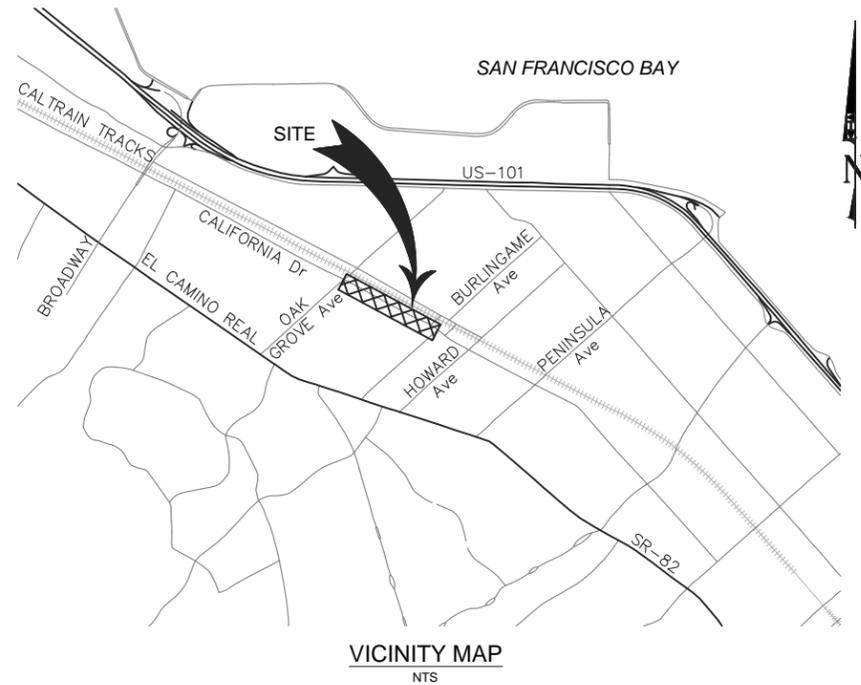


CALIFORNIA DRIVE ROUNDBOUT ROADWAY PROJECT BURLINGAME, CALIFORNIA SAN MATEO COUNTY PROJECT #83920

TO BE SUPPLEMENTED BY THE CALTRANS STANDARD PLANS 2010
AND CALIFORNIA MUTCD DATED JANUARY 2014



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PROJECT DESCRIPTION

THIS ROADWAY PROJECT MODIFIES CALIFORNIA DRIVE, BELLEVUE AVENUE, AND LORTON AVENUE IN THE CITY OF BURLINGAME, CA. THE IMPROVEMENTS INCLUDE:

- CONVERTING EXISTING THREE-WAY INTERSECTION INTO MODERN ROUNDABOUT
- RELOCATING EXISTING BUS STOPS AND PEDESTRIAN CROSSINGS
- BULB-OUTS WITH LANDSCAPING AND STORM WATER TREATMENT FACILITIES
- INSTALLATION OF PEDESTRIAN LIGHTING AT THE ROUNDABOUT INTERSECTION
- SIGNING AND STRIPING IMPROVEMENTS TO INCLUDE HIGH VISIBILITY PEDESTRIAN CROSSINGS AND BICYCLE FACILITIES
- PEDESTRIAN CURB RAMP, SIDEWALK, AND DRIVEWAY IMPROVEMENTS
- REHABILITATING PAVEMENT (COLD PLANE & OVERLAY) FROM OAK GROVE AVENUE TO BURLINGAME AVENUE



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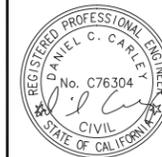
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KHA PROJECT
097515003
DATE
12/27/2017
SCALE AS SHOWN
DESIGNED BY DW
DRAWN BY DW
CHECKED BY DC

**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY

CA



TITLE SHEET

SHEET NO. 01
OF 61 SHEETS

CV-01

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GENERAL NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE PLANS, THE TECHNICAL SPECIFICATIONS SPECIAL PROVISIONS, THE CITY OF BURLINGAME DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS, AND CALTRANS STANDARD PLANS AND SPECIFICATIONS DATED MAY 2010.
- CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- THE CITY ENGINEER SHALL BE NOTIFIED IN WRITING FIVE (5) DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL GIVE THE CITY OF BURLINGAME ENGINEERING DEPARTMENT AT LEAST THREE (3) WORKING DAYS ADVANCE NOTICE PRIOR TO BEGINNING OF ACTUAL WORK AND ALL REQUIRED INSPECTION REQUESTS, AT (650) 558-7230.
- THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER OF ANY DISCREPANCIES OR UNUSUAL CONDITIONS ASSOCIATED WITH EXISTING CONDITIONS, THE PLANS, DETAILS OR CONSTRUCTION NOTES FIVE (5) DAYS PRIOR TO FINALIZATION OF BIDS AND COMMENCEMENT OF ANY CONSTRUCTION.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE CITY ENGINEER.
- NOTES APPEARING ON THESE PLANS SHALL BE CONSIDERED AS REFERRING TO INCIDENTAL WORK REQUIRED FOR THE ACTIVITIES SPECIFICALLY LISTED IN THE BID SCHEDULE. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR ACTIVITIES OTHER THAN THOSE LISTED IN THE BID SCHEDULE.
- THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT AND APPARATUS NOT SPECIFICALLY MENTIONED ON THE PLANS OR SPECIFICATIONS, BUT WHICH ARE NECESSARY TO COMPLETE THE CONTRACTED WORK.

PERMITS AND REGULATIONS

- CONTRACTOR SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS.
- THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY SOIL OR WATER CONTAMINATION NOTICED DURING CONSTRUCTION TO THE CITY OF BURLINGAME.
- CONTRACTOR TO ADHERE TO ALL REQUIREMENTS OF THE SAN MATEO COUNTY HEALTH SERVICES AGENCY.
- CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND AGREEMENTS NECESSARY TO COMPLETE THE CONTRACTED WORK CONTAINED HEREIN.

SURVEY NOTES

- THE CONTRACTOR SHALL SATISFY THEMSELVES AS TO THE CORRECTNESS OF THE EXISTING TOPOGRAPHY, UTILITIES, AND EXISTING CONDITIONS PRIOR TO BIDDING THE PROJECT.
- CONSTRUCTION STAKING TO BE PROVIDED BY THE CONTRACTOR AND SHALL BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF CALIFORNIA. CONTRACTOR SHALL MAINTAIN STAKING POINTS AT ALL TIMES DURING CONSTRUCTION.

EROSION CONTROL

- UPON SATISFACTORY COMPLETION OF THE WORK, THE ENTIRE WORK SITE SHALL BE CLEANED AND LEFT FREE OF CONSTRUCTION WASTE, RUBBISH AND DEBRIS OF ANY NATURE TO THE SATISFACTION OF THE CITY ENGINEER.
- EROSION CONTROL MEASURES SHALL BE INSTALLED AS NECESSARY TO PREVENT SEDIMENT RUNOFF TO PUBLIC ROADWAY DRAINAGE FACILITIES, ADJACENT PROPERTIES AND THE SAN FRANCISCO BAY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES ON OR OFF THE PROJECT SITE AS A RESULT OF LACK OF DUST CONTROL.
- DURING THE PROGRESS OF THE CONSTRUCTION WORK THE CONTRACTOR SHALL MAINTAIN THE PREMISES IN A NEAT AND CLEAN CONDITION, DISPOSING OF REFUSE IN A SATISFACTORY MANNER AS OFTEN AS DIRECTED OR AS MAY BE NECESSARY SO THAT THERE SHALL BE AT NO TIME ANY UNSIGHTLY ACCUMULATION OF RUBBISH AT THE JOB SITE.
- DURING STORM EVENTS THE CONTRACTOR SHALL REMOVE/CLEAN ANY SEDIMENT FROM INLETS, ENSURE THAT THE DRAINS ARE DRAINING ADEQUATELY AND NOT CAUSING ANY FLOODING IN THE AREA OR CREATING HAZARD TO PEDESTRIANS AND VEHICLES.

TREE PROTECTION

- TREES AND SHRUBS WITHIN THE CITY EASEMENTS, RIGHT-OF-WAY AND ON PRIVATE PROPERTY ADJACENT TO THE PROJECT WORK SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL DEVELOP METHODS TO WORK AROUND ALL TREES.
- CONTRACTOR TO CONTACT CITY ENGINEER, INSPECTOR, AND CITY ARBORIST TO IDENTIFY TREES TO BE PRUNED IN CITY RIGHT-OF-WAYS OR EASEMENTS AS REQUIRED FOR ACCESS TO PROJECT AREA.

CONSTRUCTION NOTES

- CONTRACTOR SHALL REPLACE OR REPAIR, AT CONTRACTOR'S EXPENSE, ALL DAMAGED, REMOVED OR OTHERWISE DISTURBED FACILITIES, WALLS, FENCES, SERVICES, UTILITIES, STRIPING, IMPROVEMENTS OR FEATURES OF WHATEVER NATURE, TO THEIR ORIGINAL CONDITION, WHETHER SHOWN ON THE PLANS OR NOT; PROVIDED SUCH REPAIR OR REPLACEMENT IS CAUSED BY CONTRACT WORK OPERATIONS.
- ALL EXCAVATION SPOILS SHALL BE PLACED DIRECTLY INTO TRUCKS AND DISPOSED OF AT AN APPROVED DUMPSITE.
- THE CONTRACTOR SHALL SUPPLY AND MAINTAIN SANITARY FACILITIES FOR THE WORKERS AT THE CONSTRUCTION SITE.
- AT THE END OF EACH WORKING DAY, THE CONTRACTOR SHALL CLEAN AND SWEEP ROADWAYS AND ONSITE PAVED AREAS OF ALL MATERIALS ATTRIBUTED TO OR INVOLVED IN THE WORK. IN ADDITION, THE CONTRACTOR SHALL CLEAN AND SWEEP ROADWAYS AS NECESSARY TO ENSURE THAT VEHICLE AND PEDESTRIAN TRAVEL IS NOT ENDANGERED BY THE PRESENCE OF LOOSE MATERIALS. CONSTRUCTION SITE ENTRANCES SHALL BE KEPT FREE OF THESE MATERIALS. DAILY CLEANING AND SWEEPING OF THE ROADWAYS AND AREAS INVOLVED IN THE WORK SHALL BE PERFORMED AS NECESSARY TO ENSURE THAT VEHICLE AND PEDESTRIAN TRAVEL ARE NOT ENDANGERED BY THE PRESENCE OF LOOSE MATERIALS. MECHANIZED STREET SWEEPING SHALL BE PERFORMED BI-WEEKLY. STREET SWEEPER SHALL BE A FULL-SIZED STREET SWEEPER EQUIPPED WITH WATER SPRAY BARS AND REAR PICK-UP BROOMS. IN ADDITION, VACUUM MAY REPLACE OR ADD TO THE BROOMS IF IT IS SUITABLE FOR MUNICIPALITIES AND FOR CONSTRUCTION SITE CLEANUP ON CITY STREETS. THE CONTRACTOR SHALL HAVE AN ADEQUATE STREET SWEEPER ONSITE BEFORE EXCAVATION WILL BE ALLOWED.
- CONTRACTOR SHALL PROVIDE A CONSTRUCTION MANAGER OFFICE TRAILER NEAR THE CONSTRUCTION SITE. SEE PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL NOTIFY THE CITY ENGINEER THE LOCATION OF CONTRACTOR-PROVIDED STAGING AREA AND STOCKPILE YARD. THE CITY IS NOT RESPONSIBLE FOR PROVIDING THE STAGING YARD AND THE CONTRACTOR IS RESPONSIBLE FOR SITE SECURITY AND PUBLIC SAFETY AT ALL TIMES.
- THE CONTRACTOR SHALL PREPARE A DETAILED CONSTRUCTION SITE STAGING PLAN AND PROVIDE TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. THE TRAFFIC HANDLING & STAGE CONSTRUCTION PLANS HEREIN ARE INTENDED TO PROVIDE THE CONTRACTOR POTENTIAL OPTIONS FOR CONSTRUCTION PHASES & SEQUENCING.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONSTRUCTION ACTIVITIES WITH NEARBY IMPACTED RESIDENCES, BUSINESSES, AGENCIES, UTILITY OWNERS, AND TRANSIT OPERATORS.

UTILITY NOTES

- LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES SHOWN ARE BASED ON AVAILABLE UTILITY COMPANY INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACTUAL LOCATION OF UTILITIES PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (U.S.A.) AT 811 or (800)227-2600 AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF ANY EXCAVATING.
- PHYSICAL VERIFICATION OF UTILITY LOCATIONS SHALL BE PERFORMED BY POT HOLING OR HAND DIGGING AND CAREFUL SUBSURFACE PROBING IN CONFORMANCE WITH ARTICLE 6 OF THE CAL/OSHA CONSTRUCTION SAFETY ORDERS. ANY DEVIATIONS FROM LOCATIONS SHOWN ON PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE STARTING CONSTRUCTION.
- EXISTING UTILITIES ARE SHOWN PER AVAILABLE INFORMATION. THERE MAY BE ADDITIONAL EXISTING LINES NOT SHOWN ON THE PLANS. CONTRACTOR SHALL BE CAREFUL TO AVOID ANY DAMAGE TO THESE UTILITY SERVICES.
- SHALLOW EXISTING UTILITIES ARE ANTICIPATED WITHIN THE PROJECT LIMITS. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE CITY ENGINEER AND THE UTILITY OWNER AT THE CONTRACTOR'S SOLE EXPENSE.



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| KHA PROJECT | 097515003 |
| DATE | 12/27/2017 |
| SCALE | AS SHOWN |
| DESIGNED BY | DW |
| DRAWN BY | DW |
| CHECKED BY | DC |

**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA

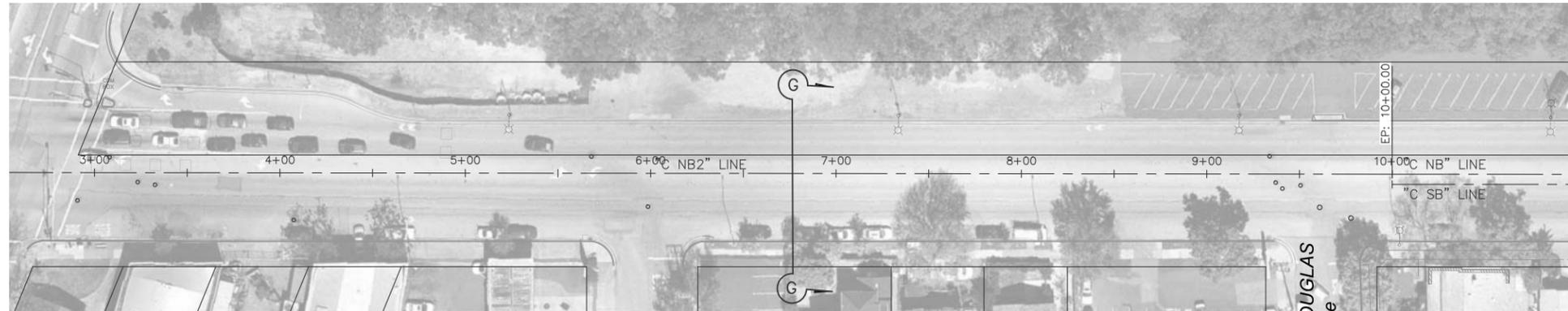


GENERAL NOTES

SHEET NO. 02
 OF 61 SHEETS
GN-01

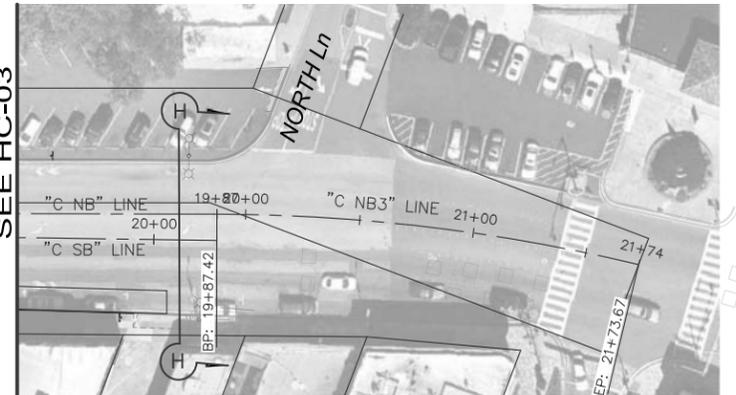
GENERAL NOTES:

1. THE PRIMARY CONSTRUCTION ALIGNMENTS ARE "C NB," "C SB," "B WB," "B EB," "L SB," AND "L NB."
2. THE SECONDARY CONSTRUCTION ALIGNMENTS ARE "C1 LINE," "C2 LINE," "B1 LINE," AND "L1 LINE."
3. FOR ACCURATE RIGHT OF WAY, CONTRACT THE CITY OF BURLINGAME PUBLIC WORKS DEPARTMENT.

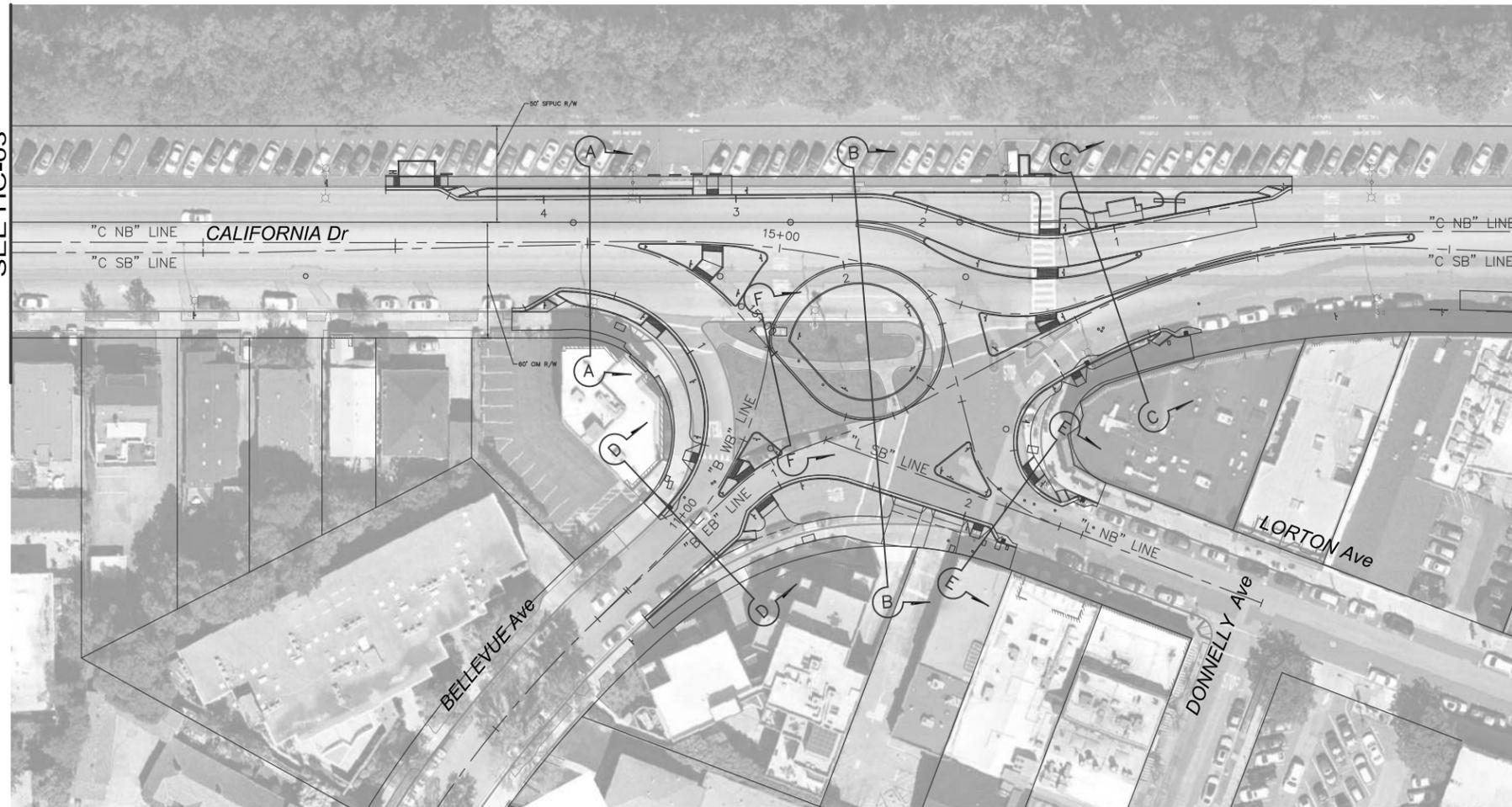


MATCHLINE
11+00 "C NB" LINE
SEE TX-01

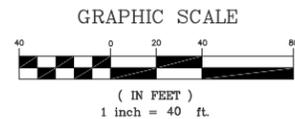
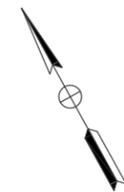
MATCHLINE
19+00 "C NB" LINE
SEE HC-03



MATCHLINE
11+00 "C NB" LINE
SEE HC-03



MATCHLINE
19+00 "C NB" LINE
SEE TX-01



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SCALE AS SHOWN
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**CALIFORNIA DRIVE
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PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY CA

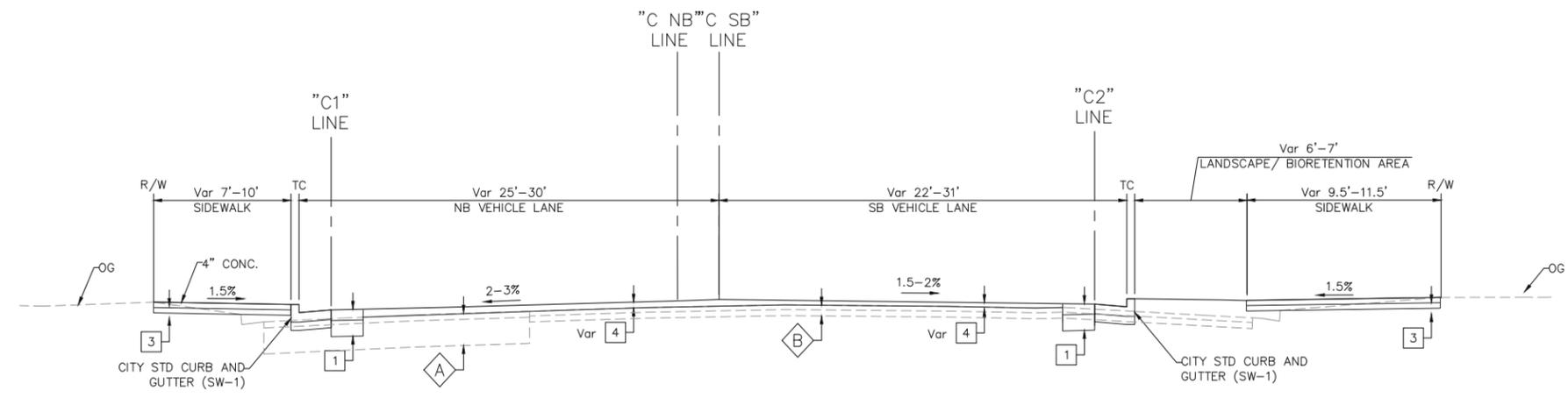


**TYPICAL CROSS SECTIONS
KEY**

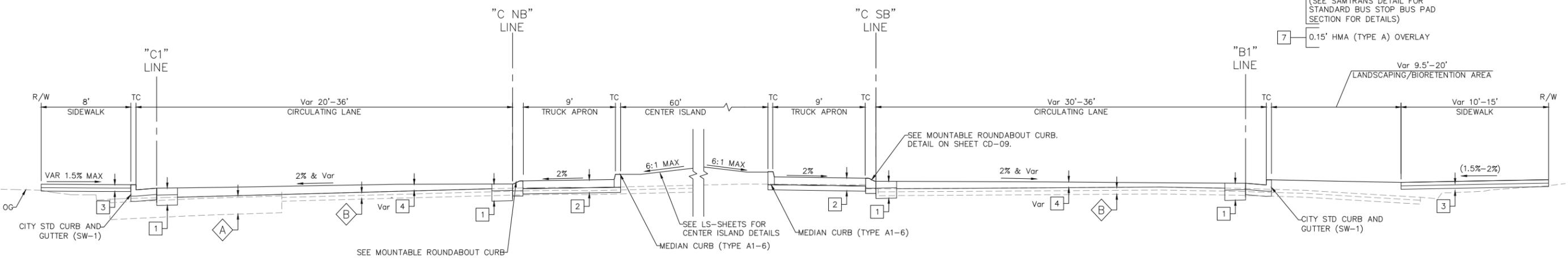
SHEET NO. 03
OF 61 SHEETS

TX-01

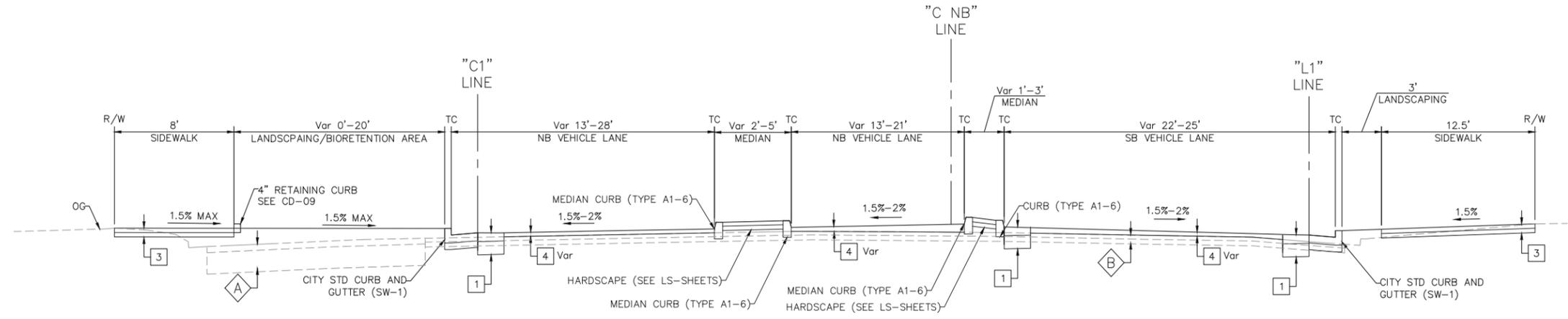
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TYPICAL SECTION A-A - SB CALIFORNIA APPROACH



TYPICAL SECTION B-B - SB ROUNDABOUT CIRCULATORY ROADWAY



TYPICAL SECTION C-C - NB CALIFORNIA APPROACH

GENERAL NOTES:

- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- SEE CONSTRUCTION DETAIL SHEETS FOR LIMITS OF CURB, SIDEWALK AND PAVEMENT IMPROVEMENTS.
- CONSTRUCT 0.5' AB (CLASS II) BELOW PROPOSED CURBS & 4" BELOW SIDEWALK/DRIVEWAY.
- PROJECT LINETYPES AND SYMBOLS PER CALTRANS STD PLAN A10A TO A10E.
- LANE WIDTHS VARY. SEE SIGNING AND STRIPING PLANS FOR DETAILS.
- FOR EXACT SLOPES AND GRADES SEE CONSTRUCTION DETAILS.
- PAVEMENT STRUCTURAL SECTION PROVIDED BASED ON WRECO'S PAVEMENT RECORD MEMO DATED 10/14/2016.
- EXISTING PAVEMENT SECTION VARIES. EXISTING SECTION IS ASSUMED TO BE 0.29' AC OVER 0.37' PCC FOR MUCH OF THE PROJECT AREA. SEE DM-01 FOR PAVEMENT REMOVAL AREAS AND DETAILS.
- SEQUENCE CONSTRUCTION OF STRUCTURAL SECTIONS TO ALLOW FOR FINAL LIFT OF 0.15' TO BE PLACED ACROSS ALL AREAS TO RECEIVE HMA.
- SEE CITY STANDARD DRAWING SW-1 FOR SIDEWALK, DRIVEWAY, AND CURB AND GUTTER DETAILS.
- SEE CALTRANS STANDARD PLANS A87A FOR MEDIAN CURB (TYPE A1-6).

