DOCKETED	
Docket Number:	20-SPPE-02
Project Title:	Lafayette Backup Generating Facility
TN #:	248685
Document Title:	Digital Realty Revised Project Description to Conform to Data Responses and PCC - LBGF Part II
Description:	N/A
Filer:	Scott Galati
Organization:	DayZenLLC
Submitter Role:	Applicant Representative
Submission Date:	2/7/2023 11:58:04 AM
Docketed Date:	2/7/2023

Recommendations:

1. Remove trees #1-25, 30-32, 42-97, 99-273, 275-313, 316-328, 330-332, 335-354, 411, 414, 420-433, 440-442, 446-448, 450-453, 456-470, 475, and 476, upon approval from the City of Santa Clara.
2. Remove deadwood from remaining Callery pears and Raywood ashes. This will benefit both tree health and worker safety.
3. All tree work must be performed by trained tree care personnel under the direction of an International Society of Arboriculture Certified Arborist.
4. Alert the Project Arborist when new drawings are available showing grading, utilities, retention area details, or material changes to project features.
5. Install tree protection fencing prior to any demolition equipment coming onsite.
    a. Install fencing at or outside the tree protection areas of all trees to be retained, shown on the map below.
    b. Where existing pavement is within tree protection zones, install tree protection fencing at the edge of pavement. After demolition, move tree protection fencing to the edge of the tree protection area.
    c. Where proposed features shown on the map included below lie within tree protection areas, install tree protection fencing at the edge of the features.
    d. For areas where no construction will occur, tree protection fencing may be installed at the perimeter of the area instead of around each tree individually.
    e. Spread wood chips at least four inches thick within tree protection fencing.
6. For existing hardscape to be demolished within tree protection zones:
    a. Demolish the area nearest the tree first, and work outwards.
    b. Do not operate machinery on unpaved areas within tree protection zones.
    c. Upon completion of demolition, move tree protection fencing to be at or outside the tree protection area.
7. Minimize grading near trees. Do not perform any grading inside tree protection fencing.
8. If live roots over one inch in diameter are encountered at any time, in any location, they must be pruned with a sharp saw or bypass pruners, as close to the edge of the excavation as possible. If roots over three inches in diameter are encountered, do not prune, but instead contact the Project Arborist to determine the best course of action.
9. Irrigate all trees to be retained on a monthly basis with potable water, in the absence of heavy rain.
    a. Irrigate using a soaker hose placed as close to tree driplines as practical. Irrigate for 2-4 hours at a very low flow. If this causes runoff, reduce the flow rate. If this is impractical for any tree for any reason, contact the Project Arborist.

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other government regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
5. Loss, alteration, or reproduction of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.
7. Neither all nor any part of this report, nor any copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or initialed designation conferred upon the consultant/appraiser as stated in his qualification.
8. This report and the values expressed herein represent the opinion of the consult/appraiser, and the consult/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise - 1) information in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in future.

Respectfully submitted,

Katherine Naegele
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LANDSCAPE ARCHITECT OF RECORD SEAL

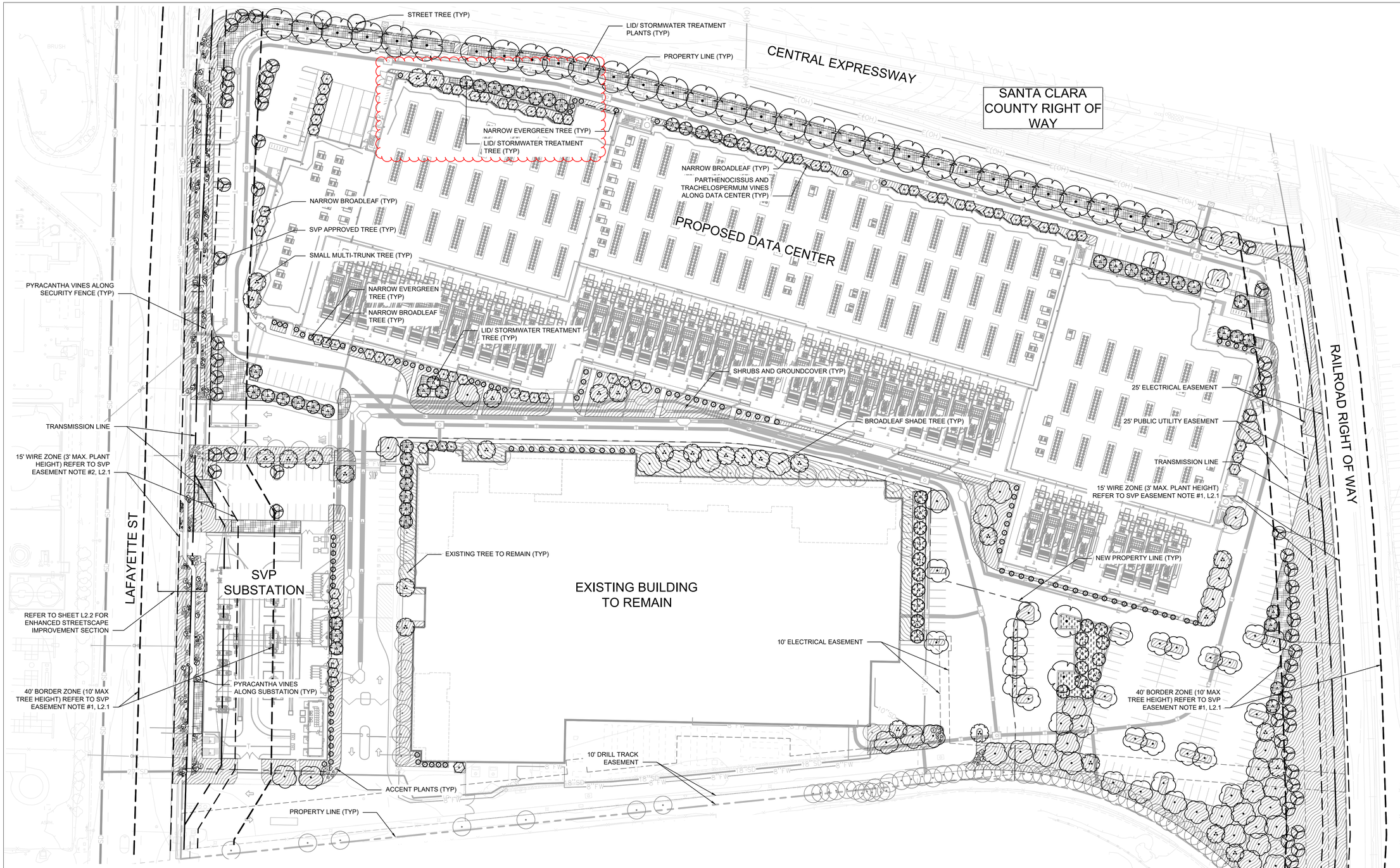
LICENSED LANDSCAPE ARCHITECT
William J. Murpy License No. 4207
Signature
Renewal Date
Date
STATE OF CALIFORNIA

NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

DLR DATA CENTER
2825 LAFAYETTE STREET
SANTA CLARA, CA, 95050

ARBORIST
REPORT

PRINCIPAL IN CHARGE JP	PROJECT NUMBER 197250001
PROJECT MANAGER MJ	DATE 09/02/20
PROJECT ENGINEER KN	SHEET NUMBER
SCALE AS SHOWN	L1.5



PRELIMINARY LANDSCAPE LEGEND: (REFERENCE PLAN L2.1 FOR COMPLETE PLANT SCHEDULE)

TREES	QTY	DESCRIPTION	CONT.
	99	EXISTING TREE TO REMAIN	N/A
	2	STREET TREE	24" BOX
	70	LID/STORMWATER TREATMENT TREE	24" BOX
	33	LID/STORMWATER TREATMENT TREE	36" BOX
	72	BROADLEAF SHADE TREE	36" BOX
	60	SVP APPROVED TREE	36" BOX
	118	NARROW CONIFER TREE	36" BOX
	31	SMALL MULTI-TRUNK TREE	36" BOX
	70	NARROW BROADLEAF TREE	24" BOX

GROUNDCOVER	QTY	DESCRIPTION	CONT.
		SHRUBS AND GROUNDCOVER	1 GAL
		LID/STORMWATER TREATMENT PLANTS	1 GAL
		ACCENT PLANTS	1 GAL
		VINES	1 GAL
		LANDSCAPE BOULDERS	

TREE MITIGATION / REPLACEMENT	
TREES REMOVED	375
24" BOX SIZED TREES REQUIRED OR 36" BOX SIZED TREES REQUIRED	750 OR 375
NEW 24" BOX SIZED TREES (REPLACES 71 TREES)	142
NEW 36" BOX SIZED TREES (REPLACES 314 TREES)	314
SURPLUS OF ADDITIONAL NEW 36" BOX SIZED TREES	10

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

DIGITAL REALTY
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LANDSCAPE ARCHITECT OF RECORD SEAL
LICENSED LANDSCAPE ARCHITECT
William + Morgan License No. 4192
Signature
Renewal Date
Date
STATE OF CALIFORNIA

NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
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SANTA CLARA, CA, 95050

LANDSCAPE PLAN

PRINCIPAL IN CHARGE	PROJECT NUMBER
JP	197250001
PROJECT MANAGER	DATE
MJ	09/02/20
PROJECT ENGINEER	SHEET NUMBER
KN	L2.0
SCALE	
AS SHOWN	

PRELIMINARY LANDSCAPE SCHEDULE

TREES	QTY	BOTANICAL NAME / COMMON NAME	CONT.	SPACING	WUCOLS
	99	EXISTING TREE TO REMAIN	N/A	N/A	N/A
		STREET TREES MAY CONSIST OF THE FOLLOWING:			
	2	CEDRUS DEODARA / DEODAR CEDAR	24" BOX	AS SHOWN	LOW
		LID/STORMWATER TREATMENT TREE MAY CONSIST OF THE FOLLOWING:			
	70	CERCIS OCCIDENTALIS / WESTERN REDBUD MULTI-TRUNK	24" BOX	AS SHOWN	V. LOW
		LAURUS NOBILIS 'SARATOGA' / BAY LAUREL	24" BOX	AS SHOWN	LOW
	33	PLATANUS X ACERIFOLIA 'COLUMBIA' / COLUMBIA LONDON PLANE TREE	36" BOX	AS SHOWN	LOW
		QUERCUS COCCINEA / SCARLET OAK	36" BOX	AS SHOWN	LOW
		BROADLEAF SHADE TREE MAY CONSIST OF THE FOLLOWING:			
	72	CINNAMOMUM CAMPHORA / CAMPHOR TREE	36" BOX	AS SHOWN	MOD
		PISTACIA CHINENSIS / CHINESE PISTACHE	36" BOX	AS SHOWN	LOW
		TILIA CORDATA / LITTLELEAF LINDEN	36" BOX	AS SHOWN	MOD
		QUERCUS ILEX / HOLLY OAK	36" BOX	AS SHOWN	LOW
		SVP APPROVED TREE MAY CONSIST OF THE FOLLOWING:			
	60	GLEDITSIA TRIACANTHOS F. INERMIS / THORNLESS HONEY LOCUST	36" BOX	AS SHOWN	LOW
		NARROW CONIFER TREE MAY CONSIST OF THE FOLLOWING:			
	118	CUPRESSUS SEMPERVIRENS / ITALIAN CYPRESS	36" BOX	AS SHOWN	LOW
		SMALL MULTI-TRUNK TREE MAY CONSIST OF THE FOLLOWING			
	31	ARBUTUS 'MARINA' / STRAWBERRY TREE	36" BOX	AS SHOWN	LOW
		CERCIS OCCIDENTALIS / WESTERN REDBUD MULTI-TRUNK	36" BOX	AS SHOWN	V. LOW
		LAGERSTROEMIA X 'TUSKEGEE' / TUSKEGEE CRAPE MYRTLE	36" BOX	AS SHOWN	LOW
		NARROW BROADLEAF TREE MAY CONSIST OF THE FOLLOWING:			
	70	ACER RUBRUM 'BOWHALL' / BOWHALL RED MAPLE	24" BOX	AS SHOWN	MOD
		CARPINUS BETULUS 'FRANS FONTAINE' / COLUMNAR HORNBEAM	24" BOX	AS SHOWN	MOD
		GINKGO BILOBA 'PRINCETON SENTRY' / PRINCETON SENTRY GINKGO	24" BOX	AS SHOWN	MOD
		MAGNOLIA GRANDIFLORA 'ALTA' / ALTA MAGNOLIA	24" BOX	AS SHOWN	MOD
		QUERCUS ROBUR FASTIGIATA / FASTIGIATE ENGLISH OAK	24" BOX	AS SHOWN	MOD

SHRUBS	BOTANICAL NAME / COMMON NAME	CONT.	SPACING	WUCOLS
	SHRUBS AND GROUNDCOVERS:			
	SHRUBS MAY CONSIST OF:			
	ASCLEPIAS FASCICULARIS / CALIFORNIA NARROWLEAF MILKWEED	1 GAL	30" OC	LOW
	ERIOPHYLLUM CONFERTIFLORUM / GOLDEN YARROW	1 GAL	30" OC	LOW
	LIGUSTRUM JAPONICUM 'TEXANIUM/ GLOSSY LEAF PRIVET	1 GAL	30" OC	MOD
	MYRTUS COMMUNIS 'COMPACTA' / DWARF MYRTLE	1 GAL	30" OC	MOD
	RHAMNUS CALIFORNICA / CALIFORNIA COFFEEBERRY	1 GAL	30" OC	LOW
	ROSA CALIFORNICA / CALIFORNIA WILD ROSE	1 GAL	30" OC	LOW
	ZAUSCHNERIA CALIFORNICA / CALIFORNIA FUCHSIA	1 GAL	30" OC	LOW
	GROUNDCOVERS MAY CONSIST OF:			
	ARCTOSTAPHYLOS 'EMERALD CARPET'/ EMERALD CARPET MANZANITA	1 GAL	30" OC	LOW
	CARISSA MACROCARPA 'GREEN CARPET' / NATAL PLUM	1 GAL	30" OC	LOW
	MYOPORUM PARVIFOLIUM / MYOPORUM	1 GAL	30" OC	LOW
	SALVIA GRACIAS / GRACIAS SAGE	1 GAL	30" OC	LOW
	SENECIO SERPENS / BLUE CHALK STICKS	1 GAL	30" OC	LOW
	LID/STORMWATER TREATMENT PLANTS MAY CONSIST OF A MIX OF THE FOLLOWING:			
	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLUE GRAMA OATS	1 GAL	30" OC	MOD
	CAREX TUMULICOLA / BERKELEY SEDGE	1 GAL	30" OC	LOW
	CARPEX PANSA / CALIFORNIA FIELD SEDGE	1 GAL	30" OC	MOD
	CHONDROPETALUM TECTORUM / SMALL CAPE RUSH	1 GAL	30" OC	LOW
	JUNCUS PATENS / CALIFORNIA GRAY RUSH	1 GAL	36" OC	LOW
	MUHLENBERGIA RIGENS / DEER GRASS	1 GAL	30" OC	LOW
	ACCENT PLANTS MAY CONSIST OF THE FOLLOWING: MAY CONSIST OF A MIX OF THE FOLLOWING:			
	AGAVE ATTENUATA / FOXTAIL AGAVE	1 GAL	40" OC	LOW
	AGAVE ATTENUATA 'BOUTIN BLUE' / BLUE FOXTAIL AGAVE	1 GAL	40" OC	LOW
	CARPENTERIA CALIFORNICA / BUSH ANEMONE	1 GAL	40 "OC	MOD
	EUPHORBIA RIGIDA / GOPHER SPURGE	1 GAL	40" OC	LOW
	HESPERALOE PARVIFLORA / RED YUCCA	1 GAL	40" OC	LOW
	PHORMIUM 'DUSKY MAIDEN / DUSKY MAIDEN NZ FLAX	1 GAL	40" OC	LOW
	PHORMIUM 'JACK SPRATT' / JACK SPRATT NZ FLAX	1 GAL	40" OC	LOW
	SALVIA SPATHACEA / HUMMINGBIRD SAGE	1 GAL	40" OC	LOW
	VINES MAY CONSIST OF THE FOLLOWING:			
	PYRACANTHA COCCINEA / SCARLET FIRETHORN	1 GAL	96" OC	LOW
	PARTHENOCISSUS TRICUSPIDATA/BOSTON IVY	1 GAL	72" OC	LOW
	TRACHELOSPERMUM JASMINOIDES/STAR JASMINE	1 GAL	72" OC	LOW
	BOULDERS MAY CONSIST OF THE FOLLOWING:			
	1-2' DIA LANDSCAPE BOULDER			
	3-4' DIA LANDSCAPE BOULDER			
	5-6' DIA LANDSCAPE BOULDER			

SVP EASEMENT NOTES:

1. SVP EASEMENT ALONG EAST SIDE OF PROPERTY:
SVP HAS EXISTING 60KV TRANSMISSION LINE ALONG THE EAST SIDE OF THE 2825 LAFAYETTE STREET PROPERTY. AS PART OF THE ENTITLEMENT APPROVAL PROCESS FOR THE NEW 2825 LAFAYETTE BUILDING, SVP IS REQUIRING EXISTING TREES TO BE REMOVED TO COMPLY WITH SVP STANDARD OH-1230.

SVP STANDARD OH-1230 (TREE CLEARANCES FROM OVERHEAD ELECTRIC LINES, 09/08/16) LIMITS THE TREES AND LANDSCAPING THAT CAN BE LOCATED NEAR TRANSMISSION LINES.
A. WIRE ZONE: TREES / LANDSCAPING ARE LIMITED TO 3 FEET HIGH WITHIN 10 FEET (HORIZONTAL DISTANCE) OF THE TRANSMISSION CONDUCTORS, WHICH RESULTS IN A ZONE EXTENDING APPROXIMATELY 15 FEET ON EITHER SIDE OF THE TRANSMISSION POLES.
B. BORDER ZONE: TREES / LANDSCAPING ARE LIMITED TO 10 FEET HIGH EXTENDING 40 FEET (HORIZONTAL DISTANCE) BEYOND THE WIRE ZONE ON BOTH SIDES OF THE TRANSMISSION POLES.

NEW TREES AND LANDSCAPING WILL BE PLANTED TO OFFSET THE TREES THAT WILL BE REMOVED AS PART OF THE SVP STANDARD OH-1230 REQUIREMENT.

2. SVP EASEMENT ALONG WEST SIDE OF PROPERTY:
SVP WILL BE INSTALLING A 60KV TRANSMISSION LINE ALONG THE WEST SIDE OF THE 2825 LAFAYETTE STREET PROPERTY, ALONG LAFAYETTE STREET. THIS TRANSMISSION LINE WILL SERVE THE PROPOSED 2825 LAFAYETTE STREET BUILDING AND FUTURE DEVELOPMENTS IN THE AREA.

AS PART OF THE ENTITLEMENT APPROVAL PROCESS FOR THE NEW 2825 LAFAYETTE BUILDING, SVP IS REQUIRING EXISTING TREES TO BE REMOVED TO COMPLY WITH SVP STANDARD OH-1230 AND IS REQUIRING NEW TREES BE PLANT IN COMPLIANCE WITH THIS REQUIRMENT.

SVP STANDARD OH-1230 (TREE CLEARANCES FROM OVERHEAD ELECTRIC LINES, 09/08/16) LIMITS THE TREES AND LANDSCAPING THAT CAN BE LOCATED NEAR TRANSMISSION LINES.
A. WIRE ZONE: TREES / LANDSCAPING ARE LIMITED TO 3 FEET HIGH WITHIN 10 FEET (HORIZONTAL DISTANCE) OF THE TRANSMISSION CONDUCTORS, WHICH RESULTS IN A ZONE EXTENDING APPROXIMATELY 15 FEET ON EITHER SIDE OF THE TRANSMISSION POLES.
B. BORDER ZONE: TREES / LANDSCAPING ARE LIMITED TO 10 FEET HIGH EXTENDING 40 FEET (HORIZONTAL DISTANCE) BEYOND THE WIRE ZONE ON BOTH SIDES OF THE TRANSMISSION POLES.

NEW TREES WILL BE PLANTED TO OFFSET THE TREES THAT WILL BE REMOVED AS PART OF THE SVP STANDARD OH-1230 REQUIREMENT. A GREATER NUMBER OF TREES WILL BE PLANTED ALONG THE NORTH SIDE OF THE PROPERTY (CENTERAL EXPRESSWAY), AWAY FROM THE SVP UTILITY LINES.

LANDSCAPE NOTES

1. THE SELECTION OF PLANT MATERIAL IS BASED ON CLIMATIC, AESTHETIC, AND MAINTENANCE CONSIDERATIONS.
2. GROUND COVER SHALL BE PLANTED AT A MAX SPACING OF 12" ON CENTER TO RESULT IN MAX COVERAGE WITHIN ONE YEAR OF INITIAL PLANTING.
3. ALL PLANTING AREAS SHALL BE PREPARED WITH APPROPRIATE SOIL AMENDMENTS, FERTILIZERS AND APPROPRIATE SUPPLEMENTS BASED UPON A SOILS REPORT FROM AN AGRICULTURAL SUITABILITY SOIL SAMPLE TAKEN FROM THE SITE.
4. GROUNDCOVERS OR ORGANIC SHREDDED BARK MULCH SHALL FILL IN BETWEEN SHRUBS TO SHIELD THE SOIL FROM THE SUN, EVAPOTRANSPIRATION, AND RUN-OFF.
5. ALL SHRUB BEDS SHALL BE MULCHED WITH ORGANIC SHREDDED BARK MULCH TO A 3" MINIMUM DEPTH TO HELP CONSERVE WATER, LOWER SOIL TEMPERATURE, AND REDUCE WEED GROWTH. THE SHRUBS SHALL BE ALLOWED TO GROW IN THEIR NATURAL FORMS.
6. ALL LANDSCAPE IMPROVEMENTS SHALL FOLLOW THE GUIDELINES SET FORTH BY THE CITY OF SANTA CLARA AND COUNTY OF SANTA CLARA.
7. ALL VEGETATION SHALL BE MAINTAINED FREE OF PHYSICAL DAMAGE OR INJURY FROM LACK OF WATER, EXCESS CHEMICAL FERTILIZER OR OTHER TOXIC CHEMICAL, BLIGHT OR DISEASE. ANY VEGETATION WHICH SHOWS SIGNS OF SUCH DAMAGE OR INJURY AT ANY TIME SHALL BE REPLACED BY THE SAME, SIMILAR, OR SUBSTITUTE VEGETATION OF A SIZE, FORM, AND CHARACTER WHICH WILL BE COMPARABLE AT FULL GROWTH.
9. ANY COMPACTED SOILS IN PLANTING AREAS SHALL BE RETURNED TO A "FRIABLE" CONDITIONS PRIOR TO THE INSTALLATION OF PLANT MATERIALS. FRIABLE CONDITION IS DEFINED AS AN EASILY CRUMBLED OR LOOSELY COMPACTED CONDITION WHEREBY THE ROOT STRUCTURE OF NEWLY PLANTED MATERIAL WILL BE ALLOWED TO SPREAD UNIMPEDED.
10. APPROXIMATE PLANT QUANTITIES ARE PROVIDED IN THE LEGEND FOR CONVENIENCE ONLY. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE CORRECT QUANTITY OF PLANT MATERIAL REGARDLESS OF THE QUANTITIES INDICATED IN THE LEGEND.
11. PROVIDE WEED CONTROL PER SPECIFICATIONS.
12. PROVIDE AGRICULTURAL SUITABILITY AND FERTILITY TESTS. LANDSCAPE CONTRACTOR SHALL INCORPORATE ALL SOILS LAB RECOMMENDATIONS. FOR BIDDING PURPOSES, ASSUME THE FOLLOWING:
AMEND TOPSOIL TO 6" DEPTH WITH:
A.) 4 CUBIC YARDS NITROLIZED SOIL AMENDMENT
B.) 15 LBS. 6-20-20 COMMERCIAL FERTILIZER
C.) 15 LBS AGRICULTURAL GYPSUM
D.) 10 LBS GRO POWER PLUS SOIL CONDITIONER OR APPROVED EQUAL
PREPARE ALL BACKFILL SOIL AS RECOMMENDED BUT NO LESS PER CUBIC YARD THAN AS FOLLOWS:
A.) 6-20-20 FERTILIZER
B.) 4/5 CUBIC YARD SCREENED TOPSOIL
C.) 1/5 CUBIC YARD NITROLIZED SOIL AMENDMENT
D.) 1 LBS ORGANIC GYPSUM
E.) 2 LBS GRO POWER PLUS SOIL CONDITIONER OR APPROVED EQUAL
13. FOR SOILS LESS THAN 6% ORGANIC MATTER IN THE TOP 6 INCHES OF SOIL, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL AND IRRIGATION SYSTEMS PROPOSED AND EXISTING-TO-REMAIN FOR A PERIOD OF 90-DAYS AFTER COMPLETION OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE EXISTING AND PROPOSED PLANT MATERIAL FOR A ONE-YEAR PERIOD STARTING AT FINAL ACCEPTANCE OF THE IMPROVEMENTS. DURING THIS PERIOD THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY DEAD OR IN-DECLINE PLANT MATERIAL OR DAMAGED IRRIGATION COMPONENTS IN-KIND.

I HAVE COMPLIED WITH THE CRITERIA OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE CONCEPT DESIGN.

