The Villas by the Sea
Water Demand Study

1. Population Determinations

This project proposes 40 residential units and 4 commercial units. Using the City of San Diego Water Department Capital Improvements Program Guidelines and Standards, Table 2-2 the 40 residential units are conservatively expected to have an average population of 3 persons each (from population calculations found in the City of San Diego Sewer Design Manual for zone RM-2-5) and use 150 gallons /person/ day. The 4 commercial units have an area of 2,986 sf and use 5,000 gallons/net ac/day. A fully landscaped park has daily demand of4,000 gallons/ net ac/day and the site landscaping is 1,402 sf (per landscape plan sheet L-6)

2. Volume Calculations

Using the population information above, the residential demand is (3 x 40 x 150) = 18,000 gpd. The commercial demand is (2,986/43560 x 5000) = 343 gpd. The landscape portion of the demand is (1,402/43560 x 4000) = 129 gpd. The average total daily demand is 18,472 gpd (12.8 gpm / 770 gph). Using an average annual demand of 6,742,280 (say 7 million gallons) and Figures 2-1 and 2-2, for the Coastal Zone, the Peak Hour Demand Factor is 2.4 and the Maximum Day Demand Factor is 1.3. Therefore, the Peak Hour Demand is 1,850 gph and the Maximum Day Demand is 24,014 gpd.

A planning Water Meter Data Card has been prepared by the project architect and it provides for 621 fixture units which equates to 30.05 EDU. At a density of 29 DU/Ac with one meter (see Water and Sewer Fees Information Bulletin's Density Chart) the Equivalent Family Unit factor is 0.795. This results in 23 EDUs for meter sizing. This result will require, based on 23 EDUs, a two 2 inch manifolded service. This sizing will be verified by IAS at ministerial review.

Fire Demand for apartments from the City of San Diego Water Department Guidelines and Standards (Table 2-3) is listed as 3,000 gpm. The project proposes a 4" fire service from a 16 main in Grand Avenue to address this requirement.

Antony K. Christensen
RCE 54021
Exp. 12-31-21

04-25-21
Date

JN A2020-62
PTS # 686049

Dwelling unit density in Table 2-1 is based on net area. The net area is measured in acres, and is 80% of the gross area for each residential zone.

2.4 Average Annual Water Demands

For most projects, average annual water demands are determined based on the unit water demand criteria presented in Table 2-2.

Table 2-2
Unit Water Demands

Land Use Category	Unit Water Demand
Residential	150 gallons/person-day
Central Business District	6000 gallons/net acre-day
Commercial and Institutional	5000 gallons/net acre-day
Fully Landscaped Park	4000 gallons/net acre-day
Hospitals	22500 gallons/net acre-day
Hotels	6555 gallons/net acre-day
Industrial	6250 gallons/net acre-day
Office	5730 gallons/net acre-day
Schools	4680 gallons/net acre-day

Average annual water demands are calculated as the sum of: (1) the residential water demand, and (2) other water demands for each land use category as follows:

Residential Water Demand (gallons/day) = Residential Population x 150 gallons/person-day

Other Water Demand (gallons/day) = Land Use Area by Category (net acres) x Unit Water Demand for Each Land Use Category (gallons/net acre-day)

Average Annual Water Demand (gallons/day) = Residential Water Demand + Other Water Demands

On some projects, particularly large residential developments, using the unit water demands in Table 2-2 may generate unrealistically high estimates of water requirements. For these large projects, the DESIGN CONSULTANT or developer may request that the CIP Project Manager consider an alternative approach, making use of the City's water demand distribution data developed for macroscale planning purposes. Similarly, the CIP Project Manager may also consider alternative unit water demand estimates for specific land use types where such estimates are based on detailed demand evaluations.

2.5 Peak Water Demands

Unless the project involves a large development that calls for an alternative approach, peak hour and maximum day water demands are estimated using the peaking factors presented in Figures 2-1 and 2-2. These peaking factors correspond to the zones identified in Figure 2-3.