TYPICAL PAVEMENT STRUCTURAL SECTION

| NO. | DESCRIPTION | EXISTING SECTIONS |
|-----|--|----------------------------------|
| 1 | 0.67' HMA (TYPE A) 1.00' AB (CLASS 2) | A 0.37' AC 1.63' AB (CLASS 2) |
| 2 | 0.75' PCC 0.5' AB (CLASS 2) | B 0.29' AC 0.37' PCC |
| 3 | 0.33' PCC 0.33' AB (CLASS 2) | |
| 4 | 0.15' COLD PLANE 0.15' Min. & Var HMA (TYPE A) OVERLAY | |
| 5 | 0.15' COLD PLANE 0.15' HMA (TYPE A) OVERLAY | |
| 6 | 0.95' PCC 0.40' AB (CLASS 2) (SEE SAMTRANS DETAIL FOR STANDARD BUS STOP BUS PAD SECTION FOR DETAILS) | |
| 7 | 0.15' HMA (TYPE A) OVERLAY | |

ABBREVIATIONS:

| | |
|------|--------------------------|
| AB | AGGREGATE BASE |
| AC | ASPHALT CONCRETE |
| HMA | HOT MIX ASPHALT |
| Min. | MINIMUM |
| NB | NORTHBOUND |
| OG | ORIGINAL GROUND |
| PCC | PORTLAND CEMENT CONCRETE |
| R/W | RIGHT OF WAY |
| SB | SOUTHBOUND |
| TC | TOP OF CURB |
| Var | VARIES |

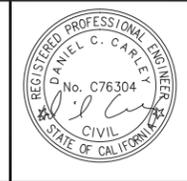


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CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
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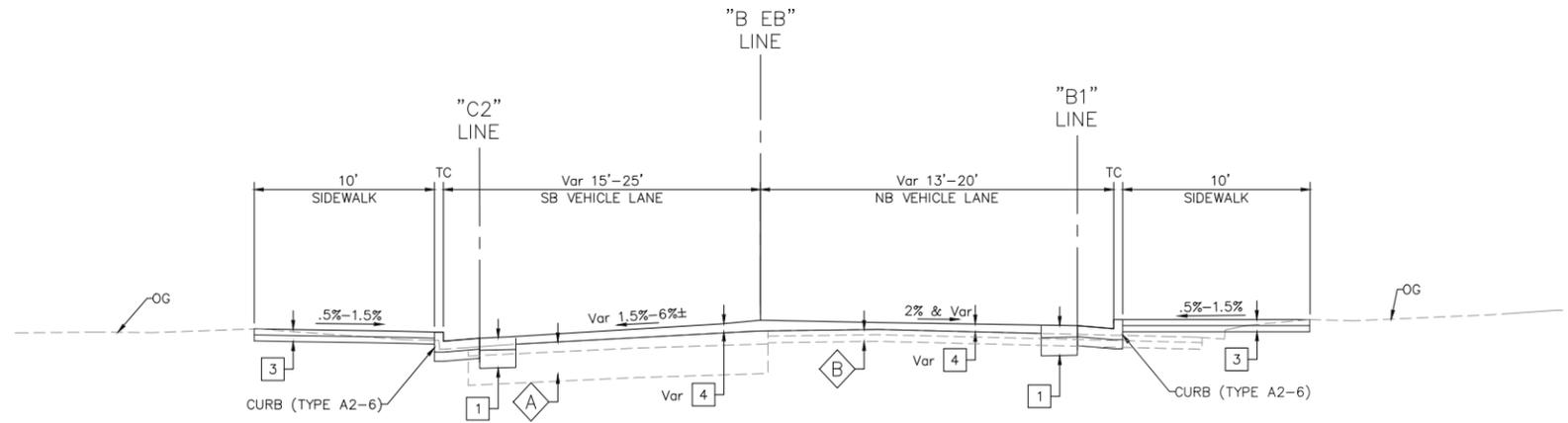


TYPICAL CROSS SECTIONS

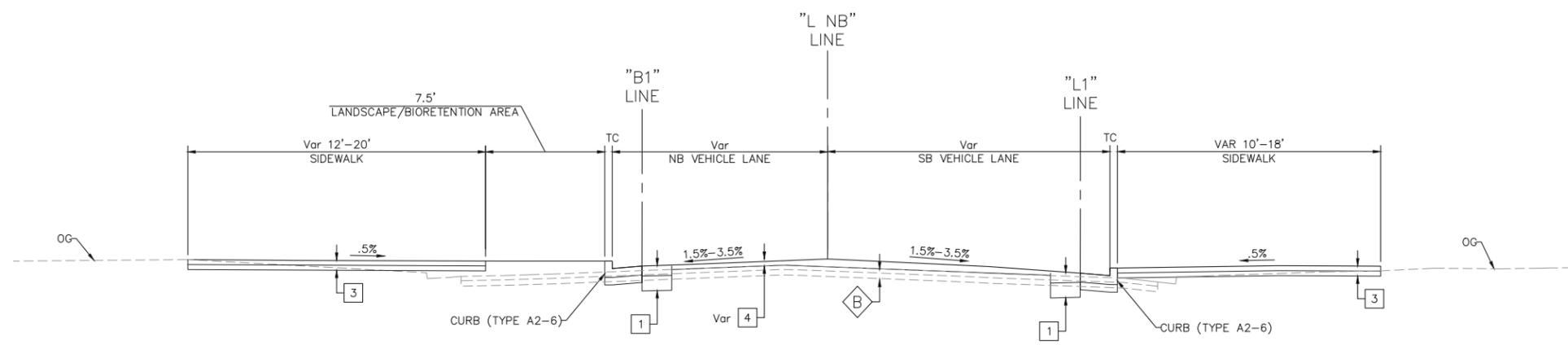
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TX-02

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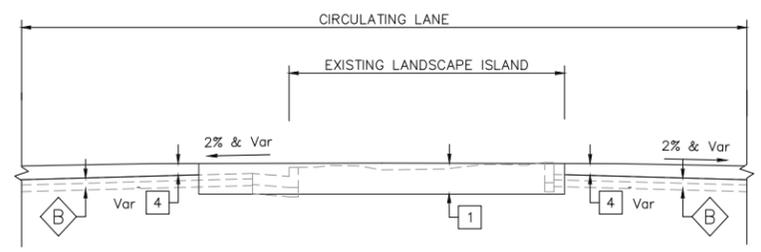
GENERAL NOTES:
 1. SEE TX-02 FOR GENERAL NOTES AND TYPICAL PAVEMENT STRUCTURAL SECTIONS.



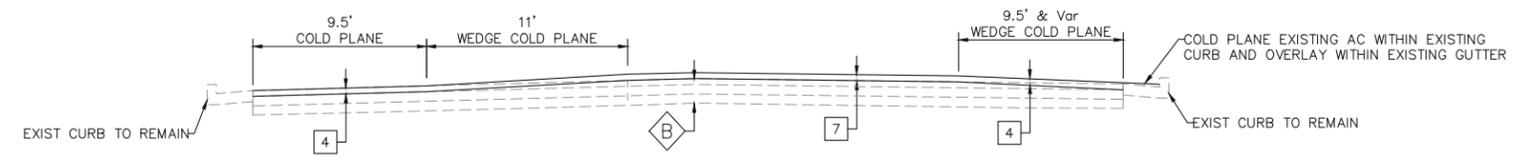
TYPICAL SECTION D-D - BELLEVUE APPROACH



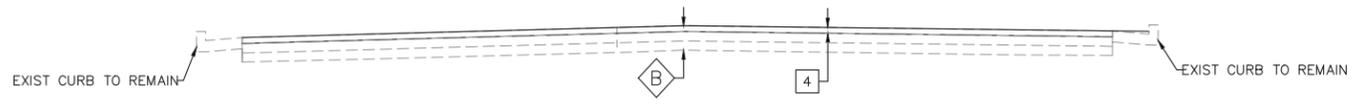
TYPICAL SECTION E-E - LORTON APPROACH



TYPICAL SECTION F-F - CALIFORNIA DRIVE THROUGH EXISTING ISLAND



TYPICAL SECTION G-G - CALIFORNIA DRIVE - PAVEMENT WEDGE COLD PLANE AND HMA OVERLAY (BETWEEN OAK GROVE AVENUE AND SB ROUNDABOUT APPROACH)



TYPICAL SECTION H-H - CALIFORNIA DRIVE - PAVEMENT COLD PLANE AND HMA OVERLAY (BETWEEN NB ROUNDABOUT APPROACH AND BURLINGAME AVENUE)

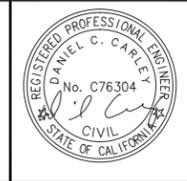


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| KHA PROJECT 097515003 |
| DATE 12/27/2017 |
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| DRAWN BY DW |
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**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



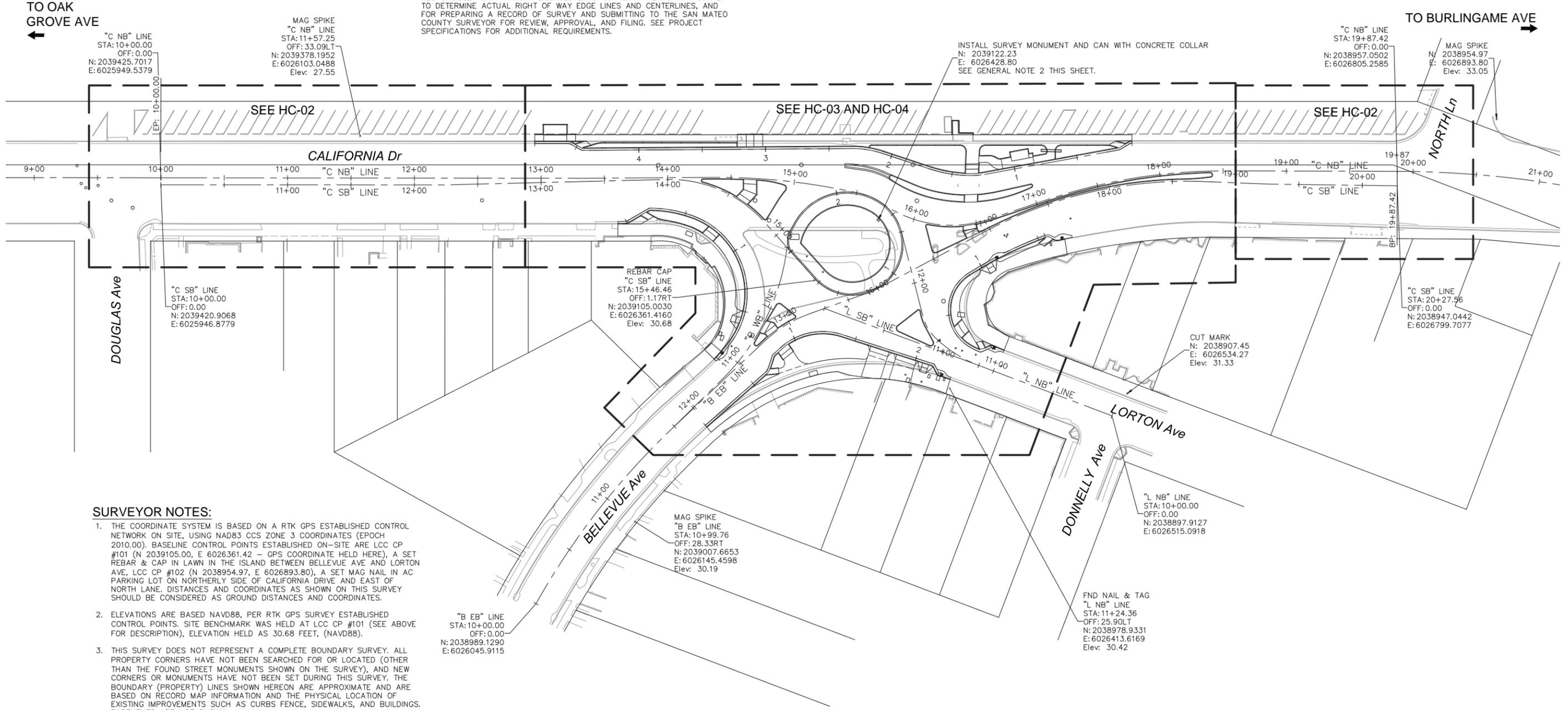
TYPICAL CROSS SECTIONS

SHEET NO. 05
 OF 61 SHEETS
TX-03

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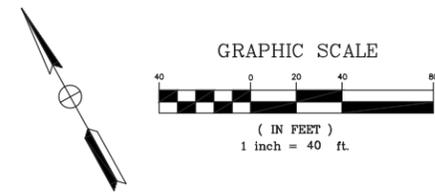
GENERAL NOTES:

- FOR ALIGNMENT LINE DATA AND PROFILES, SEE SHEETS HC-02/HC-03/HC-04.
- LOCATION OF NEW MONUMENT AS SHOWN IS APPROXIMATE. CONTRACTOR SHALL INSTALL NEW MONUMENT UPON COMPLETION OF BOUNDARY SURVEY AND FINAL LOCATION TO BE AS DIRECTED BY ENGINEER. CONTRACTOR IS RESPONSIBLE FOR HAVING A LICENSED LAND SURVEYOR PERFORM A SURVEY TO DETERMINE ACTUAL RIGHT OF WAY EDGE LINES AND CENTERLINES, AND FOR PREPARING A RECORD OF SURVEY AND SUBMITTING TO THE SAN MATEO COUNTY SURVEYOR FOR REVIEW, APPROVAL, AND FILING. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



SURVEYOR NOTES:

- THE COORDINATE SYSTEM IS BASED ON A RTK GPS ESTABLISHED CONTROL NETWORK ON SITE, USING NAD83 CCS ZONE 3 COORDINATES (EPOCH 2010.00). BASELINE CONTROL POINTS ESTABLISHED ON-SITE ARE LCC CP #101 (N 2039105.00, E 6026361.42 - GPS COORDINATE HELD HERE), A SET REBAR & CAP IN LAWN IN THE ISLAND BETWEEN BELLEVUE AVE AND LORTON AVE, LCC CP #102 (N 2038954.97, E 6026893.80), A SET MAG NAIL IN AC PARKING LOT ON NORTHERLY SIDE OF CALIFORNIA DRIVE AND EAST OF NORTH LANE. DISTANCES AND COORDINATES AS SHOWN ON THIS SURVEY SHOULD BE CONSIDERED AS GROUND DISTANCES AND COORDINATES.
- ELEVATIONS ARE BASED NAVD88, PER RTK GPS SURVEY ESTABLISHED CONTROL POINTS. SITE BENCHMARK WAS HELD AT LCC CP #101 (SEE ABOVE FOR DESCRIPTION), ELEVATION HELD AS 30.68 FEET, (NAVD88).
- THIS SURVEY DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. ALL PROPERTY CORNERS HAVE NOT BEEN SEARCHED FOR OR LOCATED (OTHER THAN THE FOUND STREET MONUMENTS SHOWN ON THE SURVEY), AND NEW CORNERS OR MONUMENTS HAVE NOT BEEN SET DURING THIS SURVEY. THE BOUNDARY (PROPERTY) LINES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON RECORD MAP INFORMATION AND THE PHYSICAL LOCATION OF EXISTING IMPROVEMENTS SUCH AS CURBS FENCE, SIDEWALKS, AND BUILDINGS. EASEMENTS ARE NOT SHOWN.
- UTILITIES SHOWN ARE BASED UPON SURFACE OBSERVATIONS OF STRUCTURES AND USA MARKINGS FOUND IN FIELD. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR LOCATIONS, CAPACITIES OR FUNCTIONALITY OF ALL UTILITIES SHOWN HEREON. SOME UNDERGROUND UTILITIES MAY NOT BE SHOWN.



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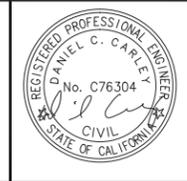
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**CALIFORNIA DRIVE
ROUNDBOUT**

PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY
CA



**HORIZONTAL CONTROL &
KEY MAP**

SHEET NO. 06
OF 61 SHEETS

HC-01

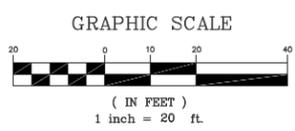
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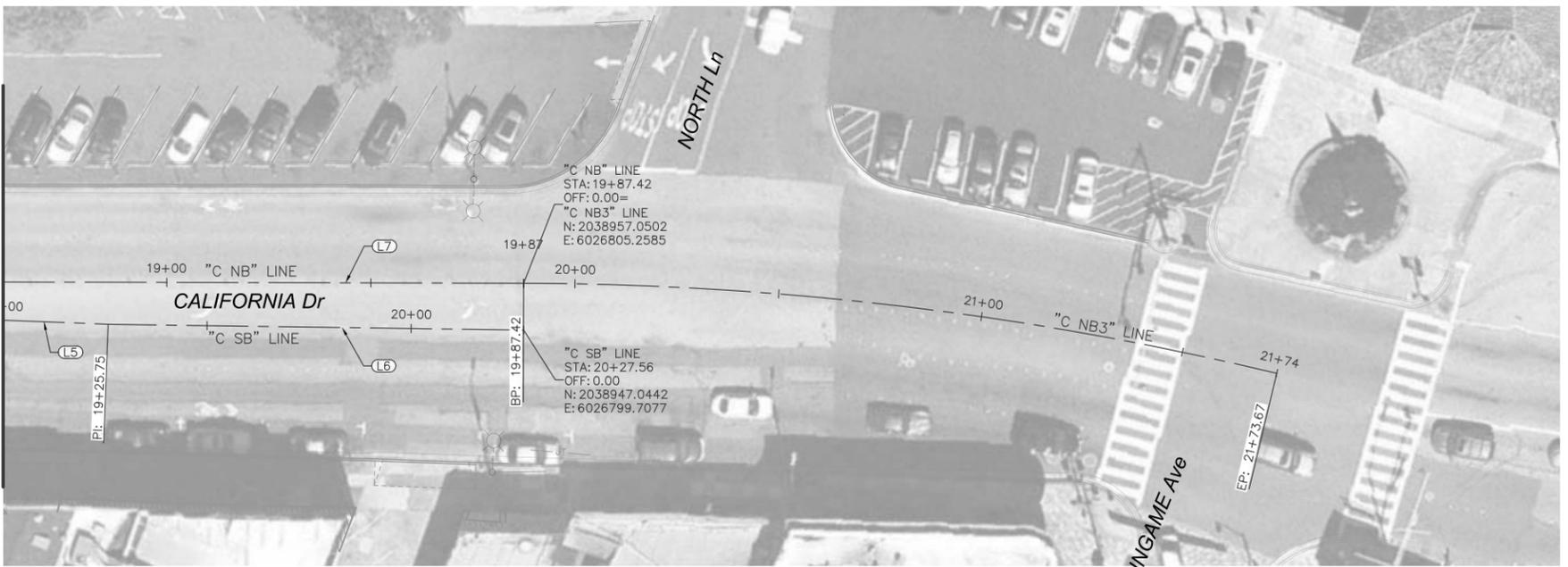
MATCHLINE
12+90 "C NB" LINE
SEE HC-03

| LINE TABLE | | | |
|------------|-------------|--------|----------------|
| LINE | DESCRIPTION | LENGTH | BEARING |
| L1 | "C SB" LINE | 224.94 | S60°58'50.12"E |
| L2 | "C SB" LINE | 174.26 | S62°22'14.44"E |
| L11 | "C NB" LINE | 331.95 | S60°55'22.33"E |

| LINE TABLE | | | |
|------------|-------------|--------|----------------|
| LINE | DESCRIPTION | LENGTH | BEARING |
| L5 | "C SB" LINE | 51.07 | S58°46'42.00"E |
| L6 | "C SB" LINE | 101.81 | S60°11'46.14"E |
| L7 | "C NB" LINE | 136.12 | S60°51'18.41"E |



MATCHLINE
19+00 "C SB" LINE
SEE HC-03



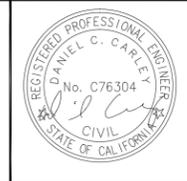
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**CALIFORNIA DRIVE
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PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY CA



**HORIZONTAL CONTROL &
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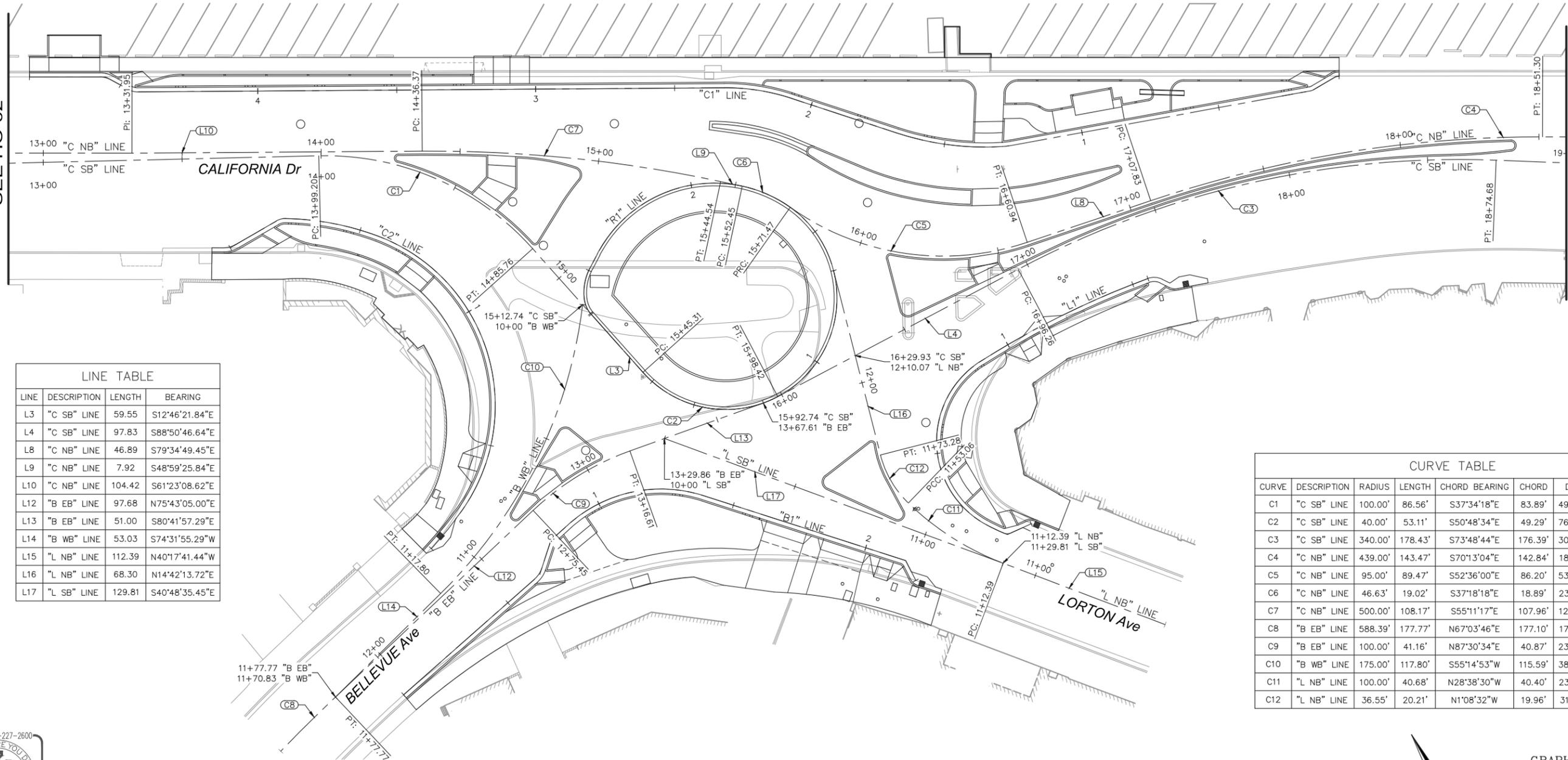
SHEET NO. 07
OF 61 SHEETS
HC-02

GENERAL NOTES:

1. THE PRIMARY CONSTRUCTION ALIGNMENTS ARE "C NB," "C SB," "B WB," "B EB," "L SB," AND "L NB."
2. THE SECONDARY CONSTRUCTION ALIGNMENTS ARE "C1 LINE," "C2 LINE," "B1 LINE," AND "L1 LINE." SEE HC-04.