MATTHEW J. MORGAN, PLA 6256

STATE OF CALIFORNIA ESTIMATED WATER USE

TOTAL WATER USE IS CALCULATED BY SUMMING THE AMOUNT OF WATER ESTIMATED FOR EACH HYDROZONE. WATER USE FOR EACH HYDROZONE IS ESTIMATED WITH THE FOLLOWING FORMULA:

ESTIMATED TOTAL WATER USE (ETWU) = GAL / YEAR PER HYDROZONE

ET ADJUSTMENT FACTOR (ETAF) =
0.55 ETAF FOR RESIDENTIAL LANDSCAPE
0.45 ETAF FOR NON-RESIDENTIAL LANDSCAPE
0.8 ETAF FOR EXISTING NON-REHABILITATED LANDSCAPE
SPECIAL LANDSCAPE SHALL NOT EXCEED 1.0 ETAF

PLANT FACTOR (PF) = WATER USE CLASSIFICATION OF LANDSCAPE SPECIES

HYDROZONE AREA (HA) = (SF OF LANDSCAPE) OR (32 SF / TREE)

CONVERSION FACTOR (CONVERTS ACRE-INCHES PER ACRE PER YEAR TO GALLONS PER SQUARE FOOT PER YEAR = 0.62

IRRIGATION EFFICIENCY (IE) = 0.75 (OVERHEAD SPRAY) 0.81 (DRIP)

SPECIAL LANDSCAPE AREA (SLA) = SF OF EDIBLE PLANTS, RECREATIONAL AREAS, AREAS IRRIGATED WITH RECYCLED WATER, OR WATER FEATURS USING RECYCLED WATER

EVAPOTRANSPIRATION RATE (ETo) = QUANTITY OF WATER EVAPORATED FROM ADJ. SOIL AND TRANSPIRED BY PLANTS OVER A SPECIFIED TIME

ETWU = [(ETo) * (PF) * (HA) * (0.62)] / (IE)

MAWA = (ETo) * (0.62) [ETAF) * (SUM OF SLA & HA)] + [(1-ETAF) * (SLA)]

HYDROZONE "A" (SUBSURFACE DRIP)

ETO	PF	HA	CONVERSION FACTOR	IE	SLA	ETWU (GAL/YEAR)
45.30	0.30	175,052	0.62	0.81		1,820,929.80

HYDROZONE "B" (BUBBLERS)

ETO	PF	HA	CONVERSION FACTOR	IE	SLA	ETWU (GAL/YEAR)
45.30	0.45	14,496	0.62	0.81		226,185.92
					ESTIMATED TOTAL WATER USE (GAL/YEAR)	**2,047,115.72**

MAXIMUM APPLIED WATER ALLOWANCE (MAWA)

ETO	SUM OF HA	CONVERSION FACTOR	ETAF	SUM OF SLA	MAWA(GAL/YEAR)
45.30	189,548.00	0.62	0.45	-	2,395,640.31
				MAXIMUM APPLIED WATER ALLOWANCE (GAL/YEAR)	**2,395,640.31**
				MAXIMUM APPLIED WATER ALLOWANCE PERCENT OF ESTIMATED TOTAL WATER USE	**85.45%**

NOTE:
SUM OF HYDROZONE AREA INCLUDES TOTAL OF NEW LANDSCAPE AREA TO BE IRRIGATED

LANDSCAPE DATA TABLE

CITY OF SANTA CLARA MUNICIPAL CODE	REQUIRED	PROVIDED
ZONE: LIGHT INDUSTRIAL		
TOTAL SITE AREA: 991, 425 SF (22.76 ACRES)		
TOTAL LANDSCAPE AREA: 174,034 SF (3.99 ACRES)		
TOTAL BUILDING PAD AREA: 369, 811 SF (8.49 ACRES)		
TOTAL VUA (VEHICULAR USE AREA): 213, 418 (4.90 ACRES)		
DEVELOPMENT CRITERIA – LANDSCAPE PROVISIONS		
TOTAL LANDSCAPE AREA COVERAGE	10% (OF TOTAL VUA AREA SPREAD EVENLY ACROSS VUA AND BUILDING FRONTAGE) 213,418 SF X 0.10 = 21,342 SF LANDSCAPE AREA	174,034 SF LANDSCAPE AREA
TREE MITIGATION	375 TREES REMOVED REPLACE AT 2:1 MIN. 24" BOX SIZE, OR 1:1 MIN. 36" BOX SIZE	REPLACED WITH: 142 TREES 24" BOX SIZE (REPLACES 71 TREES) 314 TREES 36" BOX SIZE (REPLACES 314 TREES) SURPLUS OF 10 36" BOX SIZED TREES
DEVELOPMENT CRITERIA – VEHICULAR USE AREA (VUA)		
PARKING LOT SCREENING	30" HEIGHT MINIMUM LANDSCAPED BERM	LIMITED AREA FOR GRADING WITHIN THE BUILDING FRONTAGE. A DENSE LANDSCAPE SCREEN OF 24" HEIGHT MINIMUM WILL PROVIDE A BUFFER FROM THE STREET (CPTED REQUIRES MAX 24" HEIGHT SHRUBS)

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PLEASANTON, CA 94588
PHONE: 925-398-4840 FAX: 714-938-9488

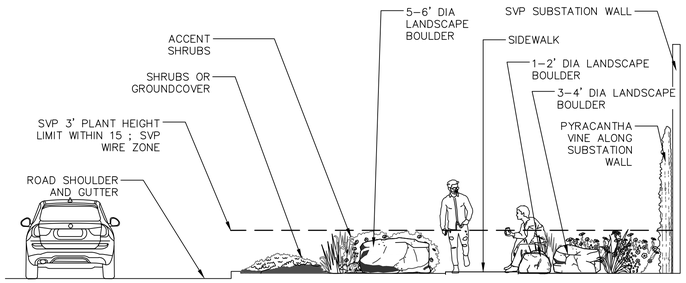
LANDSCAPE ARCHITECT OF RECORD SEAL
LICENSED LANDSCAPE ARCHITECT
MATTHEW J. MORGAN
Signature
Renewal Date
Date
STATE OF CALIFORNIA

NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

DLR DATA CENTER
2825 LAFAYETTE STREET
SANTA CLARA, CA, 95050

LANDSCAPE NOTES AND SCHEDULE

PRINCIPAL IN CHARGE: JP	PROJECT NUMBER: 197250001
PROJECT MANAGER: MJ	DATE: 09/02/20
PROJECT ENGINEER: KN	SHEET NUMBER: L2.1
SCALE: AS SHOWN	



A ENHANCED STREETSCAPE IMPROVEMENTS

SCALE: 1"=10'

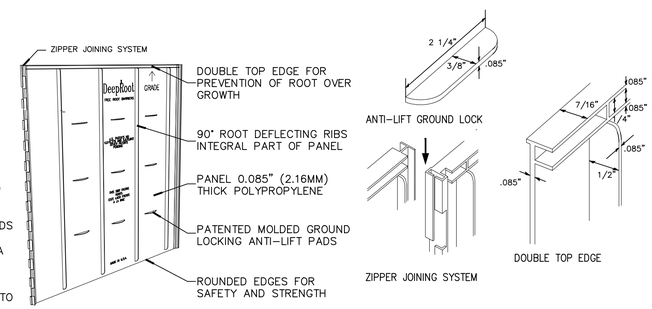
NOTES:
1– VINES/SHRUBS SHALL BE OF QUALITY AS PRESCRIBED IN THE ROOT OBSERVATIONS DETAIL AND SPECIFICATIONS.

2– SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

SPECIFIED TREE ROOT BARRIERS ARE A MECHANICAL BARRIER AND ROOT DEFLECTOR TO PREVENT TREE ROOTS FROM DAMAGING HARDSCAPES AND LANDSCAPES. ASSEMBLED IN 2' LONG MODULES LINEAR APPLICATIONS DIRECTLY BESIDE A HARDSCAPE ADJACENT TO ONE SIDE OF THE TREES (LINEAR PLANTING STYLE).

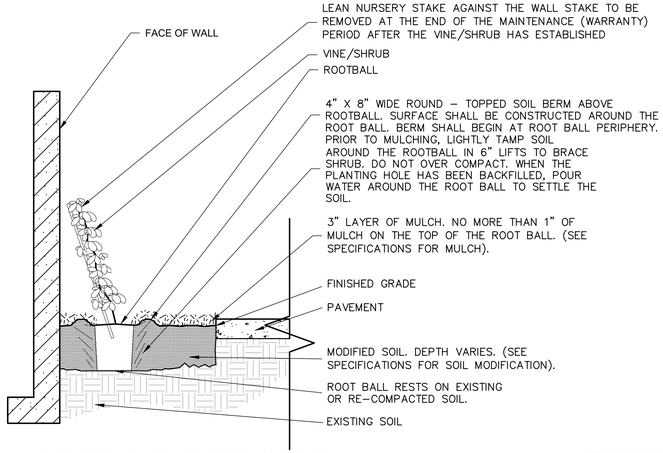
A. MATERIALS
1. THE CONTRACTOR SHALL FURNISH AND INSTALL TREE ROOT BARRIERS AS SPECIFIED. THE TREE ROOT BARRIERS SHALL BE PRODUCT # UB 48–2 AS MANUFACTURED BY DEEP ROOT PARTNERS, L.P. 530 WASHINGTON STREET, SAN FRANCISCO, CA 94111 (800–458–7668), OR APPROVED EQUAL. THE BARRIER SHALL BE BLACK, INJECTION MOLDED PANELS, OF 0.085" WALL THICKNESS IN MODULES 24" LONG BY 48" DEEP; MANUFACTURED WITH A MINIMUM 50% POST CONSUMER RECYCLED POLYPROPYLENE PLASTIC WITH ADDED ULTRAVIOLET INHIBITORS; RECYCLABLE. EACH PANEL SHALL HAVE:

B. CONSTRUCTION AND INSTALLATION
1. THE CONTRACTOR SHALL INSTALL THE TREE ROOT BARRIERS WITH THE REQUIRED NUMBER OF PANELS FOR THE LENGTH SHOWN AND IN THE MANNER SHOWN ON THE DRAWINGS. ROOT BARRIER SHALL EXTEND 10' IN EACH DIRECTION FROM THE TRUNK OF THE TREE. VERTICAL ROOT DEFLECTING RIBS SHALL BE FACING INWARDS TO THE ROOT BALL AND THE TOP OF THE DOUBLE EDGE SHALL BE 1/2" ABOVE GRADE. EACH OF THE REQUIRED NUMBER OF PANELS SHALL BE CONNECTED IN A LINEAR FASHION AND PLACED ALONG THE ADJACENT HARDSCAPE.
2. EXCAVATION AND SOIL PREPARATION SHALL CONFORM TO THE DRAWINGS
3. THE TREE ROOT BARRIERS SHALL BE BACKFILLED ON THE OUTSIDE WITH 3/4" TO 1 1/2" GRAVEL OR CRUSHED ROCK AS SHOWN ON THE DRAWINGS. NO GRAVEL BACKFILL IS REQUIRED FOR A LINEAR PLANTING



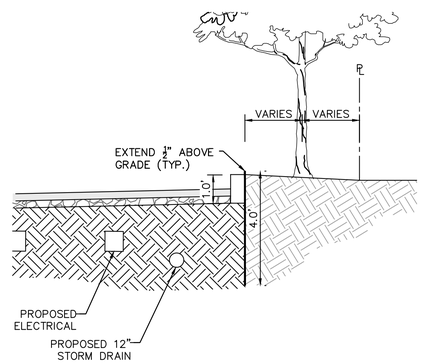
B 24" DEEP ROOT TREE BARRIER

NTS



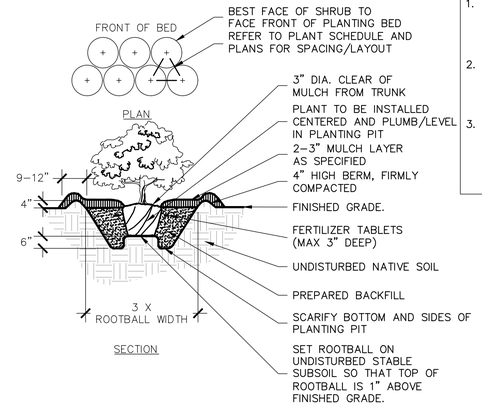
C VINE PLANTING AT BUILDING

NTS



F TYPICAL SECTION (ROOT BARRIER AT UTILITY EASEMENTS)

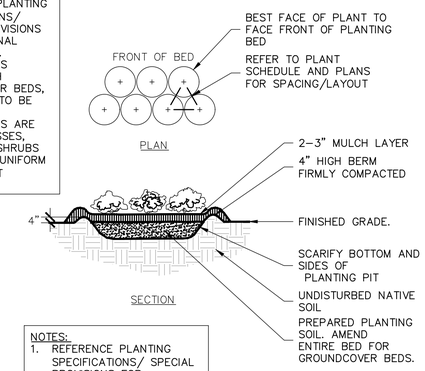
NTS



D TYPICAL SHRUB PLANTING

NTS

NOTES:
1. REFERENCE PLANTING SPECIFICATIONS/ SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
2. WHEN SHRUBS MASSED WITH GROUNDCOVER BEDS, ENTIRE BED TO BE AMENDED.
3. WHEN SHRUBS ARE USED IN MASSES, PRUNE ALL SHRUBS TO ACHIEVE UNIFORM MASS/HEIGHT

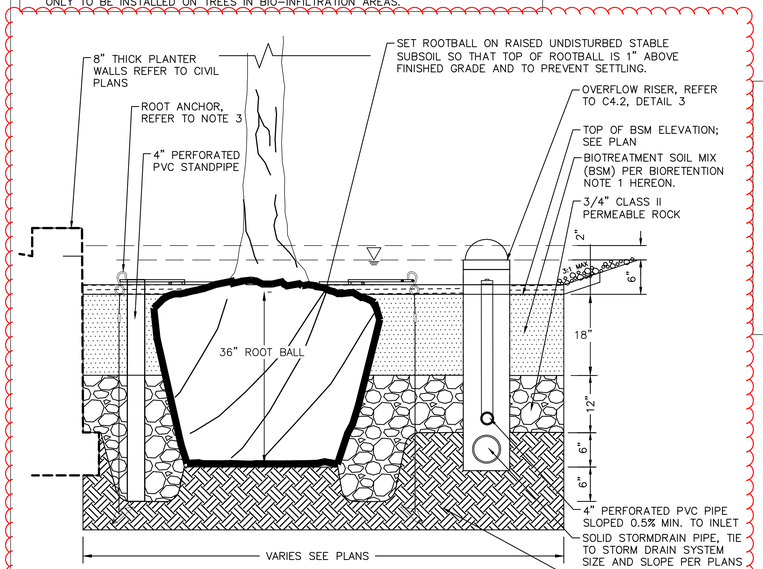


NOTES:
1. REFERENCE PLANTING SPECIFICATIONS/ SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

E TYPICAL GROUNDCOVER PLANTING

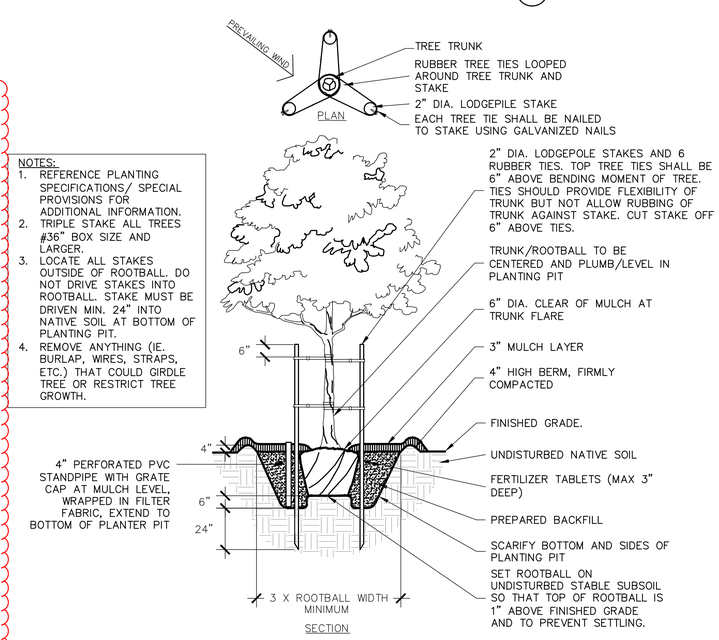
NTS

NOTES:
1. REFER TO CIVIL PLANS FOR BIO–RETENTION DETAILS AND SPECIFICATIONS (C4.2/DTL 3)
2. INSTALL TREE AS SHOWN BELOW
3. FOR ROOT ANCHOR INFORMATION, REFER TO: http://www.treestakesolutions.com/ ONLY TO BE INSTALLED ON TREES IN BIO–INFILTRATION AREAS.



F BIO-RETENTION TREE PLANTING

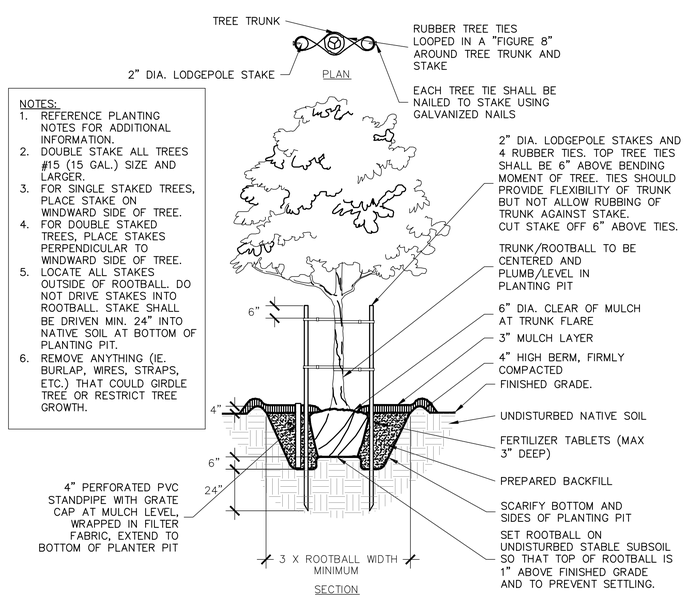
NTS



NOTES:
1. REFERENCE PLANTING SPECIFICATIONS/ SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
2. TRIPLE STAKE ALL TREES #36" BOX SIZE AND LARGER.
3. LOCATE ALL STAKES OUTSIDE OF ROOTBALL. DO NOT DRIVE STAKES INTO ROOTBALL. STAKE MUST BE DRIVEN MIN. 24" INTO NATIVE SOIL AT BOTTOM OF PLANTING PIT.
4. REMOVE ANYTHING (IE. BURLAP, WIRES, STRAPS, ETC.) THAT COULD GIRDLE TREE OR RESTRICT TREE GROWTH.

G TYPICAL TREE PLANTING (UP TO 36" BOX)

NTS



NOTES:
1. REFERENCE PLANTING NOTES FOR ADDITIONAL INFORMATION.
2. DOUBLE STAKE ALL TREES #15 (15 GAL.) SIZE AND LARGER.
3. FOR SINGLE STAKED TREES, PLACE STAKE ON WINDWARD SIDE OF TREE.
4. FOR DOUBLE STAKED TREES, PLACE STAKES PERPENDICULAR TO WINDWARD SIDE OF TREE.
5. LOCATE ALL STAKES OUTSIDE OF ROOTBALL. DO NOT DRIVE STAKES INTO ROOTBALL. STAKE SHALL BE DRIVEN MIN. 24" INTO NATIVE SOIL AT BOTTOM OF PLANTING PIT.
6. REMOVE ANYTHING (IE. BURLAP, WIRES, STRAPS, ETC.) THAT COULD GIRDLE TREE OR RESTRICT TREE GROWTH.

H TYPICAL TREE PLANTING (UP TO 24" BOX)

NTS

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LICENSED LANDSCAPE ARCHITECT
MICHAEL MORGAN LICENSE NO. 4293
Signature
Renewal Date
Date
STATE OF CALIFORNIA

NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

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SANTA CLARA, CA, 95050

LANDSCAPE DETAILS

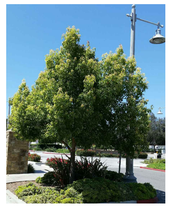
PRINCIPAL IN CHARGE	PROJECT NUMBER
JP	197250001
PROJECT MANAGER	DATE
MJ	09/02/20
PROJECT ENGINEER	SHEET NUMBER
KN	L2.2
SCALE	
AS SHOWN	

PRELIMINARY PLANT PALETTE

TREES

CEDRUS DEODARA
DEODAR CEDAR

CERCIS OCCIDENTALIS
WESTERN REDBUD


CINNAMOMUM CAMPHORA
CAMPHOR TREE

PISTACIA CHINENSIS
CHINESE PISTACHE

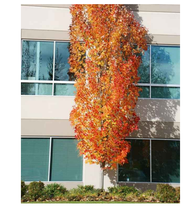
TILIA CORDATA
LITTLELEAF LINDEN

GLEDITSIA TRIACANTHOS
HONEY LOCUST

CUPRESSUS SEMPERVIRENS
ITALIAN CYPRESS

LAGERSTROEMIA X 'TUSKEGEE'
TUSKEGEE CRAPE MYRTLE

MAGNOLIA GRANDIFLORA 'ALTA'
ALTA SOUTHERN MAGNOLIA


ACER RUBRUM 'BOWHALL'
BOWHALL RED MAPLE

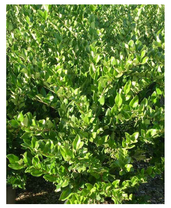
CARPINUS BETULUS 'FATIGIATA'
FASTIGIATE EUROPEAN HORNBEAM

LAURUS NOBILIS 'SARATOGA'
BAY LAUREL

SHRUBS / VINE

ERIOPHYLLUM CONFERTIFLORUM
YELLOW YARROW

ASCLEPIAS FASCICULARIS
NARROWLEAF MILKWEED

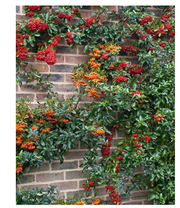

LIGUSTRUM JAPONICUM 'TEXANUM'
GLOSSY LEAF PRIVET

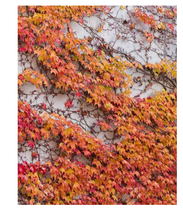
MYRTUS COMMUNIS 'COMPACTA'
DWARF MYRTLE

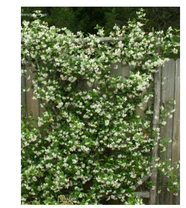
RHAMNUS CALIFORNICA
CALIFORNIA COFFEEBERRY

ROSA CALIFORNICA
CALIFORNIA WILD ROSE

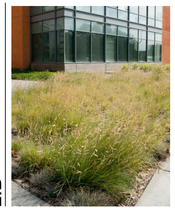
ZAUSCHNERIA CALIFORNICA
CALIFORNIA FUCHSIA


PYRACANTHA COCCINEA
SCARLET FIRETHORN

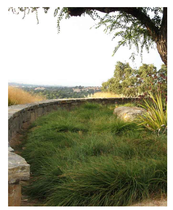

PARTHENOCISSUS TRICUSPIDATA
BOSTON IVY


TRACHELOSPERMUM JASMINOIDES
STAR JASMINE

LID


BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLUE GRAMA OATS

CAREX PANSA
CALIFORNIA FIELD SEDGE

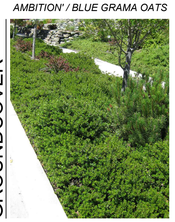

CAREX PANSA
CALIFORNIA FIELD SEDGE

CHONDROPETALUM TECTORUM
SMALL CAPE RUSH

JUNCUS PATENS
CALIFORNIA GRAY RUSH

MUHLENBERGIA RIGENS
DEER GRASS

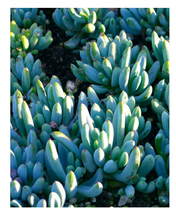
GROUNDCOVER


ARCTOSTAPHYLOS 'EMERALD
CARPET' / MANZANITA

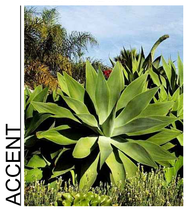
CARISSA MACROCARPA 'GREEN
CARPET' / NATAL PLUM

MYOPORUM PARVIFOLIUM
MYOPORUM

SALVIA 'GRACIAS'
GRACIAS SAGE


SENECIO SERPENS
BLUE CHALK STICKS

ACCENT


AGAVE ATTENUATA
FOXTAIL AGAVE

CARPENTERIA CALIFORNICA
BUSH ANEMONE

EUPHORBIA RIGIDA
GOPHER SPURGE

HESPERALOE PARVIFLORA
RED YUCCA

PHORMIUM 'JACK SPRATT'
JACK SPRAT NZ FLAX

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LANDSCAPE ARCHITECT OF RECORD SEAL

LICENSED LANDSCAPE ARCHITECT
Matthew Burgin License No. 5284
Signature
Renewal Date
Seal
STATE OF CALIFORNIA

NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

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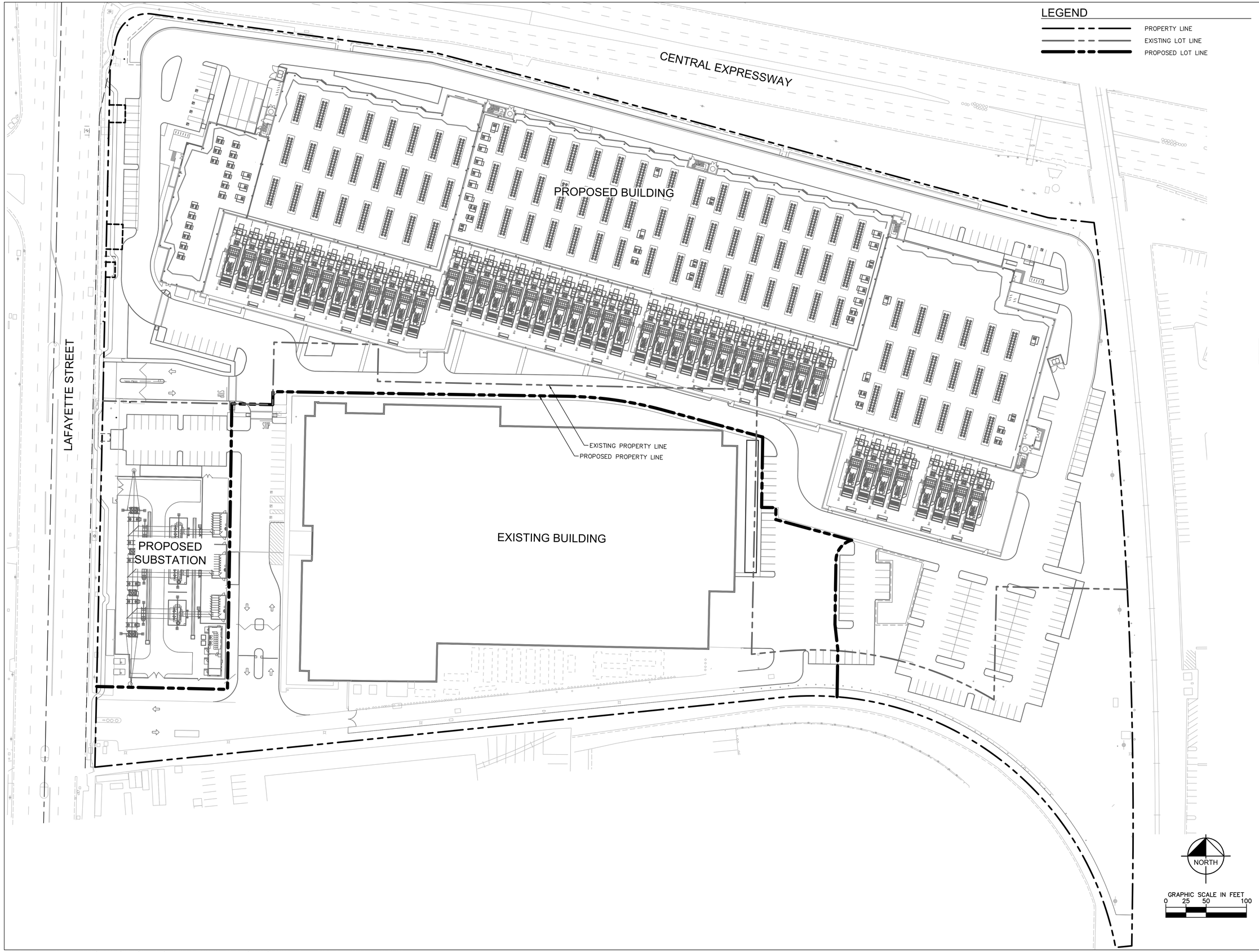
PLANT PALETTE
IMAGERY

PRINCIPAL IN CHARGE JP	PROJECT NUMBER 197250001
PROJECT MANAGER MJ	DATE 09/02/20
PROJECT ENGINEER KN	SHEET NUMBER
SCALE AS SHOWN	L2.3