FIGURE 2-1
PEAK HOUR DEMAND FACTOR

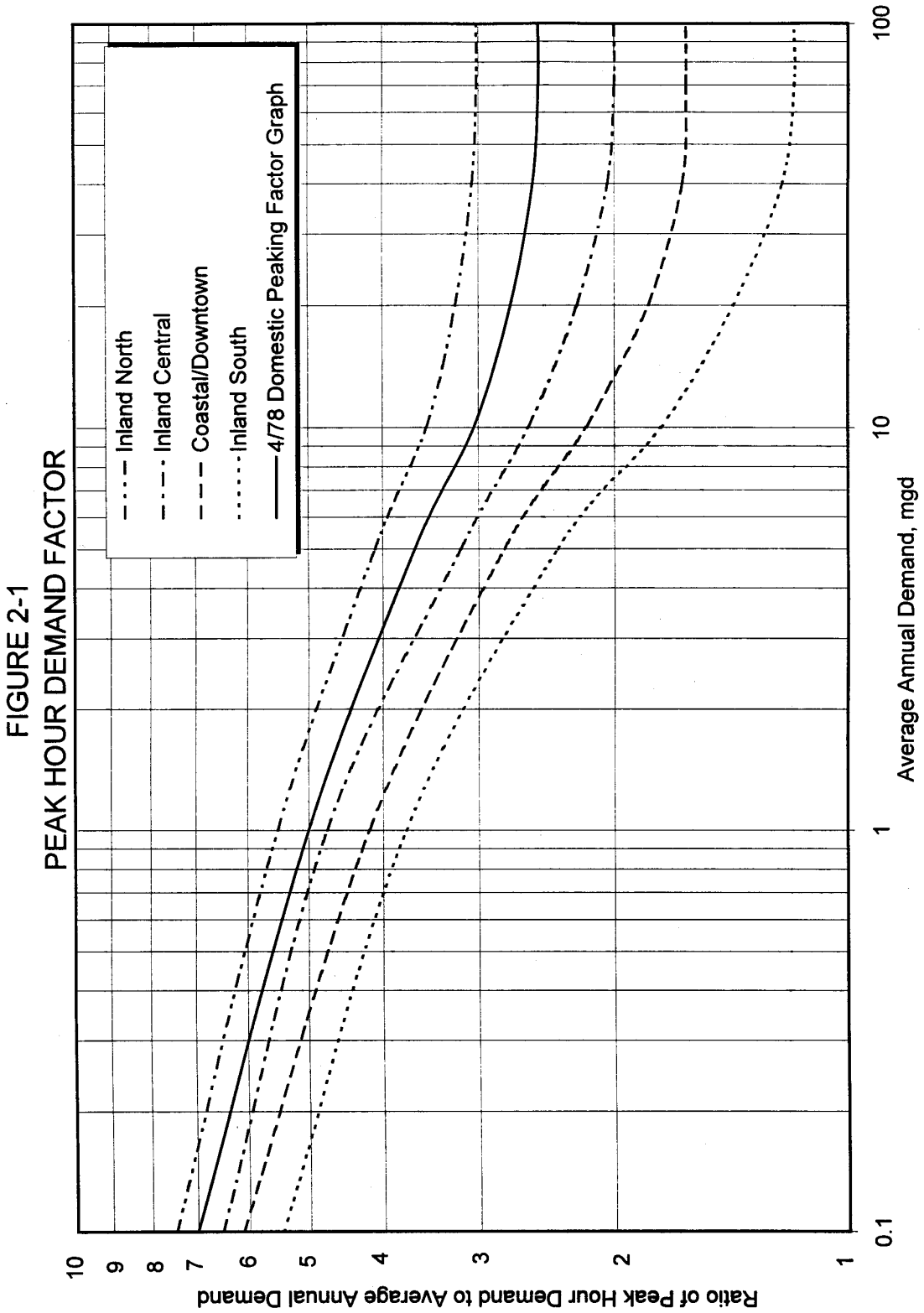
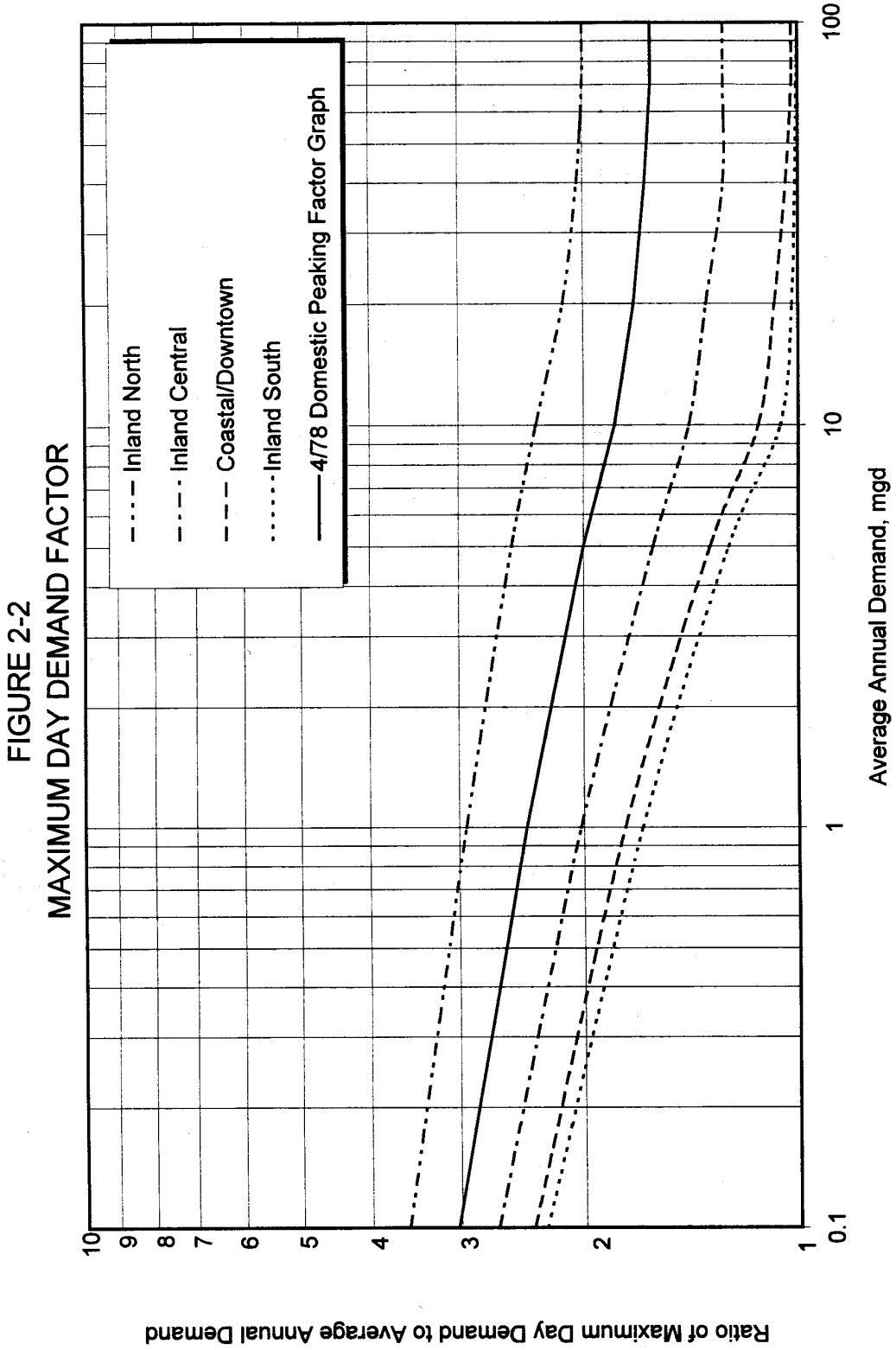
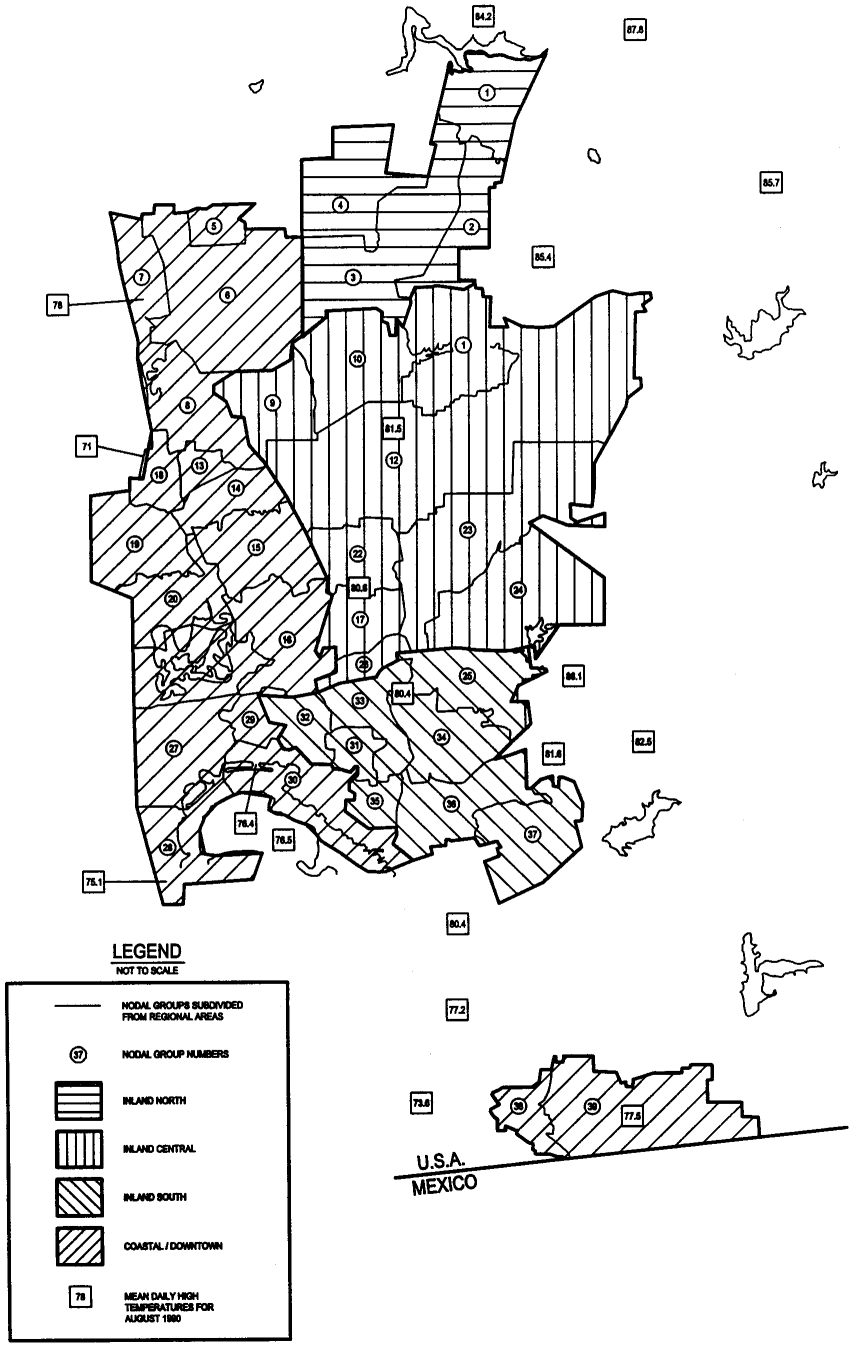