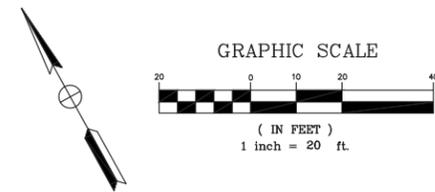
MATCHLINE
12+90 "C NB" LINE
SEE HC-02

MATCHLINE
19+00 "C SB" LINE
SEE HC-02



| LINE TABLE | | | |
|------------|-------------|--------|----------------|
| LINE | DESCRIPTION | LENGTH | BEARING |
| L3 | "C SB" LINE | 59.55 | S12°46'21.84"E |
| L4 | "C SB" LINE | 97.83 | S88°50'46.64"E |
| L8 | "C NB" LINE | 46.89 | S79°34'49.45"E |
| L9 | "C NB" LINE | 7.92 | S48°59'25.84"E |
| L10 | "C NB" LINE | 104.42 | S61°23'08.62"E |
| L12 | "B EB" LINE | 97.68 | N75°43'05.00"E |
| L13 | "B EB" LINE | 51.00 | S80°41'57.29"E |
| L14 | "B WB" LINE | 53.03 | S74°31'55.29"W |
| L15 | "L NB" LINE | 112.39 | N40°17'41.44"W |
| L16 | "L NB" LINE | 68.30 | N14°42'13.72"E |
| L17 | "L SB" LINE | 129.81 | S40°48'35.45"E |

| CURVE TABLE | | | | | | | |
|-------------|-------------|---------|---------|---------------|---------|-----------|---------|
| CURVE | DESCRIPTION | RADIUS | LENGTH | CHORD BEARING | CHORD | DELTA | TANGENT |
| C1 | "C SB" LINE | 100.00' | 86.56' | S37°34'18"E | 83.89' | 49°35'53" | 46.20' |
| C2 | "C SB" LINE | 40.00' | 53.11' | S50°48'34"E | 49.29' | 76°04'25" | 31.29' |
| C3 | "C SB" LINE | 340.00' | 178.43' | S73°48'44"E | 176.39' | 30°04'05" | 91.32' |
| C4 | "C NB" LINE | 439.00' | 143.47' | S70°13'04"E | 142.84' | 18°43'31" | 72.38' |
| C5 | "C NB" LINE | 95.00' | 89.47' | S52°36'00"E | 86.20' | 53°57'40" | 48.36' |
| C6 | "C NB" LINE | 46.63' | 19.02' | S37°18'18"E | 18.89' | 23°22'16" | 9.64' |
| C7 | "C NB" LINE | 500.00' | 108.17' | S55°11'17"E | 107.96' | 12°23'43" | 54.30' |
| C8 | "B EB" LINE | 588.39' | 177.77' | N67°03'46"E | 177.10' | 17°18'39" | 89.57' |
| C9 | "B WB" LINE | 100.00' | 41.16' | N87°30'34"E | 40.87' | 23°34'58" | 20.88' |
| C10 | "B WB" LINE | 175.00' | 117.80' | S55°14'53"W | 115.59' | 38°34'05" | 61.23' |
| C11 | "L NB" LINE | 100.00' | 40.68' | N28°38'30"W | 40.40' | 23°18'24" | 20.62' |
| C12 | "L NB" LINE | 36.55' | 20.21' | N1°08'32"W | 19.96' | 31°41'31" | 10.37' |

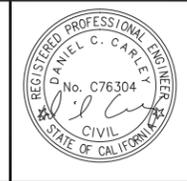


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**CALIFORNIA DRIVE
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 PREPARED FOR
CITY OF BURLINGAME
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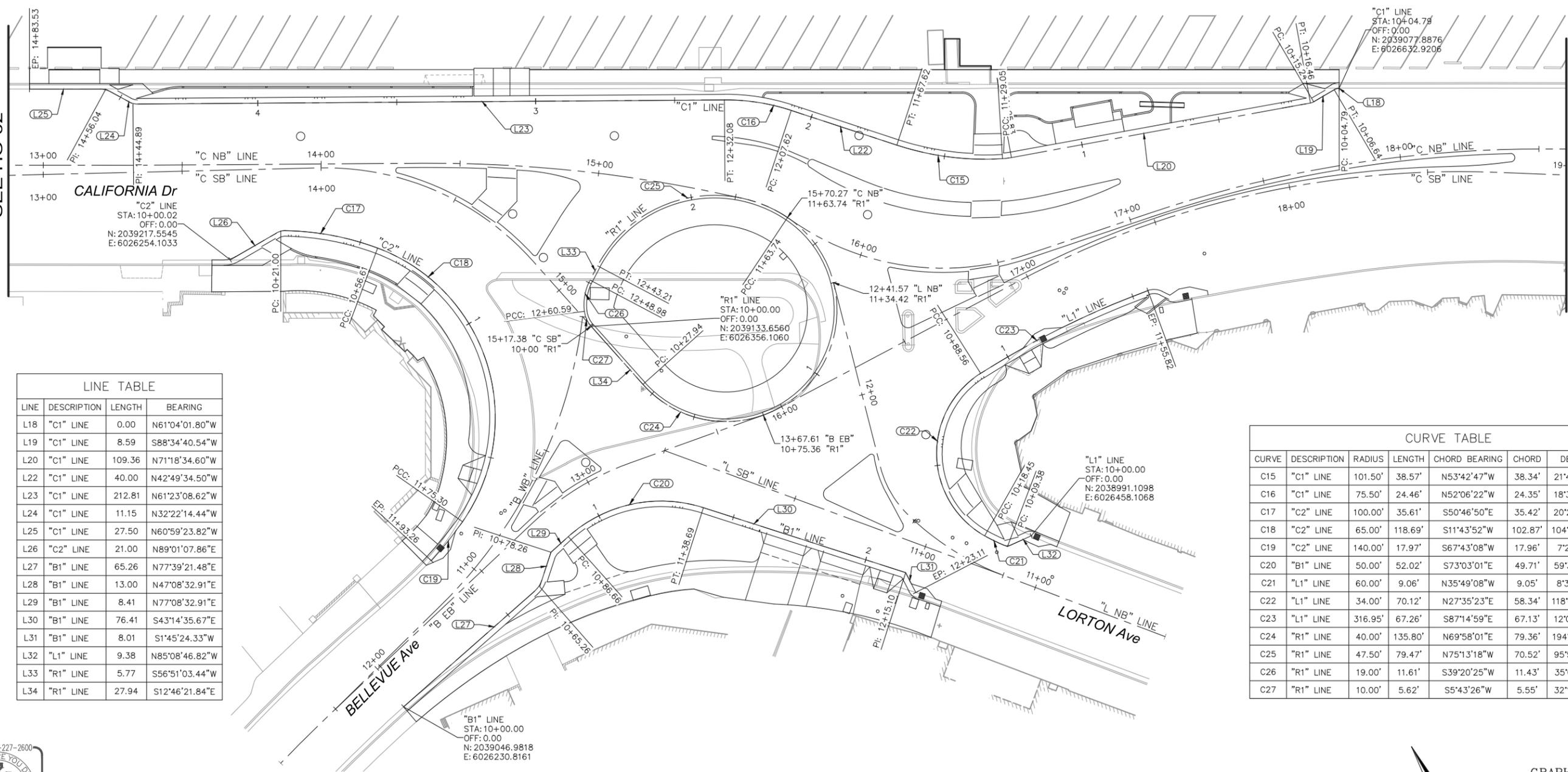
**HORIZONTAL CONTROL &
 KEY MAP
 ROADWAY ALIGNMENTS**

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HC-03

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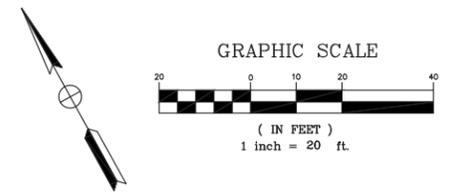
MATCHLINE
17+00 "C NB" LINE
SEE HC-02

MATCHLINE
19+00 "C SB" LINE
SEE HC-02



| LINE TABLE | | | |
|------------|-------------|--------|----------------|
| LINE | DESCRIPTION | LENGTH | BEARING |
| L18 | "C1" LINE | 0.00 | N61°04'01.80"W |
| L19 | "C1" LINE | 8.59 | S88°34'40.54"W |
| L20 | "C1" LINE | 109.36 | N71°18'34.60"W |
| L22 | "C1" LINE | 40.00 | N42°49'34.50"W |
| L23 | "C1" LINE | 212.81 | N61°23'08.62"W |
| L24 | "C1" LINE | 11.15 | N32°22'14.44"W |
| L25 | "C1" LINE | 27.50 | N60°59'23.82"W |
| L26 | "C2" LINE | 21.00 | N89°01'07.86"E |
| L27 | "B1" LINE | 65.26 | N77°39'21.48"E |
| L28 | "B1" LINE | 13.00 | N47°08'32.91"E |
| L29 | "B1" LINE | 8.41 | N77°08'32.91"E |
| L30 | "B1" LINE | 76.41 | S43°14'35.67"E |
| L31 | "B1" LINE | 8.01 | S1°45'24.33"W |
| L32 | "L1" LINE | 9.38 | N85°08'46.82"W |
| L33 | "R1" LINE | 5.77 | S56°51'03.44"W |
| L34 | "R1" LINE | 27.94 | S12°46'21.84"E |

| CURVE TABLE | | | | | | | |
|-------------|-------------|---------|---------|---------------|---------|------------|---------|
| CURVE | DESCRIPTION | RADIUS | LENGTH | CHORD BEARING | CHORD | DELTA | TANGENT |
| C15 | "C1" LINE | 101.50' | 38.57' | N53°42'47"W | 38.34' | 21°46'25" | 19.52' |
| C16 | "C1" LINE | 75.50' | 24.46' | N52°06'22"W | 24.35' | 18°33'34" | 12.34' |
| C17 | "C2" LINE | 100.00' | 35.61' | S50°46'50"E | 35.42' | 20°24'04" | 17.99' |
| C18 | "C2" LINE | 65.00' | 118.69' | S11°43'52"W | 102.87' | 104°37'19" | 84.13' |
| C19 | "C2" LINE | 140.00' | 17.97' | S67°43'08"W | 17.96' | 7°21'13" | 9.00' |
| C20 | "B1" LINE | 50.00' | 52.02' | S73°03'01"E | 49.71' | 59°36'51" | 28.64' |
| C21 | "L1" LINE | 60.00' | 9.06' | N35°49'08"W | 9.05' | 8°39'18" | 4.54' |
| C22 | "L1" LINE | 34.00' | 70.12' | N27°35'23"E | 58.34' | 118°09'43" | 56.77' |
| C23 | "L1" LINE | 316.95' | 67.26' | S87°14'59"E | 67.13' | 12°09'32" | 33.76' |
| C24 | "R1" LINE | 40.00' | 135.80' | N69°58'01"E | 79.36' | 194°31'15" | 313.97' |
| C25 | "R1" LINE | 47.50' | 79.47' | N75°13'18"W | 70.52' | 95°51'22" | 52.62' |
| C26 | "R1" LINE | 19.00' | 11.61' | S39°20'25"W | 11.43' | 35°01'16" | 5.99' |
| C27 | "R1" LINE | 10.00' | 5.62' | S5°43'26"W | 5.55' | 32°12'43" | 2.89' |



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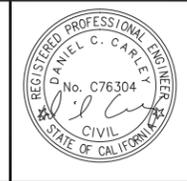
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**CALIFORNIA DRIVE
ROUNDBOUT**

PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY CA



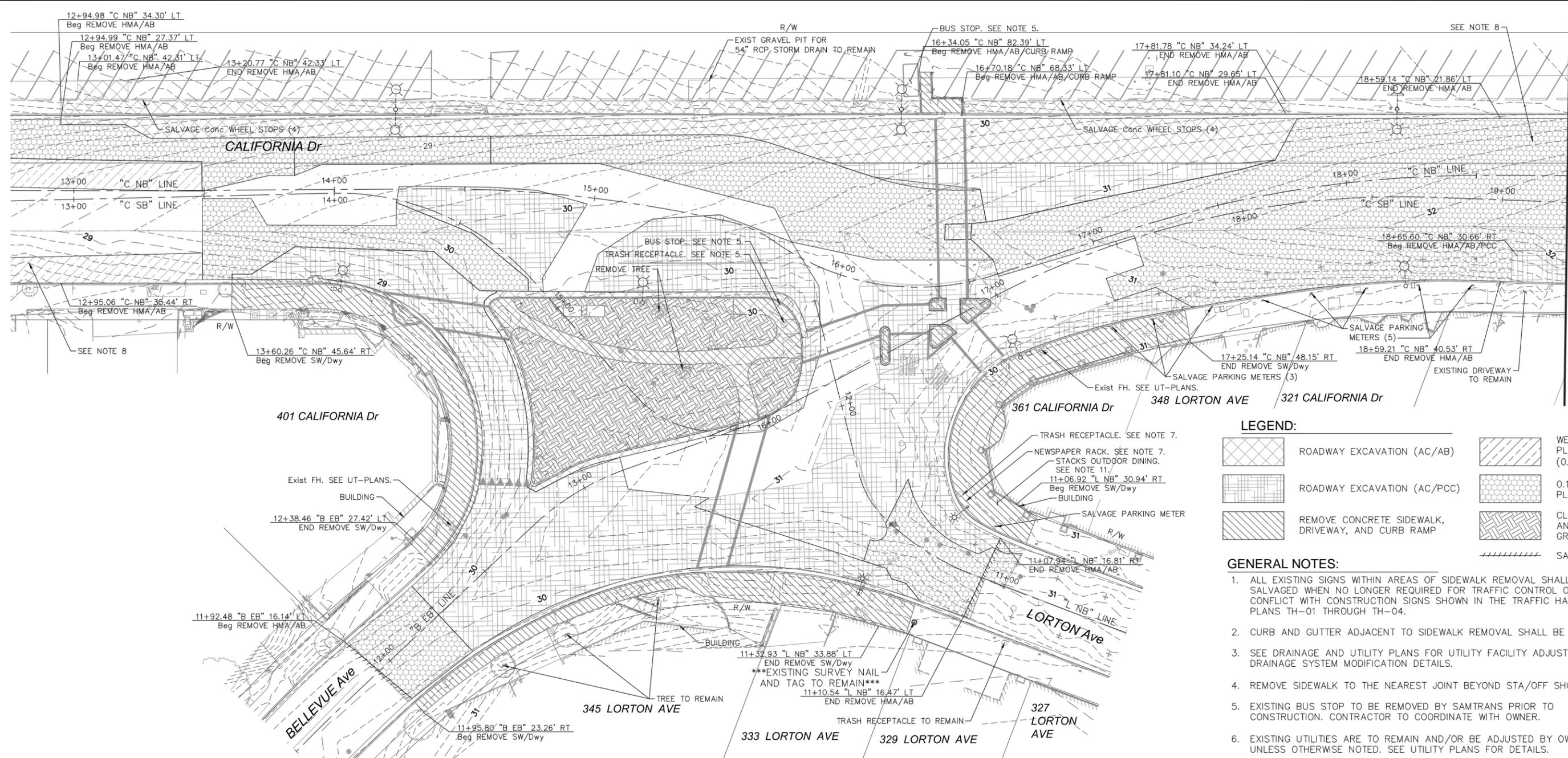
**HORIZONTAL CONTROL &
KEY MAP**

GUTTER LIP/EP ALIGNMENTS

SHEET NO. 09
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HC-04

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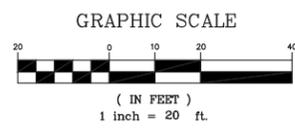
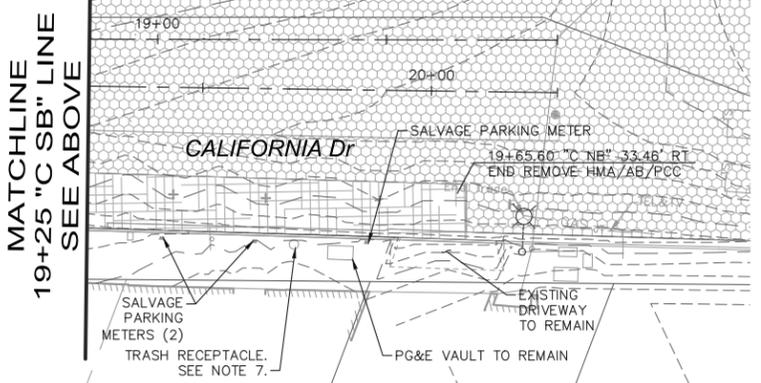


MATCHLINE
19+25 "C SB" LINE
SEE BELOW

LEGEND:

| | | | |
|--|---|--|---------------------------------|
| | ROADWAY EXCAVATION (AC/AB) | | WEDGE COLD PLANE AC (0.15' Max) |
| | ROADWAY EXCAVATION (AC/PCC) | | 0.15' COLD PLANE AC |
| | REMOVE CONCRETE SIDEWALK, DRIVEWAY, AND CURB RAMP | | CLEARING AND GRUBBING |
| | | | SAWCUT |

- GENERAL NOTES:**
- ALL EXISTING SIGNS WITHIN AREAS OF SIDEWALK REMOVAL SHALL BE SALVAGED WHEN NO LONGER REQUIRED FOR TRAFFIC CONTROL OR WHEN IN CONFLICT WITH CONSTRUCTION SIGNS SHOWN IN THE TRAFFIC HANDLING PLANS TH-01 THROUGH TH-04.
 - CURB AND GUTTER ADJACENT TO SIDEWALK REMOVAL SHALL BE REMOVED.
 - SEE DRAINAGE AND UTILITY PLANS FOR UTILITY FACILITY ADJUSTMENTS AND DRAINAGE SYSTEM MODIFICATION DETAILS.
 - REMOVE SIDEWALK TO THE NEAREST JOINT BEYOND STA/OFF SHOWN.
 - EXISTING BUS STOP TO BE REMOVED BY SAMTRANS PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE WITH OWNER.
 - EXISTING UTILITIES ARE TO REMAIN AND/OR BE ADJUSTED BY OWNER, UNLESS OTHERWISE NOTED. SEE UTILITY PLANS FOR DETAILS.
 - EXISTING AMENITIES WITHIN CITY RIGHT OF WAY TO BE SALVAGED BY THE CONTRACTOR AND DELIVERED TO THE CITY.
 - COLD PLANE EXISTING PAVEMENT TO THE LIMITS AS SHOWN ON PV-SHEETS.
 - SEE TH-PLANS FOR TRAFFIC HANDLING AND CONSTRUCTION STAGING PLANS.
 - EXISTING ASPHALT CONCRETE MAY CONTAIN PAVEMENT FABRIC, ENGINEERED PAVING MAT, OR OTHER CONTAMINATED MATERIALS. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF ENCOUNTERED MATERIALS.
 - COORDINATE WITH STACKS TO HAVE THEM REMOVE THEIR OUTDOOR FURNITURE AND LANDSCAPE PLANTERS PRIOR TO THE START OF DEMOLITION ACTIVITIES.
 - EXCAVATE EXISTING ISLAND TO THE DEPTH REQUIRED FOR THE PROPOSED PAVEMENT SECTION. IF LOOSE, UNSUITABLE SUBBASE IS ENCOUNTERED, EXCAVATE THE LOOSE, UNSUITABLE MATERIAL AND BACKFILL WITH MATERIAL AS APPROVED BY THE ENGINEER.



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CHECKED BY DC

**CALIFORNIA DRIVE
ROUNDBABOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY
CA

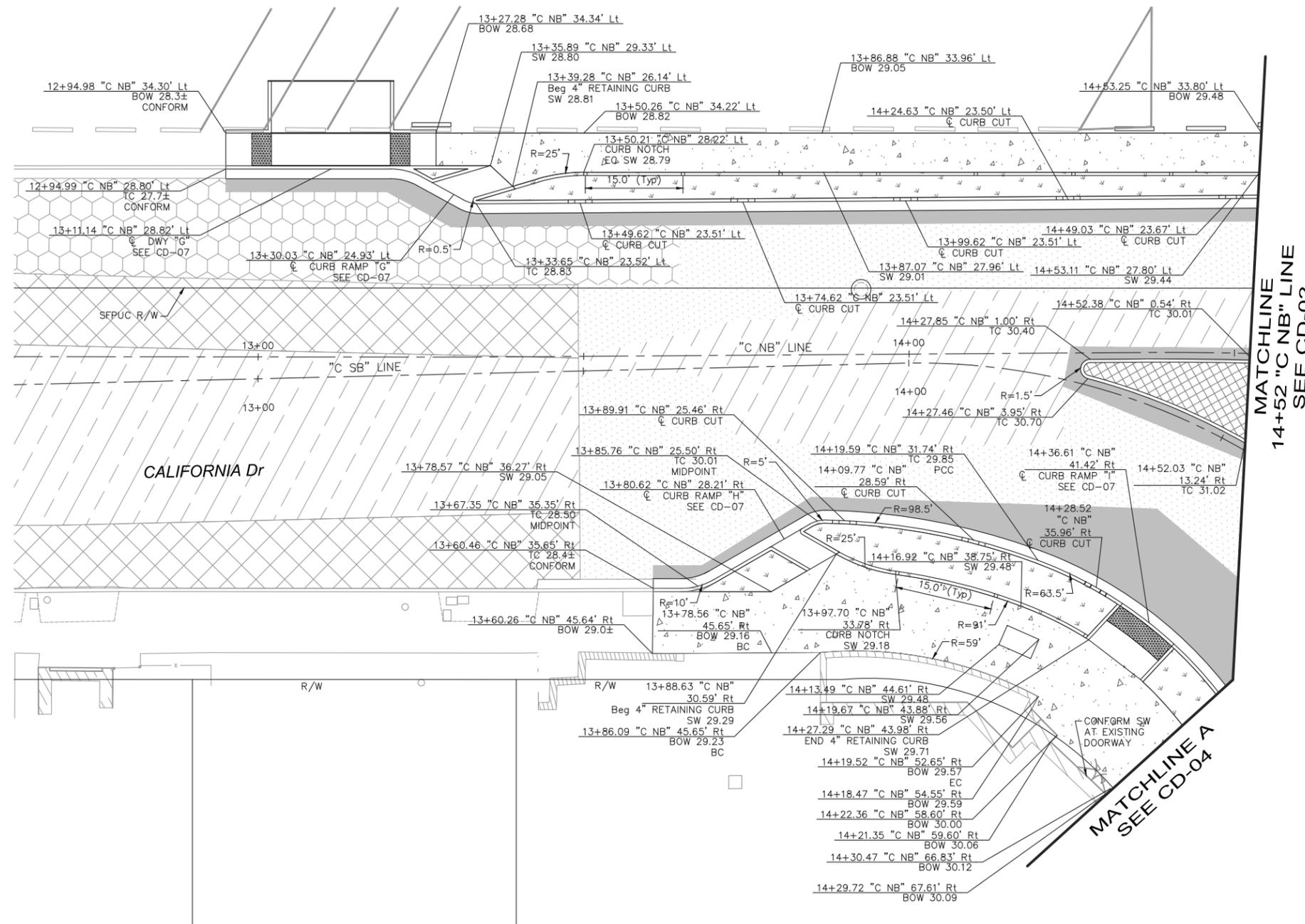


DEMOLITION PLAN

SHEET NO. 10
OF 61 SHEETS

DM-01

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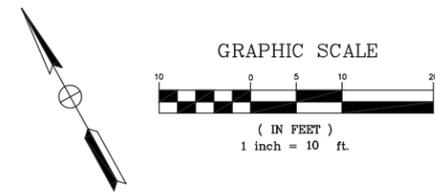


LEGEND:

-  1 HMA PAVEMENT
(SEE TX-02 FOR SECTION DETAILS)
-  2 TRUCK APRON
(SEE SHEET CD-09)
-  3 CONCRETE SW/DRIVEWAY
-  4 COLD PLANE & HMA OVERLAY
(SEE TX-02 FOR DETAILS)
-  5 COLD PLANE & HMA OVERLAY
(SEE TX-02 FOR DETAILS)
-  6 BUS PAD
(SEE TX-02 FOR DETAILS)
-  7 HMA OVERLAY
(SEE TX-03 FOR DETAILS)
-  WEDGE COLD PLANE & HMA OVERLAY
(SEE TX-03 FOR DETAILS)
-  LANDSCAPING/BIORETENTION AREAS
(SEE D-SHEETS AND LS-SHEETS)
-  HARDSCAPE (SEE HS-SHEETS)
-  DETECTABLE WARNING SURFACE
-  ROADSIDE SIGN (SEE SS-SHEETS)
-  # PAVEMENT STRUCTURAL SECTION No.
(SEE TX-01 FOR DETAILS)

GENERAL NOTES:

1. ALL EXISTING SIGNS SHALL BE PROTECTED IN PLACE UNLESS SPECIFIED FOR REMOVAL OR RELOCATION.
2. ALL SIGN LOCATIONS ARE APPROXIMATE. FINAL SIGN LOCATIONS SHALL BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
3. ALL EXISTING STRIPING CONFLICTING WITH PROPOSED STRIPING SHALL BE REMOVED BY GRINDING PRIOR TO NEW STRIPING INSTALLATION.
4. ALL PEDESTRIAN PATHWAYS WITHIN SPLITTER ISLANDS ARE TO BE 0.35' PCC OVER 0.50' CLASS 2 AB.
5. SEE EL-SHEETS FOR STREET LIGHTING DETAILS.
6. SEE D-SHEETS FOR DRAINAGE IMPROVEMENTS.



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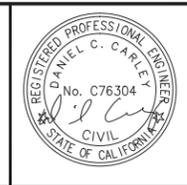
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**CALIFORNIA DRIVE
ROUNDBABOUT**

PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY CA

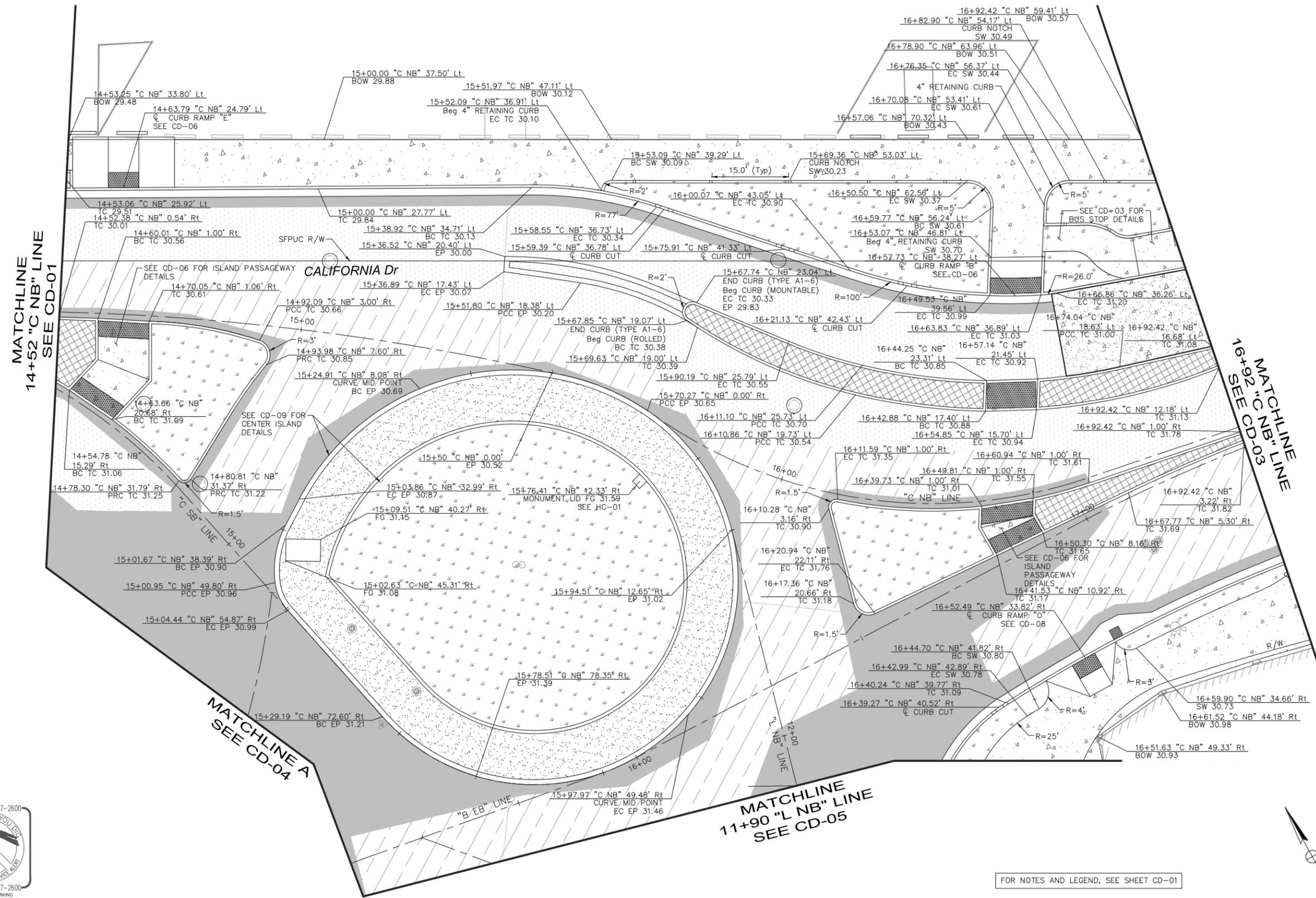


CONSTRUCTION DETAILS

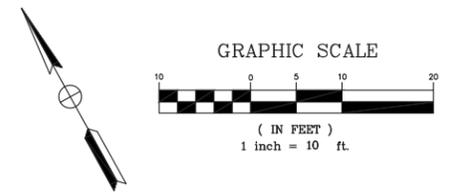
SHEET NO. 11
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CD-01