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REGISTERED PROFESSIONAL ENGINEER
MILES R. JOHNSON
RCE NO. 84307
CIVIL
STATE OF CALIFORNIA

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NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

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2825 LAFAYETTE STREET
SANTA CLARA, CA, 95050

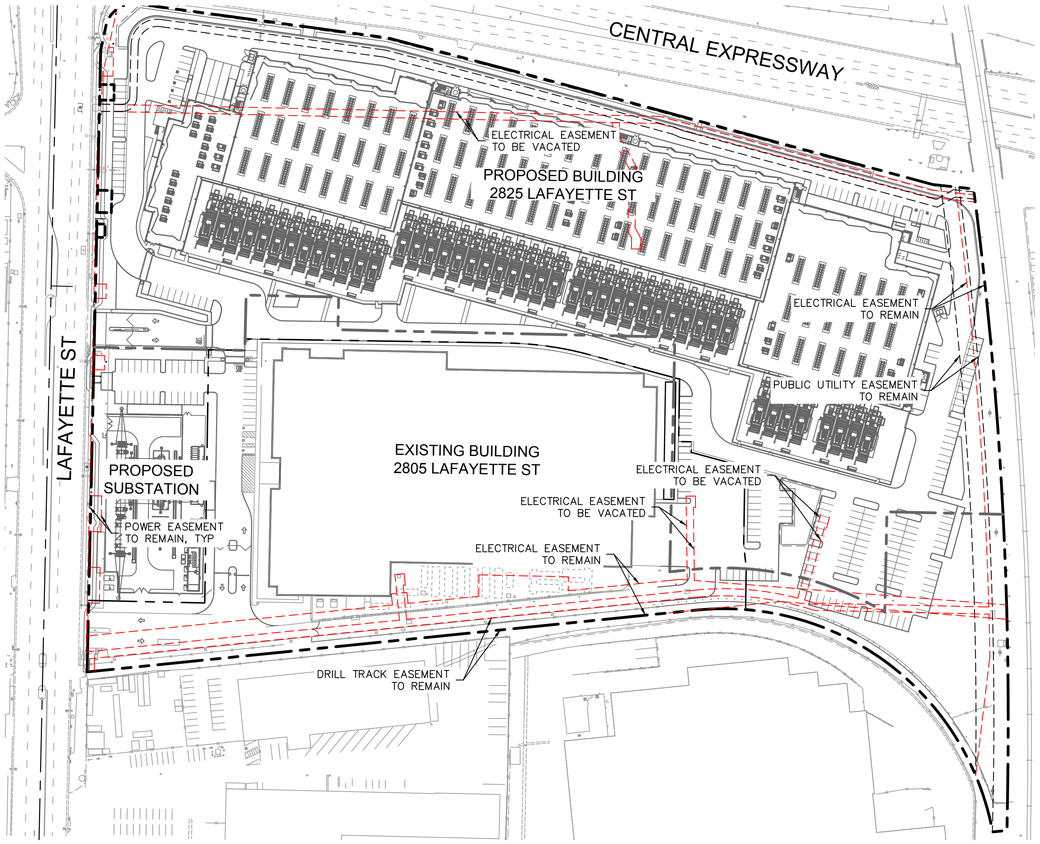
PROPOSED
PROPERTY LOT
LINE ADJUSTMENT

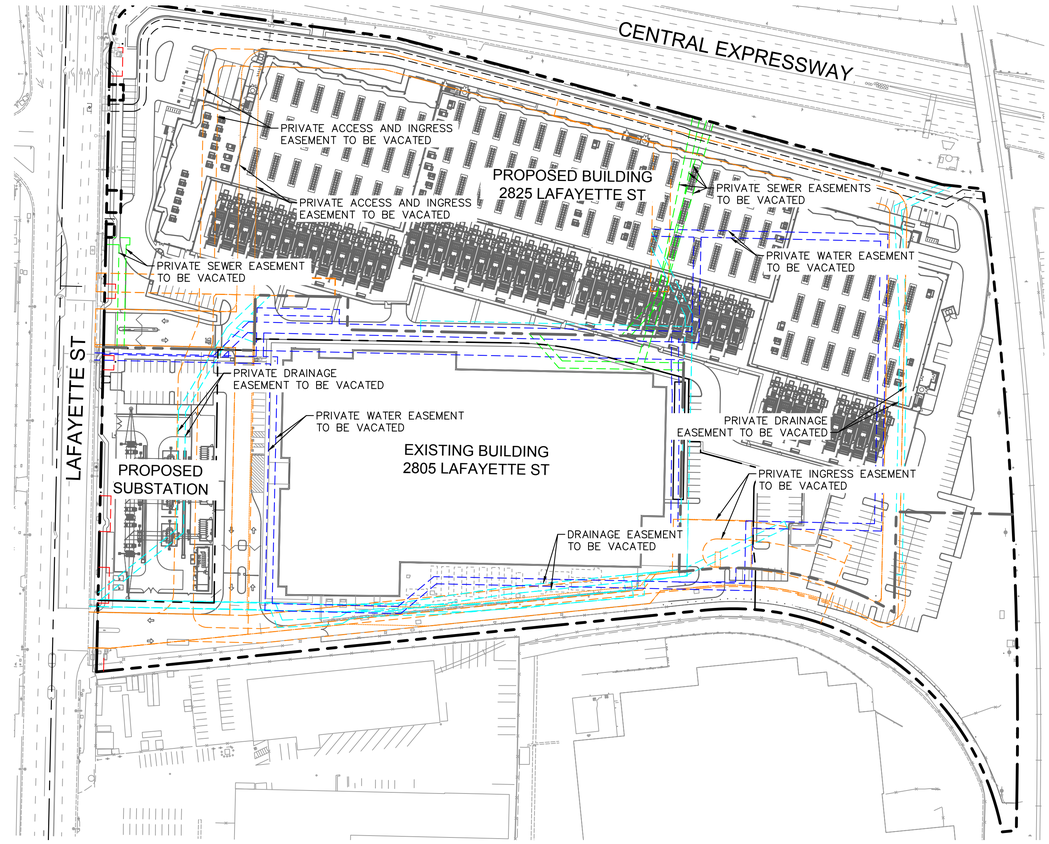
PRINCIPAL IN CHARGE	PROJECT NUMBER
JP	197250001
PROJECT MANAGER	DATE
MJ	09/02/20
PROJECT ENGINEER	SHEET NUMBER
KN	C0.0
SCALE	
AS SHOWN	

K:\BAY_LDEV\197250001 - DLR Data Center (Lafayette St.) - MRJ\CAD\Exhibits\Entitlement Drawings\C0.0 PROPERTY LINE PLAN.dwg 11/18/2020 8:26 PM kari.nelson

LEGEND

- PUBLIC UTILITY EASEMENT
- ELECTRICAL/POWER EASEMENT
- WATER EASEMENT
- SANITARY SEWER EASEMENT
- STORM DRAIN EASEMENT
- INGRESS/EGRESS EASEMENT
- PROPERTY LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE





NORTH

GRAPHIC SCALE IN FEET
0 50 100 200

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NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

DLR DATA CENTER
2825 LAFAYETTE STREET
SANTA CLARA, CA, 95050

EASEMENT PLAN

PRINCIPAL IN CHARGE JP	PROJECT NUMBER 197250001
PROJECT MANAGER MJ	DATE 09/02/20
PROJECT ENGINEER KN	SHEET NUMBER
SCALE AS SHOWN	C0.1

LEGEND

- PROPERTY LINE
- EASEMENT
- CHAIN LINK FENCE WITH GREEN SCREEN
- GRAVEL BAGS
- DIRECTION OF EXISTING SURFACE FLOW

CONSTRUCTION PLAN NOTES

1. ALL CONSTRUCTION VEHICLES, EQUIPMENT, TRAILERS AND MATERIAL STORAGE SHALL BE LOCATED ON-SITE.
2. NO CONSTRUCTION EQUIPMENT OR VEHICLES SHALL BE STORED OR PARKED ON RESIDENTIAL STREETS OR PUBLIC PARKING LOTS.
3. CONSTRUCTION CONTRACTORS/WORKERS ARE REQUIRED TO PARK ON-SITE AND SHALL NOT BE ALLOWED TO USE NEIGHBORING PUBLIC STREETS FOR PARKING/STORAGE.
4. CONSTRUCTION EQUIPMENT STORAGE AND CONSTRUCTION PARKING LOCATIONS AND SIZES ARE SHOWN FOR REFERENCE ONLY. FINAL LOCATIONS AND SIZES ARE TO BE DETERMINED BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UPDATE THIS PLAN WITH FINAL LOCATIONS AND SIZES OF THE CONSTRUCTION TRAILER, EQUIPMENT STORAGE AND CONSTRUCTION PARKING.

BMP NOTES

THE FOLLOWING BMPS AS OUTLINED IN, BUT NOT LIMITED TO, THE CALIFORNIA STORMWATER BMP HANDBOOK DATED NOVEMBER 2009, OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED AS NEEDED:

EC-1, SCHEDULING
EC-2, PRESERVATION OF EXISTING VEGETATION
EC-3, HYDRAULIC MULCH
WE-1, WIND EROSION CONTROL
NS-1, WATER CONSERVATION PRACTICES
NS-3, PAVING AND GRINDING OPERATIONS
NS-7, POTABLE WATER/IRRIGATION
NS-12, CONCRETE CURING
NS-13, CONCRETE FINISHING
WM-4, SPILL PREVENTION AND CONTROL
WM-5, SOLID WASTE MANAGEMENT
WM-7, CONTAMINATED SOIL MANAGEMENT
WM-9, SANITARY/SEPTIC WASTE MANAGEMENT
WM-10, LIQUID WASTE MANAGEMENT
SE-7, STREET SWEEPING AND VACUUMING

SEQUENCE OF CONSTRUCTION

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAYDOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.

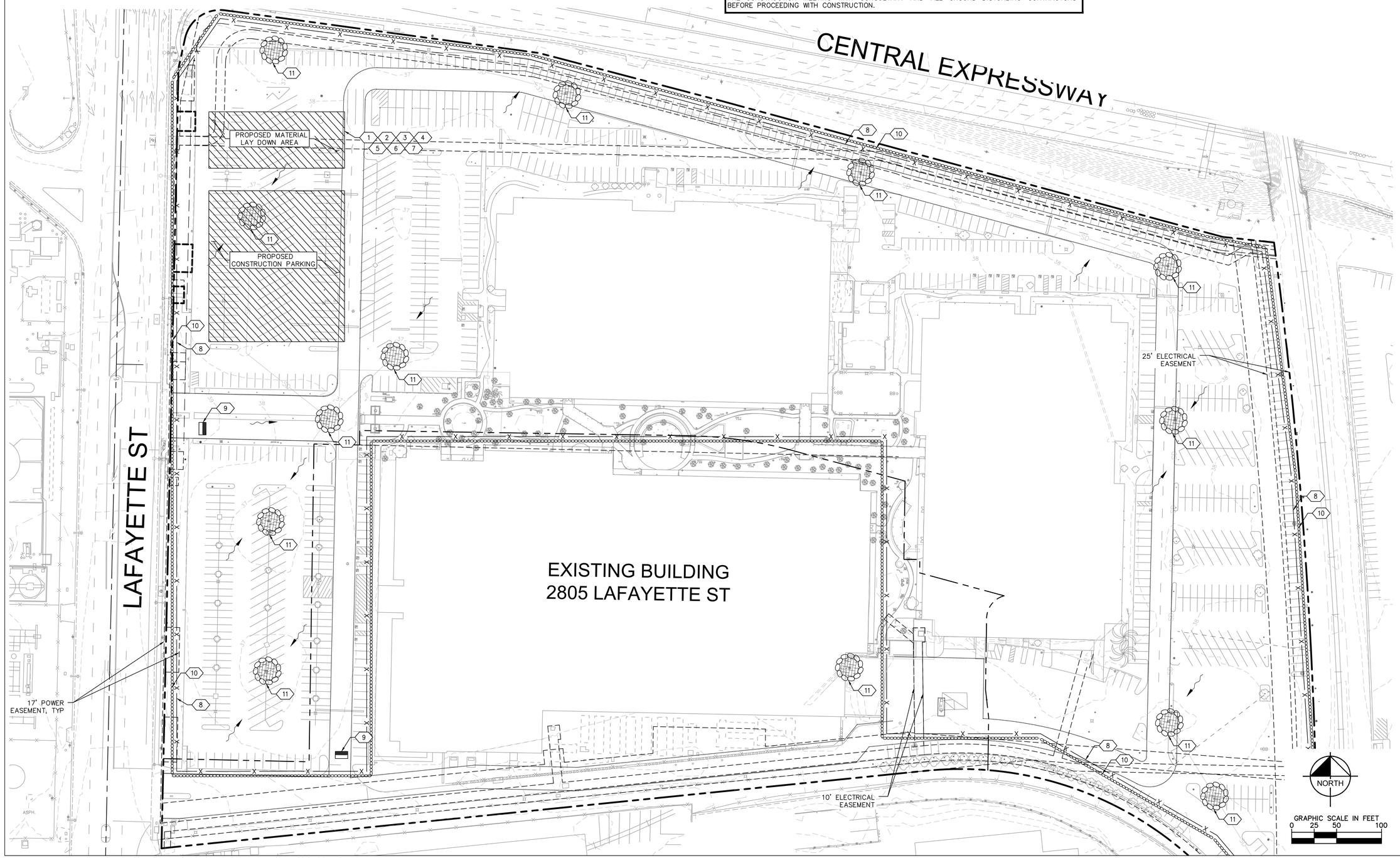
PHASE 1:
1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (MIN. 1) AND CHAIN LINK FENCE WITH GREEN SCREEN AND THEN SILT FENCE WHERE SHOWN ON PLAN.
2. CONSTRUCT AND STABILIZE SEDIMENT BASIN AND DRAINAGE SWALES WITH APPROPRIATE OUTFALL STRUCTURES (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL CONTROL DEVICES LISTED ABOVE)
3. INSTALL INLET PROTECTION AT EXISTING INLET(S).
4. INSTALL AND STABILIZE ANY NECESSARY HYDRAULIC CONTROL STRUCTURES (DIKES,CHECK DAMS, OUTLET TRAPS, RISER PIPE DISCHARGE POINT, ETC.)
5. PREPARE CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.

PHASE 2:
6. PERFORM MASS GRADING. ROUGH GRADE TO ESTABLISH PROP. DRAINAGE PATTERNS.
7. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.
8. TEMPORARILY SEED WITH PURE LIVE SEED, THROUGHOUT CONSTRUCTION, DISTURBED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE OR AS REQUIRED BY GENERIC PERMIT.

HALT ALL ACTIVITIES AND CONTACT THE CONSULTANT TO PERFORM INSPECTION AND CERTIFICATION OF BMPS. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH CONSULTANT AND ALL GROUND-DISTURBING CONTRACTORS BEFORE PROCEEDING WITH CONSTRUCTION.

EROSION CONTROL NOTES

1. WM-1, MATERIAL DELIVERY AND STORAGE.
2. WM-3, STOCKPILE MANAGEMENT, CONTRACTOR TO SET UP STOCKPILE AREA.
3. WM-5, SANITARY AREA.
4. WM-6, HAZARDOUS WASTE MANAGEMENT.
5. WM-8, CONCRETE WASTE MANAGEMENT.
6. NS-10, VEHICLE AND EQUIPMENT MAINTENANCE.
7. SD-32, TRASH STORAGE AREA.
8. CHAIN LINK FENCE WITH GREEN SCREEN. CONTRACTOR TO MAINTAIN DURING ALL GRADING & MOBILIZATION ACTIVITIES.
9. TR-3, ENTRANCE/OUTLET TIRE WASH.
10. SC-5, GRAVEL BAG. CONTRACTOR TO MAINTAIN DURING ALL GRADING AND MOBILIZATION ACTIVITIES.
11. SE-10, STORM DRAIN CURB INLET PROTECTION.



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SANTA CLARA, CA, 95050

PRELIMINARY
EROSION
CONTROL PLAN

PRINCIPAL IN CHARGE	PROJECT NUMBER
JP	197250001
PROJECT MANAGER	DATE
MJ	09/02/20
PROJECT ENGINEER	SHEET NUMBER
KN	C0.2
SCALE	
AS SHOWN	

SITE DATA

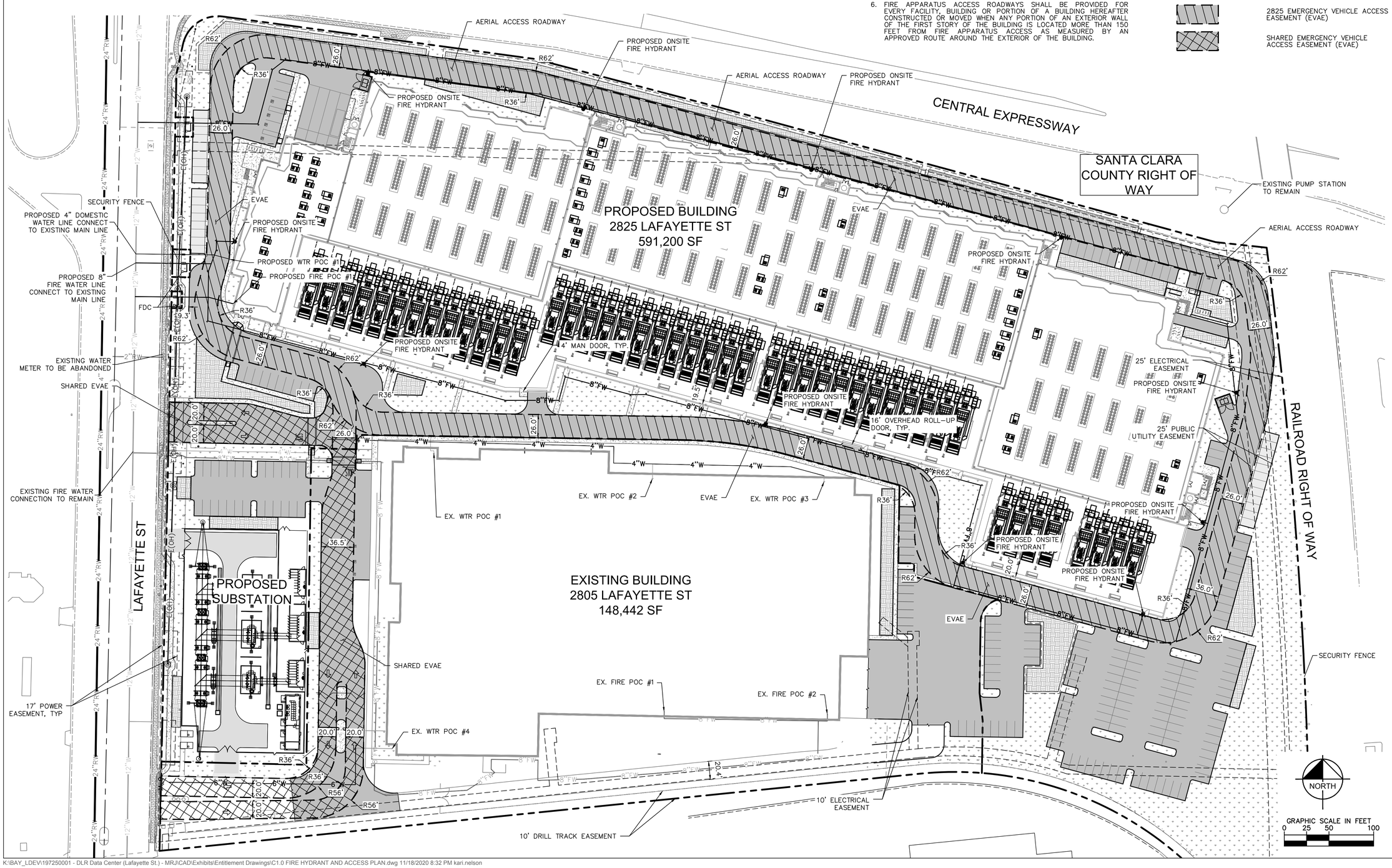
BUILDING CONSTRUCTION TYPE:	IIA
TOTAL BUILDING SQUARE FOOTAGE:	591,200 SF
REQUIRED FIRE FLOW (PER CFC TABLE B105.1, BEFORE REDUCTION):	6,000 GPM
MINIMUM REQUIRED HYDRANTS (PER CFC TABLE C102.1):	6 HYDRANTS
HYDRANTS PROVIDED:	11 HYDRANTS
AVERAGE HYDRANT SPACING:	~246'

GENERAL NOTES

1. FIRE ACCESS ROADWAYS SHALL HAVE A "MINIMUM" UNOBSTRUCTED VERTICAL CLEARANCE OF NOT LESS THAN 13 FEET 6 INCHES. AERIAL APPARATUS ACCESS ROADS MAY REQUIRE ADDITIONAL VERTICAL CLEARANCE.
2. ALL FIRE ACCESS ROADWAYS SHALL BE AN ALL-WEATHER SURFACE DESIGNED TO SUPPORT THE IMPOSED LOAD OF FIRE APPARATUS WITH A GROSS VEHICLE WEIGHT OF 75,000 POUNDS.
3. FIRE APPARATUS ACCESS ROADWAYS SHALL HAVE A "MINIMUM" INSIDE TURNING RADIUS OF 36 FEET.
4. THE GRADE FOR EMERGENCY APPARATUS ACCESS ROADWAYS SHALL NOT EXCEED 10% TO FACILITATE FIRE-GROUND OPERATIONS. SEE SHEET C3.0, PRELIMINARY GRADING AND DRAINAGE PLAN, FOR PROPOSED GRADING INFORMATION.
5. TRAFFIC CALMING DEVICES ARE NOT PERMITTED ON ANY DESIGNATED FIRE ACCESS ROADWAY, UNLESS APPROVED BY THE FIRE PREVENTION & HAZARDOUS MATERIALS DIVISION.
6. FIRE APPARATUS ACCESS ROADWAYS SHALL BE PROVIDED FOR EVERY FACILITY, BUILDING OR PORTION OF A BUILDING HEREAFTER CONSTRUCTED OR MOVED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY OF THE BUILDING IS LOCATED MORE THAN 150 FEET FROM FIRE APPARATUS ACCESS AS MEASURED BY AN APPROVED ROUTE AROUND THE EXTERIOR OF THE BUILDING.

LEGEND

- PROPERTY LINE
- 8"FW — PROPOSED 8" FIRE WATER LINE
- 12"W — EXISTING WATER LINE
- PROPOSED ONSITE FIRE HYDRANT
- LANDSCAPE/PLANTER AREA
- BIORETENTION AREA
- ASPHALT CONCRETE PAVEMENT
- 2825 EMERGENCY VEHICLE ACCESS EASEMENT (EVAE)
- SHARED EMERGENCY VEHICLE ACCESS EASEMENT (EVAE)



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SANTA CLARA, CA, 95050

FIRE TRUCK ACCESS PLAN

PRINCIPAL IN CHARGE	PROJECT NUMBER
JP	197250001
PROJECT MANAGER	DATE
MJ	09/02/20
PROJECT ENGINEER	SHEET NUMBER
KN	C1.0
SCALE	
AS SHOWN	

K:\BAY_LDEV\197250001 - DLR Data Center (Lafayette St.) - MRJ\CAD\Exhibits\Entitlement Drawings\C1.0 FIRE HYDRANT AND ACCESS PLAN.dwg 11/18/2020 8:32 PM kari.nelson

Wednesday, July 24, 2019

Fire Flow Data Requested by
Name: Miles Johnson
Company: Kimley Horn
Tel: 669-800-4140
Email: miles.johnson@kimley-horn.com

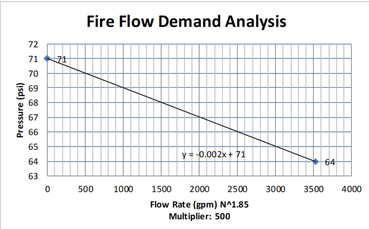
You have requested fire flow data for the area around 2825 Lafayette St. Results provided are from fire hydrant flow test #751. Flow data was obtained from hydrant #285, and pressure data was obtained from hydrant #1760, as shown on the attached water utility map. The flow hydrants are connected to a 12" water main.

Test Flow (GPM) was computed, per National Fire Protection Association 291, by the Hazen-Williams Equation and multiplied by a Hydrant Coefficient value of 0.83.

Date of Fire Flow Test #751	Static Pressure PSI	Residual Pressure PSI	Opening Size Inches	Test Flow GPM
Wednesday, July 17, 2019	71	64	4	2,378

Fire Flow Graphical Analysis		
	= Manual Input	
	= Calculated Demand	
	Pressure	Flow Rate
Static	71	0
Observed	64	2378
Demand	68.0	1500

Do Not Modify		
71	0	0
64	1761943	3524
X	751223	1502



Water Supply Pressure Calculations

DLR Data Center

DLR Data Center
Kimley-Horn and Associates
September 13, 2019

Assumptions and References:

1. Available static pressure at existing water main (Node #1), P_1= **71** PSI

   Note: see attached Fire Flow Test

2. Water Demand:

Building Sprinklers=	0	GPM			
Fire Hydrant=	1500	GPM			
Design=	1500	GPM	@	71	PSI (Per Fire Flow Test)

3. Use Hazen-Williams Formula formula to compute friction loss in pipe.

h_f= (10.44*L*V_{gpm}^1.85)/(C^1.85*d_{inches}^4.8655)

where:
- h_f — Pressure Loss over length of pipe (FT)
- L — Length of Pipe (FT)
- V — Volumentric Flow Rate (GPM)
- C — Friction Coefficient
  - C= 150 for PVC
  - C= 140 for DIP
- d — Diameter (Inches)

Note: 10% of friction loss will be added to h_f to account for losses through bends

4. Determine the Pressure at downstream Nodes by subtracting friction losses in pipes & bends, gain/loss due to elevation change between nodes and loss across the backflow preventor.

P_{x+1}=P_x-1.10*$h_{f(x)}$-h_{bp}

where:
- P_{x+1} — Pressure at Node #X+1 (PSI)
- P_x — Pressure at Node #X (PSI)
- h_f — Pressure Loss over length of pipe (FT)
- h_x — Elevation Difference Between two nodes (FT)
- h_{bp} — Pressure Loss across Backflow Preventor **15** PSI

Notes: 1. See attached BFP cut sheet/flow characteristics graph
2. Occurs at Node #2

Note: 1 FT H_2O = 2.31 PSI

5. Refer to the attached Schematic Plan for more information

6. Calculations

Input:

Site Fire Hydrant Calculations

	V (GPM)	d (IN)	C	L (FT)	h_f (FT)	Elev (FT)	h_x (FT)
Pipe Segment "FH1"	1500	8	150	1714	51.1	38.5 @ Node 3	1.5
						40.0 @ Test Hydrant	

Results:

P (PSI)	
32.3	@ Node #3 > 20 PSI OK

EXISTING UTILITY NOTE

THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.