FIGURE 2-2
MAXIMUM DAY DEMAND FACTOR



PEAKING FACTOR ZONES
(BOUNDARIES BASED ON LAND USE GROUPINGS)

FIGURE 2-3



July 1999

Peak water demands are estimated as follows:

Peak Hour Demand = Average Annual Water Demand * Peak Hour Demand Ratio

Maximum Day Demand = Average Annual Water Demand * Maximum Day Demand Ratio

2.6 Fire Demands

The DESIGN CONSULTANT estimates fire demands flows by using the *Fire Suppression Rating Schedule*, Edition 6-80, Section 1 (Public Fire Suppression), published by the Insurance Services Office.

The fire flow duration for planning purposes is at least five hours. In general, minimum required fire demands for design are shown in Table 2-3.

Table 2-3
Fire Demands for Design Purposes

Development Type	Fire Demand (gpm)
Single family residential	2,000
Duplexes	2,500
Condominiums and apartments	3,000
Commercial	4,000
Industrial	6,000

Should application of the ISO methodology result in figures lower than those shown in Table 2-3, the CIP Project Manager may approve the ISO figures on a case-by-case basis following submittal of supporting calculations.

The required fire demand must be supplied from at least two fire hydrants within a maximum radius of 750 feet from the fire.

2.7 Pressure Criteria

2.7.1 Design Pressures

Water systems must be designed to provide the minimum residual pressures given:

(1) maximum day demands plus fire demand conditions, or
(2) peak hour demand conditions.

In analyzing the supply to a pressure zone, the minimum hydraulic grade line elevation available from the water source is used, a level that typically occurs during dry weather conditions. The maximum static pressure in gravity systems is determined from reservoir overflow elevations and/or the discharge control setting on pressure reducing valves, whichever is greater. The

SCHEDULE FOR

Water and Sewer Fees

CITY OF SAN DIEGO PUBLIC UTILITIES DEPARTMENT

INFORMATION BULLETIN

July 2014

Documents referenced in this Information Bulletin

- Information Bulletin 113, How to Obtain Approval for Cross-Connection Control
- Information Bulletin 166, How to Obtain a Permit for Water, Sewer or Fire Services
- Water Meter Data Card, DS-16
- General Application, DS-3032
- Irrigation Meter Checklist, DS-5852

The following is a list of fees for permitting water services and sewer laterals, and water and sewer capacity charges including potable and recycled water for the City of San Diego. Capacity, water wet tap, and meter installation fees associated with new construction are determined during the construction plan review process.