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FOR NOTES AND LEGEND, SEE SHEET CD-01



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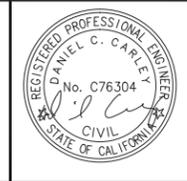
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ROUNDBABOUT**

PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY
CA



CONSTRUCTION DETAILS

SHEET NO. 12
OF 61 SHEETS

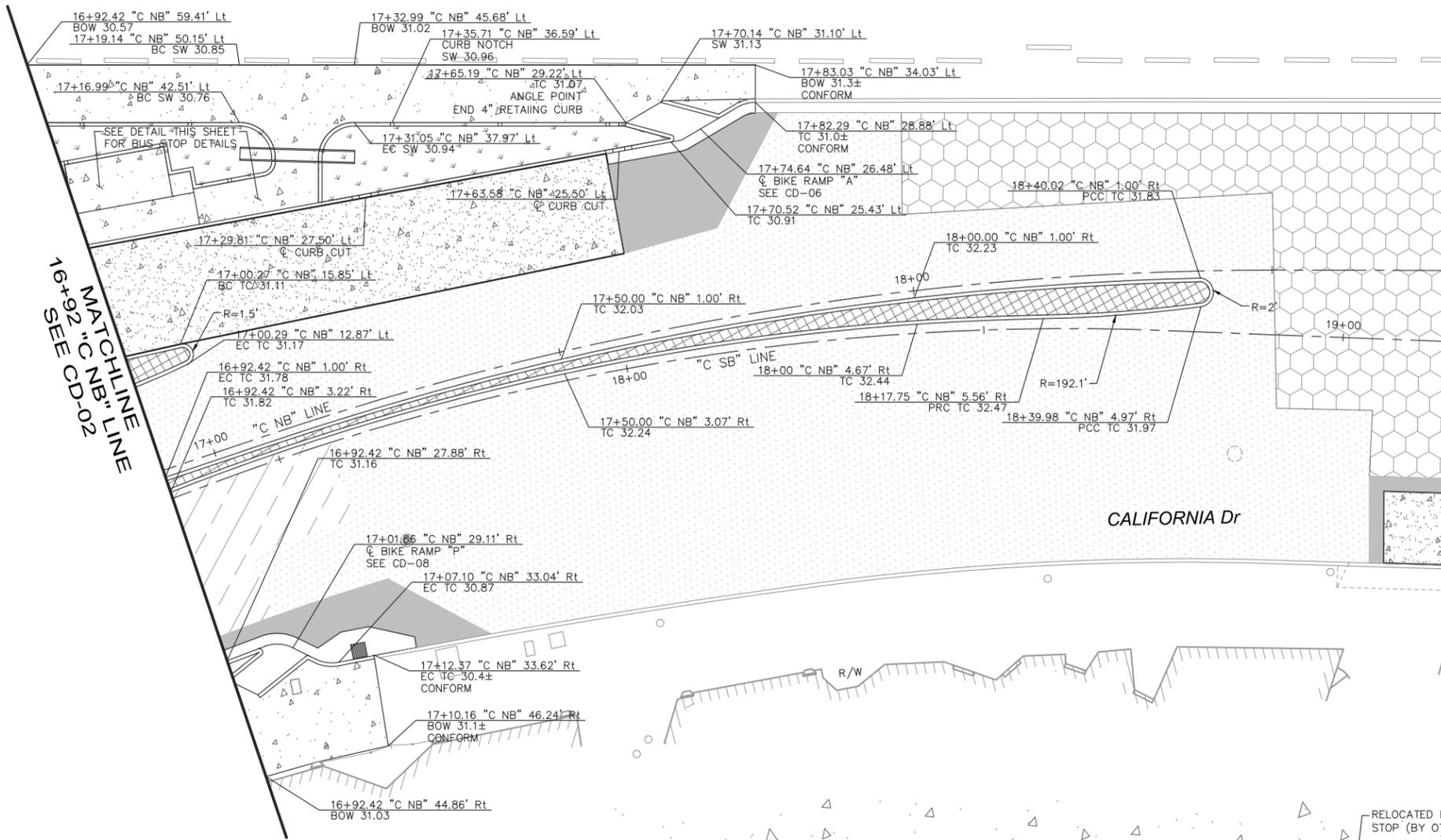
CD-02

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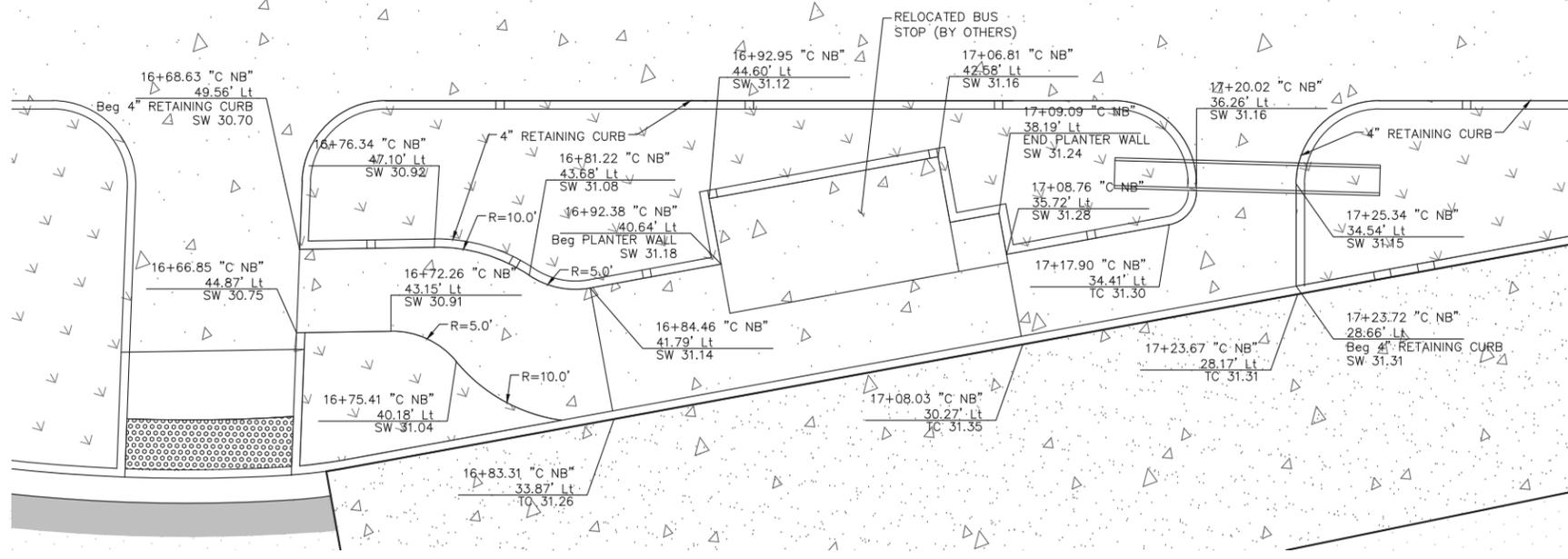
CA: 1-800-227-2600
CALL TWO WORKING DAYS BEFORE YOU DIG

MATCHLINE
16+92 "C NB" LINE
SEE CD-02

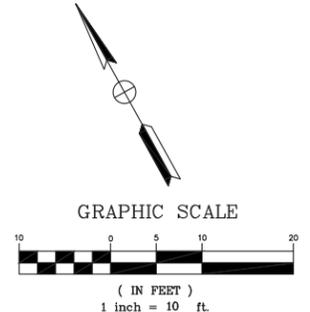


CALIFORNIA Dr

FOR NOTES AND LEGEND, SEE SHEET CD-01



BUS STOP GRADING DETAIL
SCALE: 1"=5'

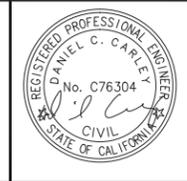


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KHA PROJECT
097515003
DATE
12/27/2017
SCALE AS SHOWN
DESIGNED BY DW
DRAWN BY DW
CHECKED BY DC

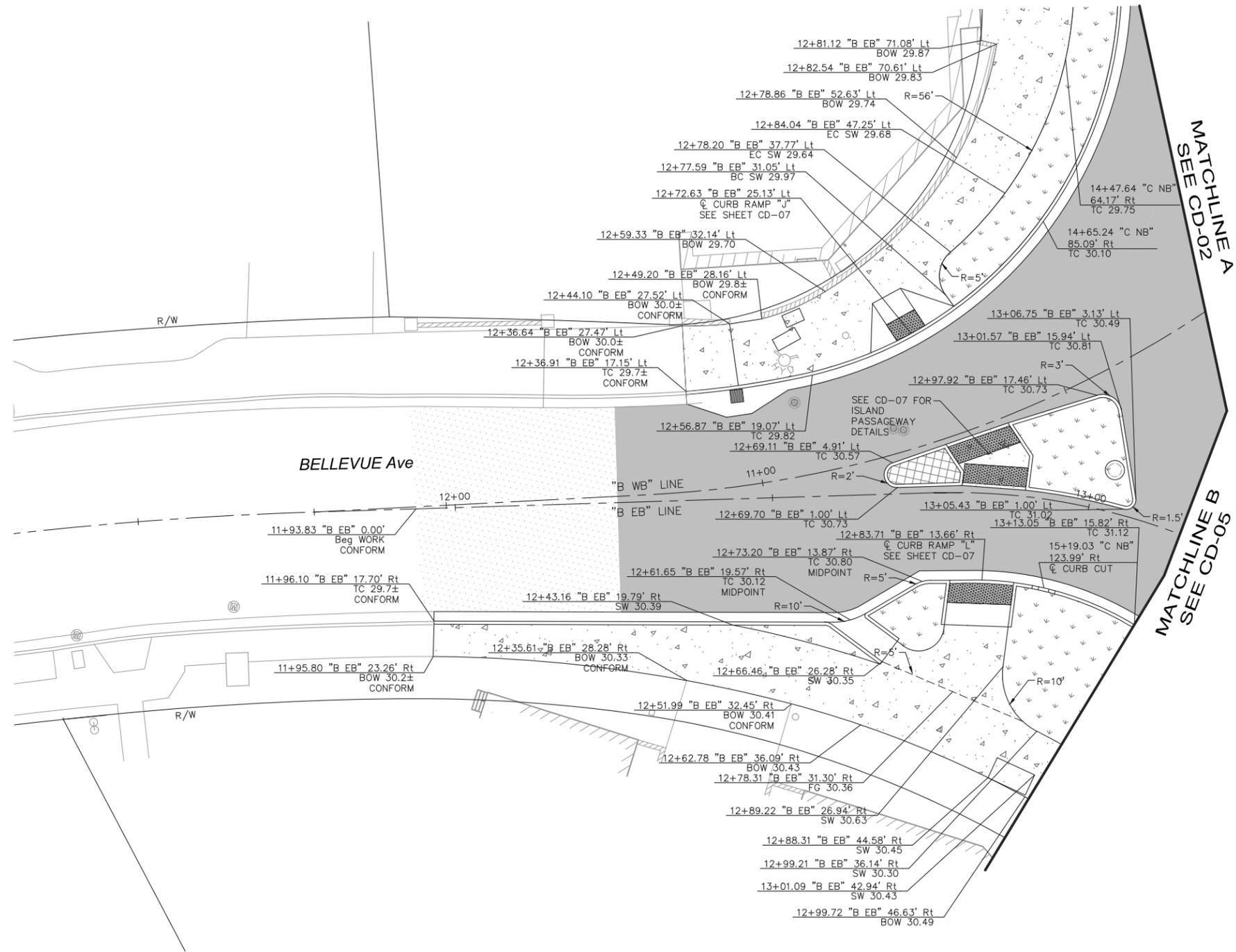
**CALIFORNIA DRIVE
ROUNDBABOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY
CA



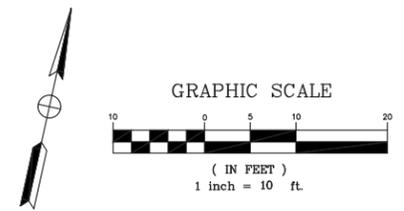
CONSTRUCTION DETAILS

SHEET NO. 13
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CD-03

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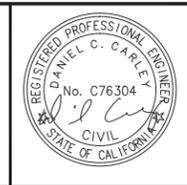
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| DESIGNED BY DW |
| DRAWN BY DW |
| CHECKED BY DC |

**CALIFORNIA DRIVE
ROUNDBOUT**

PREPARED FOR
CITY OF BURLINGAME

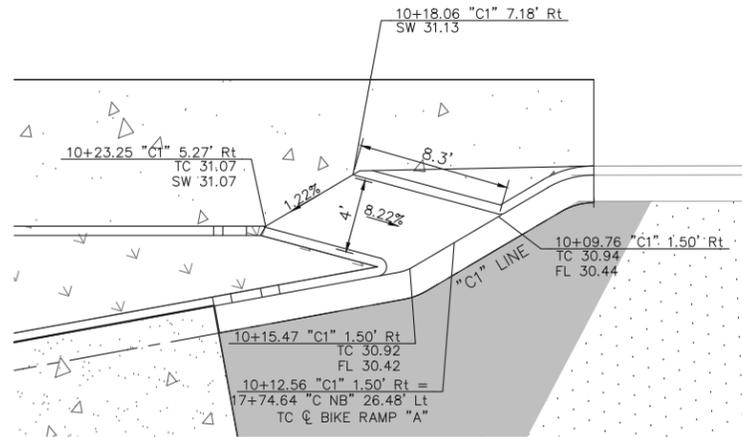
SAN MATEO COUNTY CA



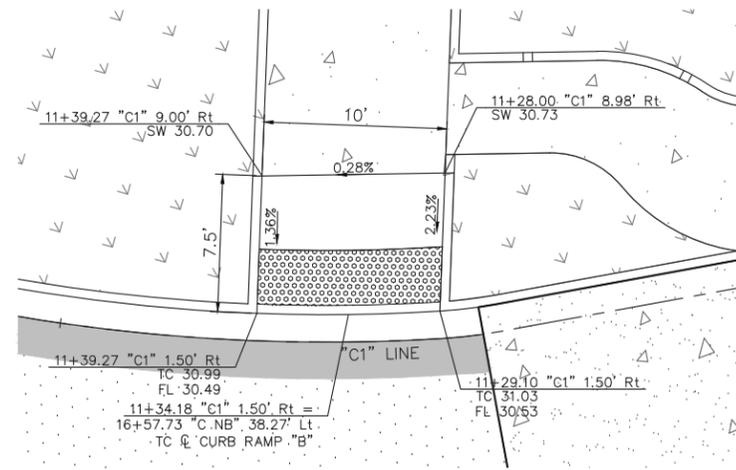
CONSTRUCTION DETAILS

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| SHEET NO. 14 |
| OF 61 SHEETS |
| CD-04 |

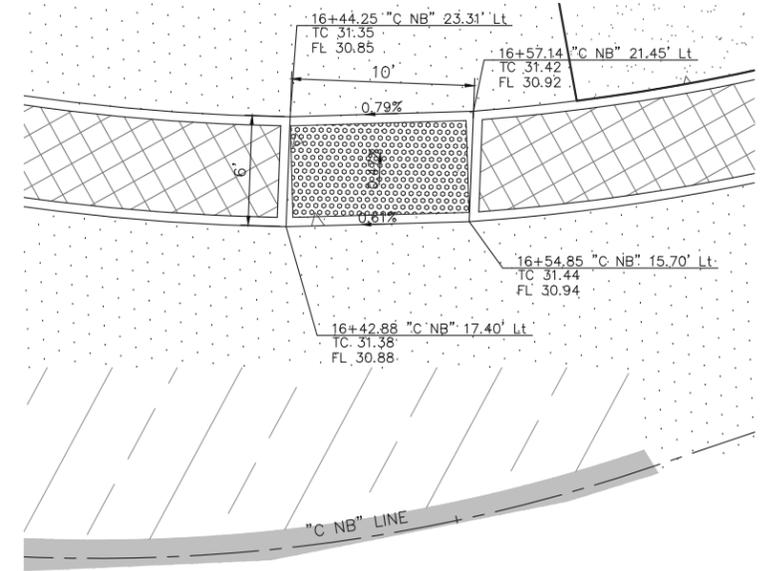
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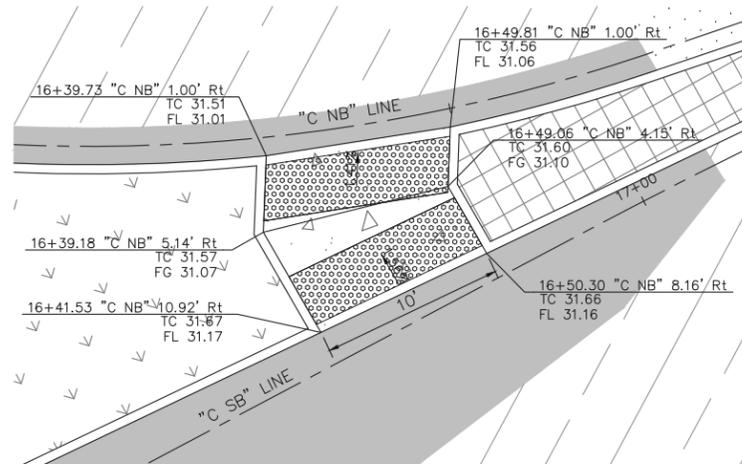
A - BIKE RAMP DETAIL



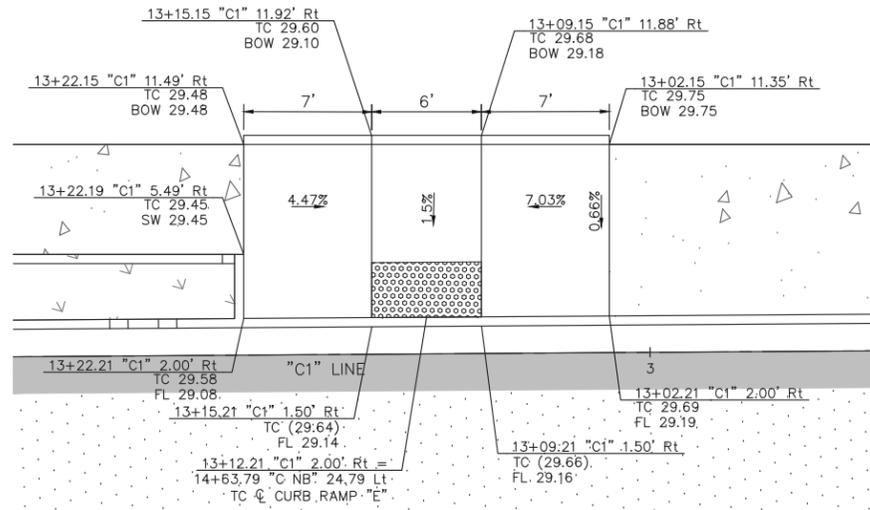
B - CURB RAMP DETAIL



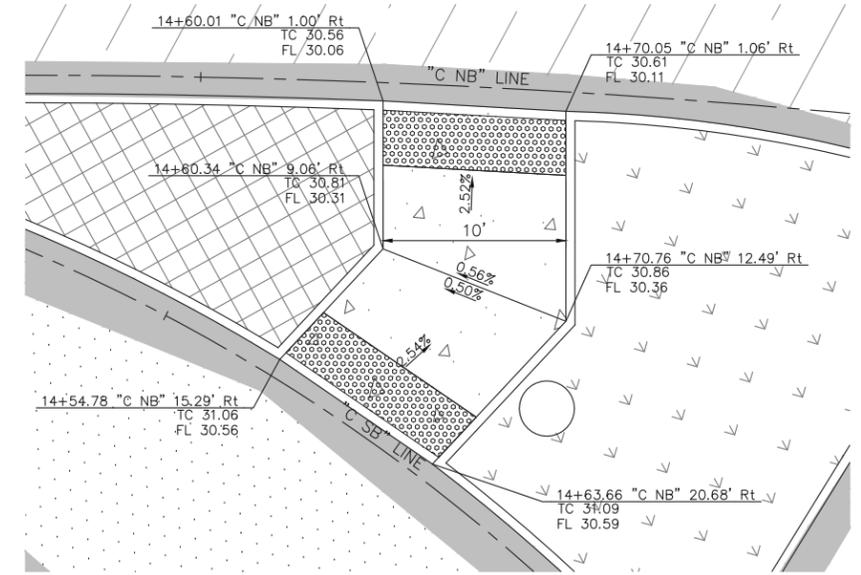
C - PASSAGEWAY DETAIL



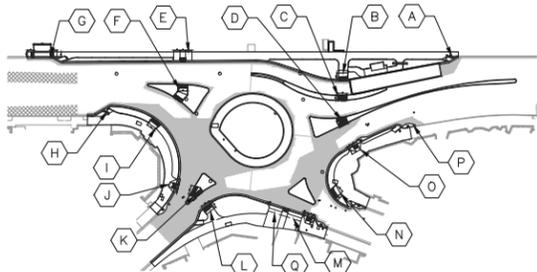
D - PASSAGEWAY DETAIL



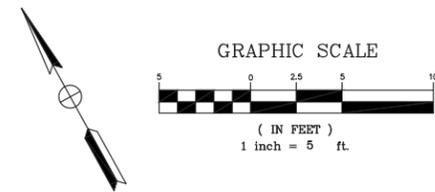
E - CURB RAMP DETAIL



F - PASSAGEWAY DETAIL



**KEY MAP:
NO SCALE**

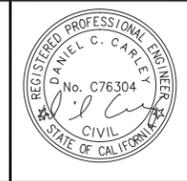


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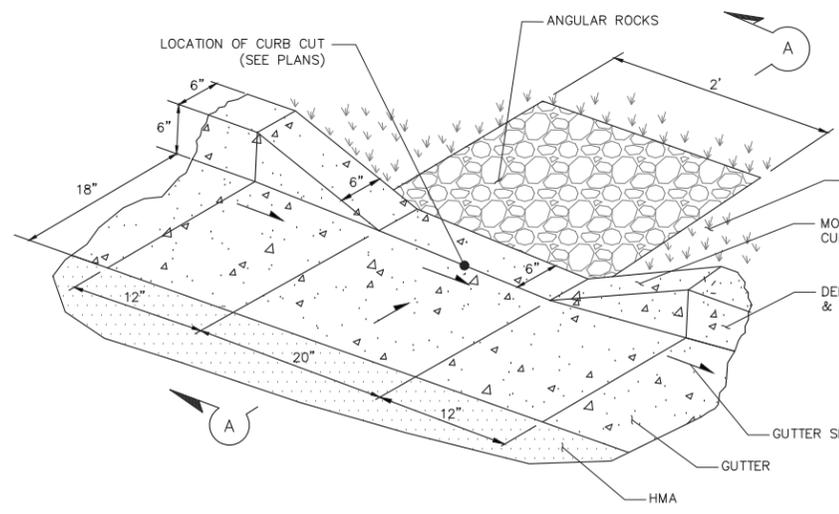
**CALIFORNIA DRIVE
ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



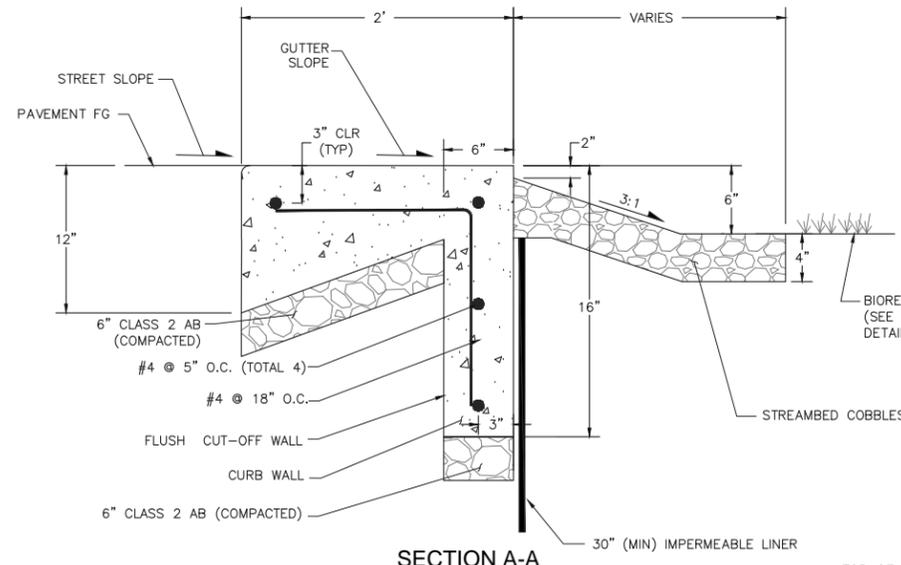
**CONSTRUCTION DETAILS
CURB AND PASSAGEWAY DETAILS**

SHEET NO. 16
OF 61 SHEETS
CD-06

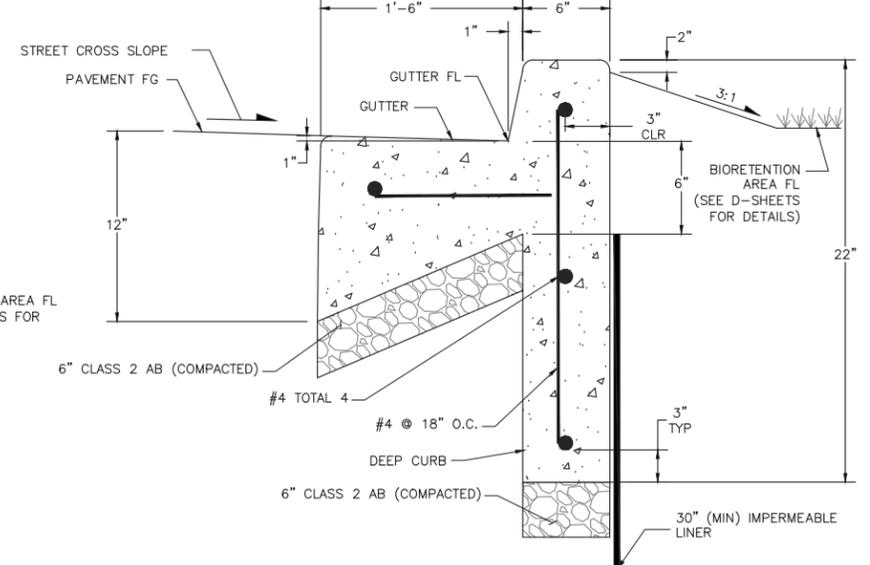
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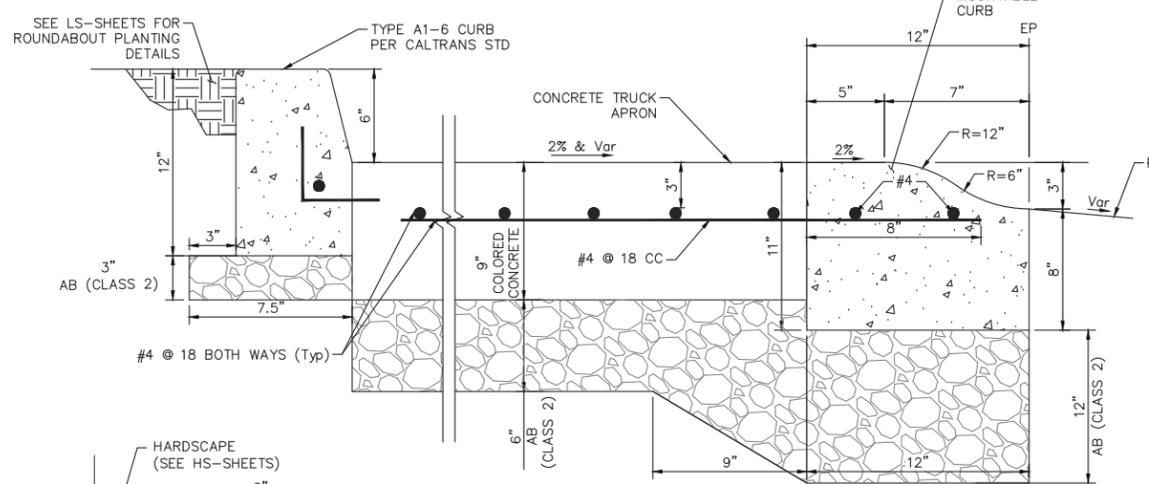
ISOMETRIC