SITE DATA

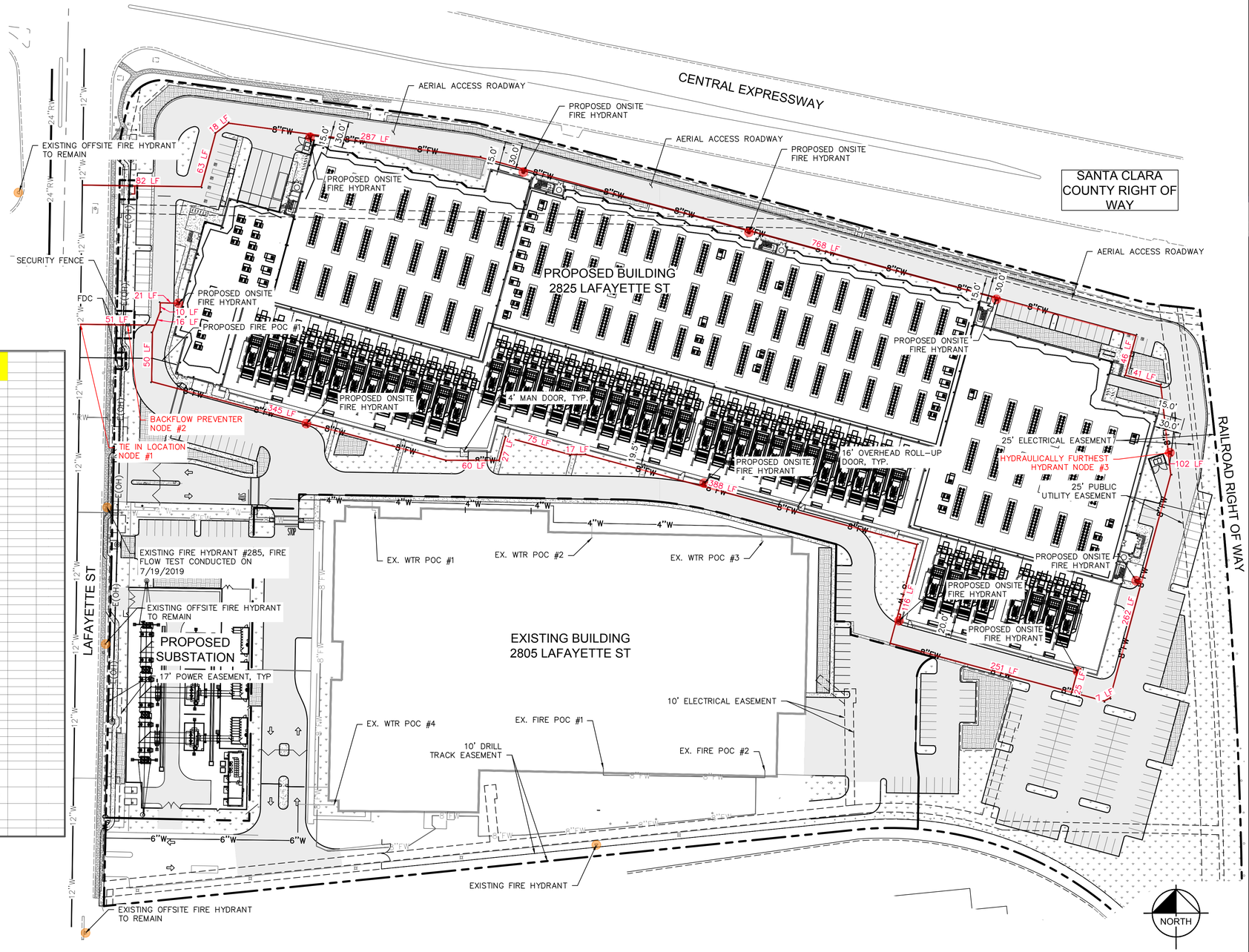
BUILDING CONSTRUCTION TYPE: TYPE 2–A

GENERAL NOTES

1. DOMESTIC WATER TO MAINTAIN 5' HORIZONTAL CLEARANCE FROM BIORETENTION AREAS.
2. CONTRACTOR TO FIELD VERIFY INVERTS PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE FOUND.
3. PRIOR TO THE START OF CONSTRUCTION, FIRE PROTECTION WATER SUPPLIES SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO THE TIME OF CONSTRUCTION OR PRIOR TO COMBUSTIBLE MATERIALS BEING MOVED ONSITE, UNLESS AN APPROVED ALTERNATIVE METHOD OF PROTECTION IS APPROVED BY THE FIRE PREVENTION AND HAZARDOUS MATERIALS DIVISION.

LEGEND

- PROPERTY LINE
- EXISTING WATER LINE
- EXISTING FIRE WATER LINE (8"FW)
- PROPOSED FIRE WATER LINE (SIZE PER PLAN) (FW)
- PROPOSED FIRE HYDRANT
- EXISTING FIRE HYDRANT
- LANDSCAPE/ PLANTER AREA
- BIORETENTION AREA
- ASPHALT CONCRETE PAVEMENT



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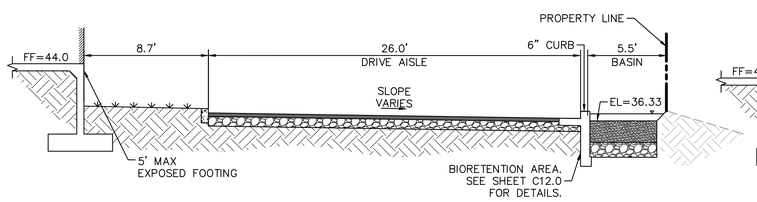
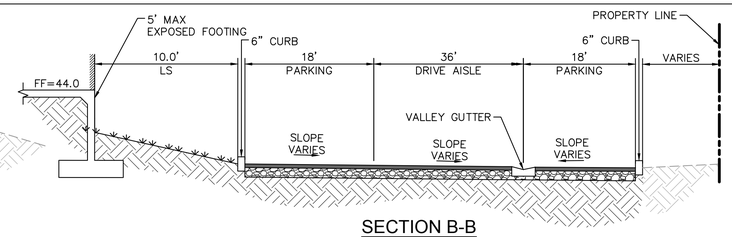
FIRE DEPARTMENT WATER SUPPLY PLAN

PRINCIPAL IN CHARGE: JP	PROJECT NUMBER: 197250001
PROJECT MANAGER: MJ	DATE: 09/02/20
PROJECT ENGINEER: KN	SHEET NUMBER: C2.0
SCALE: AS SHOWN	



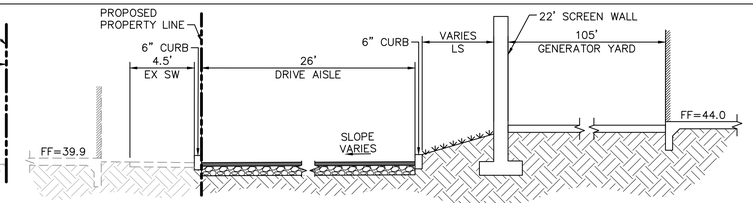
SECTION A-A

SCALE: NTS



SECTION B-B

SCALE: NTS

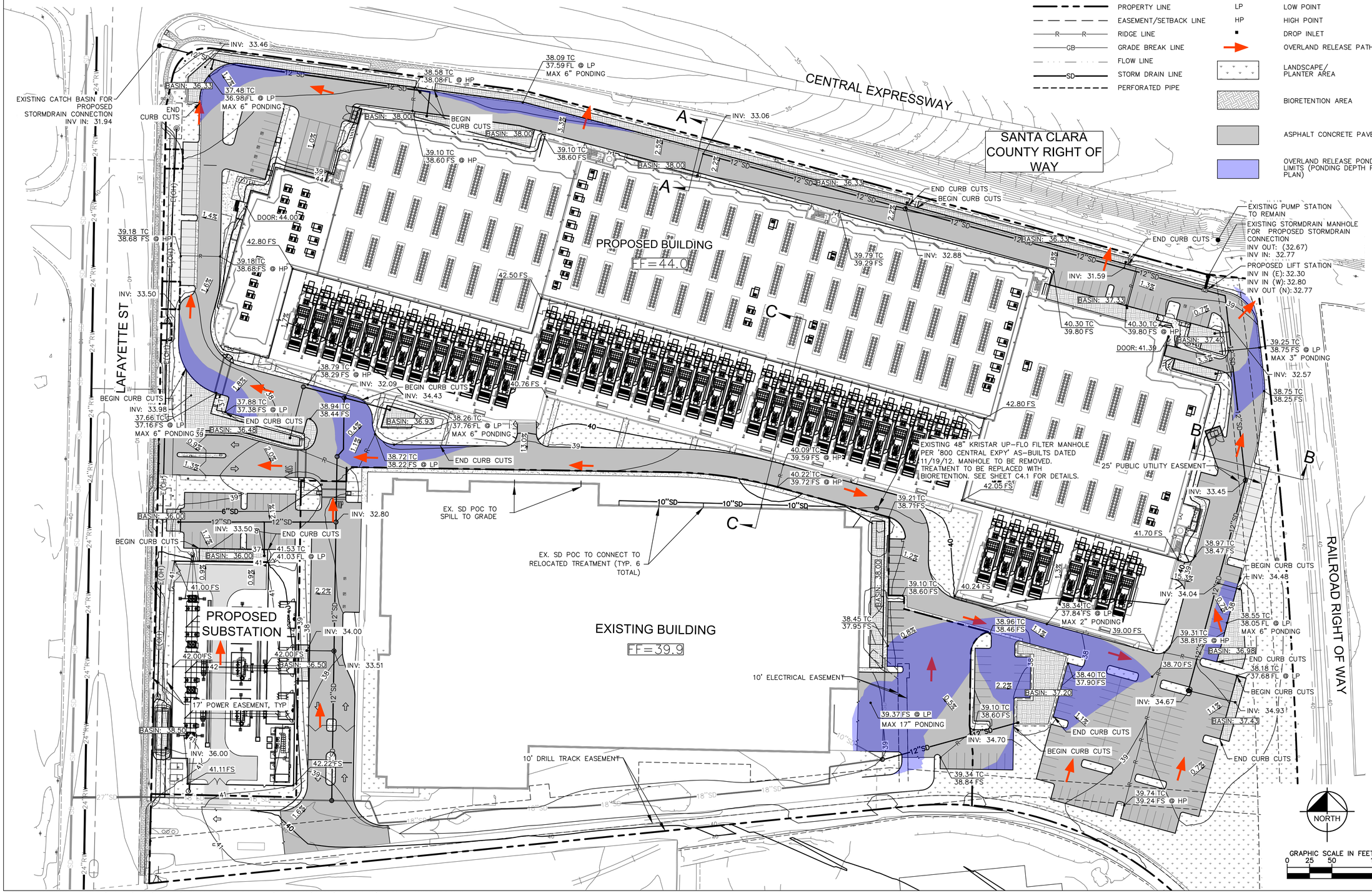


SECTION C-C

SCALE: NTS

LEGEND

	PROPERTY LINE	LP	LOW POINT
	EASEMENT/SETBACK LINE	HP	HIGH POINT
R R	RIDGE LINE	■	DROP INLET
CB	GRADE BREAK LINE		OVERLAND RELEASE PATH
	FLOW LINE		LANDSCAPE/ PLANTER AREA
SD	STORM DRAIN LINE		BIORETENTION AREA
	PERFORATED PIPE		ASPHALT CONCRETE PAVEMENT
			OVERLAND RELEASE PONDING LIMITS (PONDING DEPTH PER PLAN)



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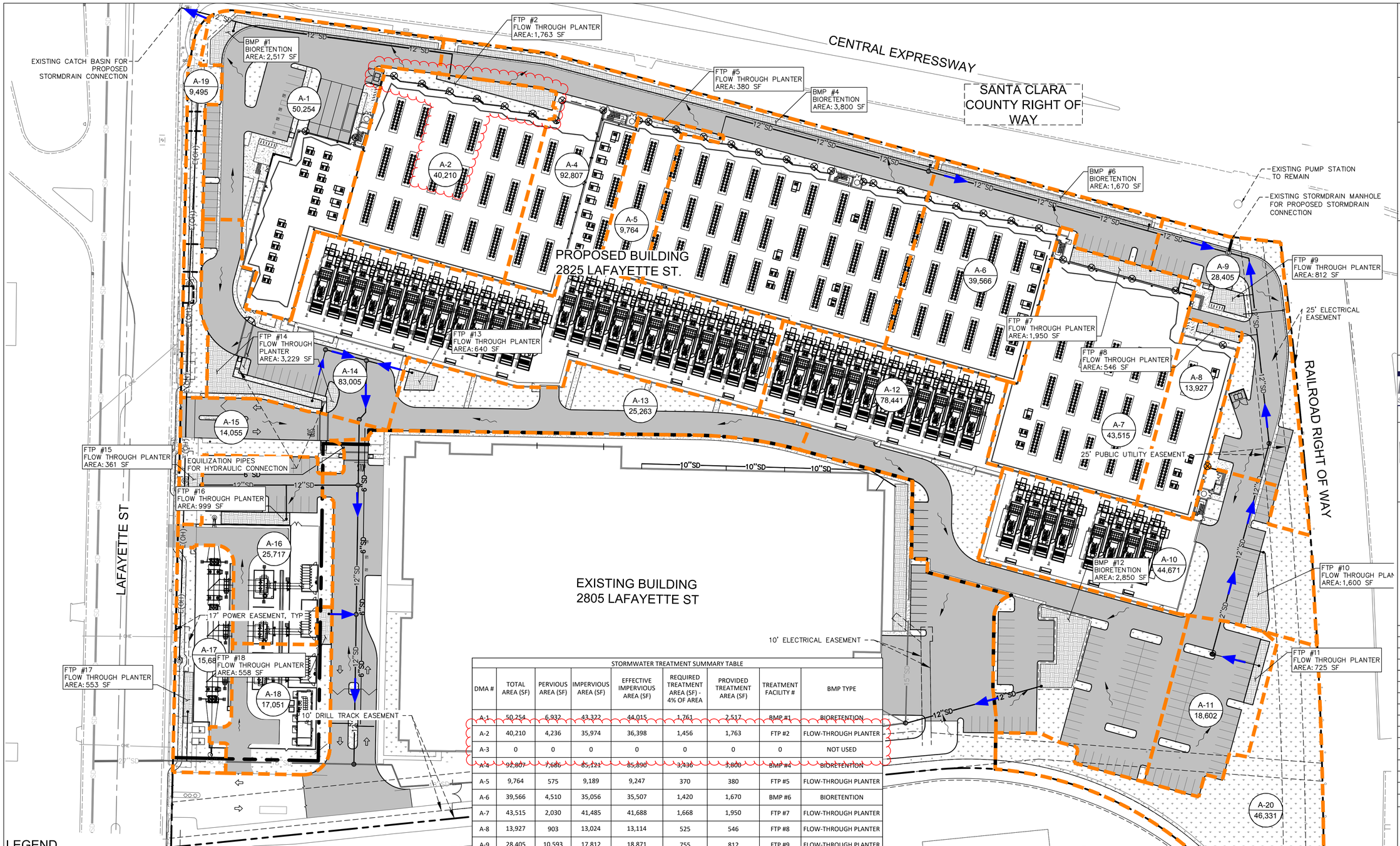
SANTA CLARA, CA, 95050

GRADING AND DRAINAGE PLAN

PRINCIPAL IN CHARGE JP	PROJECT NUMBER 197250001
PROJECT MANAGER MJ	DATE 09/02/20
PROJECT ENGINEER KN	SHEET NUMBER C3.0
SCALE AS SHOWN	



LEGEND

- PROPERTY LINE
- IMPERVIOUS ROOF AREA
- IMPERVIOUS ASPHALT AREA
- LANDSCAPING
- LIMITS OF BIORETENTION SYSTEM
- APPROXIMATE ROOF DOWNSPOUT LOCATION
- A-1 / 100 — DENOTES DMA DESIGNATION; DENOTES DRAINAGE AREA IN S.F.
- DENOTES DRAINAGE MANAGEMENT AREA (DMA) BOUNDARY
- PROPOSED PIPE SLOPE DIRECTION
- EXISTING EASEMENT LINE
- XX"SD — PROPOSED STORM DRAIN LINE
- XX"SD — EXISTING STORM DRAIN LINE
- ST — SELF TREATING
- SURFACE FLOW DIRECTION

STORMWATER TREATMENT SUMMARY TABLE

DMA #	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (SF) - 4% OF AREA	PROVIDED TREATMENT AREA (SF)	TREATMENT FACILITY #	BMP TYPE
A-1	50,254	6,932	43,322	44,015	1,761	2,517	BMP #1	BIORETENTION
A-2	40,210	4,236	35,974	36,398	1,456	1,763	FTP #2	FLOW-THROUGH PLANTER
A-3	0	0	0	0	0	0	NOT USED	
A-4	92,807	7,686	85,121	85,890	3,436	3,800	BMP #4	BIORETENTION
A-5	9,764	575	9,189	9,247	370	380	FTP #5	FLOW-THROUGH PLANTER
A-6	39,566	4,510	35,056	35,507	1,420	1,670	BMP #6	BIORETENTION
A-7	43,515	2,030	41,485	41,688	1,668	1,950	FTP #7	FLOW-THROUGH PLANTER
A-8	13,927	903	13,024	13,114	525	546	FTP #8	FLOW-THROUGH PLANTER
A-9	28,405	10,593	17,812	18,871	755	812	FTP #9	FLOW-THROUGH PLANTER
A-10	44,671	9,758	34,913	35,889	1,436	1,600	FTP #10	FLOW-THROUGH PLANTER
A-11	18,602	3,528	15,074	15,427	617	725	FTP #11	FLOW-THROUGH PLANTER
A-12	78,441	12,272	66,169	67,396	2,696	2,850	BMP #12	BIORETENTION
A-13	25,263	11,309	13,954	15,085	603	640	FTP #13	FLOW-THROUGH PLANTER
A-14	83,005	5,528	77,477	78,030	3,121	3,205	FTP #14	FLOW-THROUGH PLANTER
A-15	14,055	5,598	8,457	9,017	361	361	FTP #15	FLOW-THROUGH PLANTER
A-16	25,717	3,589	22,128	22,487	899	999	FTP #16	FLOW-THROUGH PLANTER
A-17	15,684	4,523	11,161	11,613	465	553	FTP #17	FLOW-THROUGH PLANTER
A-18	17,051	3,828	13,223	13,606	544	558	FTP #18	FLOW-THROUGH PLANTER
A-19	9,495	9,495	0	-	0	N/A	N/A	SELF TREATING
A-20	46,331	46,331	0	-	0	N/A	N/A	SELF TREATING
TOTAL	696,763	153,224	543,539	553,279	22,131	24,929	N/A	N/A

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RCE NO. 84307
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STATE OF CALIFORNIA

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3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

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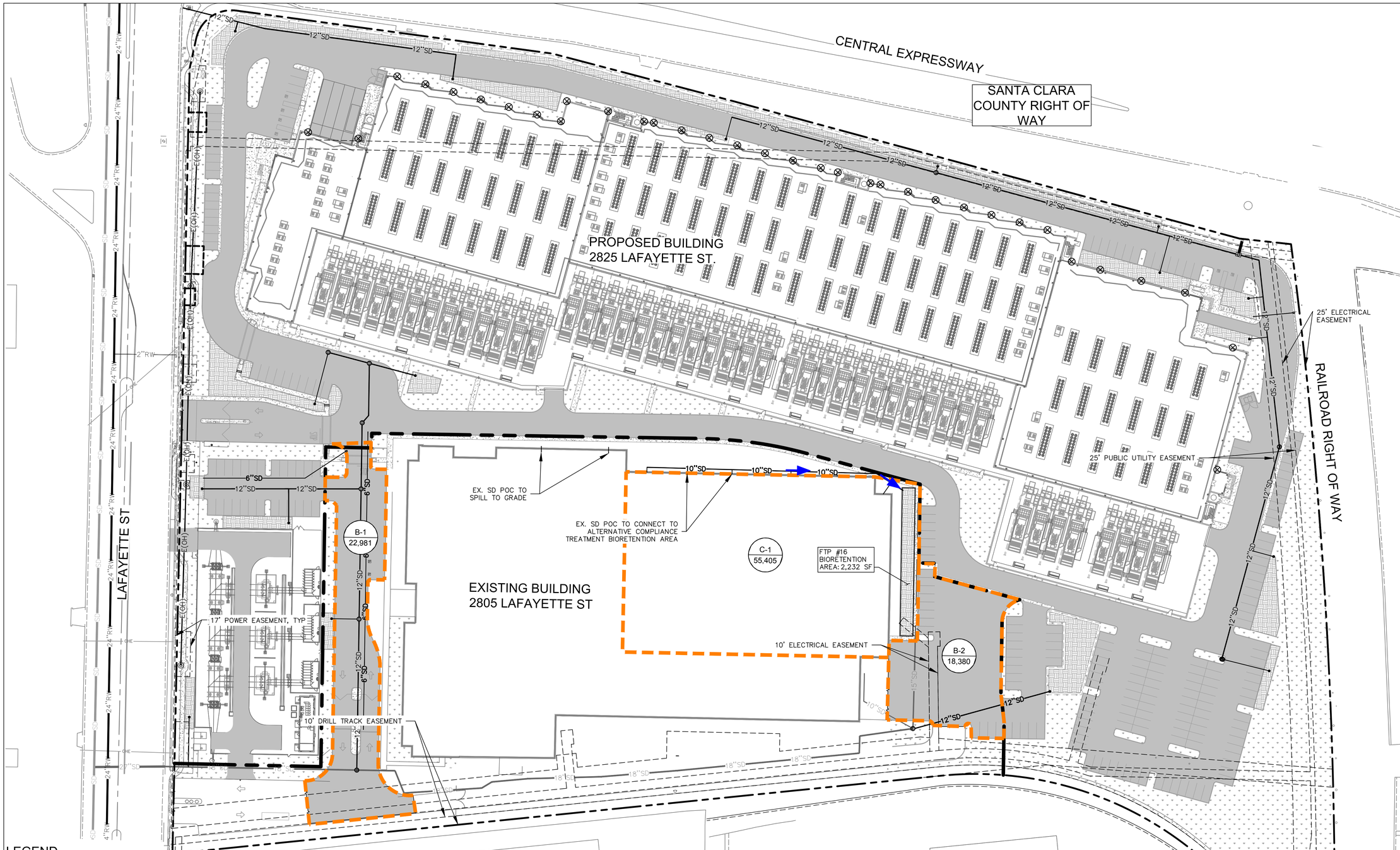
2825 PRELIM STORMWATER CONTROL PLAN

PRINCIPAL IN CHARGE: JP	PROJECT NUMBER: 197250001
PROJECT MANAGER: MJ	DATE: 09/02/20
PROJECT ENGINEER: KN	SHEET NUMBER: C4.0
SCALE: AS SHOWN	



LEGEND

PROPERTY LINE	DENOTES DMA DESIGNATION
IMPERVIOUS ROOF AREA	A–1 / 100 — DENOTES DRAINAGE AREA IN S.F.
IMPERVIOUS ASPHALT AREA	DENOTES DRAINAGE MANAGEMENT AREA (DMA) BOUNDARY
LANDSCAPING	PROPOSED PIPE SLOPE DIRECTION
LIMITS OF BIORETENTION SYSTEM	EXISTING EASEMENT LINE
	XX"SD — PROPOSED STORM DRAIN LINE
	XX"SD — EXISTING STORM DRAIN LINE
	ST — SELF TREATING
	SURFACE FLOW DIRECTION

REQUIRED STORMWATER TREATMENT SUMMARY TABLE

DMA #	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (SF) - 4% OF AREA	PROVIDED TREATMENT AREA (SF)	TREATMENT FACILITY #	BMP TYPE
B-1	22,981	0	22,981	22,981	919	SEE C-1	SEE C-1	ALTERNATIVE COMPLIANCE*
B-2	18,380	0	18,380	18,380	735	SEE C-1	SEE C-1	ALTERNATIVE COMPLIANCE*
TOTAL	41,361	0	41,361	41,361	1,654	2,232	N/A	N/A

ALTERNATIVE COMPLIANCE STORMWATER TREATMENT SUMMARY TABLE*

DMA #	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (SF) - 4% OF AREA	PROVIDED TREATMENT AREA (SF)	TREATMENT FACILITY #	BMP TYPE
C-1	55,405	0	55,405	55,405	2,216	2,232	FTP #16	FLOW-THROUGH PLANTER
TOTAL	55,405	0	55,405	55,405	2,216	2,232	N/A	N/A

*DRAINAGE MANAGEMENT AREAS (DMA) B–1 AND B–2 ENCOMPASS THE DISTURBED IMPERVIOUS AREA AT 2805 LAFAYETTE STREET. AN EQUIVALENT, OR LARGER, EXISTING IMPERVIOUS AREA C–1 WILL BE TREATED IN LIEU OF B–1 AND B–2.

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SANTA CLARA, CA, 95050

2805 PRELIM
STORMWATER
CONTROL PLAN

PRINCIPAL IN CHARGE: JP	PROJECT NUMBER: 197250001
PROJECT MANAGER: MJ	DATE: 09/02/20
PROJECT ENGINEER: KN	SHEET NUMBER: C4.1
SCALE: AS SHOWN	

EARTHWORK

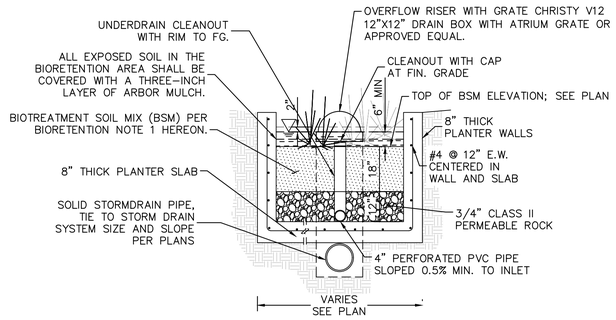
CUT:	4,000	CY
FILL:	58,000	CY
NET:	54,000	CY (FILL)

THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S).

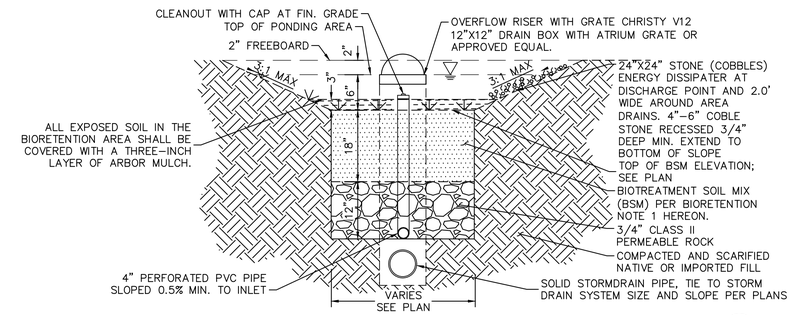
THE EARTHWORK QUANTITIES ABOVE ARE FOR PERMIT PURPOSES ONLY. THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, OVER-EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, FOOTINGS, SLABS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE NEW PAVEMENTS, ETC. THE CONTRACTOR SHALL RELY ON THEIR OWN EARTHWORK ESTIMATES FOR BIDDING PURPOSES.

HYDROMODIFICATION APPLICABILITY

1. PER THE HYDROMODIFICATION MANAGEMENT PLAN (HMP) APPLICABILITY MAP FOR THE CITY OF SANTA CLARA, THIS PROJECT IS IN THE AREA CONSIDERED "CATCHMENTS DRAINING TO HARDENED CHANNEL AND/OR TIDAL AREAS," THEREFORE HM IS NOT REQUIRED FOR THIS PROJECT.