A Water Meter Data Card is used to determine the correct size required for the water meter, water service and sewer lateral. All water and sewer costs associated with construction will be collected at the time of construction permit issuance, or when the water meter is requested, whichever comes first. All water meters and taps into public water mains must be installed by the City's Public Utilities Department. Water services, sewer laterals, and all other work in the public right-of-way must be installed by a Class A licensed contractor. A separate Public Right-of-Way Permit is required for installations in the public right-of-way. For more information, refer to Information Bulletin 166 "How to Obtain a Permit for Water, Sewer or Fire Service."

I. CAPACITY FEES

A capacity charge is collected when a property needs additional water or sewer flow. The fee pays for the property's fair share of major facilities and treatment plants. Water and sewer capacity charges are calculated by Equivalent Dwelling Unit (EDU).

- Water Capacity Charge (per EDU)..... $3,047
  Effective July 1, 2007
- Sewer Capacity Charge (per EDU)..... $4,124
  Effective May 1, 2007

Generally, Equivalent Dwelling Units are calculated as follows.

A. Residential

Single Dwelling Units.....1 EDU
Mobile Homes.....1 EDU
Guest Houses (w/partial kitchen).....½ EDU
Multiple Living Units (where each unit has its own separate meter).....1 EDU
For multiple living units using a common water meter, a density break is given. See the following Density Chart.

B. Commercial, Industrial, Manufacturing

Enclosure 3 to DI 55.30

DENSITY CHART
WATER AND SEWER CAPACITY CHARGES
MULTI-UNIT DEVELOPMENTS

LIVING UNITS PER NET ACRE	EQUIVALENT FAMILY UNIT	LIVING UNITS PER NET ACRE	EQUIVALENT FAMILY UNIT
1-5	1.00	38	.73
6	.99	39	.725
7	.98	40	.72
8	.97	41	.71
9	.96	42	.705
10	.95	43	.70
11	.94	44	.69
12	.935	45	.685
13	.925	46	.68
14	.915	47	.675
15	.905	48	.67
16	.895	49	.665
17	.89	50	.66
18	.88	51	.655
19	.87	52	.65
20	.865	53	.645
21	.855	54	.64
22	.845	55	.635
23	.84	56	.635
24	.83	57	.63
25	.825	58	.625
26	.815	59	.62
27	.81	60	.62
28	.80	61	.615
29	.795	62	.615
30	.785	63	.61
31	.78	64	.605
32	.77	65	.605
33	.765	66	.605
34	.755	67	.605
35	.75	68	.60
36	.745	69	.60
37	.74	70	.60
		GREATER THAN 70	.60

Facilities

All nonresidential facilities, including tenant improvements, will be charged one EDU for each 20 fixture units, or fraction thereof, plus process water charges. A Water Meter Data Card is used to determine fixture unit count. Process water includes water vending machines, car wash facilities, cooling towers, and any other non-fixture type water usage or conversions- Process water is calculated by converting gallons used per day to EDUs, as follows:

- 500 gallons water per day.....1 EDU
- 280 gallons sewage per day.....1 EDU

C. Combined Commercial and Residential Facilities

Commercial and residential units sharing a common water meter will be charged one EDU for each 20 fixture units or fraction thereof, plus any other applicable capacity charges.

D. Other Facilities

In addition to other applicable capacity charges, the following facilities are assessed capacity fees based on use:

Coin Operated Laundries
(per washing machine)……..½ EDU
Recreation Vehicle (RV) Parks (per space).....½ EDU
Boat Slips (per slip).....½ EDU

E. Oversized Meters and Irrigation Meters

Sewer capacity is not collected on irrigation meters. The water capacity charge is based on meter size, as follows:

Meter Size	EDU
1-inch x ¾-inch	1
1-inch	2
1½-inch	6
2-inch	8
2-2 inch manifolded or 3-inch	32
4-inch	88

Note: Some residential uses may be exempt from water capacity charges for irrigation meters.

F. Fire Services

For single-family residential and meters that serve three units or less, one water meter may be used for both domestic and fire flow. Capacity and Reimbursement agreement fees will be based on domestic meter size calculation. These fees are not applicable to separate fire services.

II. WATER METERS AND SERVICES

Water meters must not be located in a driveway and must be perpendicular to the main. Sewer services should not be located under driveways. The following is a list of the most common installations and their cost. For both potable and reclaimed water facilities, an inspection is required by the Public Utilities Department and a separate fee is charged for inspection and plan check. Special estimates and approvals by the Public Utilities Department are required for installations not listed.

A. Water Meters

(Includes new, replacement, lost or stolen).
When the correct size water service exists from the water main to the meter box, the Public Utilities Department will install a water meter at the following cost:

Water Meter

The Public Utilities Department charges the following fees for new or upsized meters installed at the existing meter location. The fee includes removal of existing meters but does not include the cost for upsizing.

(Potable & Recycled)	Fee	Each Additional Trip
¾-inch meter	$111	$47
1-inch x ¾-inch meter	$111	$47
1-inch meter	$130	$47
1½-inch meter	$294	$62
2-inch meter	$342	$62
2-2-inch manifolded	$443	$184

The Public Utilities Department charges the following fees for water meter reductions:

Downsize Existing Water Meter Fee

The Public Utilities Department charges the following fees to remove a meter and replace it with a smaller size. The fee includes removal of the existing meter.

1-inch x ¾-inch meter on 1-inch service …….….. $110
1-inch x ¾-inch meter on 2-inch service …….….. $151
1-inch meter on 2-inch service $251
1½-inch meter on 2-inch service $294

Meter Removal Only

The Public Utilities Department charges the following fees for the removal of a water meter:

- ¾-inch to 2-2..... $45
- 3-inch and larger require a special estimate.