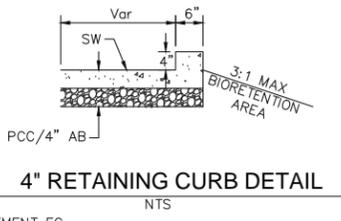
SECTION A-A



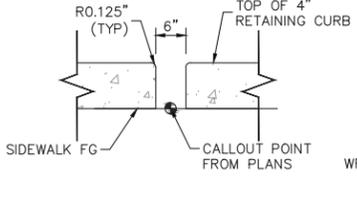
DEEP CURB AND GUTTER DETAIL



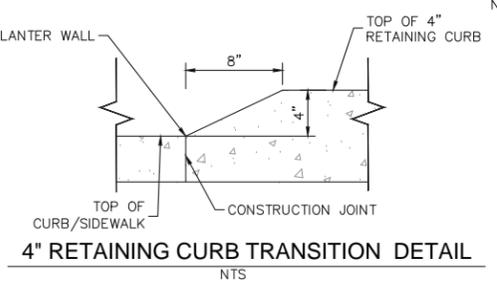
TRUCK APRON AND MOUNTABLE CURB DETAIL



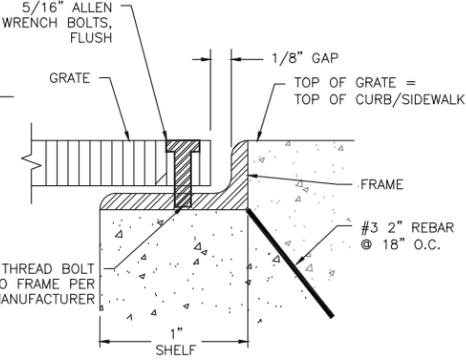
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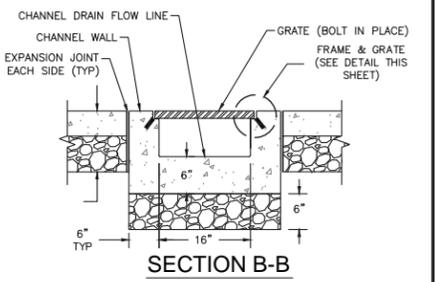
CURB NOTCH DETAIL



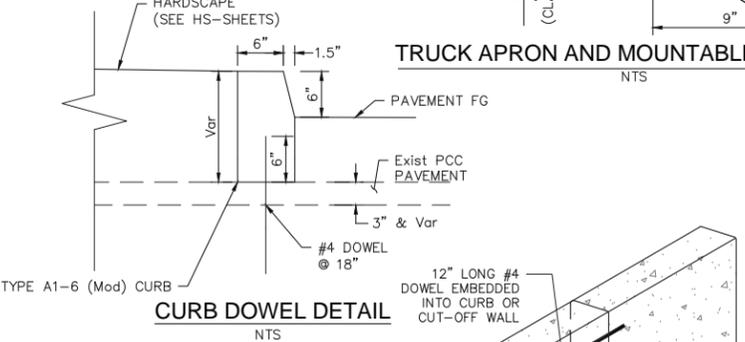
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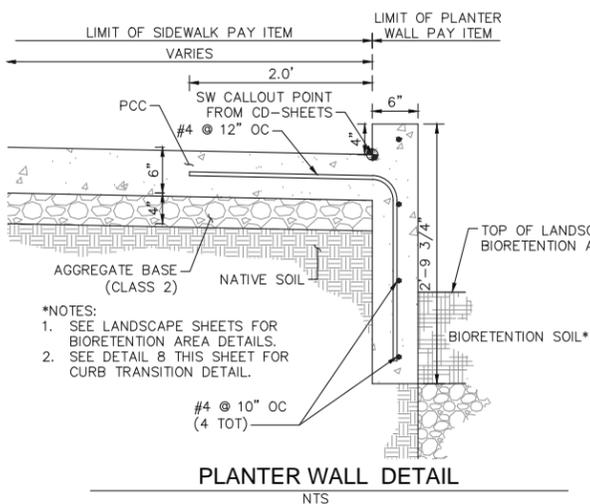
FRAME AND GRATE DETAIL



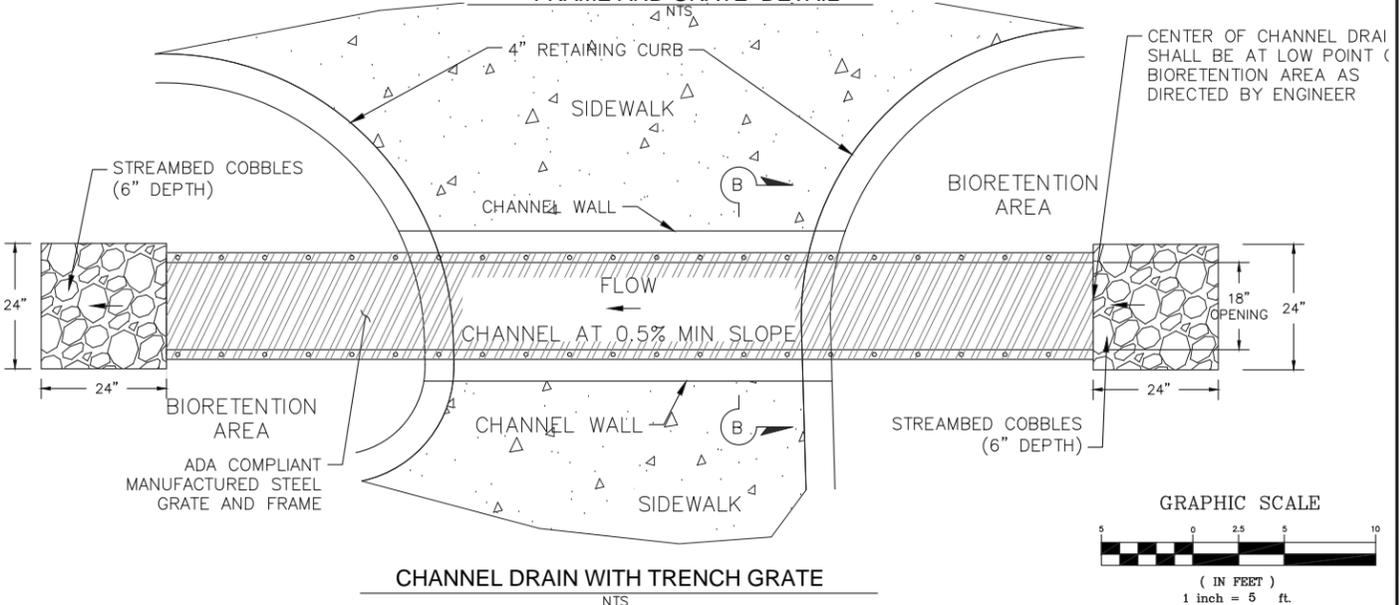
SECTION B-B



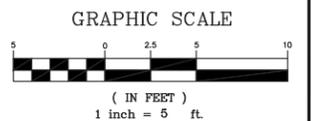
CURB DOWEL DETAIL



PLANTER WALL DETAIL



CHANNEL DRAIN WITH TRENCH GRATE



DRILL AND BOND DETAIL FOR CURBS AND CUT-OFF WALLS

- *NOTES:
- 1. SEE LANDSCAPE SHEETS FOR BIORETENTION AREA DETAILS.
- 2. SEE DETAIL B THIS SHEET FOR CURB TRANSITION DETAIL.

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 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY
 CA

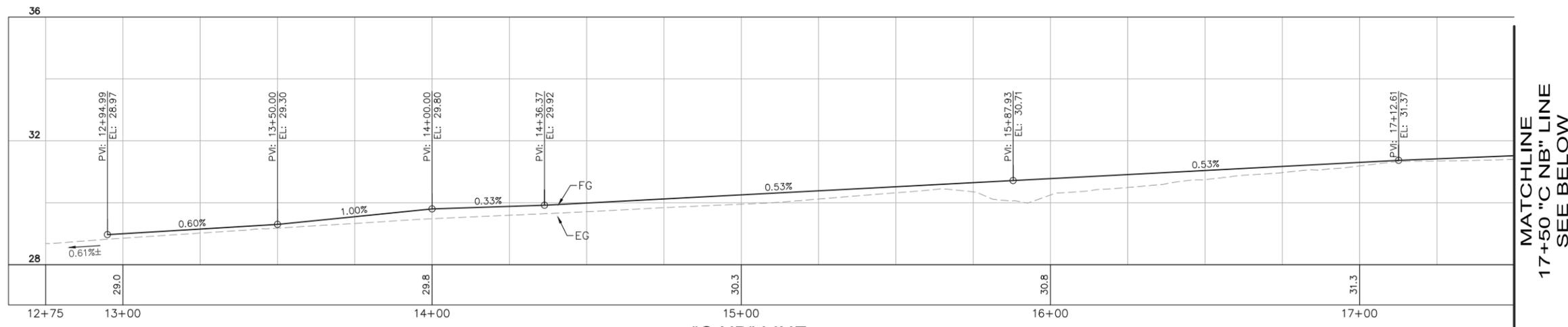


**CONSTRUCTION DETAILS
 CURB AND PASSAGEWAY DETAILS**

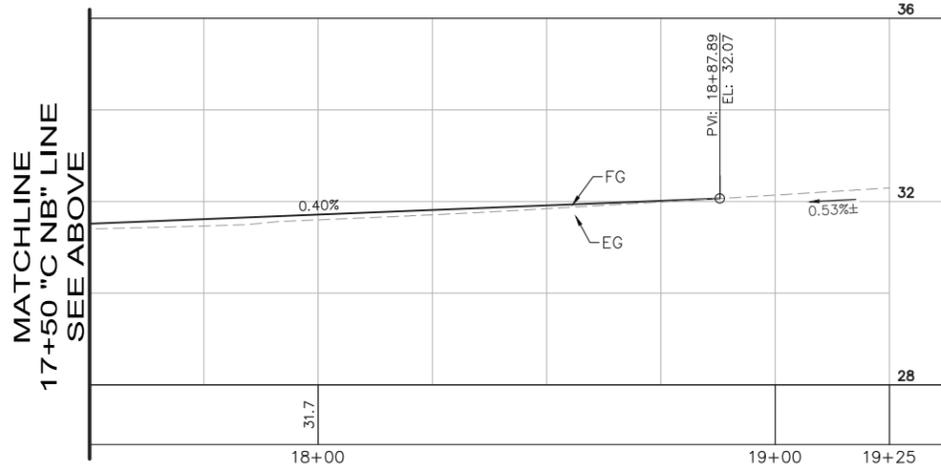
SHEET NO. 19
 OF 61 SHEETS

CD-09

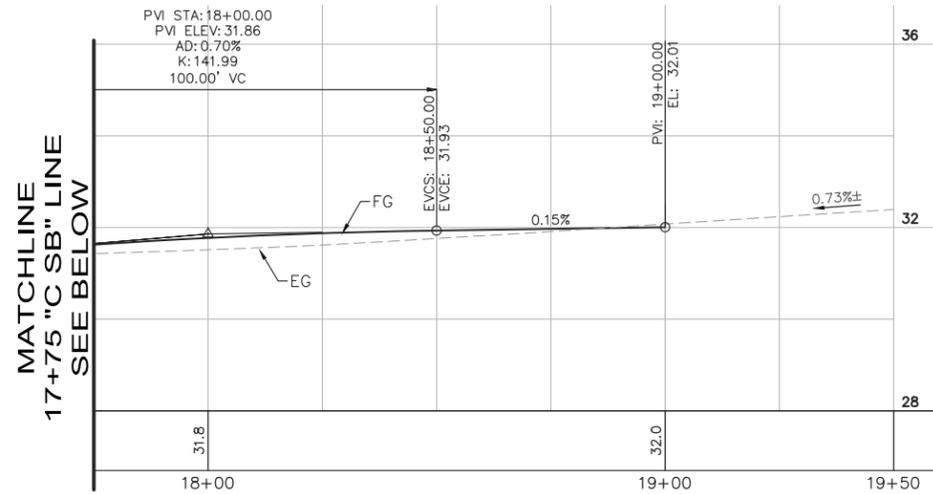
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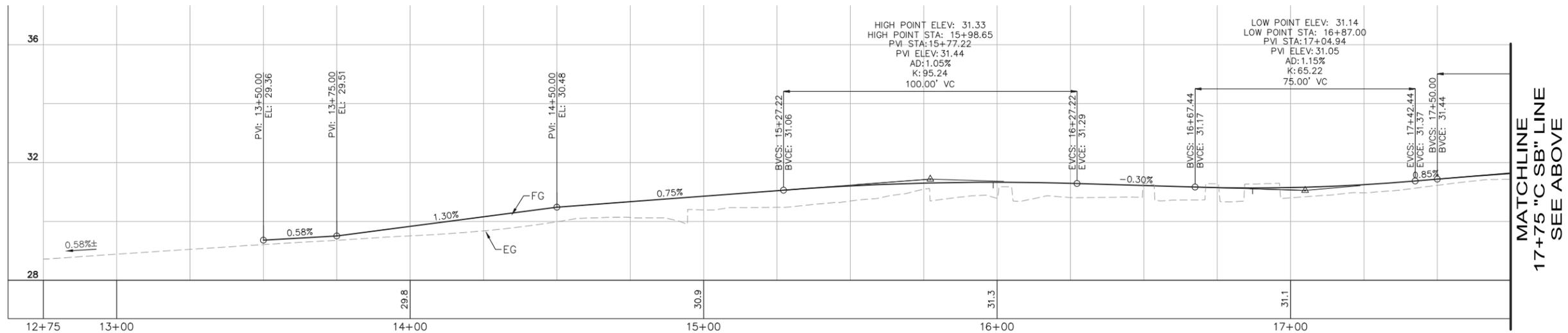
"C NB" LINE
(CALIFORNIA Dr)



"C NB" LINE
(CALIFORNIA Dr)



"C SB" LINE
(CALIFORNIA Dr)



"C SB" LINE
(CALIFORNIA Dr)

SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

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ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY
CA

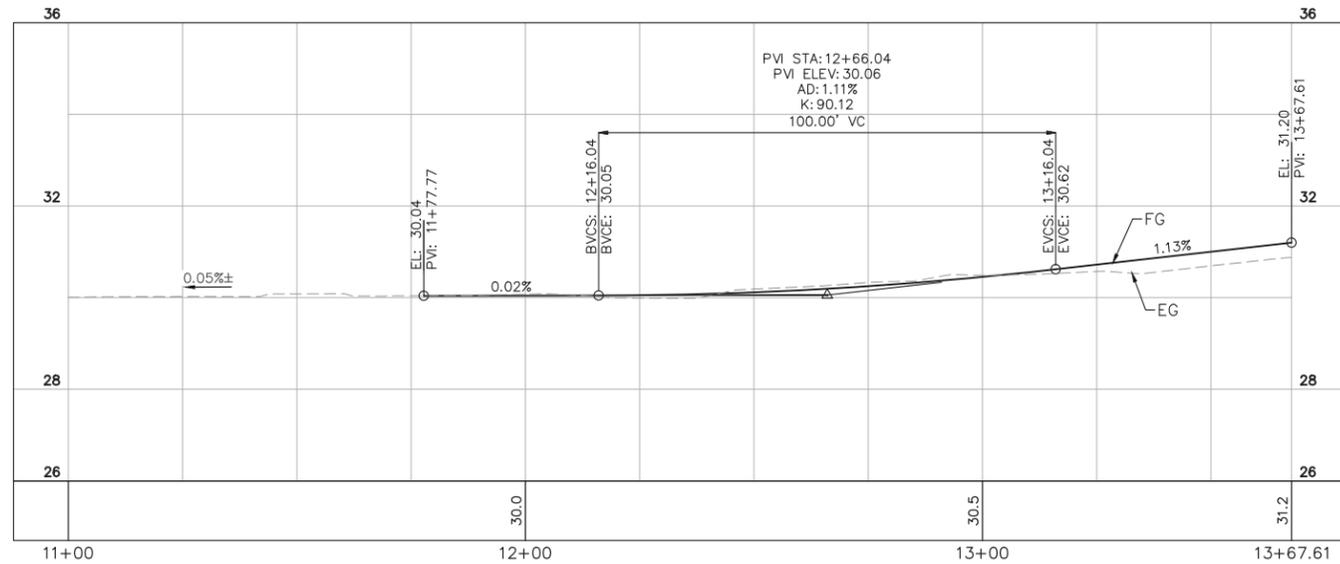


ROADWAY PROFILES

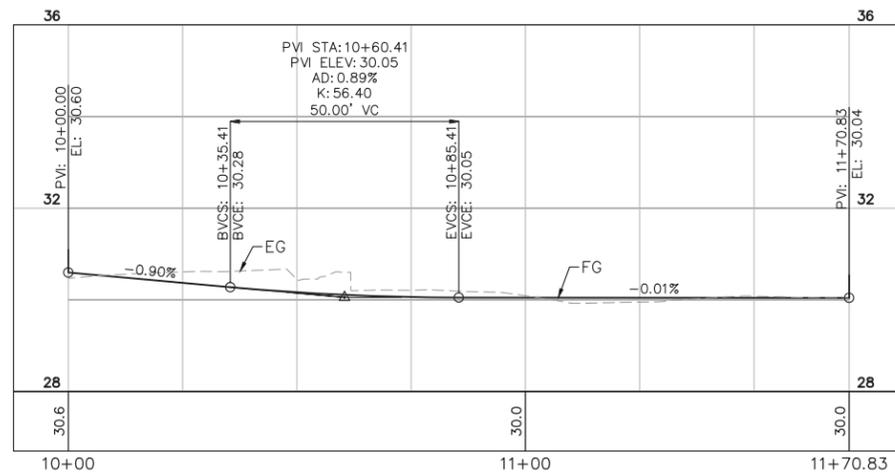
SHEET NO. 20
OF 61 SHEETS

PR-01

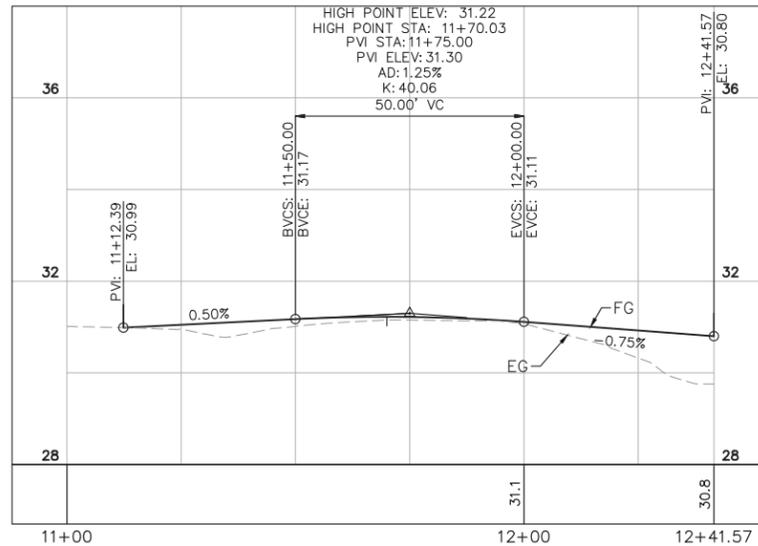
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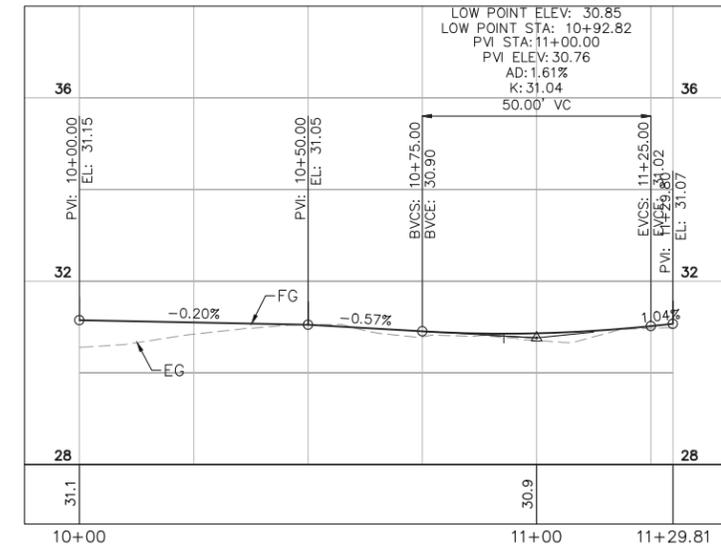
"B EB" LINE
(BELLEVEUE Ave)



"B WB" LINE
(BELLEVEUE Ave)



"L NB" LINE
(LORTON Ave)



"L SB" LINE
(LORTON Ave)



SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

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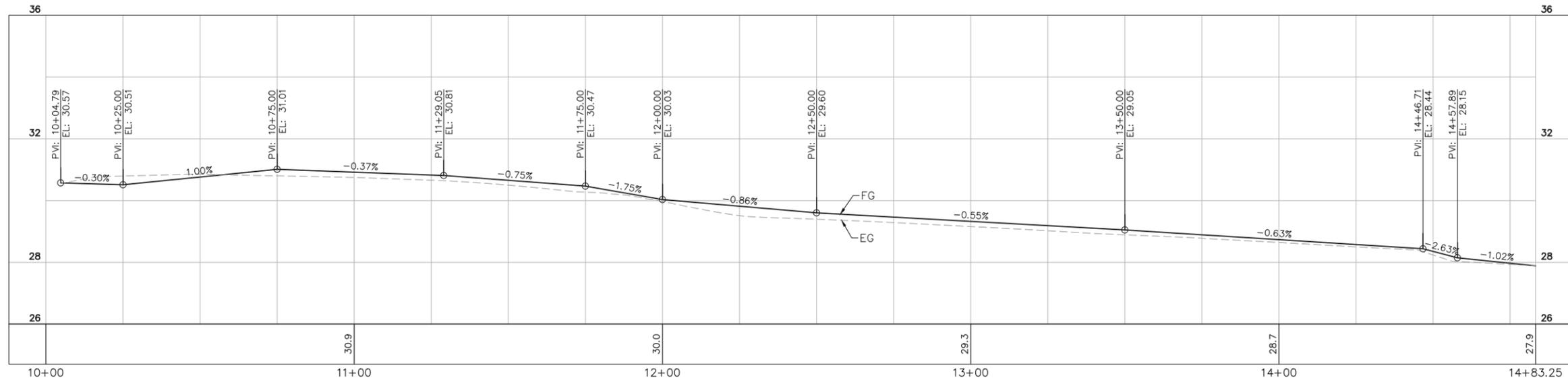
**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY CA



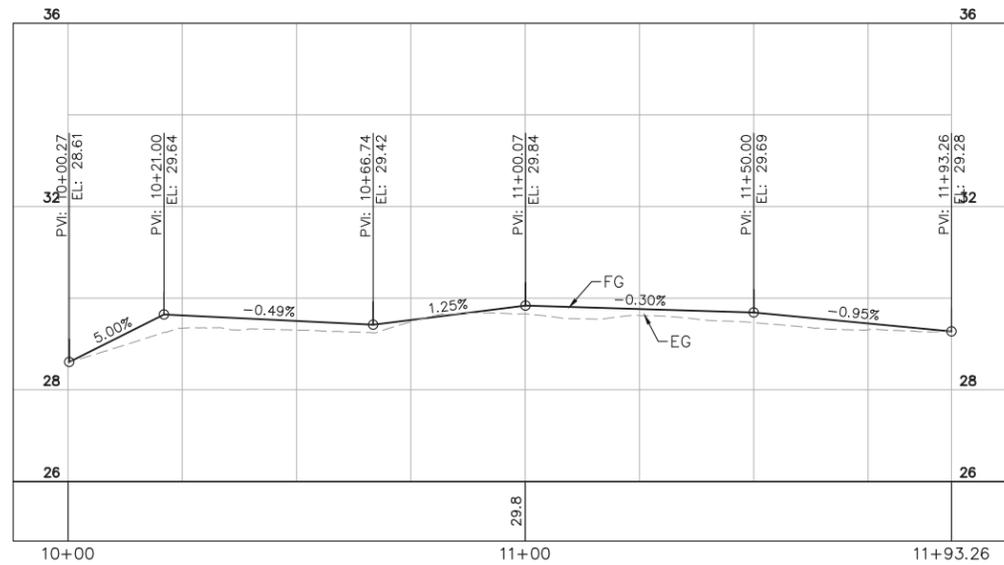
ROADWAY PROFILES

SHEET NO. 21
OF 61 SHEETS
PR-02

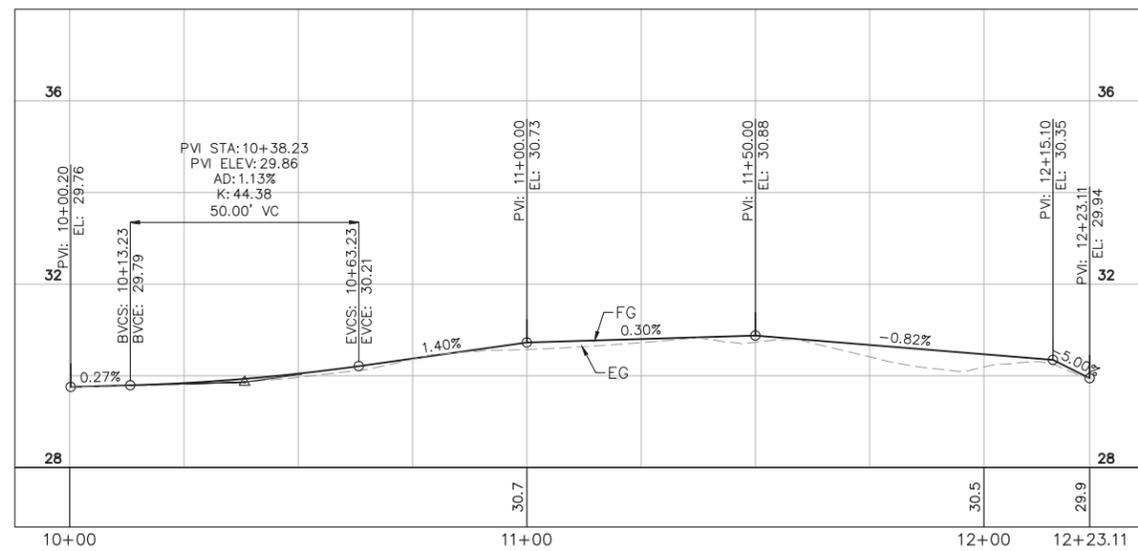
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"C1" LINE
(CALIFORNIA Dr NB RIGHT GUTTER LIP)