FLOW-THROUGH PLANTER SYSTEM (1)
N.T.S.



BIORETENTION AREA SYSTEM (2)
N.T.S.

STORMWATER TREATMENT SUMMARY TABLE

DMA #	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (SF) - 4% OF AREA	PROVIDED TREATMENT AREA (SF)	TREATMENT FACILITY #	BMP TYPE
A-1	50,254	6,932	43,322	44,015	1,761	2,517	FTP #1	FLOW-THROUGH PLANTER
A-2	23,733	1,770	21,963	22,140	886	1,163	FTP #2	FLOW-THROUGH PLANTER
A-3	15,035	889	14,146	14,235	569	600	FTP #3	FLOW-THROUGH PLANTER
A-4	94,249	9,263	84,986	85,912	3,436	3,800	FTP #4	FLOW-THROUGH PLANTER
A-5	9,764	575	9,189	9,247	370	380	FTP #5	FLOW-THROUGH PLANTER
A-6	39,566	4,510	35,056	35,507	1,420	1,670	FTP #6	FLOW-THROUGH PLANTER
A-7	43,515	2,030	41,485	41,688	1,668	1,950	FTP #7	FLOW-THROUGH PLANTER
A-8	13,927	903	13,024	13,114	525	546	FTP #8	FLOW-THROUGH PLANTER
A-9	28,405	10,593	17,812	18,871	755	812	FTP #9	FLOW-THROUGH PLANTER
A-10	44,671	9,758	34,913	35,889	1,436	1,600	FTP #10	FLOW-THROUGH PLANTER
A-11	18,602	3,528	15,074	15,427	617	725	FTP #11	FLOW-THROUGH PLANTER
A-12	78,441	12,272	66,169	67,396	2,696	2,850	FTP #12	FLOW-THROUGH PLANTER
A-13	25,263	11,309	13,954	15,085	603	640	FTP #13	FLOW-THROUGH PLANTER
A-14	83,005	5,528	77,477	78,030	3,121	3,205	FTP #14	FLOW-THROUGH PLANTER
A-15	14,055	5,598	8,457	9,017	361	361	FTP #15	FLOW-THROUGH PLANTER
A-16	25,717	3,589	22,128	22,487	899	999	FTP #16	FLOW-THROUGH PLANTER
A-17	15,684	4,523	11,161	11,613	465	553	FTP #17	FLOW-THROUGH PLANTER
A-18	17,051	3,828	13,223	13,606	544	558	FTP #18	FLOW-THROUGH PLANTER
A-19	9,495	9,495	0	-	0	N/A	N/A	SELF TREATING
A-20	46,331	46,331	0	-	0	N/A	N/A	SELF TREATING
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STORMWATER TREATMENT SUMMARY TABLE

DMA #	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (SF) - 4% OF AREA	PROVIDED TREATMENT AREA (SF)	TREATMENT FACILITY #	BMP TYPE
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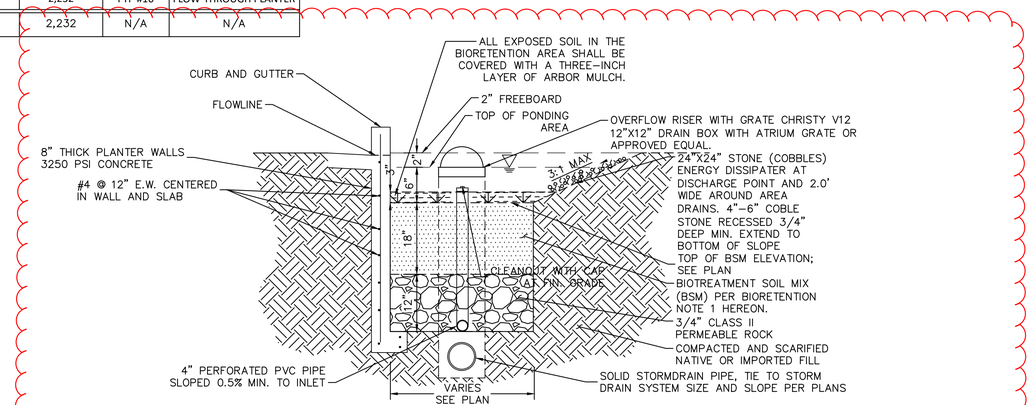
STORMWATER TREATMENT SUMMARY TABLE

DMA #	TOTAL AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (SF) - 4% OF AREA	PROVIDED TREATMENT AREA (SF)	TREATMENT FACILITY #	BMP TYPE
C-1	55,405	0	55,405	55,405	2,216	2,232	FTP #16	FLOW-THROUGH PLANTER
TOTAL	55,405	0	55,405	55,405	2,216	2,232	N/A	N/A



BIORETENTION AREA SYSTEM WITH EXTENDED FOOTING (FOR USE WHEN BIORETENTION WALL ALONG EDGE OF ROADWAY) (3)
N.T.S.

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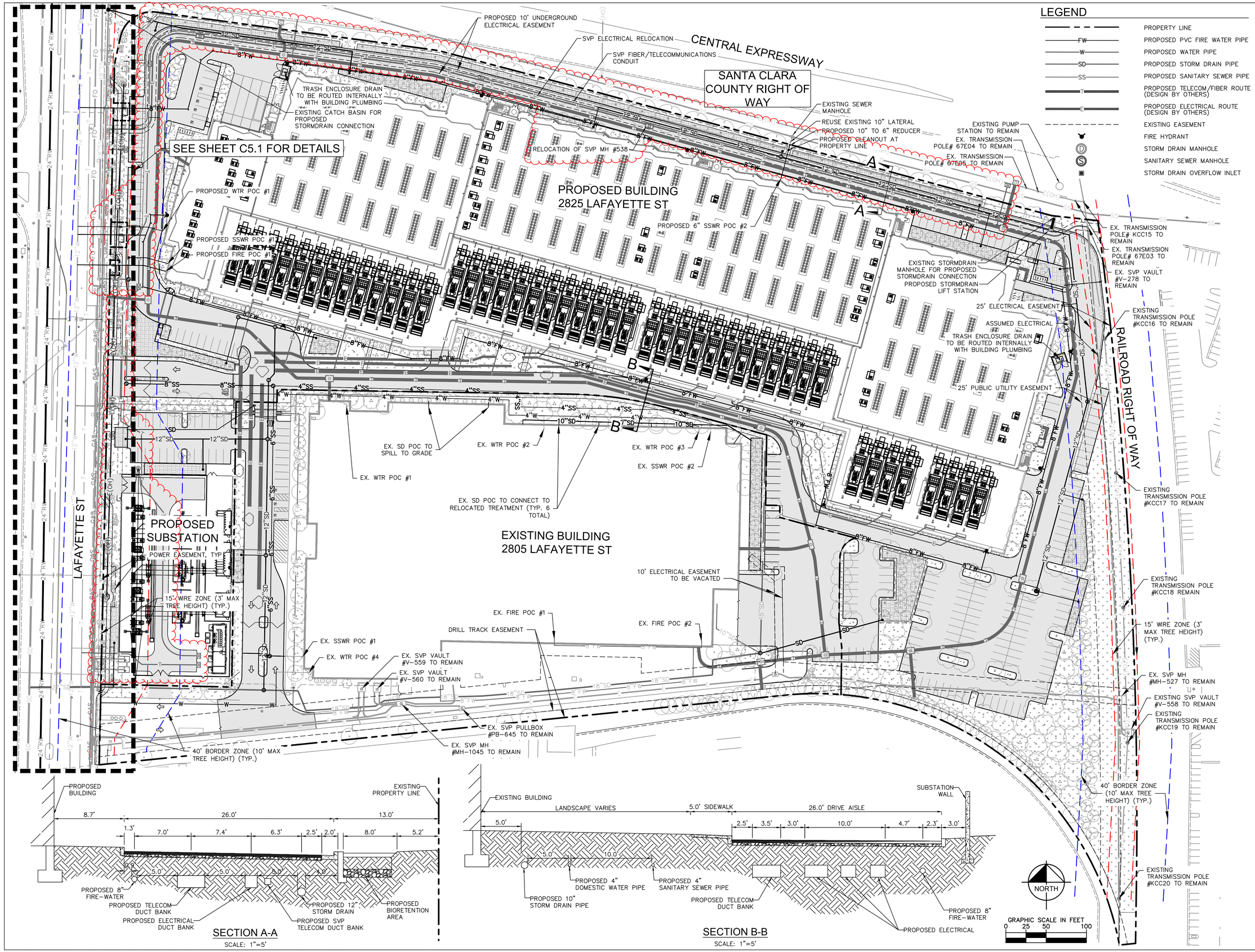
2825 LAFAYETTE STREET
SANTA CLARA, CA, 95050

STORMWATER DETAILS

PRINCIPAL IN CHARGE: JP	PROJECT NUMBER: 197250001
PROJECT MANAGER: MJ	DATE: 09/02/20
PROJECT ENGINEER: KN	SHEET NUMBER: C4.2
SCALE: AS SHOWN	



SECTION A-A
SCALE: 1"=5'

SECTION B-B
SCALE: 1"=5'

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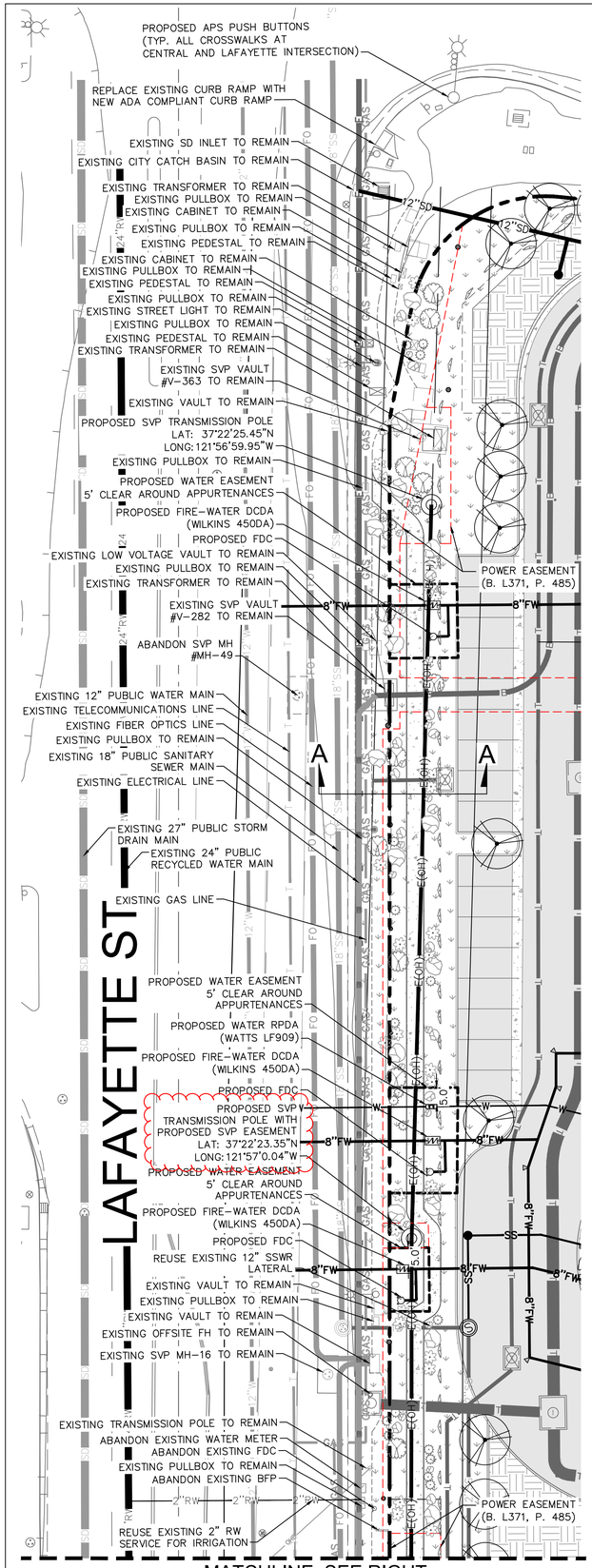
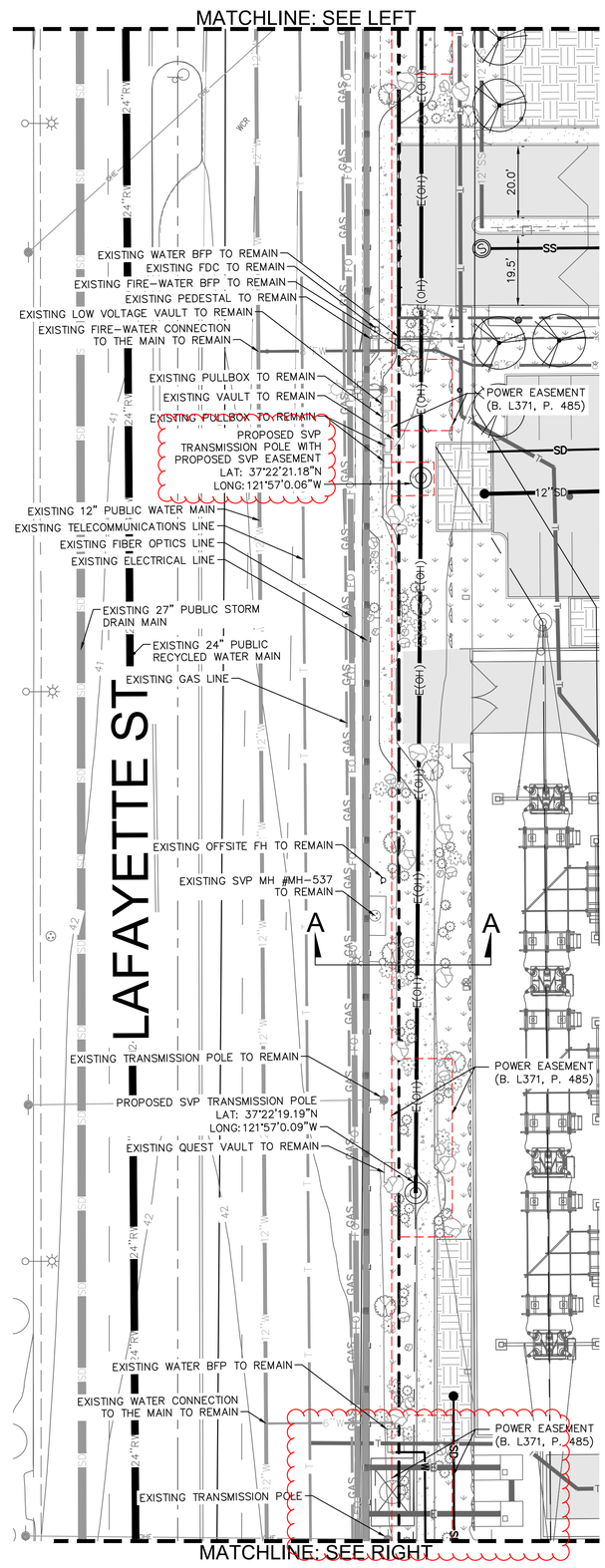
SANTA CLARA, CA, 95050

COMPOSITE LANDSCAPE AND UTILITY PLAN

PRINCIPAL IN CHARGE JP	PROJECT NUMBER 197250001
PROJECT MANAGER MJ	DATE 09/02/20
PROJECT ENGINEER KN	SHEET NUMBER
SCALE AS SHOWN	C5.0

K:\BAY_LDEV\197250001 - DLR Data Center (Lafayette St.) - MRJ\CAD\Exhibits\Entitlement Drawings\C5.0 COMPOSITE LANDSCAPE AND UTILITY PLAN.dwg 11/18/2020 8:47 PM kari.nelson



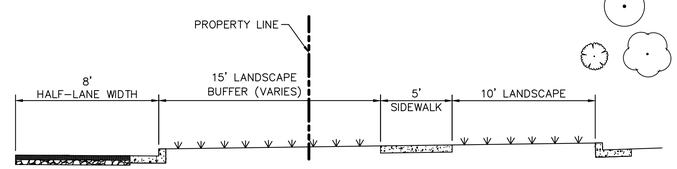


GENERAL UTILITY NOTES

1. A MINIMUM 12" VERTICAL CLEARANCE MUST BE MAINTAINED AT WATER SERVICE CROSSINGS WITH OTHER UTILITIES.
2. THE FOLLOWING MINIMUM HORIZONTAL CLEARANCES MUST BE MAINTAINED BETWEEN WATER SERVICES AND OTHER UTILITIES:
   - 10' FROM SANITARY SEWER UTILITIES
   - 10' FROM RECYCLED WATER UTILITIES
   - 8' FROM STORM DRAIN UTILITIES
   - 5' FROM FIRE AND OTHER WATER UTILITIES
   - 3' FROM ABANDONED WATER SERVICES
   - 5' FROM GAS UTILITIES
   - 5' FROM THE EDGE OF THE PROPOSED OF EXISTING DRIVEWAY
3. A MINIMUM 10' HORIZONTAL CLEARANCE MUST BE MAINTAINED BETWEEN SANITARY SEWER, WATER AND RECYCLED WATER UTILITIES FROM EXISTING AND PROPOSED TREES. IF TREE ROOT BARRIERS ARE INSTALLED, THE CLEARANCE FROM THE TREE REDUCES TO 5'. THE CLEARANCE MUST BE FROM THE EDGE OF THE TREE ROOT BARRIER TO THE EDGE OF THE NAMED UTILITIES.
4. NO WATER, SEWER, OR RECYCLED WATER FACILITIES SHALL BE LOCATED WITHIN 5' OF ANY STORM WATER TREATMENT SYSTEM.
5. THE BELOW EQUIPMENT CLEARANCES SHALL BE MAINTAINED:
   - 10' MINIMUM CLEARANCE IS REQUIRED IN FRONT OF EQUIPMENT ACCESS DOORS.
   - 5' MINIMUM CLEARANCE FROM PAD IS REQUIRED ON SIDES WITHOUT EQUIPMENT ACCESS DOORS.
   - 18' MINIMUM WIDTH SHALL BE PROVIDED AND MAINTAINED ON ONE SIDE OF THE EQUIPMENT PAD TO ALLOW AN ELECTRIC DEPARTMENT LINE TRUCK TO DRIVE UP NEXT TO THE PAD FOR INSTALLATION AND MAINTENANCE OF EQUIPMENT.
   - BARRIER PIPES ARE REQUIRED ONLY ON SIDES ACCESSIBLE TO VEHICLES:
     - 2.5' FROM SIDE OF EQUIPMENT SIDES.
     - 4' IN FRONT OF ACCESS DOORS.
       - a. BARRIER PIPES IN FRONT OF ACCESS DOORS SHALL BE REMOVABLE.
6. THE BELOW MINIMUM HORIZONTAL CLEARANCES MUST BE MAINTAINED BETWEEN NEW CONDUITS OR PIPING SYSTEMS AND THE FOLLOWING:
   - 5' FROM ANY EXISTING OR PROPOSED SVP CONDUIT SYSTEM
   - 3.5' FROM POLES AND OPEN TRENCH INSTALLATION. EXCEPTIONS ARE FOR RISER CONDUIT
   - 3' FROM SIGN POSTS, BARRIER PIPES OR BOLLARDS, FENCE POSTS AND SIMILAR STRUCTURES
   - 5' FROM NEW SPLICE BOXES, PULL BOXES, MANHOLES, VAULTS OR SIMILAR SUBSURFACE FACILITIES
   - 5' FROM WALLS, FOOTINGS, RETAINING WALLS, LANDSCAPE PLANTERS, TREE ROOT BARRIERS OR OTHER SUBSURFACE WALL OR STRUCTURE
   - 5' FROM FIRE HYDRANT THRUST BLOCK. THE THRUST BLOCK EXTENDS 5' ON EITHER SIDE OF THE FIRE HYDRANT IN LINE WITH THE RADIAL WATER PIPE CONNECTED TO THE HYDRANT.
   - A MINIMUM 12" VERTICAL CLEARANCE MUST BE MAINTAINED BETWEEN NEW CONDUIT AND PIPE SYSTEMS INSTALLED PERPENDICULAR TO EXISTING SVP CONDUITS FOR OPEN TRENCH INSTALLATIONS.
7. THE BELOW MINIMUM HORIZONTAL CLEARANCES MUST BE MAINTAINED BETWEEN VAULTS/MANHOLES AND THE FOLLOWING:
   - 10' FOOT FROM ADJACENT VAULTS OR MANHOLES
   - 5' FROM ADJACENT CONDUITS
   - 36" FROM FACE OF CURB OR BOLLARDS REQUIRED
8. A MINIMUM 5' HORIZONTAL CLEARANCE IS REQUIRED BETWEEN THE CENTER OF AN ANCHOR LINE AND ANY EXCAVATION AREA.
9. A MINIMUM OF 3.5' HORIZONTAL CLEARANCE IS REQUIRED FROM POLES (ELECTRICAL, GUY STUB POLES, SERVICE CLEARANCE POLES, SELF SUPPORTING STEEL POLES AND LIGHTING POLES) AND OPEN TRENCH INSTALLATION. EXCEPTIONS ARE FOR RISER CONDUIT.
10. EXISTING SVP VAULTS AND CONDUIT ARE SHOWN PER CITY OF SANTA CLARA ELECTRICAL UNDERGROUND MAP DRAWING UG75. EXACT AS BUILT LOCATIONS TO BE FIELD VERIFIED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION.
11. THE PROPERTY SHALL BE FENCED OFF DURING DEMOLITION AND CONSTRUCTION.
12. TREES MUST MEET THE CLEARANCE REQUIREMENTS LISTED IN SVP STANDARDS OH 1230 FOR OVERHEAD LINES AND SD 1235 FOR TREE PLANTING REQUIREMENTS NEAR UG ELECTRIC FACILITIES.
13. CONTRACTOR TO CONDUCT CCTV SCAN OF EXISTING SANITARY SEWER LATERAL TO CONFIRM EXISTING LATERAL IS IN GOOD CONDITION FOR REUSE. LATERAL TO BE REPLACED IF DETERMINED TO NOT BE IN GOOD CONDITION.
14. PLANS SHALL CONFORM TO THE FOLLOWING SVP STANDARDS:
   a. INSTALLATION OF UNDERGROUND SUBSTRUCTURES BY DEVELOPERS
   b. UG1250 – ENCROACHMENT PERMIT CLEARANCES FROM ELECTRIC FACILITIES
   c. UG0339 – REMOTE SWITCH PAD
   d. OH1230 – TREE CLEARANCES FROM OVERHEAD ELECTRIC LINES
   e. SD1235 – TREE PLANTING REQUIREMENTS NEAR UNDERGROUND ELECTRIC FACILITIES
15. CONTRACTOR TO VERIFY THE DISPOSITION OF ALL EXISTING LATERALS FOR REUSE. CONTRACTOR TO NOTIFY THE ENGINEER IF ANY LATERAL IS DEEMED TO BE IN POOR CONDITION. IN THIS CASE, CONTRACTOR TO ABANDON SERVICE TO THE MAIN PER SEWER AND WATER UTILITY STANDARDS.

LEGEND

	PROPERTY LINE
FW	PROPOSED 8" PVC FIRE WATER PIPE
W	PROPOSED 4" WATER PIPE
SD	PROPOSED 12" STORM DRAIN PIPE
SS	PROPOSED 6" SANITARY SEWER PIPE
T	PROPOSED TELECOM/FIBER ROUTE (DESIGN BY OTHERS)
E	PROPOSED ELECTRICAL ROUTE (DESIGN BY OTHERS)
XX"W	EXISTING WATER PIPE
SD	EXISTING STORM DRAIN PIPE
XX"SS	EXISTING SANITARY SEWER PIPE
T	EXISTING TELECOM/FIBER ROUTE
E	EXISTING ELECTRICAL ROUTE
FO	EXISTING FIBER OPTICS ROUTE
GAS	EXISTING GAS PIPE
	EXISTING EASEMENT
	FIRE HYDRANT
D	STORM DRAIN MANHOLE
S	SANITARY SEWER MANHOLE
	STORM DRAIN OVERFLOW INLET
	EXISTING TREE/TO BE REMOVED
	EXISTING TREE/TO REMAIN PROTECT IN PLACE
	PROPOSED TREE



SECTION A-A
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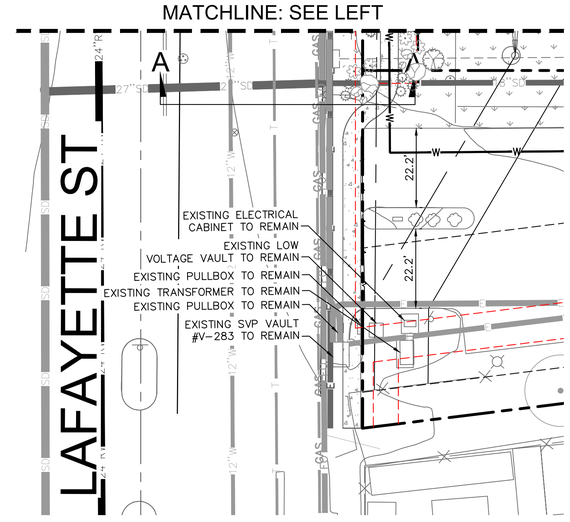
LOCATIONS VARY ALONG LAFAYETTE STREET



NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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Environmental Systems Design, Inc.
233 South Wacker Drive, Suite 5300
Chicago, Illinois 60606
312.372.1200
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PEOPLES ASSOCIATES
STRUCTURAL ENGINEERS

CIVIL ENGINEER AND LANDSCAPE ARCHITECT
Kimley»Horn
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4637 CHABOT DRIVE, SUITE 300,
PLEASANTON, CA 94588
PHONE: 925-398-4840 FAX: 714-938-9488

CIVIL ENGINEER STAMP
REGISTERED PROFESSIONAL ENGINEER
MILES R. JOHNSON
RCE NO. 84307
CIVIL
STATE OF CALIFORNIA

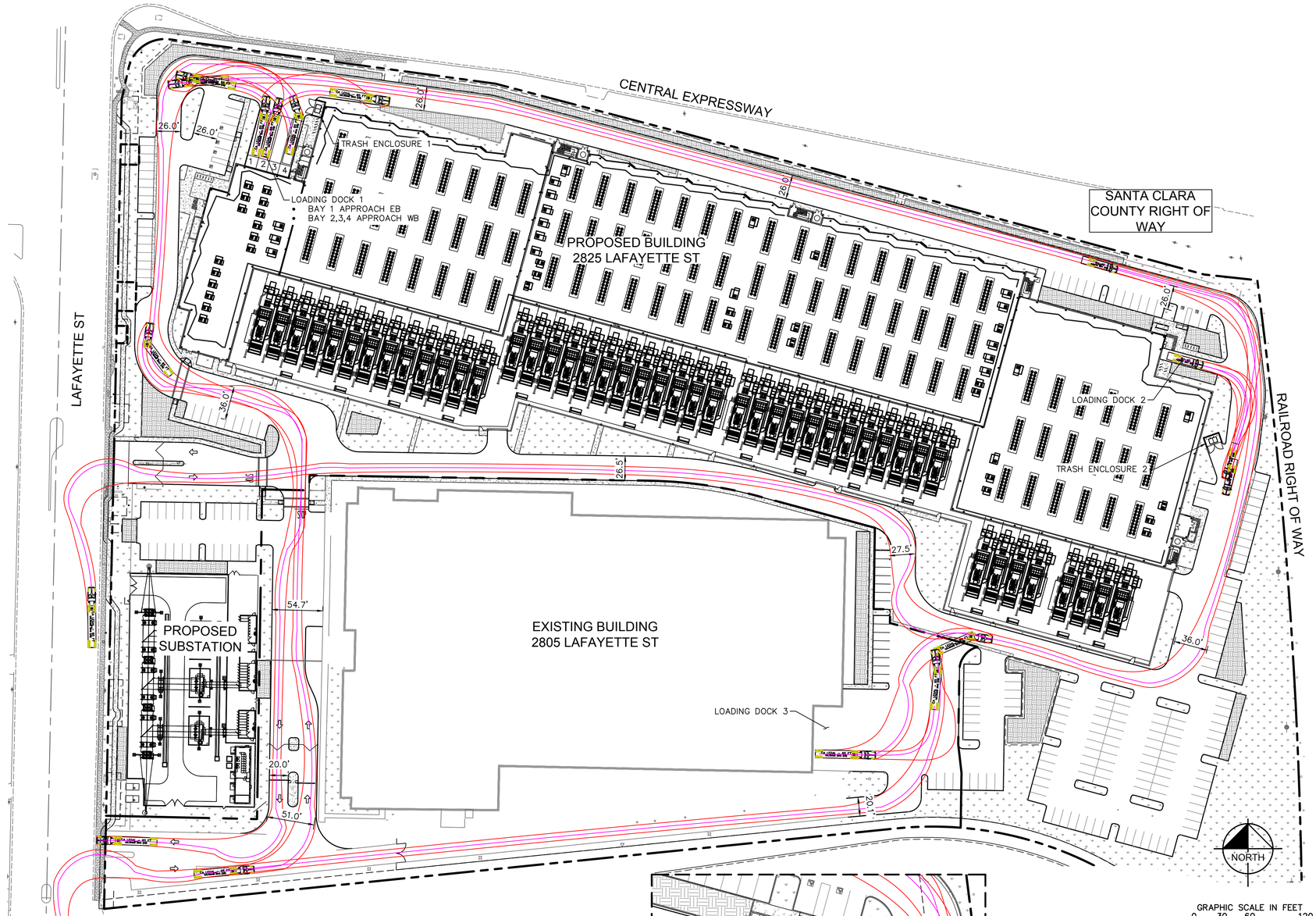
IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSE ENGINEER, TO ALTER AN ITEM IN ANY WAY.