B. Backflow Protection Installation

Meters requiring backflow protection are required to install private backflow devices. All private backflows require a plumbing permit. For more information refer to Information Bulletin 113 "Cross Connection Control."

C. Permanently Disconnected after Services (Service Kill)

Existing water services that will no longer be used must be disconnected at the main (killed).

1. **Disconnect (Kill) by Contractor**
   Water services must be disconnected (killed) by a licensed contractor and must be inspected by the Public Utilities Department.
2. **Kill Service Inspection**

Size	Fee
¾-inch to 2-inch	$245

D. Recycled Water Cross Connection Test Fee

A cross connection test is required when a recycled water meter is to be installed.
Original Test and Retest..... $468

III. WATER SERVICE AND SEWER LATERAL

Water services and sewer laterals shall be installed by a licensed contractor. A plan review and inspection is required by the Public Utilities Department and a separate fee is charged for these services.

Sewer Lateral Inspection, Type	Fee
4-inch to 8-inch Easement, Token or Encroachment	$25

IV. WET TAPS

All wet taps and connections to existing water mains shall be performed exclusively by the Public Utilities Department. The connection site is to be prepared by the contractor.

Wet Tap Size	Fee
1-inch to 2-inch	$254
4-inch to 12-inch	$318

V. PLAN REVIEW FEES

No meter change $175
This fee is charged when a review results in no increase in meter size.
Up to 2.9 EDUs (per meter)..... $324
3 to 5.9 EDUs (per meter)..... $500
6+ EDUs (per meter)..... $625
Cross Connection Controls..... $88
Projects not associated with a building permit will be charged a work order set up fee at a rate of $148.00/hr.

VI. REIMBURSEMENT FEES

In certain areas developers have agreed to install public water and/or sewer facilities to serve future development of other properties. Where an arrangement is made, the City will collect the costs of these improvements from benefitting builders on behalf of the developer. Reimbursement fees are due at the time the water meter and/or sewer connection fees are paid and/or when water and sewer capacity fees are due. To determine if a particular lot is subject to these reimbursement fees and fee amounts, please visit the City's Development Services Department or phone (619) 533-5106.

VII. SCHEDULING WATER AND/OR SEWER CITY FORCE WORK AND INSPECTION

After verification that all fees have been paid, water and/or sewer installations may be scheduled. Payment of the invoice will not automatically schedule city force work and inspection. If these installations are a requirement to obtain a building permit, the building permit may not have a final inspection until all water and sewer installations are complete. To schedule water or sewer installations or inspections, see below.

Water

For all water meter installations or removals, wet taps, kill service inspections, main connections or other inspections, call (619) 527-7424.

Sewer

For sewer inspection,

- East of Interstate 805, call (858) 654-4153
- West of Interstate 805, call (858) 654-4152

VIII. COUNTY WATER AUTHORITY (CWA)

The San Diego County Water Authority (CWA) is a separate agency from the City of San Diego which supplies water to the region. CWA charges a CWA Water System capacity fee and a Water Treatment Capacity fee when a new water meter is installed. These fees are based on the size of the water meter to be installed. If a water meter is required as a result of building plans, the fee will be collected at the time of building permit issuance. A fee schedule is available at the City's Development Services Department, third floor. For more information about fee amounts or requirements, call CWA at (858) 522-6600 or the Development Services Department at (619) 446-5000.

Note: CWA capacity fee does not apply to recycled water meters.

IX. PURCHASE OF IRRIGATION METERS

A. General Requirements

All of the requirements for potable water meters also apply to irrigation meters except that sewer capacity charges are not applicable. In addition, if using reclaimed water for irrigation, San Diego County Water Authority (CWA) capacity fees are not charged. Please reference the other sections in this bulletin for information on capacity charges and how to obtain irrigation meters and services.

B. Additional Requirements

To obtain an irrigation meter, please provide the following information:

1. **Equivalent Dwelling Unit Calculation**
   Each irrigation meter has a corresponding EDU. (See table at I-E). Determine the number of EDUs to calculate the water capacity charge due.
2. **Backflow Permit Application (DS-3032)**
   A backflow preventer is required for all irrigation systems and a plumbing permit is required. The application must contain the address assigned to the property and the complete legal description. If an address has not been assigned to the property, provide a plot plan so that one can be assigned.
3. **Irrigation Meter Checklist (DS-5852)**
4. **Irrigation System Plans**

X. RECYCLED WATER

Onsite recycled water plans must be reviewed and approved by the City of San Diego Public Utilities Department and the County of San Diego Department of Public Health Services.

For further information on recycled water connections, visit the Public Utilities Department's web site at: www.sandiego.gov/water/recycled/switching or call (619) 533-5102.

###

City of San Diego
Development Services
1222 First Ave., MS-302
San Diego, CA 92101
(619) 446-5000

THE CITY OF SAN DIEGO

Water Meter Data Card

FORM DS-16
AUGUST 2011

Project No.:	**Notification No.:**	**Sales Order No.:**
Water Meter Address:		Connection Object No.:
Building or Project Address: 1011 Grand Ave., San Diego, CA 92109		
Maximum Length of the Water System:	No. of Building Stories: 3	Flushometer Valve Fixtures Used ☐ Yes ☑ No

