximately 60 tons of waste or more are considered to have potentially significant cumulative impacts on solid waste services. Further, AB 341 requires the diversion of 75 percent of solid waste and mandatory provision of recycling collection service during occupancy.

7.1 SUMMARY OF WASTE GENERATION AND DIVERSION

During pre-construction demolition, clearing/grubbing, and grading, the project would produce 160,756 tons of excavated soils, green waste, asphalt/concrete, and other C&D waste, and divert 158,699 tons of these materials from the landfill, as identified in Table 4. Approximately 2,057 tons of solid waste material generated during pre-construction is anticipated to be disposed of as non-recyclable/non-reusable waste at a local landfill, for an overall pre-construction diversion rate of 99 percent.

During construction, the project would produce approximately 252 tons of solid waste (metal, concrete, concrete/steel, asphalt, brick/masonry, wood, drywall, carpet/carpet padding, mixed debris, and trash), and divert 178 tons of solid waste materials from the landfill, as identified in Table 5. The diverted material would consist of clean, source-separated (segregated) recyclable and/or reusable material, as well as mixed debris, to be deposited at the recycling/reuse facilities identified in the City's Certified C&D Recycling Facility Directory (City 2023; Appendix A). Approximately 73 tons of solid waste material generated during construction is anticipated to be disposed of as non-recyclable/non-reusable waste at a local landfill, for an overall diversion rate during construction of approximately 71 percent.

With the combined pre-construction and construction phases, the project would produce 161,007 tons of solid waste and would divert 158,878 tons. This would be an overall diversion rate during pre-construction and construction of 99 percent.

During occupancy, it has been estimated that the project would generate an additional 224 tons of waste per year over existing conditions. Using an estimated 50-percent diversion rate, which is based on compliance with SB 1383, 112 tons per year are calculated to be diverted to recycling/reuse facilities (refer to Table 7). An additional 112 tons per year, or 50 percent of occupancy material generated, are estimated to be disposed of as non-recyclable/non-reusable waste at a local landfill. The project would also be required to comply with the changes in organic waste diversion pursuant to SB 1383 and the Recycling Ordinance, which requires diversion of a minimum of 50 percent of organic waste generated on site, and a minimum of 75 percent of organic waste generated on site by 2025. Thus, the project is expected to achieve a waste diversion rate of greater than 50 percent overall. Additional waste reduction, recycling, and diversion measures would further reduce the project's operational waste disposal.

7.2 COMPLIANCE WITH CITY AND STATE REGULATIONS

Project compliance with City and State regulations is addressed below.

7.2.1 State of California

Based on the quantified waste generation and diversion rates discussed above, the project would exceed the 75 percent solid waste diversion rate for waste produced during the pre-construction and construction phases. The project would fail to meet the 75 percent waste reduction target annually once the buildings are occupied. This shortcoming is overcome by the following factors:

- The segregation proposed during pre-construction and construction would achieve an overall 98 percent diversion rate, exceeding the 75 percent target.

- The project would incorporate mandatory waste reduction, recycling, and diversion measures as identified in Sections 6.1 and 6.2 of this WMP during pre-construction and construction, to further reduce solid waste impacts.

- The project would subscribe to an organic waste collection service that either "source-separates" the waste (e.g., separate bins), or transports all unsegregated waste to a facility that recovers 75 percent of the organic content collected from the system.

- Ongoing diversion of green waste (landscaping debris) to Miramar Greenery would avoid unnecessary contributions to the regional landfills.

- To minimize generation of waste materials, the project would incorporate recycled, post-consumer content materials in interiors and exteriors, to the extent practicable.

In addition to these measures implemented during pre-construction and construction activities, the Applicant would commit to the recycling requirements identified in Section 6.3 of this WMP, to further reduce solid waste impacts during occupancy.

7.2.2 City of San Diego

Based on the quantified waste generation and diversion rates discussed above, the project would meet the criteria which would require the preparation of a WMP.

The project would be above the City's threshold (generation of more than 1,500 tons of solid waste materials) for direct impacts to solid waste facilities during demolition and construction (2,057 + 73 = 2,130 tons C&D materials to regional landfills).

Regarding cumulative impacts, the project proposes greater than 40,000 SF of building space, and the project would be above the City's CEQA Significance Determination Threshold of 60 tons for disposal of waste during C&D. During occupancy, the project would achieve an average 50 percent diversion of waste via source-separated recycling and would dispose of approximately 112 additional tons of waste per year once the buildings are occupied, compared to existing conditions. This would exceed the City's CEQA Significance Determination Threshold for cumulative impacts to solid waste services.