"C2" LINE
(CALIFORNIA Dr SB RIGHT GUTTER LIP)



"B1" LINE
(BELLEVUE Ave EB RIGHT GUTTER LIP)



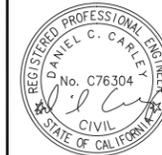
SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

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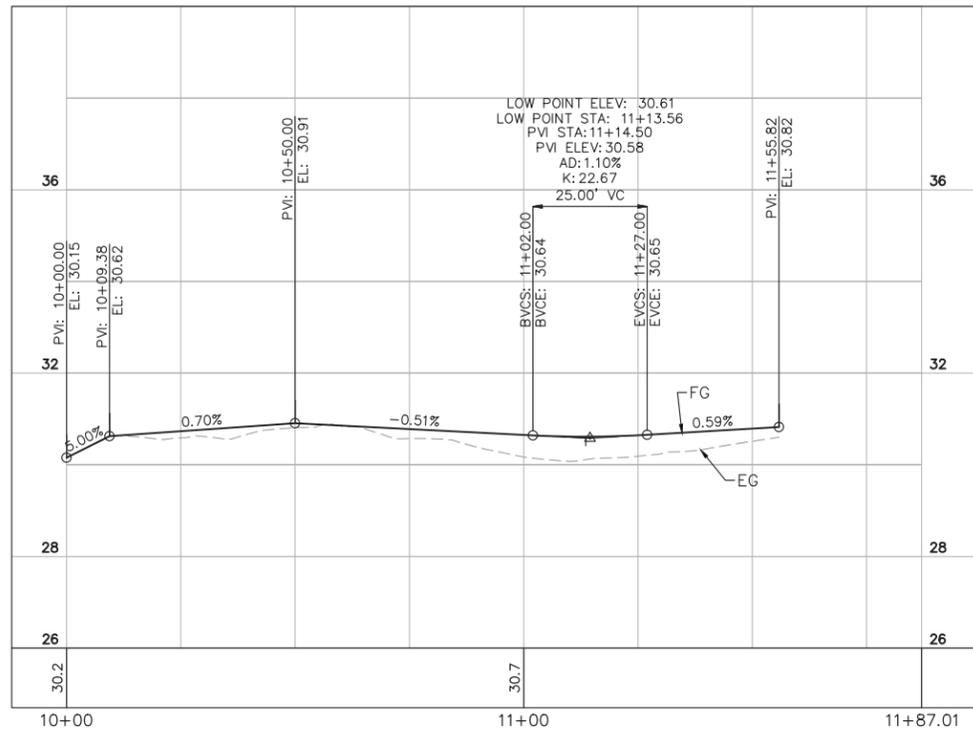
**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY
CA



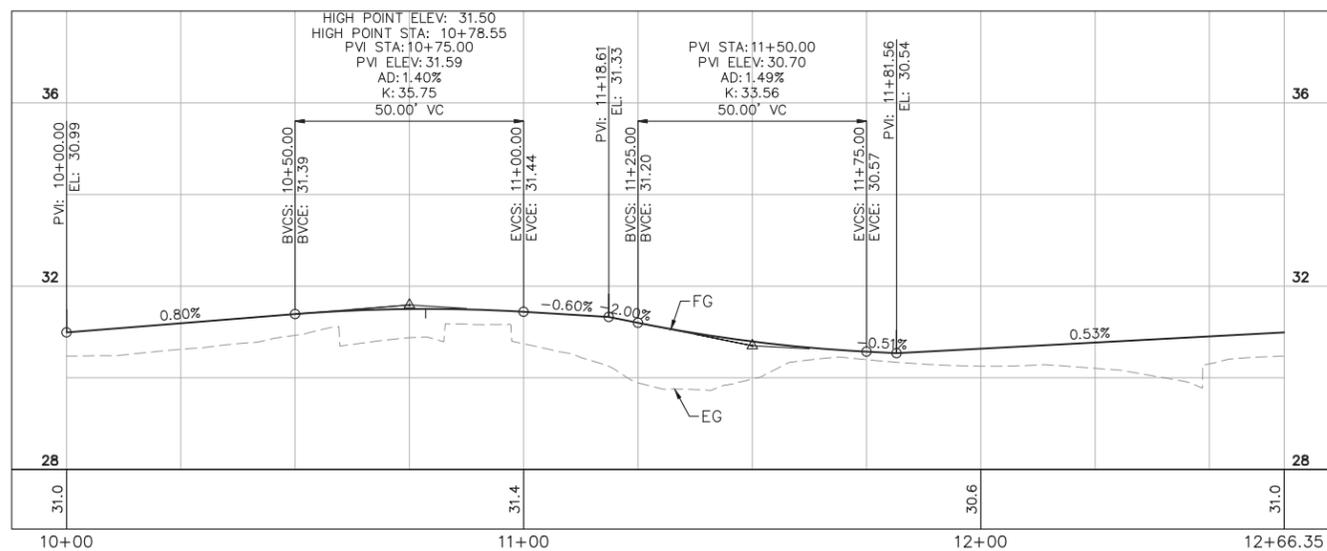
CURB PROFILES

SHEET NO. 22
OF 61 SHEETS
PR-03

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"L1" LINE
 (LORTON Ave NB RIGHT GUTTER LIP)



"R1" LINE
 (ROUNDAABOUT CENTER ISLAND BOTTOM CURB FACE)



SCALE
 HORIZONTAL: 1" = 20'
 VERTICAL: 1" = 2'

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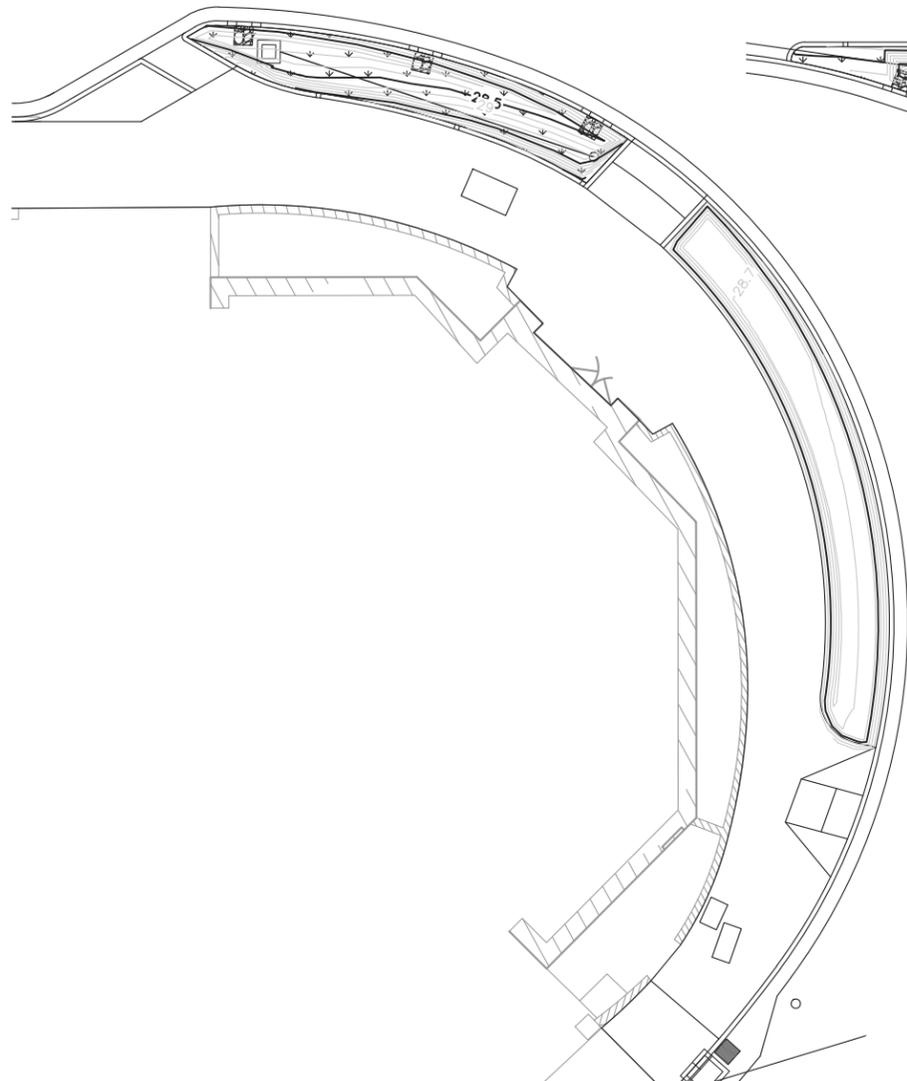
**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME



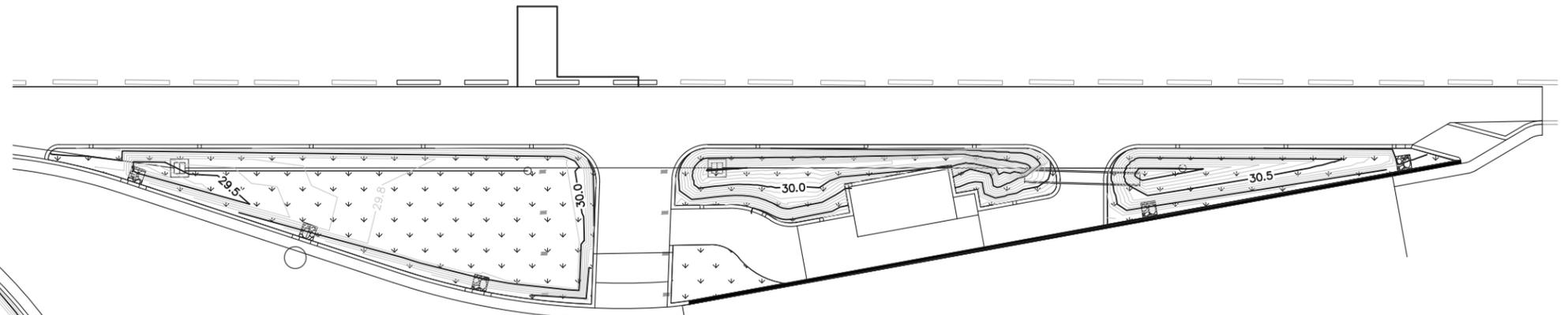
CURB PROFILES

SHEET NO. 23
 OF 61 SHEETS
PR-04

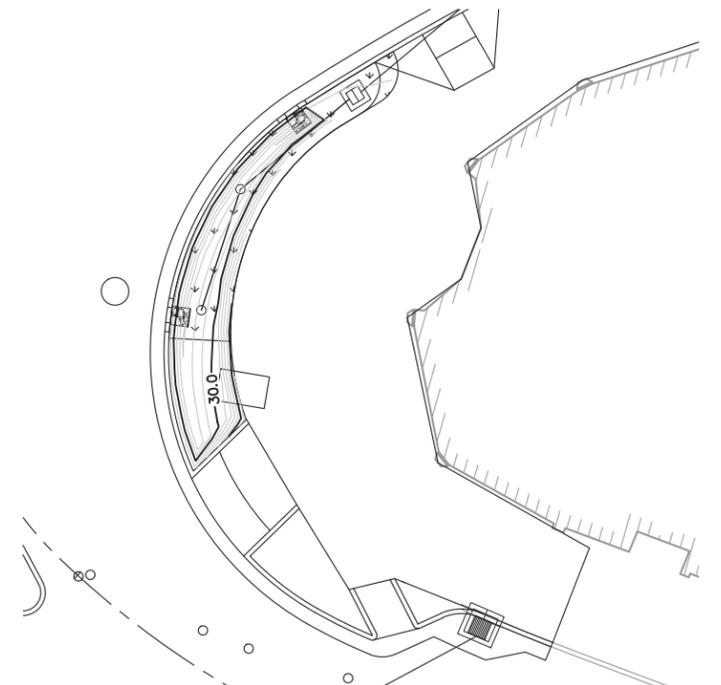
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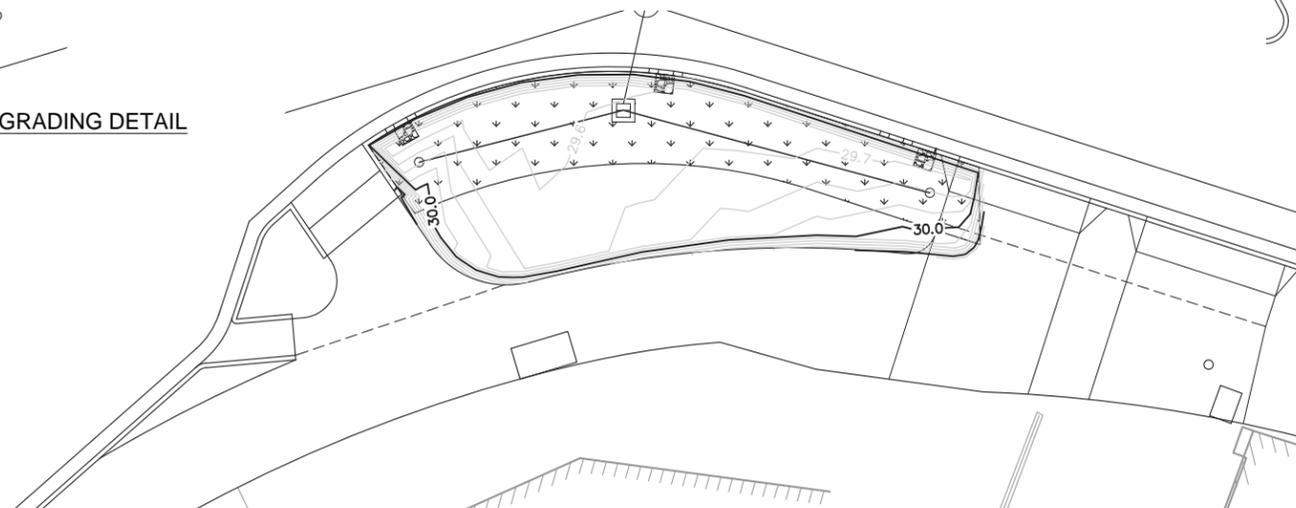
CALIFORNIA DRIVE / BELLEVUE AVENUE - NORTHWEST CURB RETURN GRADING DETAIL



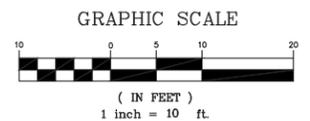
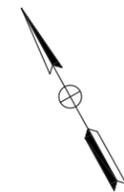
CALIFORNIA DRIVE - NORTHEAST BULBOUT GRADING DETAIL



LORTON AVENUE - CURB RETURN GRADING DETAIL



BELLEVUE AVENUE / LORTON AVENUE - BULBOUT GRADING DETAIL



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**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY

CA



CONTOUR GRADING

SHEET NO. 25
 OF 61 SHEETS
GR-02

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CONSTRUCTION NOTES

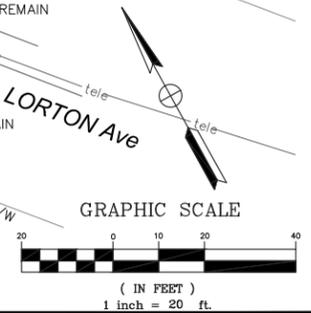
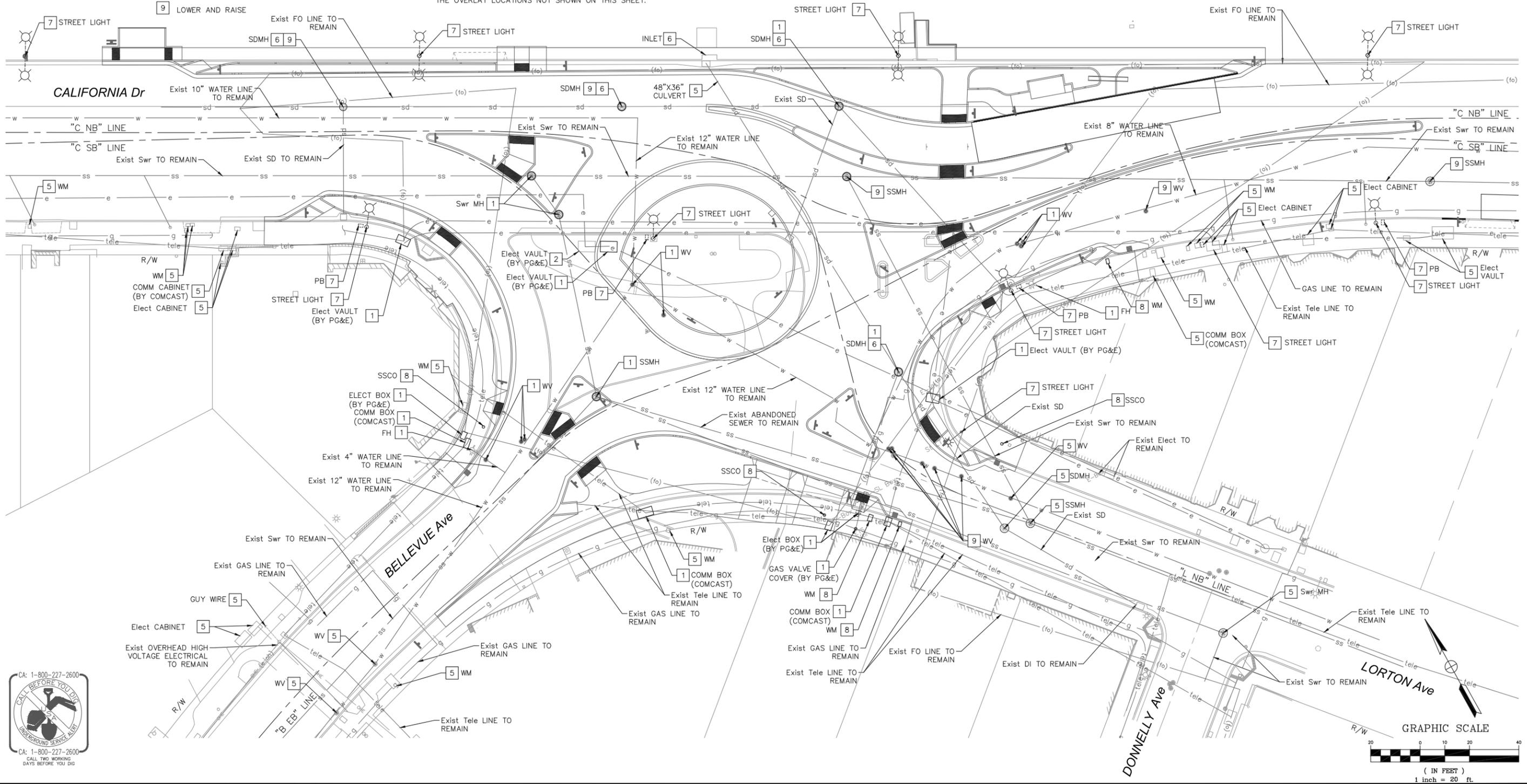
- 1 ADJUST TO GRADE
- 2 REMOVE UTILITY FACILITY
- 3 INSTALL UTILITY FACILITY
- 4 RELOCATE UTILITY FACILITY
- 5 TO REMAIN
- 6 SEE D-SHEETS FOR DETAILS
- 7 SEE EL-SHEETS FOR DETAILS
- 8 INSTALL NEW WATER METER BOX
- 9 LOWER AND RAISE

NOTES

- 1. ALL UTILITIES TO REMAIN UNLESS OTHERWISE NOTED.
- 2. ALL UTILITIES SHOWN ARE EXISTING UNLESS OTHERWISE NOTED.
- 3. SEE D-SHEETS FOR DRAINAGE DETAILS.
- 4. SEE EL-SHEETS FOR LIGHTING AND ELECTRICAL DETAILS.
- 5. LOCATIONS OF EXISTING UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY CONFLICTS WITH THE PROPOSED WORK MUST BE IMMEDIATELY IDENTIFIED AND WORK STOPPED UNTIL ENGINEER DIRECTS WORK TO COMMENCE.
- 6. SEE PV-SHEETS FOR DETAILS ON UTILITY LID ADJUSTMENTS WITHIN THE OVERLAY LOCATIONS NOT SHOWN ON THIS SHEET.

LEGEND AND ABBREVIATIONS

| | EXISTING | PROPOSED |
|------|----------------|----------|
| DI | DRAINAGE INLET | —(fo)— |
| FO | FIBER OPTIC | —tele— |
| TELE | TELEPHONE/COMM | —sd— |
| SD | STORM DRAIN | —ss— |
| Swr | SEWER | —g— |
| | GAS | —g— |



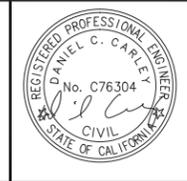
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| CHECKED BY DC |

**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY
CA



UTILITY PLAN

SHEET NO. 26
OF 61 SHEETS
U-01

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OCTOBER 2017

CONSTRUCTION NOTES

- 1 REMOVE STORM DRAIN FACILITY
- 2 INSTALL DI TYPE I
- 3 INSTALL DI TYPE GO
- 4 INSTALL 12" PVC
- 5 INSTALL 4" PPP
- 6 ADJUST SD MH COVER TO GRADE
- 7 INSTALL COUNTY STANDARD MH

- 8 CAP DI
- 9 CONVERT DI TO MH
- 10 INSTALL CLEANOUT

ABBREVIATIONS

- | | | | |
|-------|---------------------------|------|--------------------------|
| AB | AGGREGATE BASE | NO | NUMBER |
| CO | CLEANOUT | OC | ON CENTER |
| CLR | CLEARANCE | PPP | PLASTIC PERFORATED PIPE |
| COMM | COMMUNICATION | PVC | POLYVINYL CHLORIDE |
| CULV | CULVERT | RCP | REINFORCED CONCRETE PIPE |
| DI | DRAINAGE INLET | SD | STORM DRAIN |
| DIA | DIAMETER | SS | SANITARY SEWER |
| EXIST | EXISTING | TC | TOP OF COVER |
| FL | FLOW LINE | TELE | TELEPHONE |
| FO | FIBER OPTIC | TG | TOP OF GRATE |
| HDPE | HIGH DENSITY POLYETHYLENE | TYP | TYPICAL |
| LF | LINEAR FEET | UD | UNDERDRAIN |
| MH | MANHOLE | W | WATER |
| MIN | MINIMUM | | |

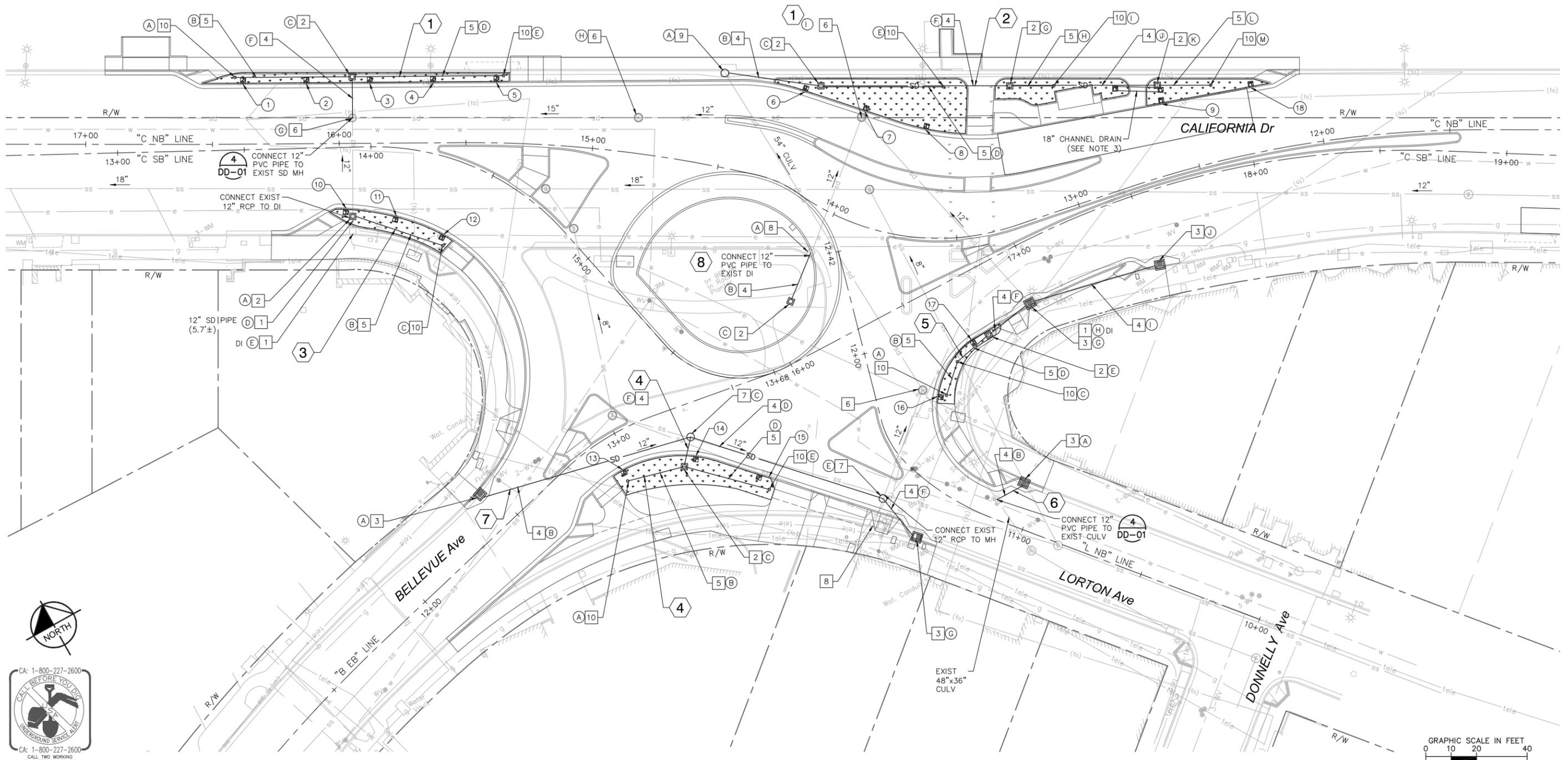
LEGEND

- | | | |
|----------------|----------|----------|
| DRAINAGE INLET | EXISTING | PROPOSED |
| FIBER OPTIC | (fo) | |
| TELEPHONE/COMM | tele | |
| STORM DRAIN | sd | sd |
| SEWER | ss | |
| GAS | g | |
| CLEANOUT | | o |
| MANHOLE | | o |

- CURB CUT LOCATION (SEE CD-SHEETS) #
- DRAINAGE ITEM A
- DRAINAGE SYSTEM NO. #
- BIORETENTION AREA

NOTES

1. CONTRACTOR TO VERIFY LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN OR NOT WITH THE APPROPRIATE UTILITY AGENCIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITY OWNERS 48 HOURS PRIOR TO CONSTRUCTION.
3. SEE CD-09 FOR CHANNEL DRAIN DETAIL.
4. SEE CD-SHEETS FOR CURB CUT DETAILS AND LOCATIONS.
5. SEE COUNTY STANDARD DRAWING B-1 FOR TYPE GO INLET DETAILS.
6. SEE COUNTY STANDARD DRAWING B-12 FOR STORM DRAIN MANHOLE DETAILS.
7. SEE SHEET DD-02 FOR TRENCH & BACKFILL DETAILS.