TABLE A-2- *2010 California Plumbing Code*

Appliances, Appurtenances or Fixtures	Minimum Fixture Branch Pipe Size	Private	Public	Asssembly	X	# Fixtures Added	# Fixtures Removed	# Fixtures Remaining	TOTAL ACROSS ±
Bathtub or Combination Bath/Shr (fill)	1/2”	4.0	4.0	-	X				
3/4” Bathtub Fill Valve	3/4”	10.0	10.0	-	X				
Bidet	1/2”	1.0	-	-	X				
Clothes Washer, domestic	1/2”	4.0	4.0	-	X	40			160
Dental Unit, cuspidor	1/2”	-	1.0	-	X				
Dishwasher, domestic	1/2”	1.5	1.5	-	X	40			60
Drinking Fountain or Water Cooler	1/2”	0.5	0.5	0.75	X				
Hose Bib	1/2”	2.5	2.5	-	X				
Hose Bib, each additional	1/2”	1.0	1.0	-	X				
Lavatory	1/2”	1.0	1.0	1.0	X	62			62
Lawn Sprinkler, each head	-	1.0	1.0	-	X				
Mobile Home, each (Minimum)	-	12.0	-	-	X				
Bar Sink	1/2”	1.0	2.0	-	X				
Clinic Faucet Sink	1/2”	-	3.0	-	X				
Clinic Flushometer Valve with or without faucet	1”	-	8.0	-	X				
Kitchen Sink, domestic	1/2”	1.5	1.5	-	X	40			60
Laundry Sink	1/2”	1.5	1.5	-	X				
Service Sink or Mop Basin	1/2”	1.5	3.0	-	X				
Washup Sink, each set of faucets	1/2”	-	2.0	-	X				
Shower, per head	1/2”	2.0	2.0	-	X	62			124
Urinal, 1.0 GPF Flushometer Valve	3/4”	3.0	4.0	5.0	X				
Urinal, greater than 1.0 GPF Flush V.	3/4”	4.0	5.0	6.0	X				
Urinal, flush tank	1/2”	2.0	2.0	3.0	X				
Washfountain, circular spray	3/4”	-	4.0	-	X				
Wtr Closet, 1.6 GPF Gravity Tank	1/2”	2.5	2.5	3.5	X	62			155
Wtr Closet, 1.6 GPF Flushomtr Tank	1/2”	2.5	2.5	3.5	X				
Wtr Closet, 1.6 GPF Flushomtr Valve	1”	5.0	5.0	8.0	X				
Wtr Closet, >1.6 GPF Gravity Tank	1/2”	3.0	5.5	7.0	X				
Wtr Closet, >1.6 GPF Flushomtr Valve	1”	7.0	8.0	10.0	X				
Other Water Requirements		GPM for							
For Explanations, see *2010 California Plumbing Code, page 318.*						Total Fixture Units -> Show NET change in demand (for non-residential use ONLY)			621

CAPACITY FEES ARE BASED ON ALL NEW AND / OR ADDITIONAL DEMAND

Note: If any fixtures or water requirements are designated by GPM - City Staff will convert all use to GPM for meter sizing.

I affirm that the information given is correct. The approval given for minimum meter size and maximum water capacity of water pipe are based solely on the information and the building plans. Any deviation under construction will require resubmission of corrected data for determination of adequacy of water pipe and meter sizes.

Signature (Owner/Tenant or Agent) _____ Date Signed _____

The portion below will be completed by the Development Services Department

Total F.U. for Water capacity Fees: _____ Total F.U. for Sewer Capacity Fees: _____ (Total F.U. for Meter Sizing: _____)

Pressure Regulation Required? Yes ☐ No ☐ Backflow Preventor Required? Yes ☐ No ☐

Approved Meter Size: **Water Supply Line Size:**

Development Services Department Approved By: Date Approved:

Reset Form

Instructions for the completion and filing of Water Meter Data Card

Water Meter Address
Often several buildings share one water meter. In this case, the water meter address may be different than the permitting building address.

Contact the Public Utilities Department: Water at (619) 515-3500 to determine the address of the existing meters. A new meter will require a new address. All addresses are assigned by the Development Services Department.

Building Address
List the building (project) address, if different from the meter address.

Maximum Length of Water System
Provide the maximum length of the water system, measured from the meter to the plumbing fixture furthest from the meter.

Number of Building Stories
Provide the number of building stories.

Water Closet Gravity Tank vs. Flushometer Valve
Carefully place your fixture count in the correct location for accurate meter sizing.

Matrix to Determine Meter Size and Water/Sewer Demand
Complete the columns of the matrix by supplying the quantity and type of fixtures being "Added" "Re-maining" and/or "Removed." **Note:** Relocated are considered "Remaining" since there is no change in demand.

Accuracy of the fixture unit count is necessary to determine the appropriate meter size. See Figure 1 below for an example.

Fixture Unit Multiplier
Each plumbing fixture is given a fixture unit value based from the 2010 California Plumbing Code. Fixture units are used for water meter sizing purposes. The unit count for each fixture is determined by multiplying the number of each fixture type by the number in the multiplier column.

Fixtures Added
In the "Fixtures Added" column, list the number of new fixtures or the number of fixtures being added to an existing project under the appropriate fixture type. See Figure 1. Example A.

Fixtures Removed
In the "Fixtures Removed" column, list the number of fixtures that are actually being removed which will create a reduction in the water/sewer demand. **Note:** Replacing a sink with a new sink or a water closet with a new water closet, etc., does not constitute "removed," they are considered "remaining." See Figure 1. Example B. Leave this column blank for purely residential uses.

Fixtures Remaining
In the "Fixtures Remaining" column, list the number of fixtures that will remain or that will be relocated during the construction phase of the project.

Other Water Requirements
There are some fixtures not listed or items that cannot be given a fixture unit value. An example is the gallons per minute (GPM) requirements for process water (water that is used in industrial, manufacturing and commercial facilities for processing purposes). Process water includes car washfacilities, cooling towers, boilers, can wash, autoclaves, photo development equipment and any other non-fixture type water usage application. (Do not include the GPM requirements for closed systems.) Fire sprinkler flow for a combined system should be listed here. Make sure this information is provided on your plans.

Sprinkler Heads
Add all 1/4, 1/2, 3/4 and full irrigation sprinkler heads to determine the total number of full sprinkler heads. For example, two 1/4 heads and one 1/2 head will equal one full sprinkler head. Leave blank if separate irrigation meter.