As mitigation, the City requires implementation of this document, a project specific WMP, to identify measures for waste reduction. These waste exceedances would be overcome by the waste reduction achieved during construction through measures described in Sections 6.1 and 6.2 of this WMP. Through the quantified waste generation and diversion rates discussed in this document, the project would exceed the 75 percent solid waste diversion rate for waste produced during demolition and construction phases by achieving an overall 98 percent diversion rate. In addition, the measures specified for operation in Section 6.3 of this WMP would provide adequate waste management. Regarding trash, organic waste, and recycling storage space during operation, for the proposed buildings, the project would provide at least 1,170 SF of trash, organic waste, and recycling storage space, per the City Storage Ordinance (Table 1). The project would comply with the City Recycling Ordinance by providing adequate space, bins, and educational materials for recycling during occupancy.

Through compliance with waste diversion measures included in this WMP, plus implementation of sustainability and efficiency features, the project's direct solid waste impact would be less than significant and the project's contribution to a cumulative solid waste generation would be reduced to a level that is less than cumulatively considerable.

8.0 LIST OF PREPARERS

Jason Runyan	Senior Environmental Project Manager
Ellia Simmons	Environmental Planner

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Appendix A

Certified Construction & Demolition Recycling Facility Directory

Environmental Services

2023 Certified Construction & Demolition (C&D) Recycling Facility Directory

- **Material taken to a landfill is DISPOSAL. NO diversion credit is given for any material taken to a landfill.**
- You must use one of these facilities to receive diversion credit.
- Please call ahead to confirm details such as accepted materials, days and hours of operation, limitations on vehicle types, and cost.
- Ensure the project address and permit number are on the receipt.

The facilities marked below with an asterisk are transfer stations

IMPORTANT DRIVER INSTRUCTIONS - If you deliver to a transfer station, you must have your driver:
- State that your load is Construction and Demolition (C&D) debris, and ensure it is coded correctly on the receipt.
- Tickets coded as "**MSW, trash, or refuse**" will receive 0% credit.

	Asphalt/Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile/Porcelain	Clean Fill Dirt	Clean Wood/Green Waste	Drywall	Industrial Plastics	Lamps/Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks	Trash	Mixed C & D Debris
EDCO Recovery & Transfer 3660 Dalbergia St, San Diego, CA 92113 619-234-7774 | www.edcodisposal.com	•									•							•	**65%**
EDCO Station Transfer Station & Buy Back Center 8184 Commercial St, La Mesa, CA 91942 619-466-3355 | www.edcodisposal.com	•			•						•			•				•	**65%**
EDCO CDI Recycling & Buy Back Center 224 S. Las Posas Rd, San Marcos, CA 92078 760-744-2700 | www.edcodisposal.com				•	•	•							•				•	**70%**
Escondido Resource Recovery 1044 W. Washington Ave, Escondido 760-745-3203 | www.edcodisposal.com																		**65%**
Fallbrook Transfer Station & Buy Back Center 550 W. Aviation Rd, Fallbrook, CA 92028 760-728-6114 | www.edcodisposal.com				•									•				•	**65%**
Otay C&D/Inert Debris Processing Facility 1700 Maxwell Rd, Chula Vista, CA 91911 619-421-3773 | www.republicservices.com																		**88%**
Ramona Transfer Station & Buy Back Center 324 Maple St, Ramona, CA 92065 760-789-0516 | www.edcodisposal.com				•									•				•	**65%**
SANCO Resource Recovery & Buy Back Center 6750 Federal Blvd, Lemon Grove, CA 91945 619-287-5696 | www.edcodisposal.com				•	•	•							•					**65%**
Allan Company 6733 Consolidated Wy, San Diego, CA 92121 858-578-9300 | www.allancompany.com/facilities				•									•					
Allan Company Miramar Recycling 5165 Convoy St, San Diego, CA 92111 858-268-8971 | www.allancompany.com/facilities				•									•					
Alpine Asphalt & Concrete Recycling 5690 Willows Rd, Alpine, CA 91901 760-451-6481 | www.alpineasphaltandconcrete.com	•	•	•					•										
Alpine Asphalt & Concrete Recycling 0 Duro Rd, Escondido, CA 92028 760-451-6481 | www.alpineasphaltandconcrete.com	•	•	•					•										
Aquafil Carpet Collection 187 Mace St, Chula Vista, CA 91911 619-816-0787 | www.aquafil.com					•	•												