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**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY CA

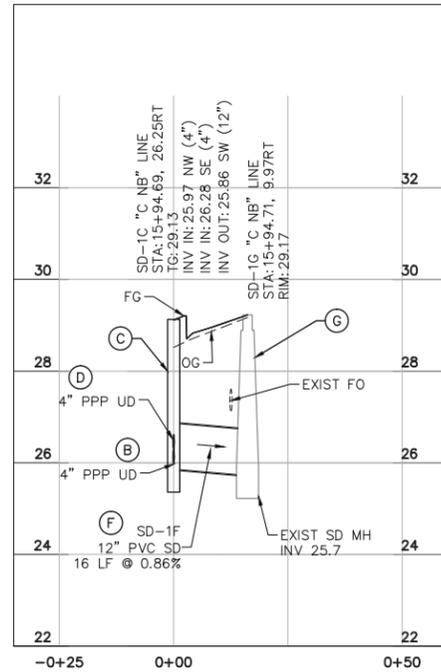
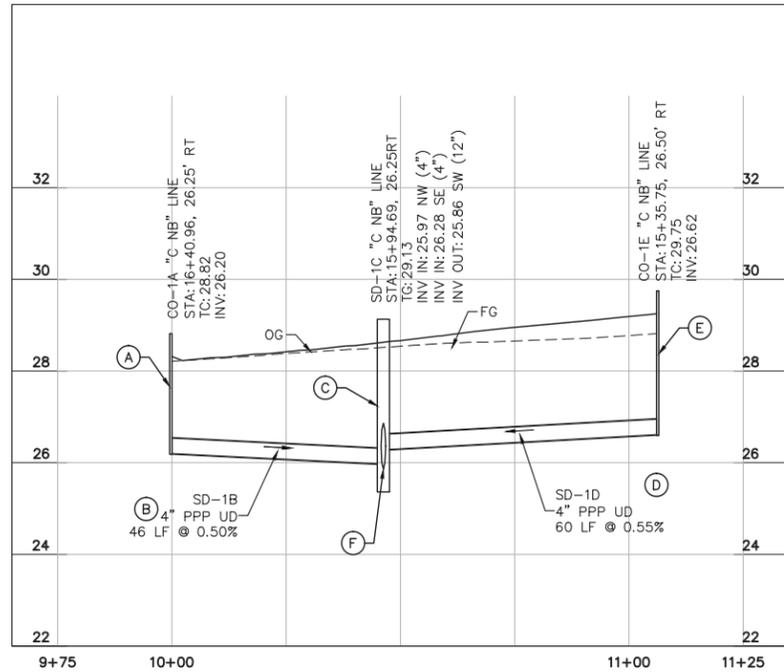
DRAINAGE PLANS

SHEET NO. 27
OF 61 SHEETS

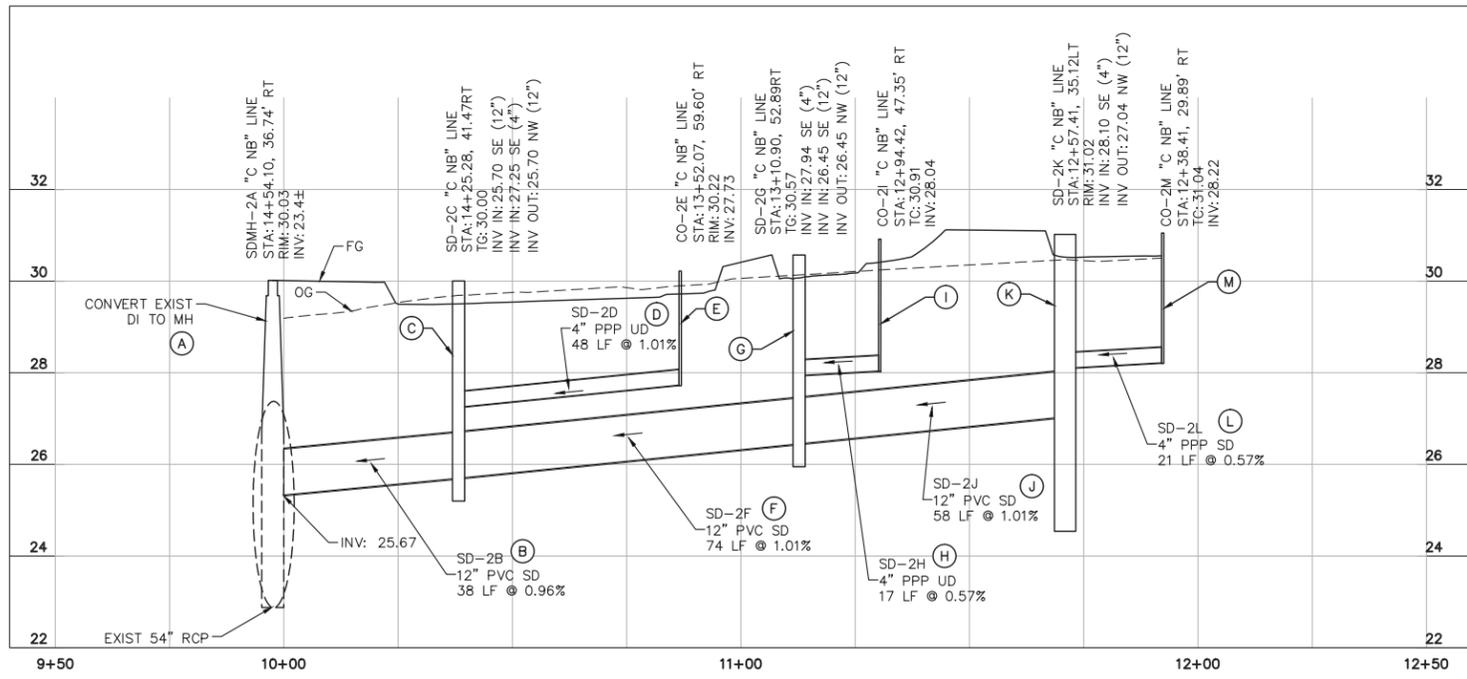
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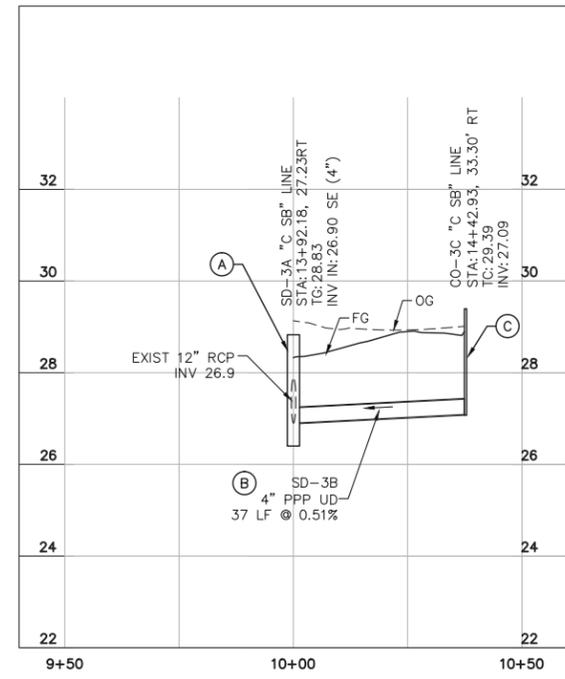
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DRAINAGE SYSTEM 1
HORIZONTAL: 1"=20', VERTICAL: 1"=2'



DRAINAGE SYSTEM 2
HORIZONTAL: 1"=20', VERTICAL: 1"=2'



DRAINAGE SYSTEM 3
HORIZONTAL: 1"=20', VERTICAL: 1"=2'

- NOTES**
1. LOCATIONS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND MINIMUM DEPTHS OF COVER HAVE BEEN ASSUMED.
 2. CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY NECESSARY CLEARANCES AND BRING ANY CONFLICTS TO THE ATTENTION OF THE ENGINEER. CONTRACTOR SHALL MAKE ADJUSTMENTS TO THE LOCATION OF IMPROVEMENTS TO AVOID CONFLICTS, SUBJECT TO THE APPROVAL OF THE ENGINEER.



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SAN MATEO COUNTY

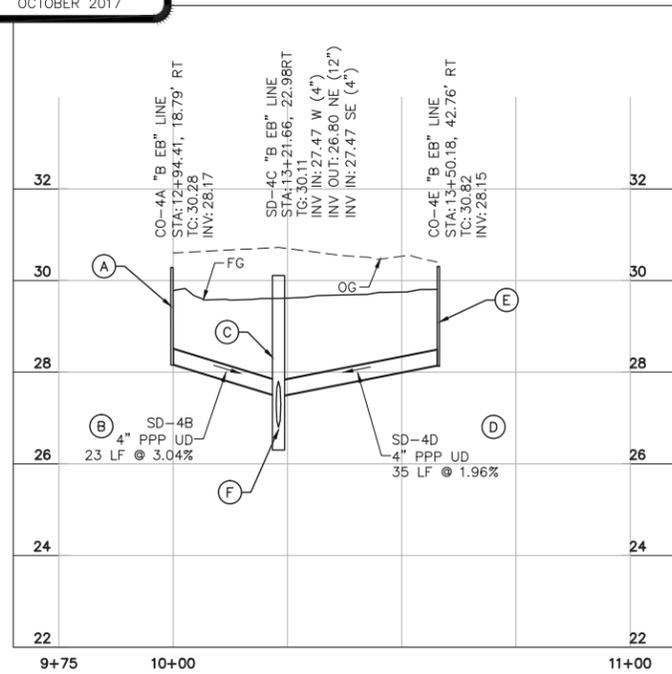
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DRAINAGE PROFILES

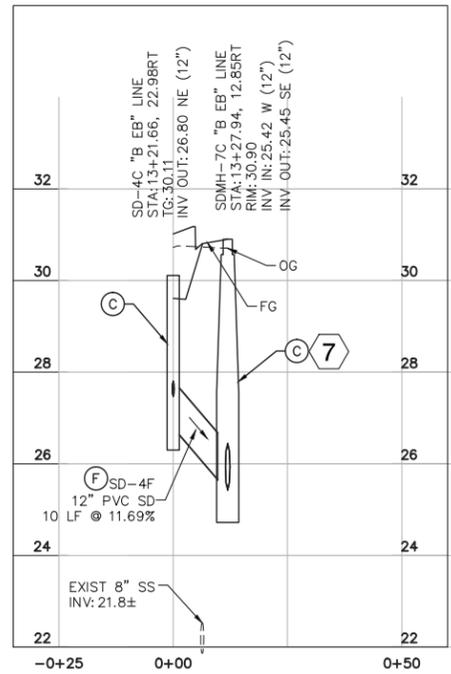
SHEET NO. 28
OF 61 SHEETS

DP-01

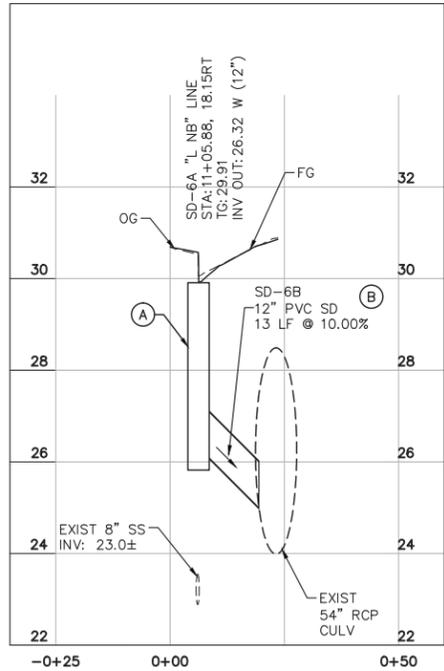
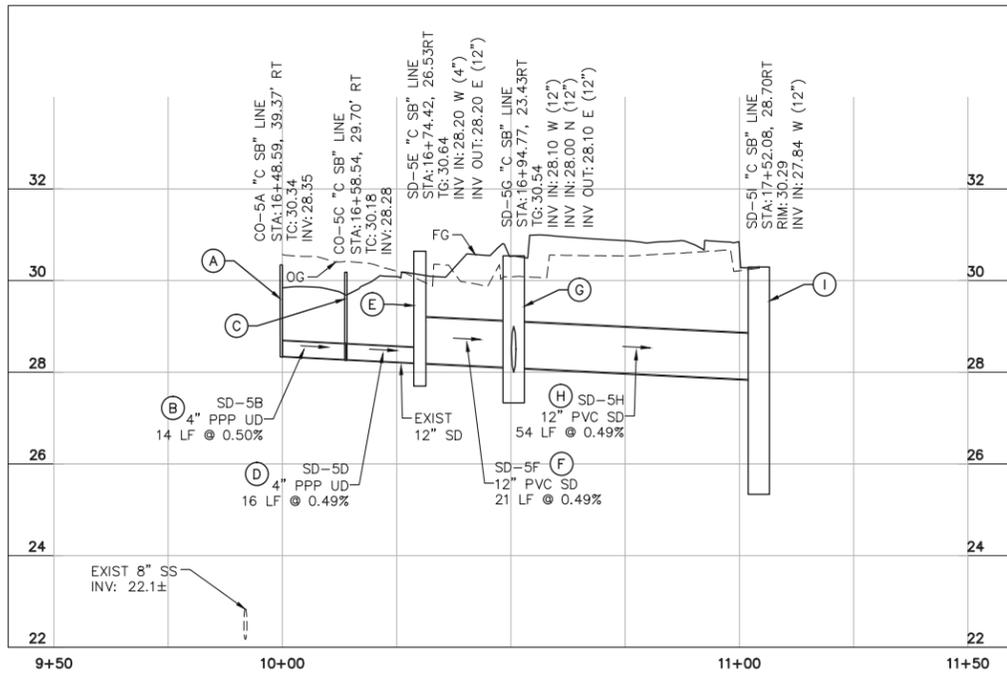
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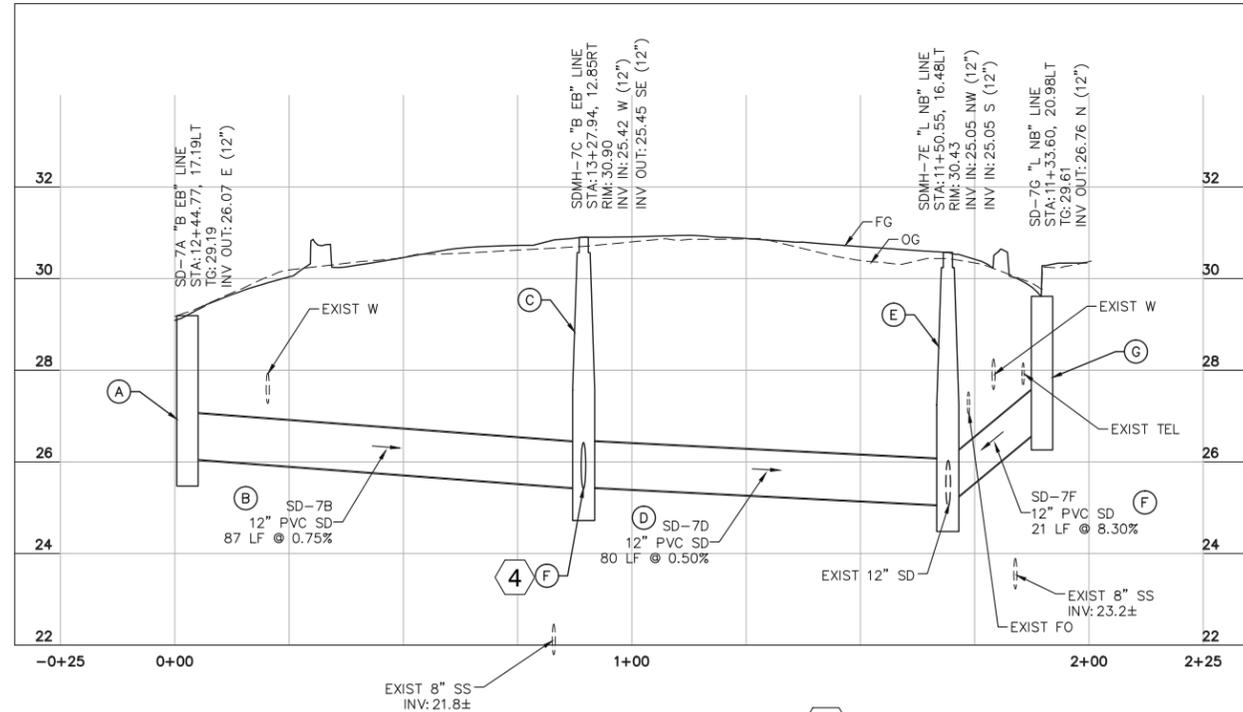
DRAINAGE SYSTEM 4
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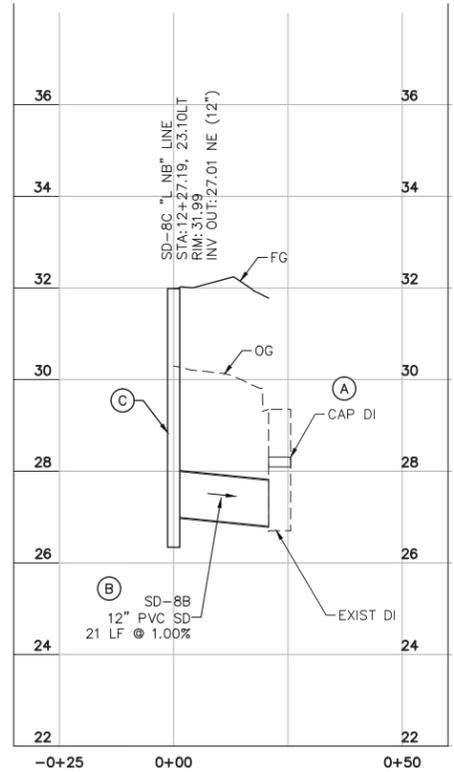
DRAINAGE SYSTEM 5
HORIZONTAL: 1"=20', VERTICAL: 1"=2'



DRAINAGE SYSTEM 6
HORIZONTAL: 1"=20', VERTICAL: 1"=2'



DRAINAGE SYSTEM 7
HORIZONTAL: 1"=20', VERTICAL: 1"=2'



DRAINAGE SYSTEM 8
HORIZONTAL: 1"=20', VERTICAL: 1"=2'

- NOTES**
- LOCATIONS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND MINIMUM DEPTHS OF COVER HAVE BEEN ASSUMED.
 - CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY NECESSARY CLEARANCES AND BRING ANY CONFLICTS TO THE ATTENTION OF THE ENGINEER. CONTRACTOR SHALL MAKE ADJUSTMENTS TO THE LOCATION OF IMPROVEMENTS TO AVOID CONFLICTS, SUBJECT TO THE APPROVAL OF THE ENGINEER.

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**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY CA

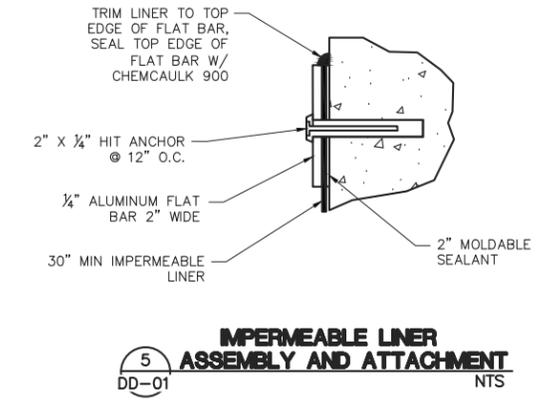
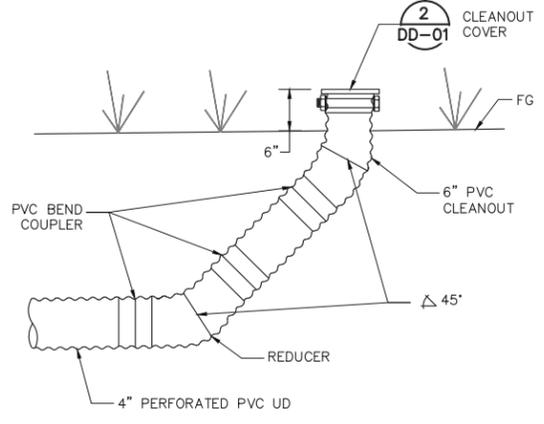
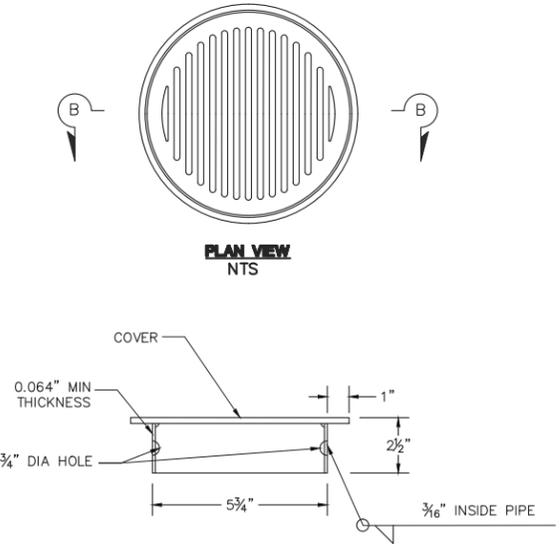
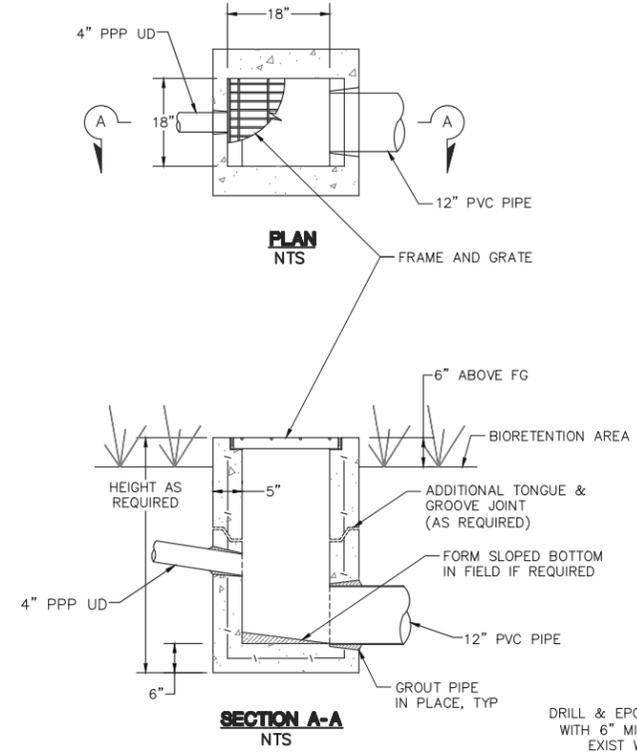
DRAINAGE PROFILES

SHEET NO. 29
OF 61 SHEETS

DP-02

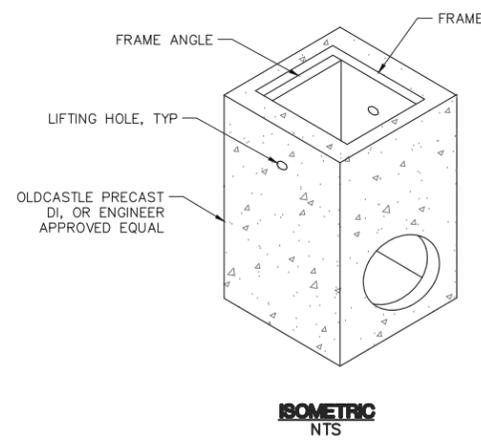
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NOTE
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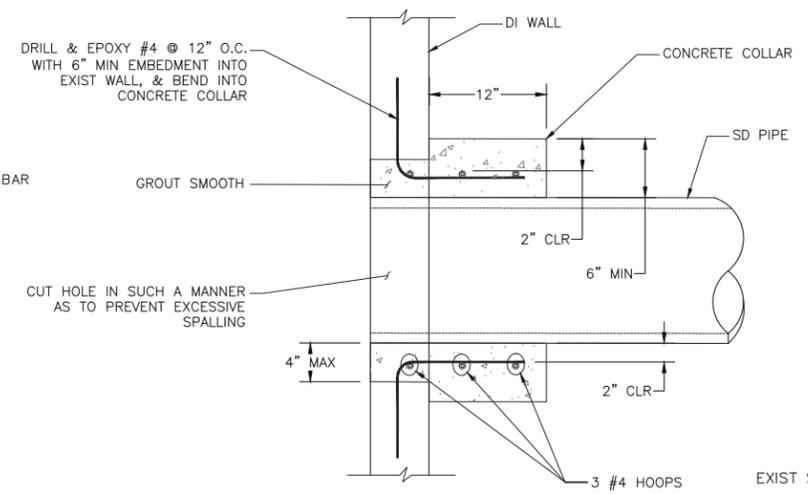


3 CLEANOUT NTS
DD-01

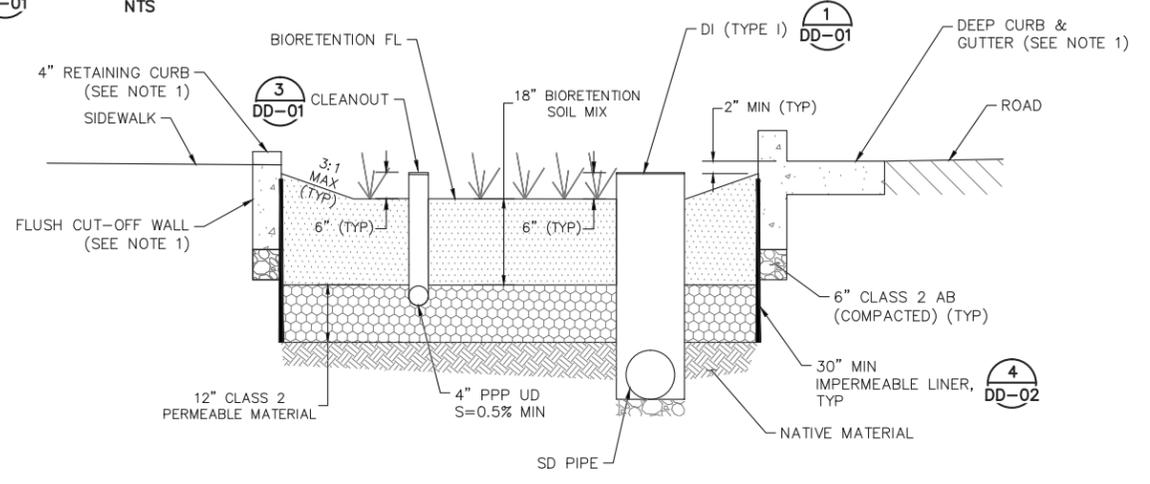
5 IMPERMEABLE LINER ASSEMBLY AND ATTACHMENT NTS
DD-01



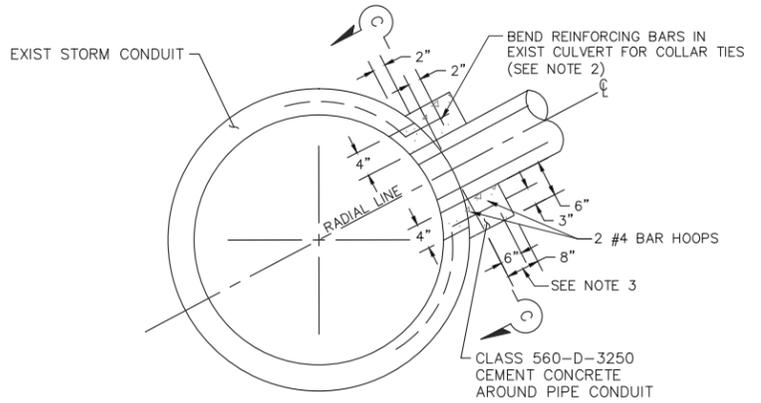
1 DI TYPE I NTS
DD-01



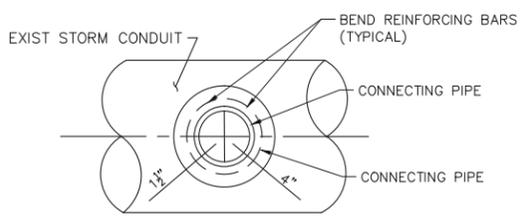
4 CONNECT TO EXIST DI NTS
DD-01



6 BIORETENTION AREA TYPICAL SECTION NTS
DD-01



7 CONNECTION DETAIL NTS
DD-01



3 C-C NTS



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**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY CA

DRAINAGE DETAILS

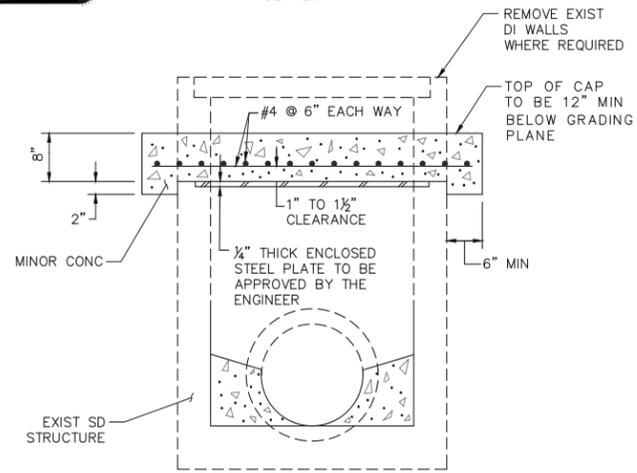
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OF 61 SHEETS

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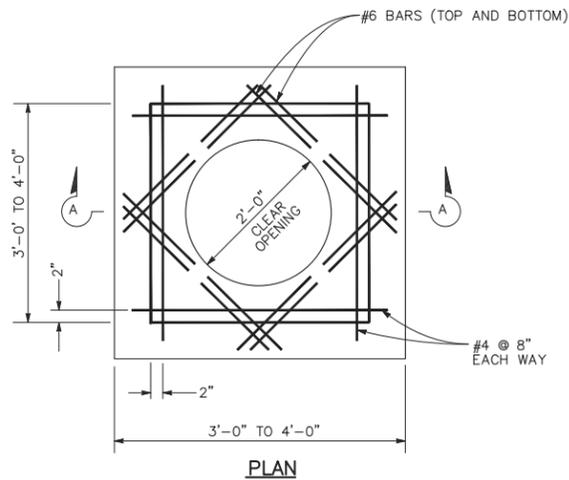
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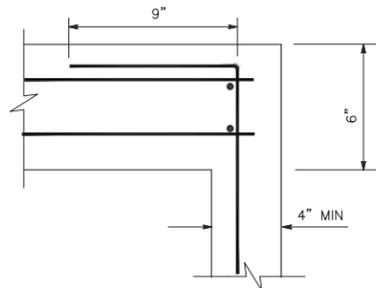
- SEE CD-SHEETS FOR CUT-OFF WALL AND DEEP CURB DETAILS.