GPM (Gallons per Minute)
When any Water Requirement is listed by GPM demand, **ALL** fixtures will be converted to GPM for the benefit of meter sizing. Capacity fees will be based on a combination of both fixture unit count and GPM demand.

GENERAL USE - applies to business, commercial, industrial, and assembly occupancies other than those defined under "Heavy Use." Included are the public and common areas in hotels, motels, and multi-dwelling buildings.

HEAVY USE - applies to toilet facilities in occupancies that place a heavy, but intermittent time-based demand on the water supply system, such as schools, auditoriums, stadiums, race courses, transportation terminals, theaters, and similar occupancies where queuing is likely to occur during periods of peak use.

FIGURE 1. Example A of Fixture Matrix Use

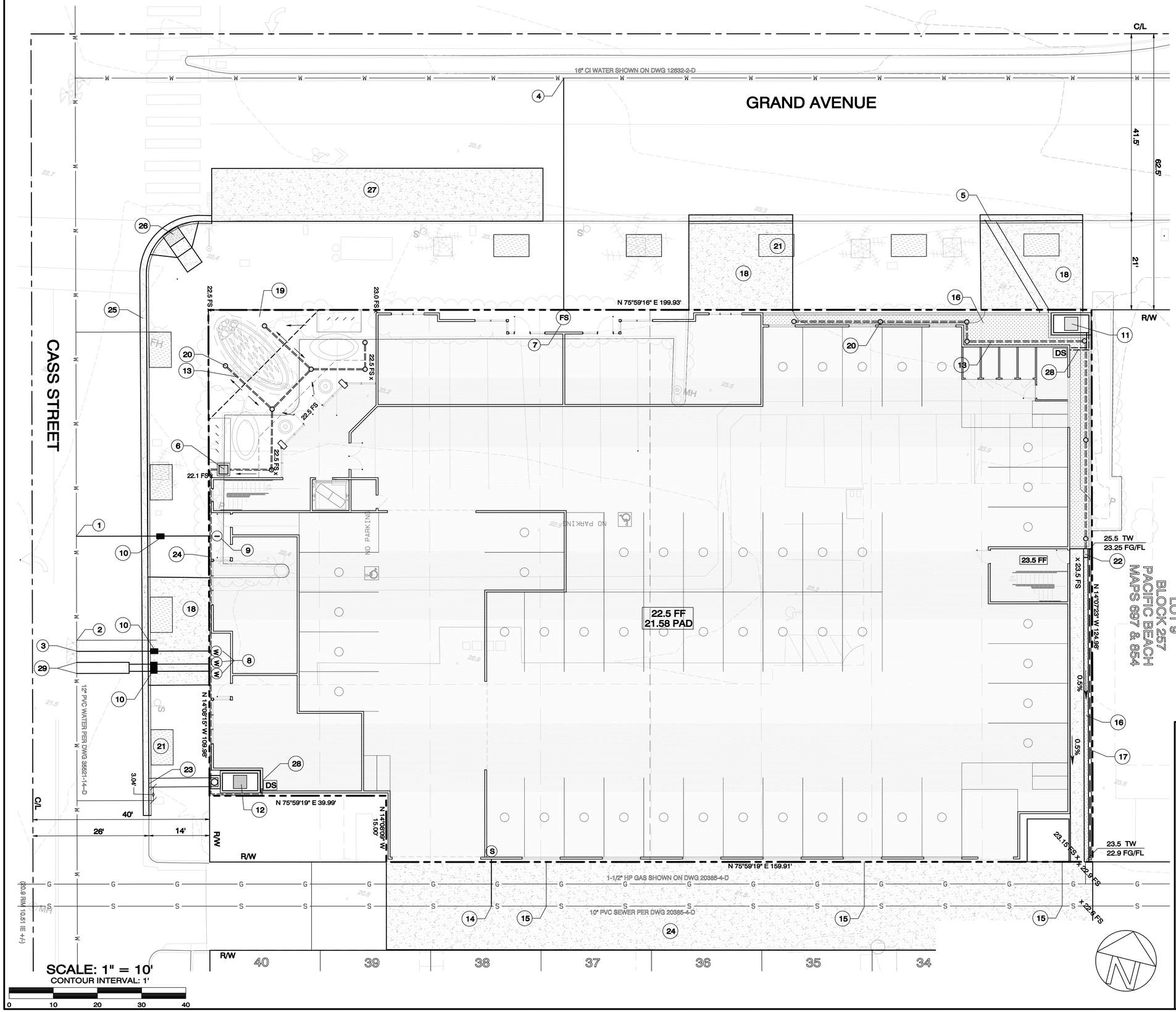
1.0 multiplied by 2 bar sinks = +2 additional demand, etc.

Fixtures Remaining does not affect fees but it may affect meter sizing.

Appliances, Appurtenances or Fixtures	Minimum Fixture Branch Pipe Size	Private	Public	Asssembly	X	# Fixtures Added	# Fixtures Removed	# Fixtures Remaining	TOTAL ACROSS ±
Bar Sink	1/2"	1.0	2.0	-	X	2	-	-	+2
Bathtub or Combination Bath/Shr (fill)	1/2"	4.0	-	-	X	2	-	-	+8
Bidet	1/2"	1.0	-		X	-	-	-	-
		Total Fixtures				Show NET Increase or Decrease in Demand			+10

FIGURE 1. Example B of Fixture Matrix Use

Appliances, Appurtenances or Fixtures	Minimum Fixture Branch Pipe Size	Private	Public	Asssembly	X	# Fixtures Added	# Fixtures Removed	# Fixtures Remaining	TOTAL ACROSS ±
Bar Sink 1/2"	1/2"	1.0	2.0	-	X	-	1	2	-1
Bathtub or Combination Bath/Shr (fill)	1/2"	4.0	-	-	X	1	-	2	+4
Bidet	1/2"	1.0	-		X	1	-		+1
		Total Fixtures				Show NET Increase or Decrease in Demand			+4