Last updated April 2023

Environmental Services

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***If using a transfer station, you must:**
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	Asphalt/Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile/Porcelain	Clean Fill Dirt	Clean Wood/Green Waste	Drywall	Industrial Plastics	Lamps/Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks	Trash	Mixed C & D Debris
Aquafil Carpet Collection 7720 Formula Pl, San Diego , CA 92126 602-562-0444 | www.aquafil.com					•	•												
Armstrong World Industries, Inc. 300 S. Myrida St, Pensacola, FL 32505 877-276-7876 (Press 1, Then 8) www.armstrong.com/commceilingsna							•											
CMS Recycling Inc. 1428 West Mission Rd, Escondido, CA 92029 760-741-6300 | www.cmsmetals.com													•					
DFS Flooring 10178 Willow Creek Rd, San Diego, CA 92131 858-630-5200 | www.dfsflooring.com					•	•												
Duco Metals 220 Bingham Drive Suite 100, San Marcos, CA 92069 760-747-6330 I www.ducometals.com													•					
Enniss Inc. 12421 Vigilante Road, Lakeside, CA 92040 619-443-9024 | www.ennisinc.com	•	•					•	•										
Escondido Materials 500 N. Tulip St, Escondido, CA 92025 760-432-4690 | www.weirasphalt.com	•																	
F.J. Willert Contracting 2385 Cactus Rd, San Diego, CA 92154 619-421-1980 | www.fjwillert.com	•																	
Habitat for Humanity ReStore 8101 Mercury Ct, San Diego, CA 92108 619-516-5267 | www.sandiegohabitat.org			•															
Hanson Aggregates – Hollister St 389 Hollister St, San Diego, CA 92154 858-974-3849	•																	
Hanson Aggregates West – Lakeside Plant 12560 Highway 67, Lakeside, CA 92040 858-547-2141	•																	
Hanson Aggregates West – Miramar 9229 Harris Plant Rd, San Diego, CA 92126 858-974-3849	•							•										

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HVAC Exchange 2675 Faivre St, Chula Vista, CA 91911 619-423-1564 | www.hvacx.com													•					
Inland Pacific Resource Recovery 12650 Slaughterhouse Canyon Rd, Lakeside, CA 92040 619-390-1418 | www.iprrgreen.com									•									
Los Angeles Fiber Company 4920 S. Boyle Ave, Vernon, CA 90058 323-589-5637 | www.lafiber.com					•	•												
Miramar Greenery, City of San Diego 5180 Convoy St, San Diego, CA 92111 858-694-7000 | www.miramargreenery.com									•									
Moody's 3210 Oceanside Blvd, Oceanside, CA 92056 760-433-3316 | www.moodyselcorazonrecycling.com	•							•						•				
RAMCO 8354 Nelson Way, Escondido, CA 92026 760-205-1797 | www.ramco.us.com	•																	
Reclaimed Aggregates Chula Vista 855 Energy Way, Chula Vista, CA 91913 619-656-1836	•													•				
Robertson's Ready Mix 2094 Willow Glen Dr, El Cajon, CA 92019 619-593-1856 | www.rrmca.com	•							•						•				
Rockridge Crushing 12485 Highway 67, Lakeside, CA 92040 619-324-7065	•																	
SA Recycling 3055 Commercial St, San Diego, CA 92113 619-238-6740 | www.sarecycling.com													•					
SA Recycling 1211 S. 32nd St, San Diego, CA 92113 619-234-6691 | www.sarecycling.com													•					
San Pasqual Valley Soils 16111 Old Milky Way, Escondido, CA 92027 760-746-4769 | www.spvsoils.com									•									

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Environmental Services

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SCOR Industries 2321 South Willow Ave, Bloomington, CA 92316 909-820-5046 | www.scorindustries.com	•	•		•				•		•	•	•		•	•			
Terra Bella Nursery 302 Hollister St, San Diego, CA 92154 619-585-1118 | www.terrabellanursery.com									•	•								
Vulcan Carol Canyon Landfill and Recycle Site 10051 Black Mountain Rd, San Diego, CA 92126 858-530-9465 | www.vulcanmaterials.com	•	•							•						•			
Vulcan Materials Company 2275 Hard Rock Rd, Chula Vista, CA 91913 858-530-9472| www.vulcanmaterials.com	•																	
Vulcan Otay Asphalt Recycle Center 7522 Paseo de la Fuente, San Diego, CA 92154 619-571-1945| www.vulcanmaterials.com	•																	

Last updated April 2023

Appendix B

City of San Diego C&D Debris Conversion Rate Table

CITY OF SAN DIEGO

Construction & Demolition (C&D) Debris Conversion Rate Table

This worksheet lists materials typically generated from a constructionor demolition project and provides formulas for converting common units (i.e. cubic yards, square feet, and board feet) to tons. It is a tool that should be used for preparing your Waste Mangement Form - Part I, which requires that quantities be provided in tons.