NO.	RECORD	DATE
3	PCC ISSUANCE	11.18.20
2	PCC ISSUANCE	06.19.20
1	PCC ISSUANCE	10.07.19

DLR DATA CENTER
2825 LAFAYETTE STREET
SANTA CLARA, CA, 95050

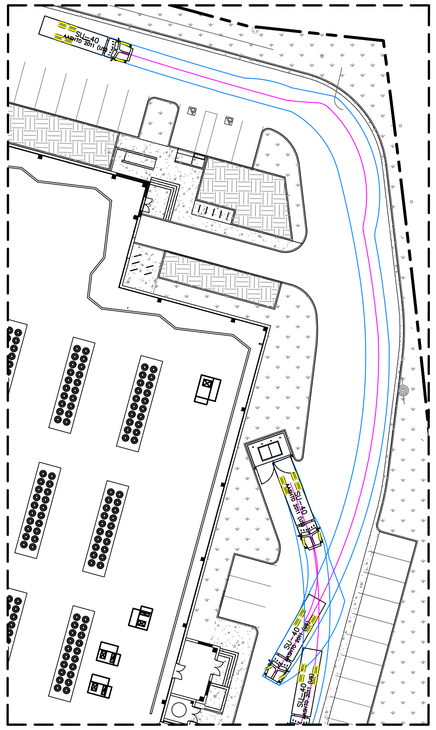
LAFAYETTE ST.
FRONTAGE PLAN

PRINCIPAL IN CHARGE JP	PROJECT NUMBER 197250001
PROJECT MANAGER MJ	DATE 09/02/20
PROJECT ENGINEER KN	SHEET NUMBER
SCALE AS SHOWN	C5.1

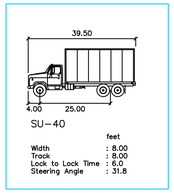


LEGEND

- PROPERTY LINE
- LANDSCAPE/ PLANTER AREA
- BIORETENTION AREA
- ASPHALT CONCRETE PAVEMENT



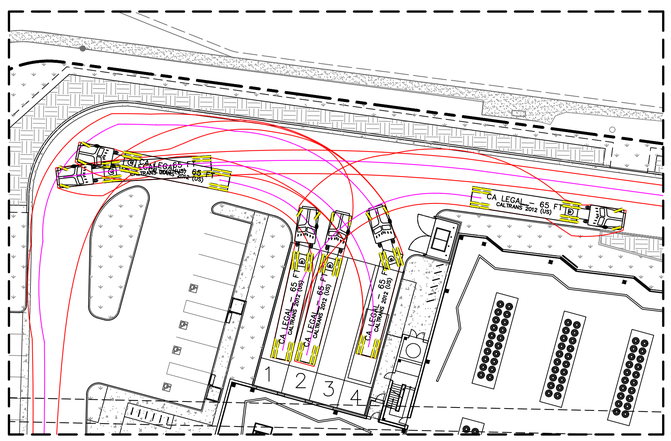
DETAIL D: 40' GARBAGE TRUCK AT TRASH ENCLOSURE 2
SCALE: 1"=30'



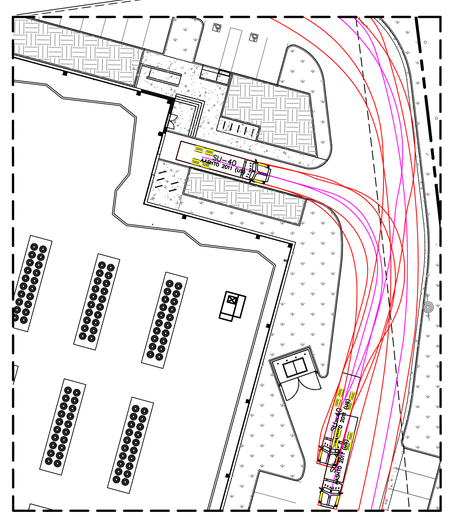
	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

NOTE THAT SU-40 IS USED TO SIMULATE A GARBAGE TRUCK FOR THE PURPOSE OF THIS DRAWING.

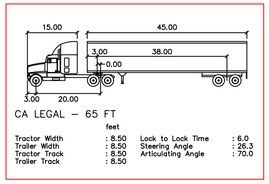
SU-40 DETAIL



DETAIL A: 65' TRUCK AT LOADING DOCK 1
SCALE: 1"=30'



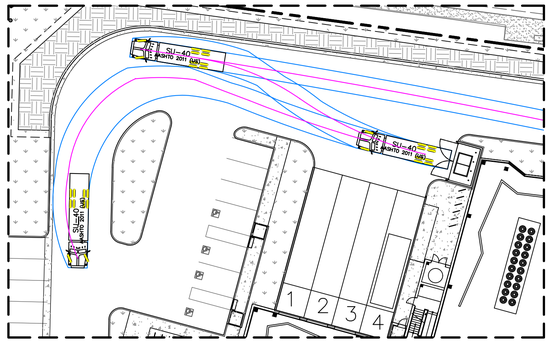
DETAIL B: 40' TRUCK AT LOADING DOCK 2
SCALE: 1"=30'



CA LEGAL – 65 FT

	feet		
Tractor Width	: 8.50	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 26.3
Tractor Track	: 8.50	Articulating Angle	: 70.0
Trailer Track	: 8.50		

CA LEGAL - 65 FT DETAIL



DETAIL C: 40' GARBAGE TRUCK AT TRASH ENCLOSURE 1
SCALE: 1"=30'

DIGITAL REALTY
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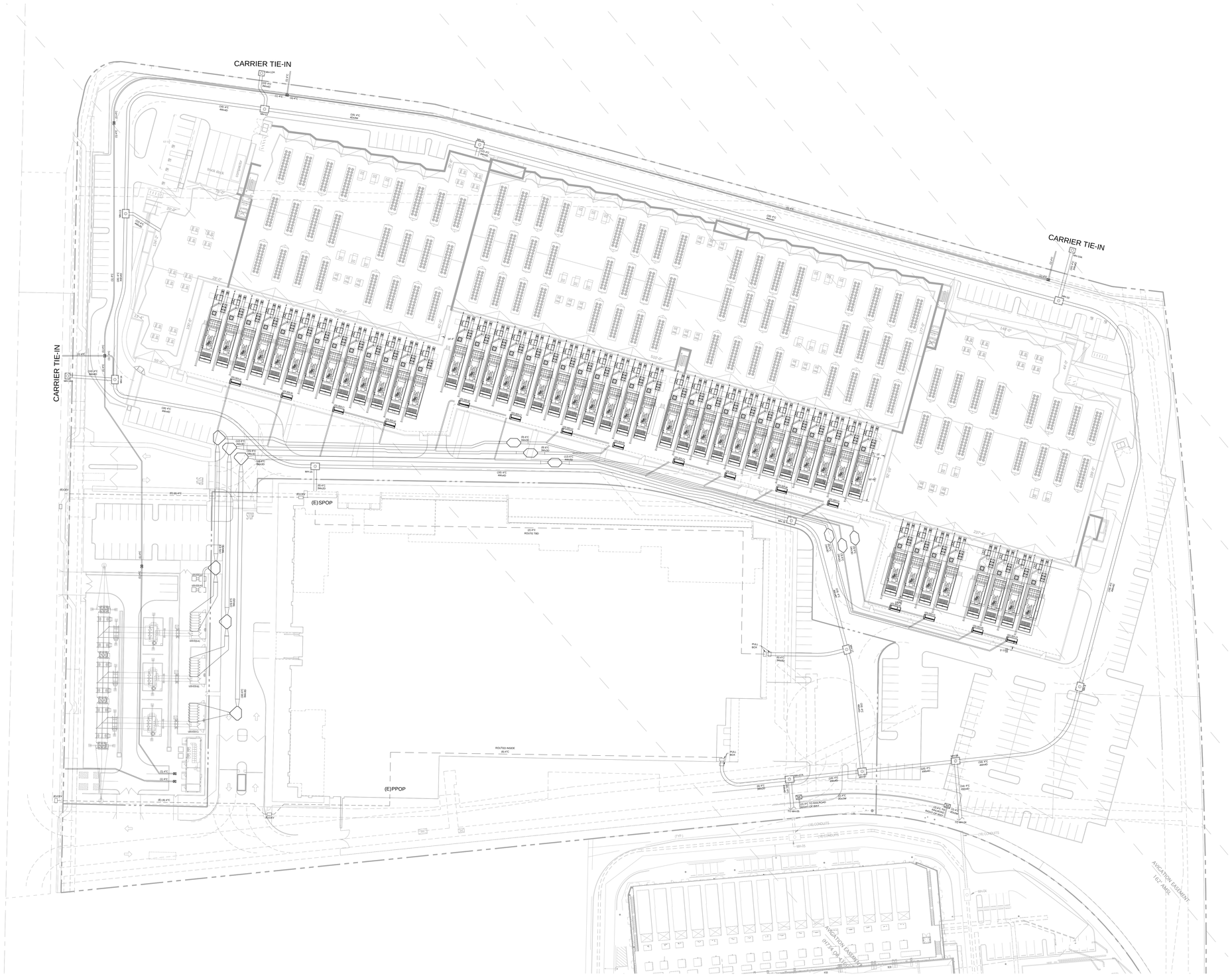
DLR DATA CENTER
2825 LAFAYETTE STREET
SANTA CLARA, CA, 95050

TRUCK TURN PLAN

PRINCIPAL IN CHARGE: JP	PROJECT NUMBER: 197250001
PROJECT MANAGER: MJ	DATE: 09/02/20
PROJECT ENGINEER: KN	SHEET NUMBER: C6.0
SCALE: AS SHOWN	



1 ELECTRICAL SITE PLAN
1" = 40'-0"

N

0 20 40 80
1" = 40'

GENERAL NOTES:

1. NOT USED.

KEYNOTES:

1. NOT USED.

LEGEND

POWER MANHOLE

POWER MANHOLE

CAMPUS COMMUNICATION MANHOLE 10FT x 8FT

SVP COMMUNICATION HANDHOLE 6FT x 4FT

SVP COMMUNICATION MANHOLE 10FT x 5FT

SVP COMMUNICATION HANDHOLE 3FT x 2FT

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NO.	RECORD	DATE
02	PCC ISSUANCE	06.19.20
01	PCC ISSUANCE	10.07.19

MASTER PLAN

ELECTRICAL SITE PLAN

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER
SCALE NONE	E1.1

T:\2825 Lafayette\Site and Shell\3. PRODUCTION\3.1 DWGS\CAD\ELEC\ep_site-2020.dwg 11/23/2020 5:18 PM vnemad

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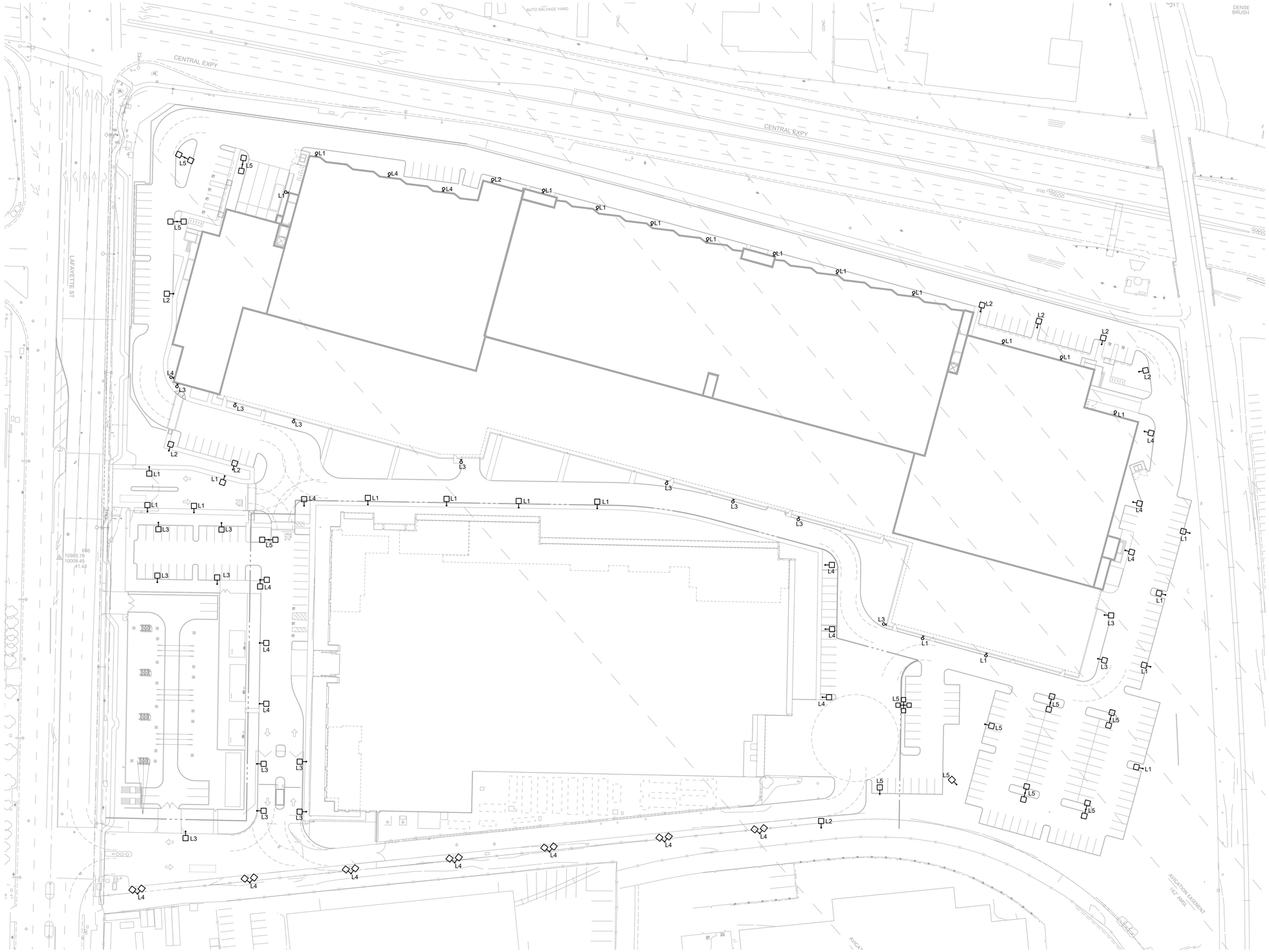

1 ELECTRICAL SITE PLAN - LIGHTING
1" = 40'-0"

N

0 20 40 80
1" = 40'

GENERAL NOTES:

1. SEE DETAIL 2/5.1 FOR LED LUMINARIES CUT SHEET
2. MAXIMUM HEIGHT FROM FINISHED GRADE TO OF THE POLE AND OF THE WALL MOUNTED LUMINARIES SHALL NOT EXCEED 25 FEET.

KEYNOTES:

1. NOT USED.

EXTERIOR LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMPS/ LUMINAIRE QUANTITY	LAMPS/ LUMINAIRE TYPE	BALLAST TYPE	LUMINAIRE MAX VA	LUMINAIRE VOLTS	MOUNTING	MANUFACTURER	CATALOG SERIES	REMARKS
L1		48	LED		105	480	POLE/ WALL	PHILLIPS	GL18-2-105LA-4870-NW	
L2		48	LED		160	480	POLE	PHILLIPS	GL18-2-160LA-481A-NW	
L3		48	LED		105	480	POLE/ WALL	PHILLIPS	GL18-4-105LA-4870-NW	
L4		64	LED		180	480	POLE/ WALL	PHILLIPS	GL18-4-180LA-6490-NW	
L5		64	LED		180	480	POLE	PHILLIPS	GL18-5-180LA-6490-NW	

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NO.	RECORD	DATE
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01	PCC ISSUANCE	10.07.19

MASTER PLAN

ELECTRICAL SITE PLAN - LIGHTING OVERALL

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER
SCALE NONE	**E2.2**

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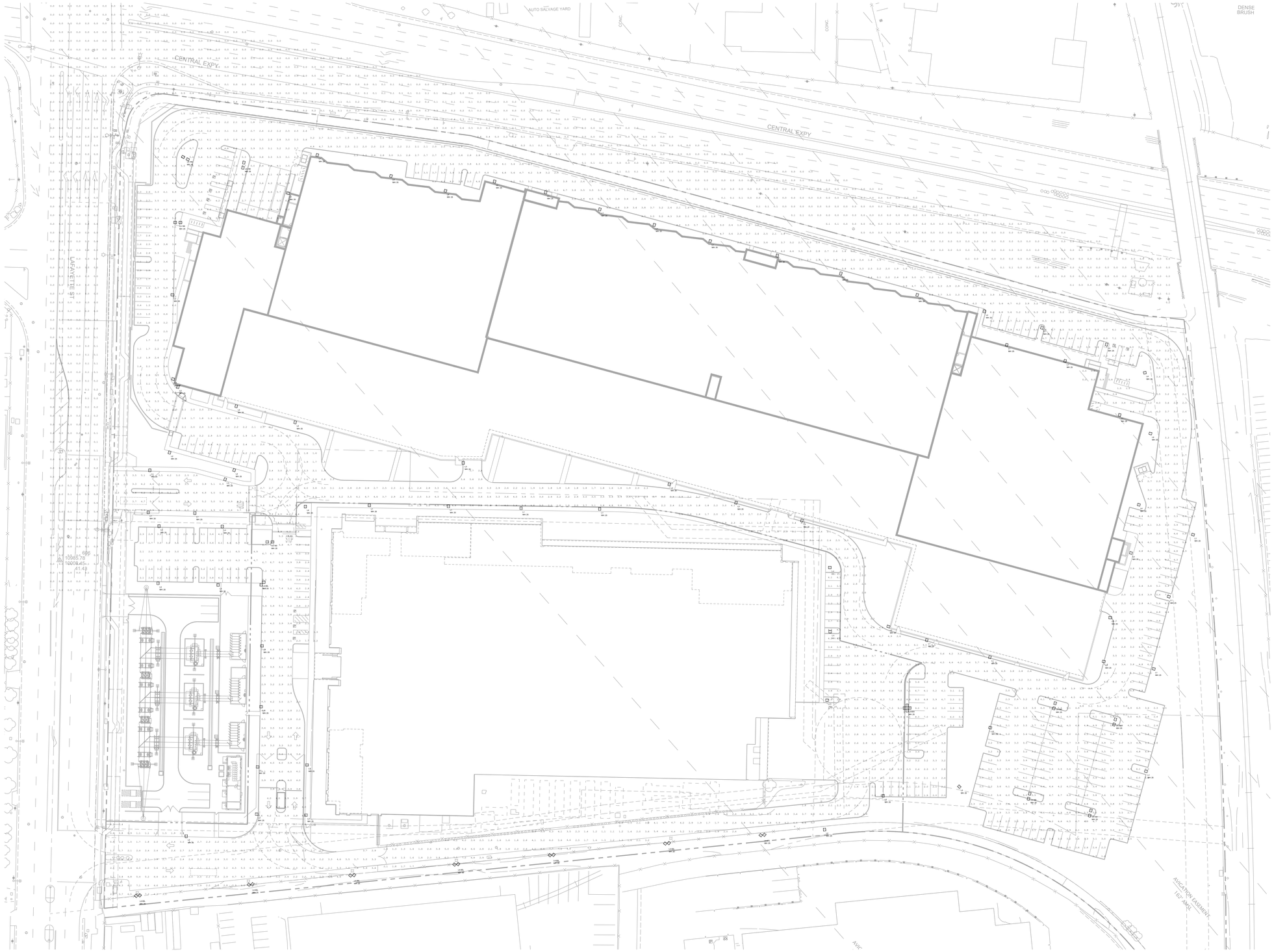

1 ELECTRICAL SITE PLAN - PHOTOMETRIC
1" = 40'-0"

N

0 20 40 80
1" = 40'

GENERAL NOTES:

1. SEE DETAIL 2/5.1 FOR LED LUMINARIES CUT SHEET
2. NOT USED.

KEYNOTES:

1. NOT USED.

Calculation Summary					
Label	CalcType	Units	Avg	Max	Min
2805 S Entrance	Illuminance	Fc	3.27	9.2	0.3
2805 SE Parking_Drive	Illuminance	Fc	3.84	9.7	0.7
2805 South	Illuminance	Fc	3.22	7.7	1.0
2805 W Parking	Illuminance	Fc	3.40	5.2	2.1
2805 West Drive	Illuminance	Fc	3.76	9.3	1.2
2825 East Driveway	Illuminance	Fc	3.41	7.1	1.3
2825 N Driveway	Illuminance	Fc	3.65	9.8	0.7
2825 NW	Illuminance	Fc	3.54	7.5	0.3
2825 SE Parking	Illuminance	Fc	3.74	7.0	1.5
2825 South Driveway_1	Illuminance	Fc	3.26	9.0	1.5
East PPB Truck	Illuminance	Fc	0.63	1.5	0.0
NW Entrace	Illuminance	Fc	4.44	7.1	1.3
Outside of Property	Illuminance	Fc	0.04	0.9	0.0

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02	PCC ISSUANCE	06.19.20
01	PCC ISSUANCE	10.07.19

MASTER PLAN

ELECTRICAL SITE PLAN - PHOTOMETRIC OVERALL

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER **E2.3**
SCALE NONE	

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GARDCO by Signify

Site & Area

Gullwing LED

Large, GL18

Gardco Gullwing LED luminaires combine LED performance excellence and advanced Gardco LED thermal management technology with the distinct Gullwing style to provide outdoor area lighting that is both energy efficient and aesthetically pleasing.