CONSTRUCTION NOTES

1. PROPOSED PUB 1" IRRIGATION SERVICE WITH WATER METER BOX
2. EXISTING PUB 2" WATER SERVICE WITH WATER METER BOX, TO BE KILLED AT MAIN
3. PROPOSED PUB 1" COMMERCIAL WATER SERVICE WITH WATER METER BOX
4. PROPOSED PUB 4" FIRE SERVICE
5. PROPOSED PVT CURB OUTLET Q100 = 0.86 CFS, V100 = 2.9 FPS
6. PROPOSED PVT 2424 CATCH BASIN WITH PUMP CONVEY RUNOFF WESTERLY FILTERRA UNIT
7. PROPOSED PVT FIRE SERVICE BACKFLOW PREVENTER
8. PROPOSED PVT WATER SERVICE BACKFLOW PREVENTER
9. PROPOSED PVT IRRIGATION SERVICE BACKFLOW PREVENTER
10. WATER METER BOX (TYPICAL)
11. PROPOSED PVT 4' X 8' RAISED FILTERRA BIOFILTRATION UNIT (11,415 SF SF OF BUILDING TREATED) IMP-FE
12. PROPOSED PVT 4' X 8' RAISED FILTERRA BIOFILTRATION UNIT (11,670 SF SF OF BUILDING TREATED) IMP-FW
13. PROPOSED PVC DRAIN (TYPICAL)
14. PROPOSED PUB 6" SEWER LATERAL (TYPICAL)
15. EXISTING SEWER LATERAL TO BE ABANDONED AT THE PROPERTY LINE
16. PROPOSED PVT 18" AMENDED SOIL AREA (514 SF). TO RETAIN RUNOFF FROM ROOF (496 SF) (TYPICAL)
17. PROPOSED MASONRY WALL (TYPICAL)
18. REMOVE EXISTING DRIVEWAY, REPLACE WITH 6" CURB GUTTER AND SIDEWALK TO CURRENT CITY OF SAN DIEGO STANDARD. PUBLIC
19. VISIBILITY TRIANGLE AREA (NOTHING GREATER THAN 36" IN HEIGHT ALLOWED IN THIS AREA. (TYPICAL)
20. AREA DRAIN (TYPICAL)
21. AREA OF EXISTING CONCRETE IN R/W TO BE REMOVED AND REPLACED WITH LANDSCAPING/STREET TREES. SEE LANDSCAPE PLAN
22. PLANTER RUNOFF DISCHARGES AT BOTTOM OF PLANTER WALL AND FLOWS IN VEGETATED STRIP (PLANTER AND STRIP CONTAIN 18" OF AMENDED SOIL). DISCHARGE IS ONTO LIGHT CLASS RIP RAP
23. PROPOSED PVT CURB OUTLET Q100 = 0.88 CFS, V100 = 2.9 FPS
24. PROPOSED REPLACEMENT OF CONCRETE ALLEY PAVEMENT PER CURRENT CITY STANDARDS
25. PROPOSED REPLACEMENT OF EXISTING CURB WITH CURB & GUTTER PER CURRENT CITY STANDARD
26. REMOVE AND REPLACE EXISTING CURB RAMP. PROJECT CANNOT REPLACE RAMP WITH TWO RAMPS DUE TO TRAFFIC LIGHT ON SMALL RADIUS CURB RETURN AND DUE TO ALIGNMENT OF CROSSWALKS.
27. PROPOSED CONCRETE BUS PAD PER CURRENT CITY STANDARDS
28. LOCATION OF DISCHARGE FROM ROOF AND DECK DRAINS FROM PART OF BUILDING TO FILTERRA UNIT (TYPICAL). NO OTHER DOWNSPOUTS OR DECK DRAIN DISCHARGES OCCUR.
29. PROPOSED TWO 2" MANIFOLDED WATER SERVICE WITH METER BOX

GRADING DATA

AREA OF SITE - 24,385 S.F. (0.5598 AC)
AREA OF SITE TO BE GRADED - 24,385 SF
PERCENT OF SITE TO BE GRADED - 100%
AMOUNT OF SITE WITH 25% SLOPES OR GREATER: AREA - 0 SF, PERCENT OF TOTAL SITE - 0%.
AMOUNT OF SITE WITH SLOPES THAT ARE SUBJECT TO ESL REGS. (LDC SEC. 143.0110): 0%
AMOUNT OF CUT - 1,160 C.Y.
AMOUNT OF FILL - 0 C.Y.
AMOUNT OF EXPORT - 1,160 C.Y
(VOLUMES ASSUME 5" SLAB AND 2" SAND AND 4" GRAVEL/ROCK BASE)
MAXIMUM HEIGHT OF FILL SLOPE - NONE
MAXIMUM HEIGHT OF CUT SLOPE - NONE
MAXIMUM HEIGHT OF VERTICAL CUT: 3 FEET
MAXIMUM HEIGHT OF VERTICAL FILL: NONE
RETAINING WALL: 70' IN LENGTH; LESS THAN 3' MAX HEIGHT

EXISTING IMPERVIOUS AREA = 23,027 SF, 0.5286 AC (94.4%)
PROPOSED CREATED AND REPLACED IMPERVIOUS AREA = 23,807 SF, 0.5465 AC (97.6%)

ANTONY K. CHRISTENSEN, RCE 54021 — JULY 07, 2021 Date

REGISTERED PROFESSIONAL ENGINEER — ANTONY K. CHRISTENSEN — No. 54021 — Exp. 12-31-21 — CIVIL — STATE OF CALIFORNIA

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Revision 5:
Revision 4:
Revision 3:
Revision 2: 07-07-21 ADDRESS CITY COMMENT
Revision 1: 04-26-21 ADDRESS CITY COMMENTS

Project Name:

VILLAS BY THE SEA

Original Date: FEBRUARY 15, 2021

Sheet Title:

Sheet 5 of 27 Sheets

DEP#

PRELIMINARY GRADING PLAN

C-2

JN A2020-62