Note: Weigh receipts are required for your refund request.

Step 1: Enter the estimated quantity for each applicable material in Column I, based on units

Step 2: Multiply by Tons/Unit figure listed in Column II. Enter the result for each material in Column III.
If using Excel version, column III will automatically calculate tons.

Step 3: Enter quantities for each separated material from Column III on this worksheet into the corresponding section of your Waste Management Form - Part I.

		Column I			Column II		Column III
Category	**Material**	**Volume**	**Unit**		**Tons/Unit**		**Tons**
Asphalt/Concrete	Asphalt (broken)		cy	x	0.70	=	
	Concrete (broken)		cy	x	1.20	=	
	Concrete (solid slab)		cy	x	1.30	=	
Brick/Masonry/Tile	Brick (broken)		cy	x	0.70	=	
	Brick (whole, palletized)		cy	x	1.51	=	
	Masonry Brick (broken)		cy	x	0.60	=	
	Tile		sq ft	x	0.00175	=	
Building Materials (doors, windows, cabinets, etc.)			cy	x	0.15	=	
Cardboard (flat)			cy	x	0.05	=	
Carpet	By square foot		sq ft	x	0.0005	=	
	By cubic yard		cy	x	0.30	=	
Carpet Padding/Foam			sq ft	x	0.000125	=	
Ceiling Tiles	Whole (palletized)		sq ft	x	0.0003	=	
	Loose		cy	x	0.09	=	
Drywall (new or used)	1/2" (by square foot)		sq ft	x	0.0008	=	
	5/8" (by square foot)		sq ft	x	0.00105	=	
	Demo/used (by cubic yd)		cy	x	0.25	=	
Earth	Loose/Dry		cy	x	1.20	=	
	Excavated/Wet		cy	x	1.30	=	
	Sand (loose)		cy	x	1.20	=	
Landscape Debris (brush, trees, etc)			cy	x	0.15	=	
Mixed Debris	Construction		cy	x	0.18	=	
	Demolition		cy	x	1.19	=	
Scrap metal			cy	x	0.51	=	
Shingles, asphalt			cy	x	0.22	=	
Stone (crushed)			cy	x	2.35	=	
Unpainted Wood & Pallets	By board foot		bd ft	x	0.001375	=	
	By cubic yard		cy	x	0.15	=	
Garbage/Trash			cy	x	0.18	=	
Other (estimated weight)			cy	x	estimate	=	
			cy	x	estimate	=	
			cy	x	estimate	=	
					Total All		

Appendix C

City of San Diego Waste Generation Factors – Occupancy Phase

Waste Generation Factors – Occupancy Phase

The following factors are used by the City of San Diego Environmental Services Department to estimate the expected waste generation in a new residential or commercial development.

Residential Uses
Residential Unit = 1.6 tons/year/unit
Multi-family Unit = 1.2 tons/year/unit

Example: To calculate the amount of waste that will be generated from a project with 100 new homes, multiply the number of homes by the generation factor.

100 single family homes x 1.6 = 160 tons/year
100 multi-family units x 1.2 = 120 tons/year

Commercial/Industrial Uses

General Retail	0.0028
Restaurants & Bars	0.0122
Hotels/Motels	0.0045
Food Stores	0.0073
Auto/Service/Repair	0.0051
Medical Offices	0.0033
Hospitals	0.0055
Office	0.0017
Transp/Utilities	0.0085
Manufacturing	0.0059
Education	0.0013
Unclassified Services	0.0042

Example: To calculate the amount of waste that could be generated from a new building with 10,000 square feet for offices and 10,000 square feet for manufacturing, multiply the square footage for each use by the generation factor.

10,000 square feet x 0.0017 = 17 tons/year
10,000 square feet x 0.0059 = 59 tons per year

Total estimated waste generation for building = 76 tons/year