Project:
Location:
Cat.No:
Type:
Lamps: Qty:
Notes:

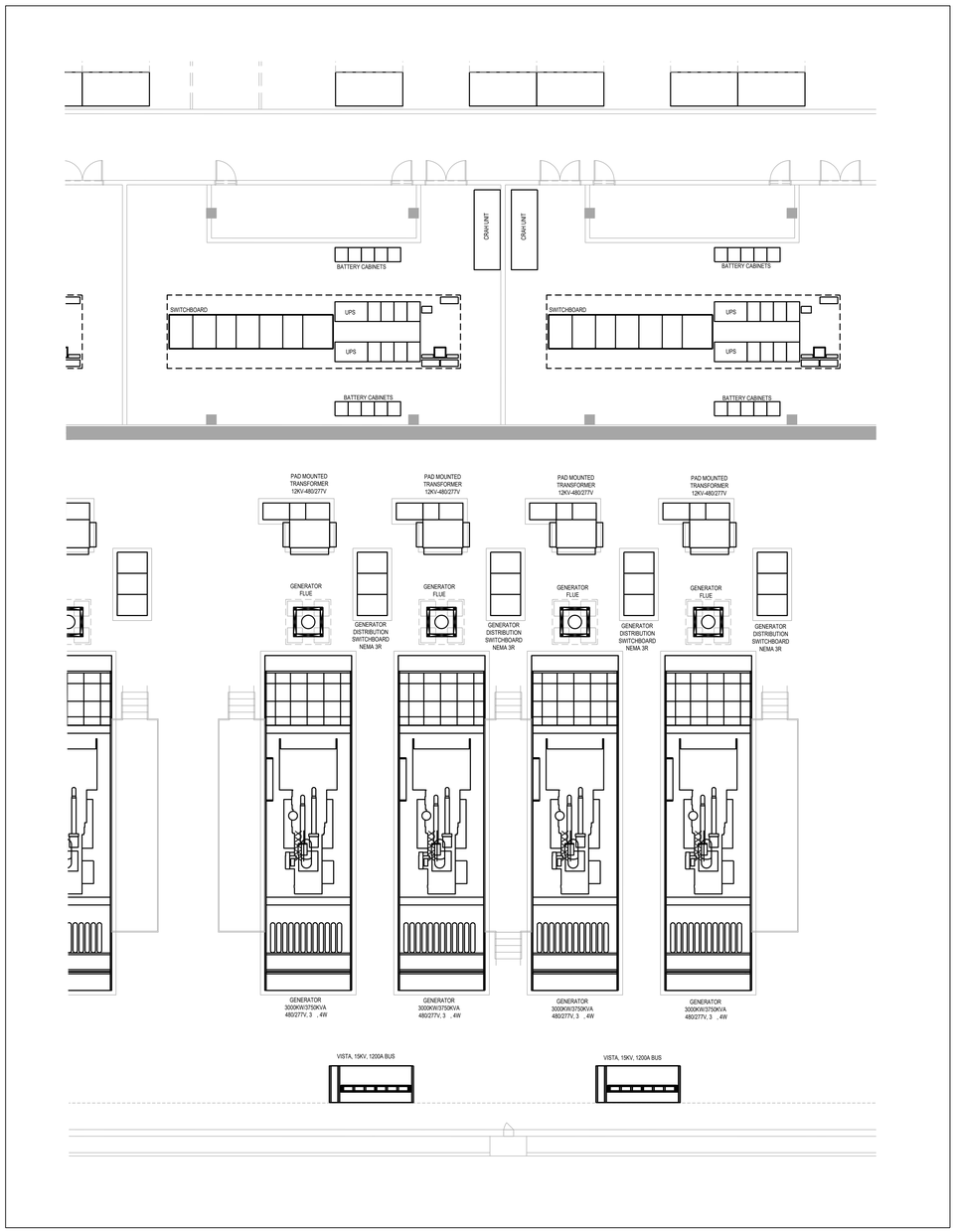
Ordering guide

Example: GL18-APD-1-4-80LA-4853-NW-120-BRP-LF

Prefix	Controls	Mounting	Optical System[8]	Wattage	LED Color	Voltage	Finish	Options
GL18 18" Gullwing LED Luminaire Constant Wattage **GL18-RK** 18" Gullwing LED Retrofit Kit	**—** Gullwing Standard Luminaire **GL18-DIM** 18" Gullwing LED with 0-10V Dimming **GL18-APD**[1] 18" Gullwing LED with Automatic Profile Dimming **GL18-MR50**[2,3,4] 18" Gullwing LED with Motion Response - 50% Low (pole mounted sensor) **GL18-APD-MRO**[2,3,4] 18" Gullwing LED with APD with Motion Response Override (pole mounted sensor) **GL18-MRI**[1,4] 13" Gullwing LED with Motion Response at 50% Low (luminaire mounted sensor) **GL18-APD-MRI**[1,4] 13" Gullwing LED with APD with Motion Response Override (luminaire mounted sensor) **Wireless systems** (Remote wireless controller available.) **LLC2**[1,4,5] #2 lens for 8' mounting heights **LLC3**[1,4,5] #3 lens for 9-20' mounting heights **LLC4**[1,4,5] #4 lens for 21-40' mounting heights **Network system (SiteWise)** **SW** Integral module[2,12] **SW-MRI3** luminaire mounted sensor option Type 3 **SW-MRI7** luminaire mounted sensor option Type 7 **SW-MRO** pole mounted sensor option	**1** Single **2** 2 @ 180° **2@90** 2 @ 90° **3** 3@90° **3@120** 3@120° **4** 4@90° **W** Wall Mount, Recessed J-Box **WS** Wall Mount, Surface Conduit	**2** Type 2 **2-90** Type 2@90° **2-270** Type 2@270° **3** Type 3 **3-90** Type 3@90° **3-270** Type 3@270° **4** Type 4 **4-90** Type 4@90° **4-270** Type 4@270° **5** Type 5	**50LA-4835** 48 LEDs, 350mA **80LA-4853** 48 LEDs, 530mA **105LA-4870** 48 LEDs, 700mA **160LA-481A** 48 LEDs, 1A **180LA-6490** 64 LEDs, 900mA **210LA-641A** 64 LEDs, 1A **200LA-9670** 96 LEDs, 700mA **230LA-9680** 96 LEDs, 800mA **265LA-9690** 96 LEDs, 900 mA **310LA-961A** 96 LEDs, 1A	**NW** Neutral White 4000K, 70 min. CRI **CW** Cool White 5700K, 70 min. CRI **WW** Warm White 3000K, 70 min. CRI	**120** **208** **240** **277** **347** **480** **UNV** (120-277V) **HVU** (347-480V)	**BLP** Black Paint **WP** White Paint **BRP** Bronze Paint **NP** Natural Aluminum Paint **OC** Optional Color *Specify optional color or RAL ex: OC-LGP or OC-RAL7024.* **SC** Special Color Specify. *Must supply color chip. Requires factory quote.*	**F**[4] Fusing **LF**[4] In-Line/In-Pole Fusing **PC**[4,5,7] Photocontrol and Receptacle (Includes PCR5) **PCR5**[4,5,7,8] Photocell Receptacle only with 2 dimming connections **PCR7**[4,5,8,9] Photocell Receptacle only with 2 dimming and 2 auxiliary connections **HS** External Houseside Shield **IS** Internal Houseside Shield (types 2, 3, 4 only) **CLR**[6] Clear Glass Lens (reduces performance) **RPA1** 3" Round Pole Adapter Required for 3" O.D. round or tapered round poles where top O.D. is less than 4" **RPA2** 4" and 5" Round Pole Adapter Required for 4"- 5" O.D. round poles **MA** Mast Arm Fitter - Mounts to a 2-3/8" O.D. mast arm. **TR1**[10] Single Transition **TR2**[10] Twin Transition **PTF2**[11] Pole Top Fitter 2 3/8" - 3" Dia. Tenon **PTF3**[11] Pole Top Fitter 3" - 3 1/2" Dia. Tenon **PTF4**[11] Pole Top Fitter 3 1/2" - 4" Dia. Tenon

1. Available **120-277V** only.
2. Available **120** or **277V** only.
3. **MR50** and **APD-MRO** luminaires require one motion sensor per pole, ordered separately. See page 2 for accessories.
4. Not available with Retrofit Kits (**GL18-RK**).
5. **LLC2**/**LLC3**/**LLC4**/**LLP** wireless system not configurable with **PC**/**PCR5**/**PCR7** Options. See pages 5-6 for more info.
6. Luminaire door frame and optic assembly provided standard without glass lens. Specify **CLR** option for clear glass lens.
7. Works with 3-pin or 5-pin NEMA photocell/dimming device.
8. If ordered with **DIM**, **APD**, **MRI**, **MR50**, **APD-MRI**, **APD-MRO**, dimming will not be connected to NEMA receptacle.
9. Works with 3-pin or 5-pin NEMA photocell/dimming device and auxiliary connections are not connected (for future use only).
10. Mounts to a 2-3/8" Top Tenon. Specify a round pole with a 4.50" O.D. for a smooth transition.
11. Not available in 120° mounting configurations.
12. **SW** option is not available with any other control options with the exception of **SW-MRI3**, **SW-MRI7** and **SW-MRO** motion response options.

2 **LED LUMINAIRE CUT SHEET**
NOT TO SCALE



1 **PARTIAL ELECTRICAL SITE PLAN**
NOT TO SCALE

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MASTER PLAN

ELECTRICAL DETAILS

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER **E5.1**
SCALE NONE	

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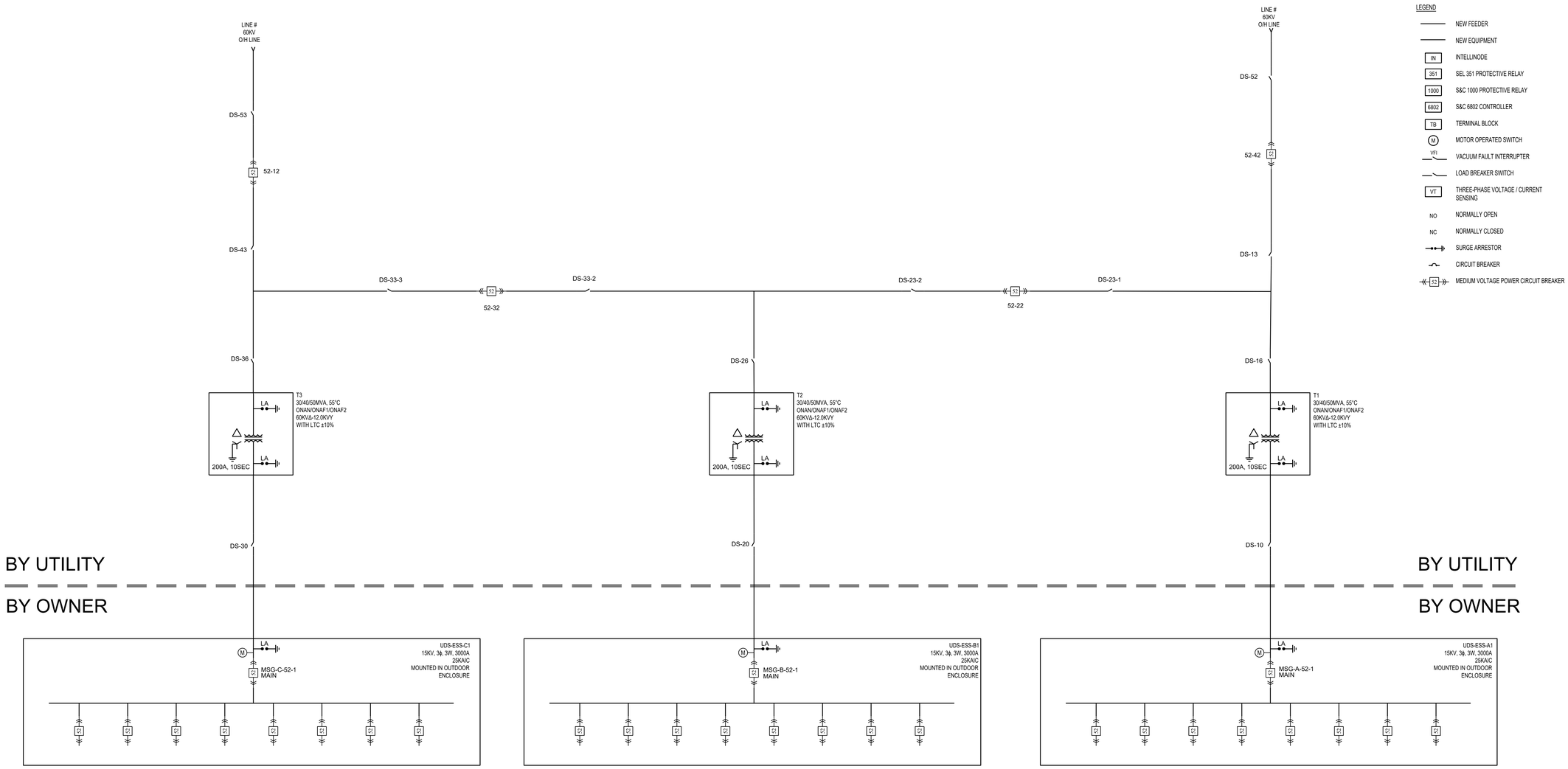

LEGEND

- NEW FEEDER
- NEW EQUIPMENT
- IN — INTELLINODE
- 351 — SEL 351 PROTECTIVE RELAY
- 1000 — S&C 1000 PROTECTIVE RELAY
- 6802 — S&C 6802 CONTROLLER
- TB — TERMINAL BLOCK
- M — MOTOR OPERATED SWITCH
- VFI — VACUUM FAULT INTERRUPTER
- LOAD BREAKER SWITCH
- VT — THREE-PHASE VOLTAGE / CURRENT SENSING
- NO — NORMALLY OPEN
- NC — NORMALLY CLOSED
- SURGE ARRESTOR
- CIRCUIT BREAKER
- 52 — MEDIUM VOLTAGE POWER CIRCUIT BREAKER

2825 LAFAYETTE STREET SUBSTATION - LOAD BALANCING

SUITE	A-B PAIR		A-C PAIR		B-C PAIR		A-B PAIR		A-C PAIR		B-C PAIR		A-C PAIR		B-C PAIR	
	A1	B1	C1	A2	B2	C2	A3	B3	C3	A4	B4	C4	A5	C5	B5	C6
SOURCE OF 12KV SWITCHGEAR	A	B	C	D	A	B	C	D		A	B	C	A	B	C	D
SUITE CAPACITY GROUP PBB			800													
110	2,250	2,250	2,250	2,250												
210	2,250	2,250	2,250	2,250												
310	2,250	2,250	2,250	2,250												
120					2,250	2,250	2,250	2,250								
220					2,250	2,250	2,250	2,250								
320					2,250	2,250	2,250	2,250								
130									2,250	2,250	2,250	2,250				
230									2,250	2,250	2,250	2,250				
330									2,250	2,250	2,250	2,250				
140													2,250	2,250	2,250	2,250
240													2,250	2,250	2,250	2,250
TOTAL TRANSFORMERS	6		7		6		6		6		6		4		4	
TOTAL TRANSFORMERS	A-B PAIR	12	A-C PAIR	17	B-C PAIR	16										

NORMAL LOADS (ALL SVP TRANSFORMER AVAILABLE)

SOURCE OF 12KV SWITCHGEAR	TOTAL (KW)	A-B PAIR A1	A-B PAIR B1	A-C PAIR C1	A-C PAIR A2	B-C PAIR B2	B-C PAIR C2	A-B PAIR A3	A-B PAIR B3	A-C PAIR C3	A-C PAIR A4	B-C PAIR B4	B-C PAIR C4	A-C PAIR A5	A-C PAIR C5	B-C PAIR B5	B-C PAIR C6
NORMAL - A	31,500	6,750			6,750			6,750			6,750			4,500			
NORMAL - B	31,500		6,750			6,750			6,750			6,750				4,500	
NORMAL - C	36,800			7,550			6,750			6,750			6,750		4,500		4,500
TOTAL	99,800																

SVP 60KV-12KV TRANSFORMER RATING: at 55 Deg C: 30.0 MVA - 40.0 MVA - 50.0 MVA (Air - Fan 1 - Fan 2)

FAIL SCENARIOS (SINGLE SVP TRANSFORMER NOT AVAILABLE)

SOURCE OF 12KV SWITCHGEAR	Load Factor	TOTAL (KW)	A-B PAIR A1	A-B PAIR B1	A-C PAIR C1	A-C PAIR A2	B-C PAIR B2	B-C PAIR C2	A-B PAIR A3	A-B PAIR B3	A-C PAIR C3	A-C PAIR A4	B-C PAIR B4	B-C PAIR C4	A-C PAIR A5	A-C PAIR C5	B-C PAIR B5	B-C PAIR C6
A FAIL - LOAD ON B	100%	45,000		13,500			6,750			13,500			6,750				4,500	
A FAIL - LOAD ON C	91%	54,800			14,300			6,750			13,500			6,750		9,000		4,500
TOTAL		99,800																
B FAIL - LOAD ON A	100%	48,375	13,500			6,750			13,500			10,125			4,500			
B FAIL - LOAD ON C	97%	51,425			7,550			13,500			6,750			10,125		4,500		9,000
TOTAL		99,800																
C FAIL - LOAD ON A	99%	50,300	6,750			14,300			6,750			13,500			9,000			
C FAIL - LOAD ON B	100%	49,500		6,750			13,500			6,750			13,500				9,000	
TOTAL		99,800																

2825 LAFAYETTE STREET
ELECTRICAL LOAD CALCULATION
PER CAPACITY GROUP - BASED ON NORMAL OPERATION

LOAD	AMPS	kVA	kW	COMMENTS
LIGHTING	10	8	7	
RECEPTACLES	12	10	9	
EXHAUST FANS	3	2	2	
AIR COOLED CHILLER WITH WATER AT 75 LOAD STAGE 3 OF 4 ON	471	392	353	
CRAH (DATA HALL) - ALL UNITS	404	336	302	
CRAH (UPS ROOM)	40	34	30	
GENERATOR ENCLOSURE	6	9	9	
SUB-TOTAL - Full CRAC / ACC with Water	940	781	703	
UPS (75%, 0.99pf)	1,860	1,545	1,530	
TOTAL	2,800	2,326	2,233	

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MASTER PLAN

ELECTRICAL ONE-LINE DIAGRAM MV SERVICE

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER **E7.1**
SCALE NONE	

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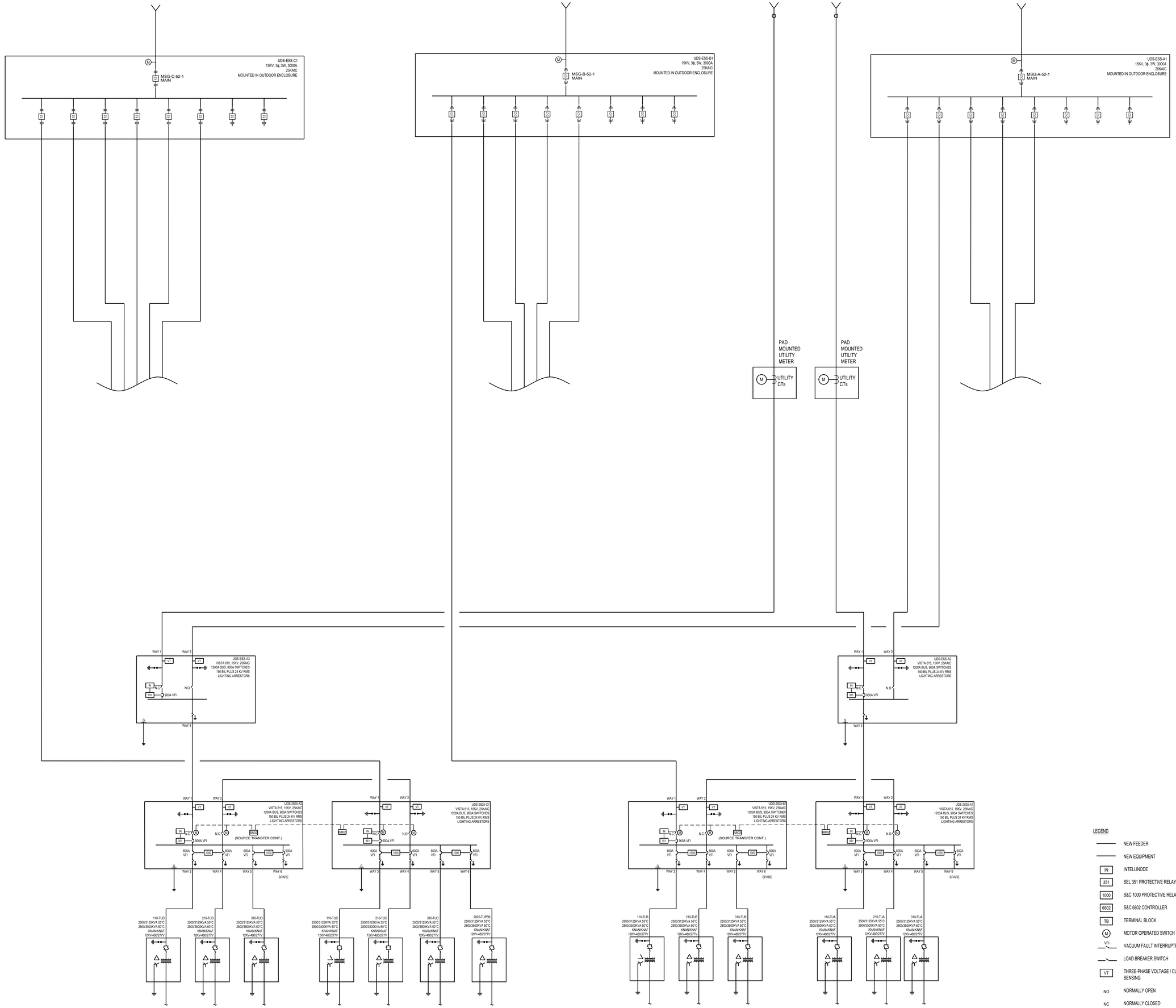

LEGEND

- NEW FEEDER
- NEW EQUIPMENT
- IN — INTELLINODE
- 351 — SEL 351 PROTECTIVE RELAY
- 1000 — S&C 1000 PROTECTIVE RELAY
- 6802 — S&C 6802 CONTROLLER
- TB — TERMINAL BLOCK
- M — MOTOR OPERATED SWITCH
- VFI — VACUUM FAULT INTERRUPTER
- LOAD BREAKER SWITCH
- VT — THREE-PHASE VOLTAGE / CURRENT SENSING
- NO — NORMALLY OPEN
- NC — NORMALLY CLOSED
- SURGE ARRESTOR
- CIRCUIT BREAKER
- 52 — MEDIUM VOLTAGE POWER CIRCUIT BREAKER

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ELECTRICAL ONE-LINE DIAGRAM MV DISTRIBUTION

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER **E7.2**
SCALE NONE	

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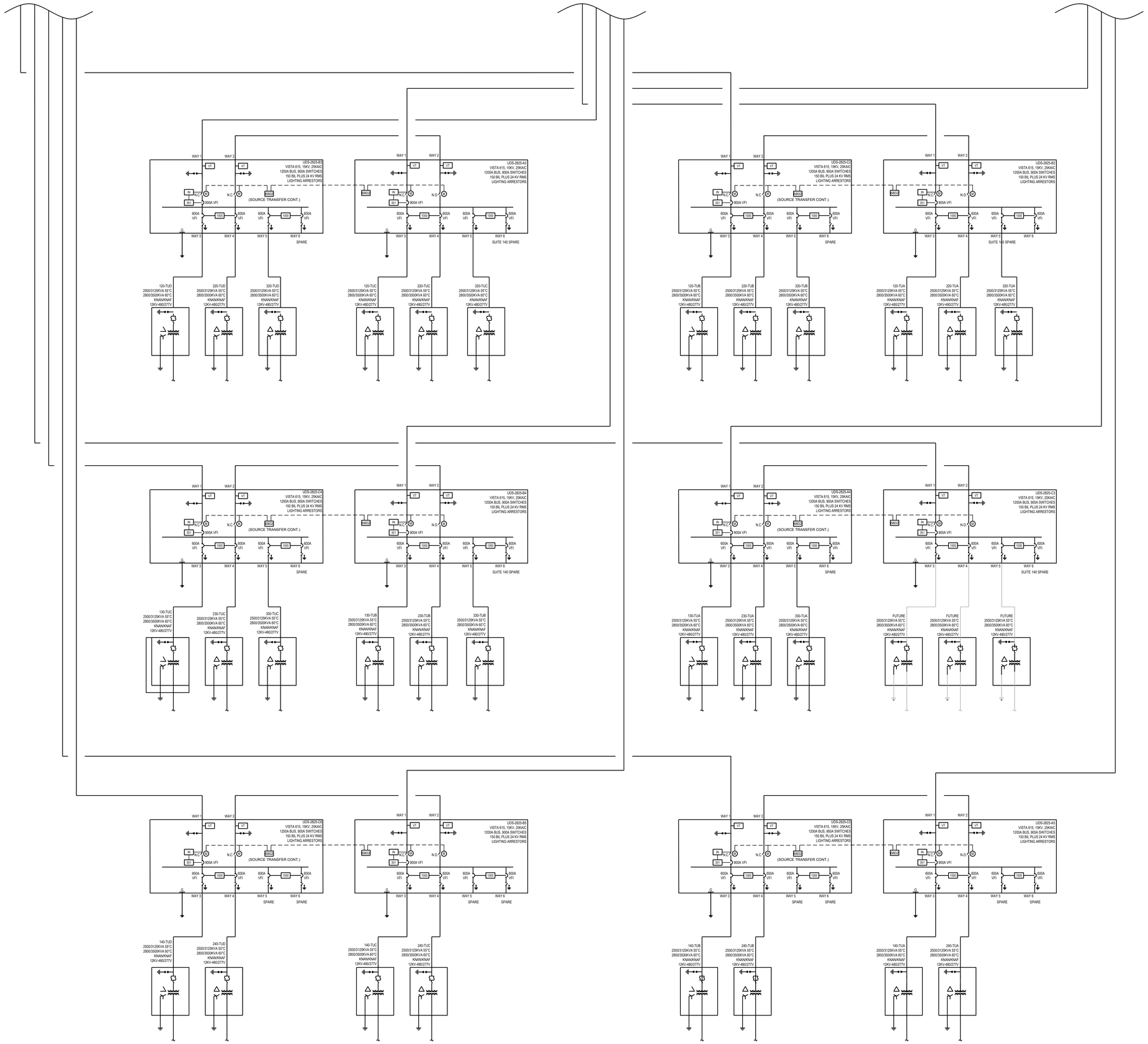

LEGEND

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- NEW EQUIPMENT
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- 351 — SEL 351 PROTECTIVE RELAY
- 1000 — S&C 1000 PROTECTIVE RELAY
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- NO — NORMALLY OPEN
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- CIRCUIT BREAKER
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ELECTRICAL ONE-LINE DIAGRAM MV DISTRIBUTION

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PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER **E7.3**
SCALE NONE	

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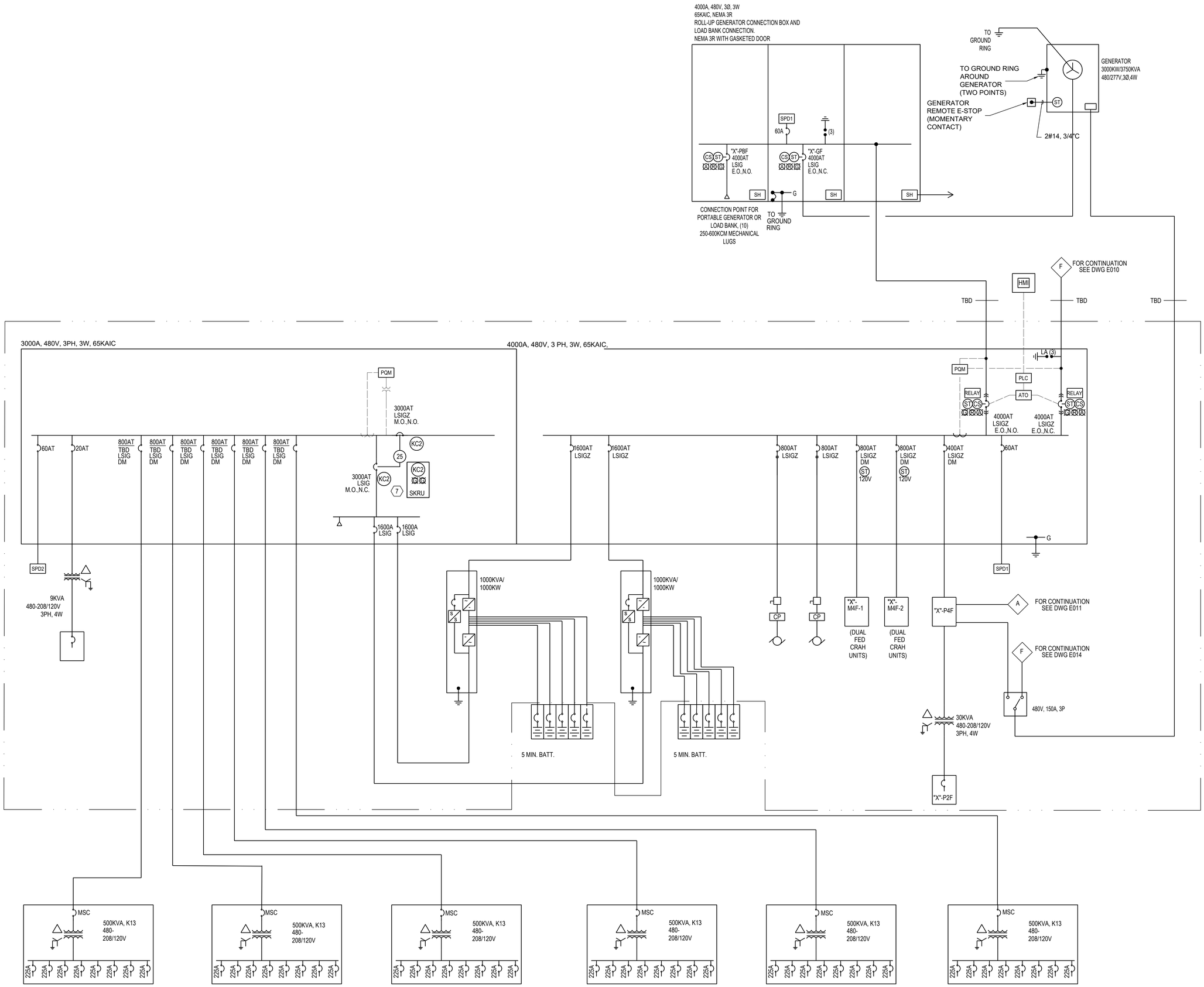

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MASTER PLAN

ELECTRICAL ONE-LINE DIAGRAM SUITE

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER **E7.4**
SCALE NONE	

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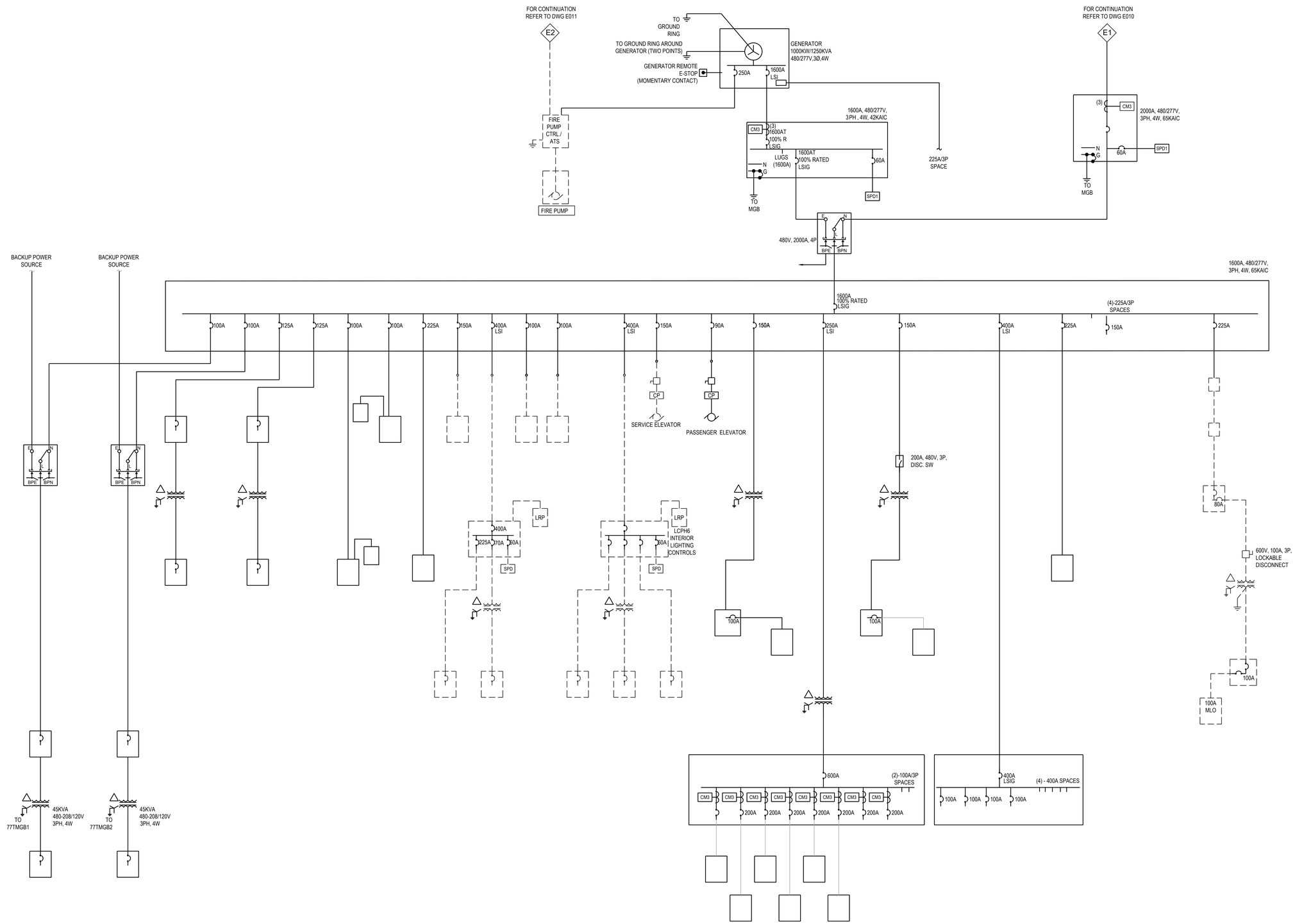

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MASTER PLAN

ELECTRICAL ONE-LINE DIAGRAM PBB

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER
SCALE NONE	**E7.5**

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ELECTRICAL REDUNDANCY AND CONTROL OF PEAK LOAD

THERE WILL BE ELEVEN DATA CENTER SUITES WITHIN IN 2825 LAFAYETTE STREET DATA CENTER. EACH DATA CENTER SUITE WILL BE DESIGNED TO HANDLE 6.0 MW OF IT EQUIPMENT LOAD. THE TOTAL LOAD OF EACH DATA CENTER SUITE WILL BE 9.0 MW WHICH INCLUDES THE IT EQUIPMENT LOAD, MECHANICAL EQUIPMENT TO COOL THE IT EQUIPMENT LOAD, LIGHTING AND DATA CENTER MONITORING EQUIPMENT. THE SUM OF THE ELEVEN DATA CENTER SUITE WILL RESULT IN 66.0 MW OF IT EQUIPMENT LOAD AND 99.0 OF TOTAL ELECTRICAL LOAD.

THE IT EQUIPMENT WILL HAVE DUAL CORDS THAT WILL TAKE POWER FROM TWO DIFFERENT CAPACITY GROUPS. THE DUAL CORDED IT EQUIPMENT IS TYPICALLY DESIGNED TO EVENLY DRAW POWER FROM BOTH CORDS WHEN POWER IS AVAILABLE ON BOTH CORDS, AND AUTOMATICALLY DRAWS ALL OF ITS POWER FROM A SINGLE CORD WHEN POWER BECOME UN-AVAILABLE ON THE OTHER CORD.

THE DATA CENTER SUITE WILL BE DESIGNED TO CONTINUE SUPPORTING ALL OF THE IT EQUIPMENT LOAD IN THE SUITE WHEN ONE OF THE FOUR CAPACITY GROUPS IS EITHER SCHEDULED TO BE OUT-OF-SERVICE FOR MAINTENANCE OR BECOMES UN-AVAILABLE DUE TO EQUIPMENT FAILURE. THEREFORE, THE 12.0 MW OF TOTAL POWER INSTALLED FOR EACH DATA CENTER SUITE EFFECTIVELY PROVIDES ONLY 9.0 MW OF TOTAL POWER (A 4-TO-MAKE-3 DESIGN).

THE DUAL CORDED IT EQUIPMENT LOAD GETS POWER FROM TWO DIFFERENT CAPACITY GROUPS. SIX DIFFERENT CORD CONFIGURATIONS ARE USED TO EVENLY BALANCE THE LOADS BETWEEN THESE PAIRS OF CAPACITY GROUPS: A-B, A-C, A-D, B-C, B-D AND C-D.

AS AN EXAMPLE OF THE ELECTRICAL SYSTEM DESIGN, WHEN ELECTRICAL CAPACITY GROUP A BECOMES UN-AVAILABLE, THE IT EQUIPMENT CONNECTED TO THE A AND B ELECTRICAL CAPACITY GROUP WILL AUTOMATICALLY SHIFT ITS ENTIRE LOAD TO THE B ELECTRICAL CAPACITY GROUP. IT EQUIPMENT CONNECTED BETWEEN THE A-C AND A-D ELECTRICAL CAPACITY GROUPS ALSO PERFORM A SIMILAR POWER TRANSFER IN THE EVENT OF AN A CAPACITY GROUP FAILURE.

AS PART OF THE ELECTRICAL DESIGN, THE IT EQUIPMENT LOAD THAT STARTED ON ELECTRICAL CAPACITY GROUP A IS EVENLY TRANSFERRED TO THE B CAPACITY GROUP (750 KW), C CAPACITY GROUP (750 KW) AND D CAPACITY GROUP (750 KW). TO ALLOW FOR THIS POWER TRANSFER, EACH ELECTRICAL CAPACITY GROUP CAN ONLY BE LOADED TO 75% (2,250 KW OF THE 3,000 KW ELECTRICAL CAPACITY GROUP CAPACITY).

THE ELECTRICAL LOAD ON EACH ELECTRICAL CAPACITY GROUP IS MONITORED BY THE BUILDING AUTOMATION SYSTEM. WHEN THE ANY OF THE ELECTRICAL CAPACITY GROUPS REACH 67.5% LOADED (BASED ON 90% OF THE 75% MAXIMUM LOADING UNDER NORMAL OPERATION), AN ALARM IS ACTIVATED IN THE ENGINEERING OFFICE. THE OPERATIONS STAFF WILL WORK WITH THE TENANTS TO ENSURE THAT THE LEASED POWER LEVELS ARE NOT EXCEEDED.

THE CONSEQUENCE OF ELECTRICAL CAPACITY GROUPS EXCEEDING 75% LOADED COULD LEAD TO DROPPING IT EQUIPMENT WHEN COUPLED WITH A CAPACITY GROUP FAILURE EVENT. IF ALL THE ELECTRICAL CAPACITY GROUPS SERVING A DATA CENTER SUITE (4 CAPACITY GROUPS) ARE LOADED OVER 75% AND AN ELECTRICAL CAPACITY GROUP FAILS, THE RESULTING LOAD TRANSFERRING TO THE THREE AVAILABLE CAPACITY GROUP WOULD EXCEED THE RATING OF THE ELECTRICAL CAPACITY GROUPS AND WOULD LEAD TO OVER-CURRENT PROTECTION DEVICES TRIPPING OPEN DUE TO THE OVERLOAD CONDITION. THEREFORE, IT IS VITAL TO THE RELIABILITY OF THE DATA CENTER TO MAKE SURE THAT ALL CAPACITY GROUPS REMAIN BELOW 75% LOADED.

IN ADDITION TO ELECTRICAL REDUNDANCY REQUIREMENTS WITHIN THE LDC THAT WILL SELF-REGULATE THE TOTAL AMOUNT OF POWER USED BY EACH DATA CENTER SUITE TO 9.0 MW (99.8 MW TOTAL FOR THE BUILDING), THE SVP ELECTRICAL SUBSTATION WILL PROVIDE A MORE STRINGENT LIMITATION ON THE LDC.

THE NEW SVP ELECTRICAL SUBSTATION WILL BE RATED FOR 100 MVA (MEGA VOLT-AMPERE) ELECTRICAL SUBSTATION ALONG LAFAYETTE STREET (THE WESTERN SIDE OF THE SITE). THE THREE-BAY SUBSTATION (THREE 50 MVA 60 KV-12KV STEP-DOWN TRANSFORMERS) WILL BE DESIGNED TO ALLOW ONE OF THE THREE TRANSFORMERS TO BE TAKEN OUT OF SERVICE, EFFECTIVELY PROVIDING 100 MVA OF TOTAL POWER (A 3-TO-MAKE-2 DESIGN).

NOTE: THE RELATIONSHIP BETWEEN MVA AND MW IS MW = MVA X POWER FACTOR. A TYPICAL FACTOR FOR A DATA CENTER IS AROUND 0.95. POWER FACTOR IS A FUNCTION OF THE LOADS, NOT THE UTILITY SUBSTATION. AT 0.95 POWER FACTOR, A 100 MVA SUBSTATION CAN PROVIDE 95 MW OF POWER. THEREFORE, THE SVP UTILITY SUBSTATION WILL LIMIT THE LDC TO BELOW 100 MW OF TOTAL LOAD.

ELECTRICAL SYSTEM SEQUENCE OF OPERATIONS

SCENARIO - 60 KV CIRCUIT FAULT OR 60KV SOURCE FAILURE:

IN THE EVENT OF A 60KV CIRCUIT FAULT, AUTOMATIC ISOLATION SWITCHES IN THE SVP 60KV LOOP WILL ISOLATE THE LINE FAULT AND CONTINUE TO PROVIDE POWER TO BOTH SIDES OF THE ISOLATED PORTION OF THE 60KV CIRCUIT. NO POWER INTERRUPTIONS AT THE 2825 LAFAYETTE SITE ARE EXPECTED IN THIS SCENARIO.

A SVP 115KV-TO-60KV SUBSTATION (SOURCE) OUTAGE WOULD ALSO RESULT IN A SIMILAR SEQUENCE.

SCENARIO - 12KV EQUIPMENT OR CABLE FAULT ON SITE:

IN THE EVENT OF EQUIPMENT OR CABLE FAILURE BETWEEN THE NEW 60KV-TO-12KV SVP LAFAYETTE STREET SUBSTATION AND THE ELECTRICAL CAPACITY GROUPS WITHIN THE 2825 LAFAYETTE STREET BUILDING, THE MAIN-TIE-TIE-MAIN TRANSFER IN THE 15KV VISTA SWITCHGEAR PAIRS IN THE EQUIPMENT YARD WILL WAIT 3 SECONDS AND WILL THEN OPEN THE MAIN SWITCH / WAY WITH THE DE-ENERGIZED UTILITY SOURCE AND WILL THEN CLOSE THE TIES SWITCHES. THE OPEN AND CLOSE SEQUENCES WILL TAKE 4 TO 7 SECONDS. THEREFORE, POWER IS EXPECTED TO BE RESTORED IN APPROXIMATELY 10 SECONDS IF THE FAILURE IS UPSTREAM OF THE 15KV VISTA SWITCHGEAR PAIRS.

AS PART OF THIS SAME SCENARIO, THE TRANSFER CONTROL PLCS IN ELECTRICAL CAPACITY GROUPS THAT EXPERIENCE THE POWER INTERRUPTION WILL START THEIR GENERATORS AFTER 3 SECONDS. IT WILL TAKE APPROXIMATELY 10 SECONDS FOR THE GENERATORS TO GET UP TO RATED VOLTAGE AND FREQUENCY, RESULTING IN GENERATOR POWER BEING AVAILABLE AFTER 13 SECONDS AFTER THE INITIAL POWER INTERRUPTION. IF POWER HAS NOT BEEN RESTORED TO THE ELECTRICAL CAPACITY GROUP AFTER 15 SECONDS, THEN THE TRANSFER CONTROL PLC WILL START A UTILITY-TO-GENERATOR TRANSFER. IF POWER IS RESTORED TO THE ELECTRICAL CAPACITY GROUP IS LESS THAN 15 SECONDS, THEN THE GENERATORS WILL BE PUT IN COOLDOWN MODE AND WILL TURN OFF AFTER A MINUTE. IN THIS SCENARIO, APPROXIMATELY ONE THIRD OF THE GENERATORS ON THE SITE WILL TYPICALLY START.

THE ELECTRICAL CAPACITY GROUP TRANSFER SYSTEM HAS A UTILITY MAIN CIRCUIT BREAKER AND A GENERATOR MAIN CIRCUIT BREAKER. WHEN A UTILITY-TO-GENERATOR TRANSFER IS INITIATED, THE UTILITY MAIN CIRCUIT BREAKER IS IMMEDIATELY OPENED, THE SYSTEM WAITS 5 SECONDS, THEN THE GENERATOR MAIN CIRCUIT BREAKER IS CLOSED. THEREFORE, POWER IS EXPECTED TO BE RESTORED IN APPROXIMATELY 20 SECONDS IN THIS SCENARIO.

RESTORING UTILITY POWER:

WHEN BOTH UTILITY SOURCES ARE RESTORED TO THE 12KV VISTA SWITCHGEAR PAIRS (MAIN-TIE-TIE-MAIN TRANSFER SYSTEM), THE BUILDING OPERATIONS TEAM WILL MONITOR THE UTILITY POWER TO MAKE SURE THAT IS STABLE BEFORE RESTORING THE TRANSFER CONTROL SYSTEMS TO THEIR NORMAL STATE.

WHEN BOTH UTILITY SOURCES ARE DETERMINED TO BE STABLE, THE BUILDING OPERATIONS TEAM WILL FIRST MANUALLY RE-CONFIGURE THE MAIN-TIE-TIE-MAINS TO HAVE BOTH TIES OPEN AND THEN BOTH MAINS CLOSED AND THEN RESTORE THE VISTA SWITCHGEAR TRANSFER CONTROLLER TO AUTOMATIC OPERATION. COMMANDING THE MAINS AND TIES OPEN AND CLOSED CAN BE PERFORMED FROM A REMOTE OPERATOR WORKSTATION OR AT EACH VISTA SWITCHGEAR.

THE BUILDING OPERATIONS TEAM WILL THEN MANUALLY INITIATE A RE-TRANSFER AT EACH OF THE CAPACITY GROUP TRANSFER CONTROLLERS TO TRANSFER FROM GENERATOR POWER TO UTILITY POWER. RE-TRANSFER IS INITIATED BY SELECTING THE RE-TRANSFER OPTION ON THE OPERATOR INTERFACE SCREEN IN EACH OF THE DATA CENTER SUITES. WHEN THE RE-TRANSFER IS INITIATED, THE GENERATOR MAIN CIRCUIT BREAKER WILL OPEN, THE SYSTEM WILL WAIT 5 SECONDS, THEN THE UTILITY MAIN CIRCUIT BREAKER WILL CLOSE. THE GENERATOR WILL AUTOMATICALLY CHANGE TO THE COOLDOWN MODE AND WILL TURN OFF AFTER ONE MINUTE.

IF THE SOURCE OF THE UTILITY FAILURE RESULTS IN A PORTION OF THE ELECTRICAL DISTRIBUTION REMAINING WITHOUT UTILITY POWER FOR AN EXTENDED PERIOD OF TIME, THE BUILDING OPERATIONS TEAM WILL RESTORE UTILITY POWER TO AS MANY OF THE ELECTRICAL CAPACITY GROUPS AS POSSIBLE.

UNINTERRUPTABLE POWER SUPPLY (UPS) SYSTEMS:

DURING THE UTILITY POWER OUTAGES BETWEEN THE UTILITY-TO-GENERATOR AND GENERATOR-TO-UTILITY TRANSFERS, THE UNINTERRUPTABLE POWER SUPPLY (UPS) SYSTEM WILL CONTINUE TO PROVIDE POWER TO THE IT EQUIPMENT IN THE DATA CENTER WITHOUT AN INTERRUPTION TO THE IT EQUIPMENT. EACH ELECTRICAL CAPACITY GROUP HAS A UPS SYSTEM WITH 5 MINUTES OF BATTERY BACK-UP.

MECHANICAL COOLING EQUIPMENT:

MECHANICAL COOLING EQUIPMENT WILL TURN OFF AND THEN AUTOMATICALLY TURN BACK ON WHEN POWER IS RESTORED (UTILITY OR GENERATOR POWER).

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MASTER PLAN

ELECTRICAL SEQUENCE OF OPERATIONS

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER **E7.7**
SCALE NONE	

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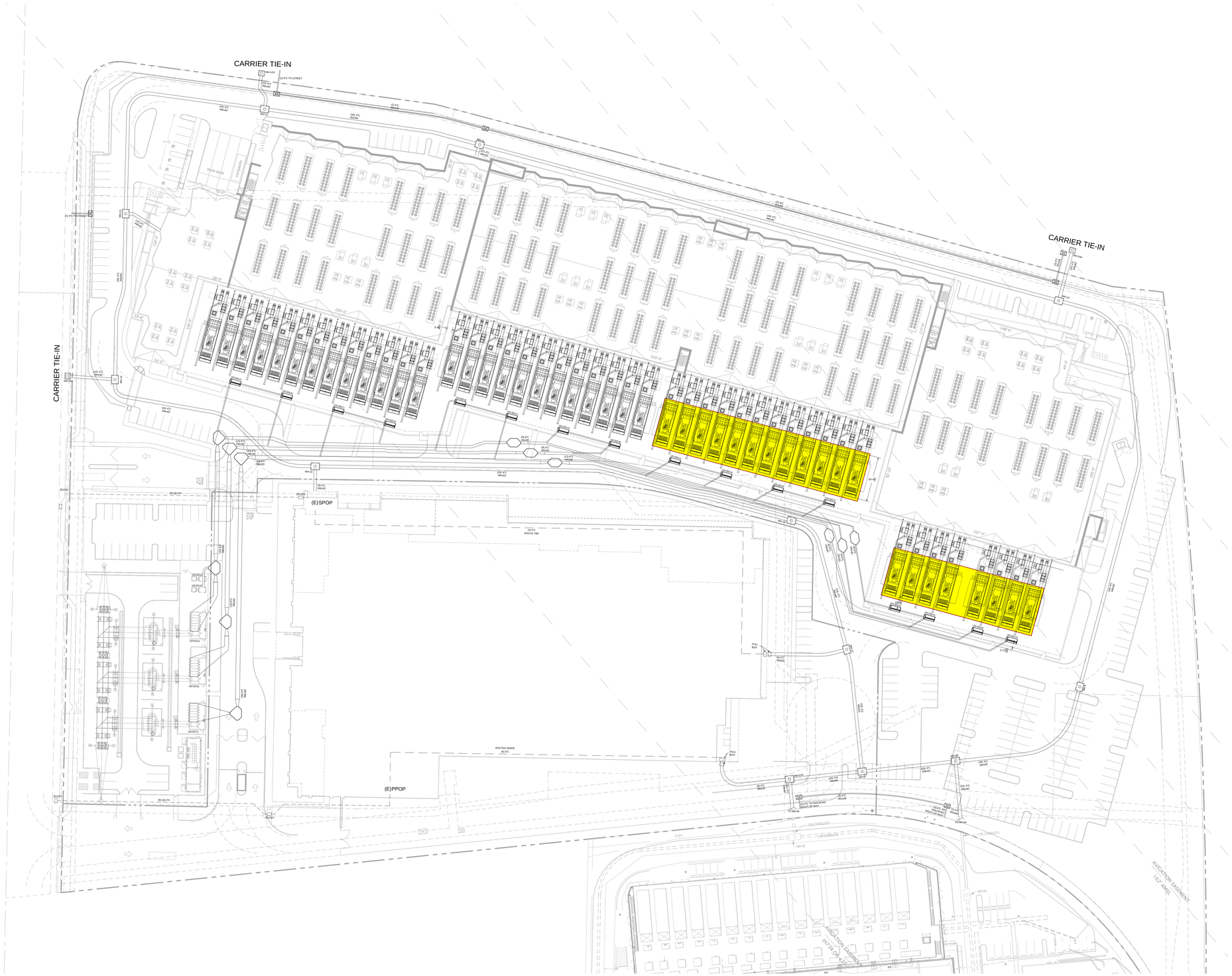

1 ELECTRICAL SITE PLAN
1" = 40'-0"

N

0 20 40 80
1" = 40'

GENERAL NOTES:

1. NOT USED.

KEYNOTES:

1. NOT USED.

LEGEND

POWER MANHOLE

POWER MANHOLE

CAMPUS COMMUNICATION MANHOLE 10FT x 8FT

SVP COMMUNICATION HANDHOLE 6FT x 4FT

SVP COMMUNICATION MANHOLE 10FT x 5FT

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MASTER PLAN

ELECTRICAL SITE PLAN

PRINCIPAL IN CHARGE MC	PROJECT NUMBER C190280
PROJECT MANAGER CM	DATE XXX
PROJECT ENGINEER XXX	SHEET NUMBER E1.2
SCALE NONE	

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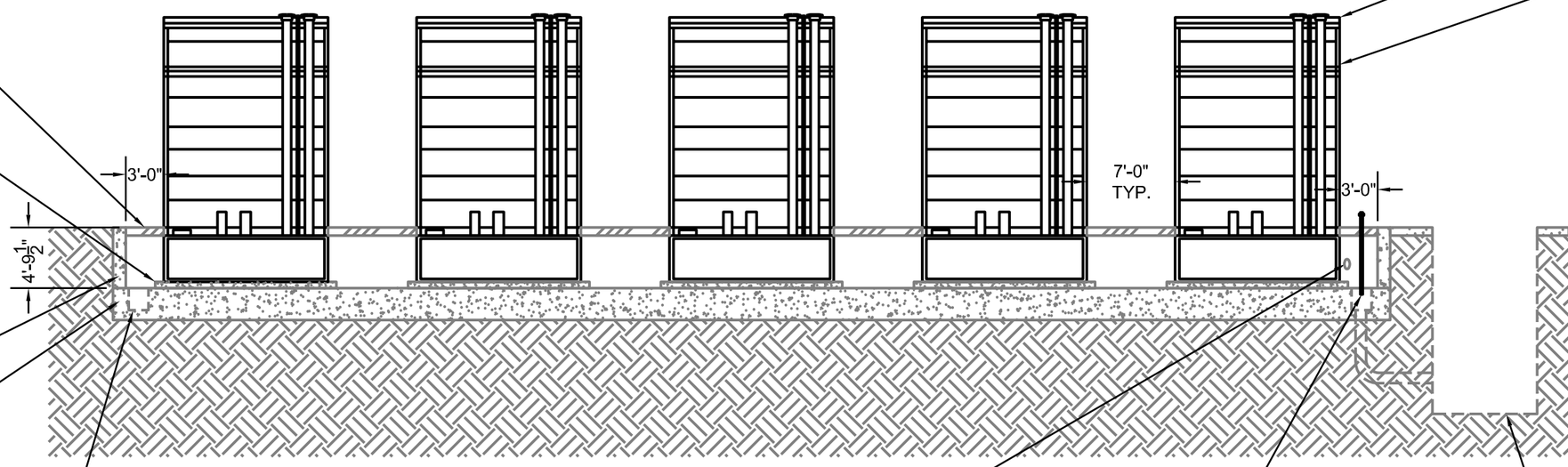

REMOVABLE GALVANIZED STEEL GRADING

6" TALL HOUSEKEEPING PAD

CONCRETE STEM WALL

STRUCTURAL MAT SLAB

PRIMARY AND REDUNDANT MANUALLY OPERATED SUMP PUMPS ON EMERGENCY POWER SUPPLY FOR USE TO DRAIN DEPRESSED SLAB AREA DISCHARGE PIPED TO 1500 GALLON CAPACITY SAND OIL / WATER SEPARATOR

GRAVITY EMERGENCY OVERFLOW 3' FROM BOTTOM

PUMP SURFACE OUTLET TO DRIVE AISLE

BACKUP GENERATOR

6,400 GALLONS UL 2085 FUEL TANK DOUBLE STEEL WALLS W / CONCRETE WITHIN INTERSTITIAL SPACE AND BUILD-IN CONTINUOUS MONITORING FOR LEAKS. DIRECT FILL WITHIN ENCLOSURE COMPLETE OVERFILL PROTECTION AND INTEGRAL 10 GALLONS CONTAINMENT BASIN FOR FILL CONNECTION.

CONCRETE PAVING

PRECAST CONCRETE SAND OIL / WATER SEPARATOR. PROVIDE WITH (2) MANWAY ACCESS CHAMBERS COMPLETE WITH EXTENSION RINGS AND TRAFFIC RATED MANHOLE COVERS.

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2825 Lafayette Street, Santa Clara, CA	DATE 08/24/2020	DRAWN BY XX	DRAWING NO. ESK-01
SKETCH - GENERATOR TRENCH DETAIL	SCALE 3/32" = 1'-0"	JOB NO. _____.___	APPROVED BY XX

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