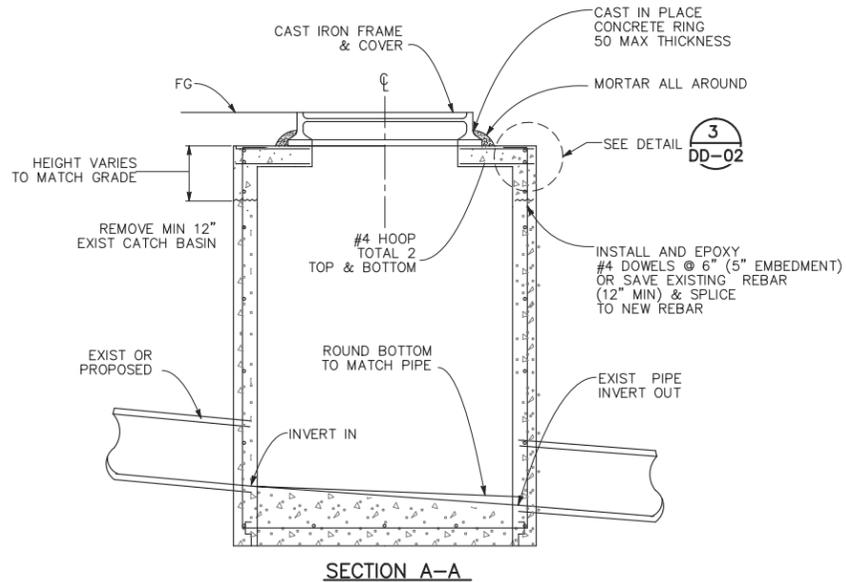
1
DD-02 **CAP DI**
NTS



PLAN

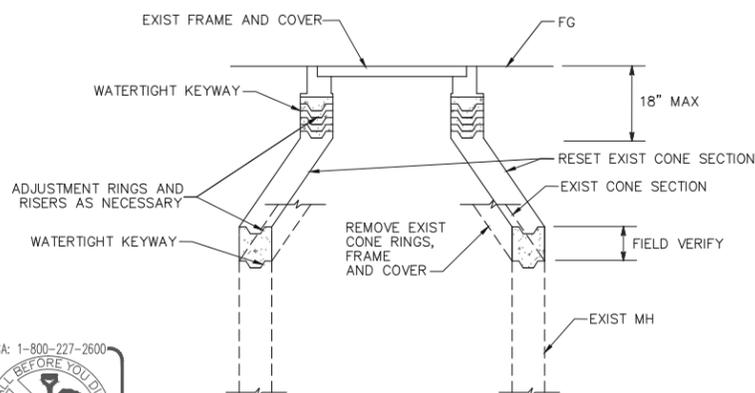


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DD-02 **REBAR DETAILS**
NTS

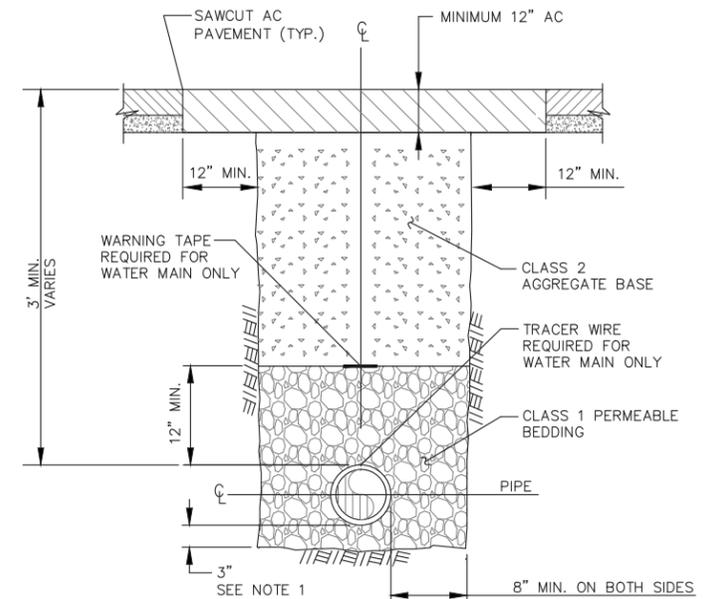


SECTION A-A

2
DD-02 **CONVERT DI TO MH**
NTS



4
DD-02 **ADJUST MH COVER TO GRADE**
NTS



STANDARD TRENCH SECTION

N.T.S.

REQUIREMENTS FOR TRENCH SECTION:

- CONTRACTOR SHALL PLACE MINIMUM 6" CLASS 1 PERMEABLE BEDDING IF SOIL UNDERNEATH THE PIPE IS WET.
- IF USE OF CDF IS APPROVED BY PUBLIC WORKS ENGINEERING, CDF SHALL BE NO MORE THAN 1-1/2 SACK CEMENT.
- BACKFILL MATERIAL SHALL BE CLASS 2 AGGREGATE BASE WITH 95% RELATIVE COMPACTION.
- CONTRACTOR SHALL REPLACE ASPHALT CONCRETE AS SPECIFIED ABOVE OR MATCH EXISTING PAVEMENT SECTION (ASPHALT CONCRETE) WHICHEVER IS GREATER.
- CONTRACTOR SHALL USE 1/2" ASPHALT CONCRETE ON THE EXPOSED SURFACE OF PAVEMENT.
- TRENCH WIDTH SHALL BE MINIMUM OF 8" WIDER ON EACH SIDE OF THE PIPE PLUS THE DIAMETER OF THE PIPE.
- FOR TREE ROOTS THAT ARE 2" (INCHES) OR MORE IN DIAMETER INSIDE THE TREE DRIP LINE, PLEASE CONTACT PARK DEPARTMENT AT (650) 558-7300 FOR INSPECTION PRIOR TO CUTTING THE ROOTS.



TYPICAL SANITARY SEWER, WATER, AND STORM DRAINAGE TRENCH SECTION

DEPARTMENT OF PUBLIC WORKS

APPROVED BY

DATE
12/6/2017

DRAWING NO.

G-10



KHA PROJECT
097515003
DATE
12/27/2017
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**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY

CA

DRAINAGE DETAILS

SHEET NO. 31
OF 61 SHEETS

DD-02

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LEGEND:

-  CONSTRUCTION AREA
-  MAINTAIN DRIVEWAY ACCESS
-  TEMPORARY PAVEMENT (0.50' HMA (TYPE A), 0.50' CLASS 2 AGGREGATE BASE)
-  TEMPORARY STRIPING DETAIL (PAINT)
-  STOP YIELD
-  TEMPORARY PAVEMENT MARKING (PAINT)
-  TEMPORARY ROADSIDE SIGN LOCATION
-  TEMPORARY CHANNELIZER (SURFACE MOUNTED) SPACED 10' O.C.
-  TEMPORARY INLINE CRASH CUSHION
-  TEMPORARY RAILING (TYPE K)
-  DIRECTION OF TRAFFIC
-  TEMPORARY NOISE AND DUST FENCE (SEE DETAIL ON TH-04)

| STAGE 1 | |
|--------------|---|
| TRAFFIC | 1. SHIFT SOUTHBOUND CALIFORNIA DR TRAFFIC AND REDUCE TO 11' LANES. 2. CLOSE INTERSECTION ACCESS BETWEEN CALIFORNIA DR, BELLEVUE AVE, AND LORTON AVE 3. RESTRICT STREET PARKING ALONG CALIFORNIA DR AND BELLEVUE AVE WITHIN PROJECT AREA FOR REMAINING TRAFFIC CONTROL STAGES. |
| CONSTRUCTION | 1. REMOVE EXISTING PARK AND SIDEWALK. 2. CONSTRUCT PAVEMENT, CENTER ISLAND AND SPLITTER ISLANDS ALONG CALIFORNIA DR. 3. CONSTRUCT PAVEMENT, CURB RETURNS, SIDEWALK, AND SPLITTER ISLAND ON BELLEVUE AVE AND LORTON AVE. |

CONSTRUCTION NOTES (THIS SHEET ONLY):

- ① MAINTAIN ACCESS TO EXISTING BUSINESS ENTRANCES AND ADA ACCESSIBLE PATH (6' Min) AROUND CONSTRUCTION WORK AREA. CONSTRUCT TEMPORARY TIMBER WALKWAY THROUGH CONSTRUCTION ZONE AS REQUIRED. SEE DETAIL ON TH-04.
- ② PROVIDE TEMPORARY PEDESTRIAN CROSSING. CROSSING TO INCLUDE 10' CLEAR WIDTH, 12" WHITE PAINTED CROSSWALK STRIPING AND ADA COMPLIANT TEMPORARY HMA RAMPS AT THE EXISTING CURB, OR TEMPORARY RAMPS AS APPROVED BY THE ENGINEER. TEMPORARY RAMPS TO BE PLACED OUTSIDE OF VEHICULAR TRAVELED WAY.
- ③ PROVIDE TEMPORARY SOLAR RRFB. PLACE TO PROVIDE ADA ACCESS AROUND TEMPORARY RRFB, AND TO PUSH BUTTON AND TEMPORARY RAMP. PLACE TEMPORARY RRFB SUCH THAT THE FACE OF THE TEMPORARY FOUNDATION IS 2' MIN BEHIND THE EXISTING TC.

GENERAL NOTES (ALL TRAFFIC CONTROL SHEETS):

1. SPECIFIC WORK CALLED OUT ON TRAFFIC CONTROL SHEETS (KEYED NOTES) ARE INTENDED TO ASSIST THE CONTRACTOR IN DETERMINING MINIMUM WORK REQUIRED DURING THIS STAGE AND IS NOT A COMPREHENSIVE LIST OF ALL WORK THAT IS REQUIRED OR MAY BE COMPLETED DURING SAID STAGE.
2. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE ALL EXISTING STRIPING AND PAVEMENT MARKINGS THAT CONFLICTS WITH NEW STRIPING AND MARKINGS, OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING SIGNAGE THAT CONFLICT WITH THE TRAFFIC HANDLING PLANS AS SHOWN OR AS DIRECTED BY THE ENGINEER. INSTALL ROADSIDE SIGNS PER SIGN PLANS WHERE CONSTRUCTION OCCURS.
5. SIGN LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS TO BE DETERMINED BY THE ENGINEER. SIGNS TO BE LOCATED ON PERMANENT PAVEMENT SHALL BE MOUNTED IN FREE STANDING SUPPORTS AS APPROVED BY THE ENGINEER AND SHALL NOT PENETRATE THE PAVEMENT SURFACE.
6. ALL TEMPORARY PAVEMENT DELINEATION SHALL BE REMOVED PRIOR TO INSTALLATION OF THE PERMANENT PAVEMENT DELINEATION.
7. CURB RAMPS SHALL BE ADA COMPLIANT THROUGHOUT CONSTRUCTION.
8. ALL TEMPORARY RAILING (TYPE K) SHALL BE STAKED PER CALTRANS Std T3B.
9. SURFACE UTILITY FEATURES WITHIN TEMPORARY ROADWAY OR SIDEWALK AREAS SHALL BE ADJUSTED TO GRADE OF TEMPORARY ROADWAY OR SIDEWALK.
10. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



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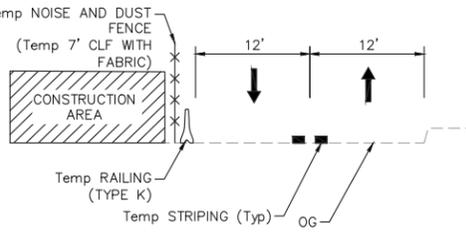
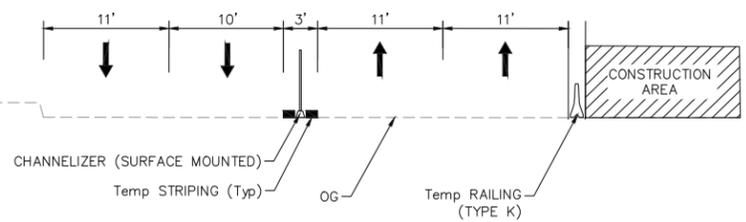
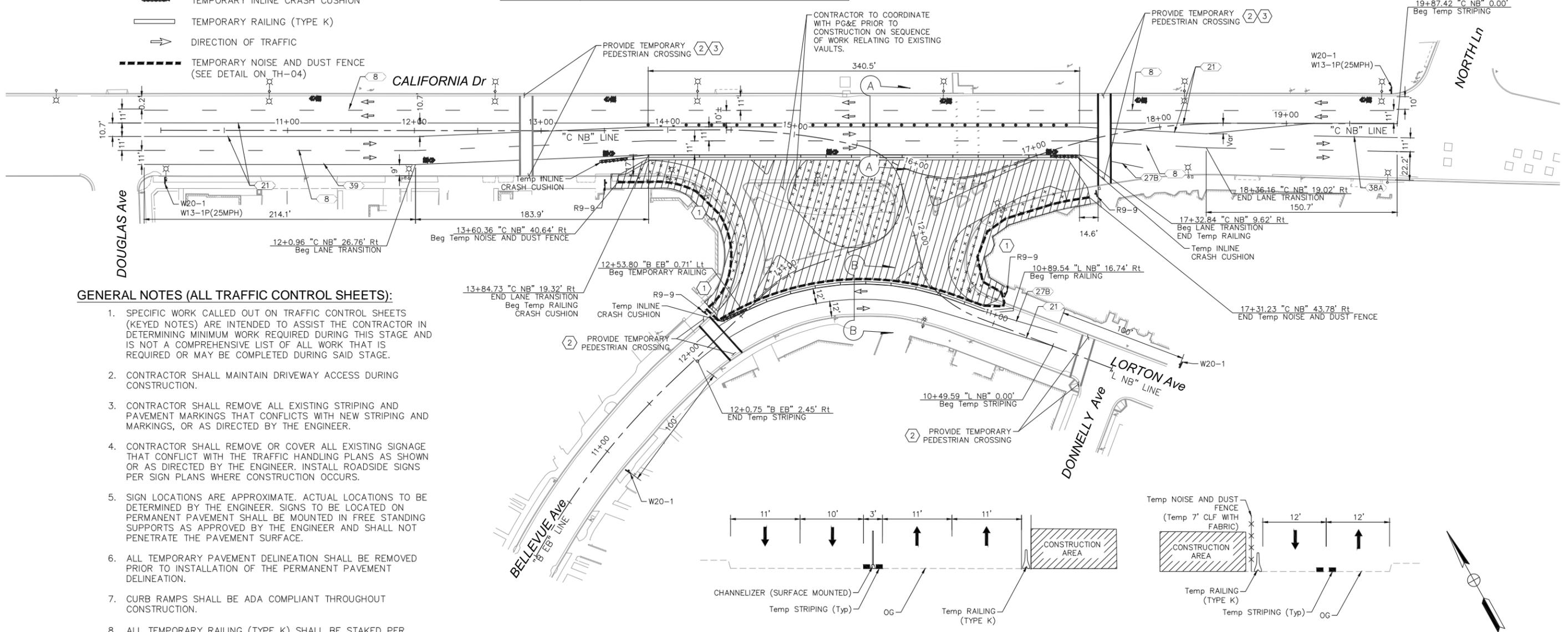
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CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA

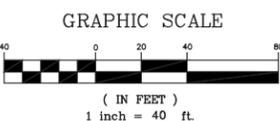


TRAFFIC HANDLING & STAGE CONSTRUCTION PLANS
STAGE 1

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| SHEET NO. | 32 |
| OF | 61 SHEETS |
| TH-01 | |



THIS PLAN ACCURATE FOR TRAFFIC CONTROL ONLY



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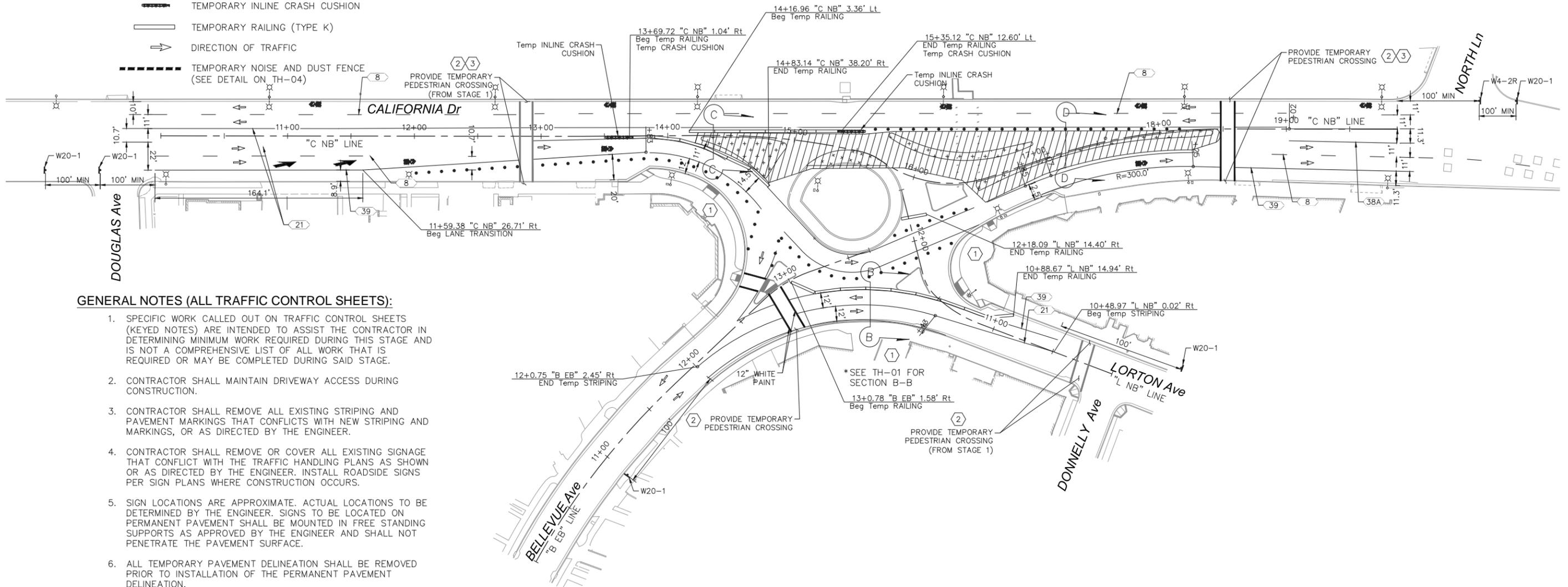
LEGEND:

-  CONSTRUCTION AREA
-  MAINTAIN DRIVEWAY ACCESS
-  TEMPORARY PAVEMENT (0.50' HMA (TYPE A), 0.50' CLASS 2 AGGREGATE BASE)
-  TEMPORARY STRIPING DETAIL (PAINT)
-  STOP YIELD
-  TEMPORARY PAVEMENT MARKING (PAINT)
-  TEMPORARY ROADSIDE SIGN LOCATION
-  TEMPORARY CHANNELIZER (SURFACE MOUNTED) SPACED 10' O.C.
-  TEMPORARY INLINE CRASH CUSHION
-  TEMPORARY RAILING (TYPE K)
-  DIRECTION OF TRAFFIC
-  TEMPORARY NOISE AND DUST FENCE (SEE DETAIL ON TH-04)

| STAGE 2 | |
|--------------|---|
| TRAFFIC | 1. REDUCE CALIFORNIA DR TO TWO LANES IN CONSTRUCTION ZONE. 2. SHIFT SOUTHBOUND CALIFORNIA DR TRAVEL LANES INTO COMPLETED STAGE 1 AND REDUCE TO ONE LANE. 3. MODIFY TRAFFIC CONTROL OF BELLEVUE AND LORTON AVE FROM STAGE 1. |
| CONSTRUCTION | 1. CONSTRUCT NORTH PORTION OF ROUNDABOUT. 2. CONSTRUCT SPLITTER ISLANDS ALONG CALIFORNIA DR. |

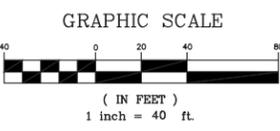
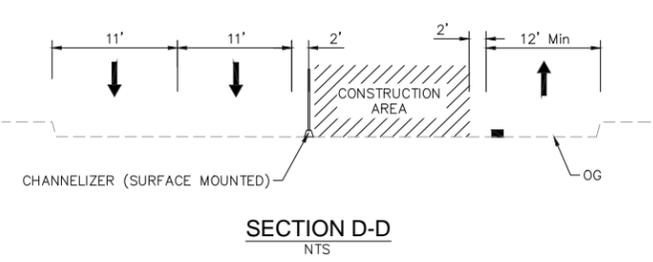
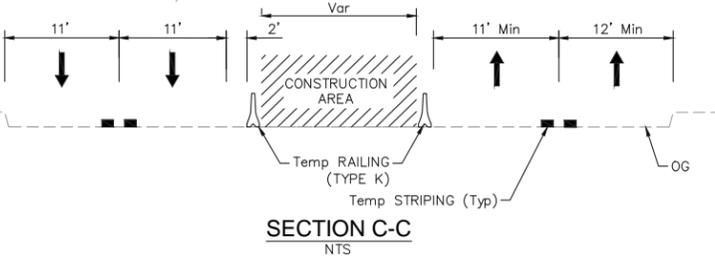
CONSTRUCTION NOTES (THIS SHEET ONLY):

- ① MAINTAIN ACCESS TO EXISTING BUSINESS ENTRANCES AND ADA ACCESSIBLE PATH (6' Min) AROUND CONSTRUCTION WORK AREA. CONSTRUCT TEMPORARY TIMBER WALKWAY THROUGH CONSTRUCTION ZONE AS REQUIRED. SEE DETAIL ON TH-04.
- ② PROVIDE TEMPORARY PEDESTRIAN CROSSING. CROSSING TO INCLUDE 10' CLEAR WIDTH, 12" WHITE PAINTED CROSSWALK STRIPING AND ADA COMPLIANT TEMPORARY HMA RAMPS AT THE EXISTING CURB, OR TEMPORARY RAMPS AS APPROVED BY THE ENGINEER. TEMPORARY RAMPS TO BE PLACED OUTSIDE OF VEHICULAR TRAVELED WAY.
- ③ PROVIDE TEMPORARY SOLAR RRFB. PLACE TO PROVIDE ADA ACCESS AROUND TEMPORARY RRFB, AND TO PUSH BUTTON AND TEMPORARY RAMP. PLACE TEMPORARY RRFB SUCH THAT THE FACE OF THE TEMPORARY FOUNDATION IS 2' MIN BEHIND THE EXISTING TC.



GENERAL NOTES (ALL TRAFFIC CONTROL SHEETS):

1. SPECIFIC WORK CALLED OUT ON TRAFFIC CONTROL SHEETS (KEYED NOTES) ARE INTENDED TO ASSIST THE CONTRACTOR IN DETERMINING MINIMUM WORK REQUIRED DURING THIS STAGE AND IS NOT A COMPREHENSIVE LIST OF ALL WORK THAT IS REQUIRED OR MAY BE COMPLETED DURING SAID STAGE.
2. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE ALL EXISTING STRIPING AND PAVEMENT MARKINGS THAT CONFLICTS WITH NEW STRIPING AND MARKINGS, OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING SIGNAGE THAT CONFLICT WITH THE TRAFFIC HANDLING PLANS AS SHOWN OR AS DIRECTED BY THE ENGINEER. INSTALL ROADSIDE SIGNS PER SIGN PLANS WHERE CONSTRUCTION OCCURS.
5. SIGN LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS TO BE DETERMINED BY THE ENGINEER. SIGNS TO BE LOCATED ON PERMANENT PAVEMENT SHALL BE MOUNTED IN FREE STANDING SUPPORTS AS APPROVED BY THE ENGINEER AND SHALL NOT PENETRATE THE PAVEMENT SURFACE.
6. ALL TEMPORARY PAVEMENT DELINEATION SHALL BE REMOVED PRIOR TO INSTALLATION OF THE PERMANENT PAVEMENT DELINEATION.
7. CURB RAMPS SHALL BE ADA COMPLIANT THROUGHOUT CONSTRUCTION.
8. ALL TEMPORARY RAILING (TYPE K) SHALL BE STAKED PER CALTRANS Std T3B.
9. SURFACE UTILITY FEATURES WITHIN TEMPORARY ROADWAY OR SIDEWALK AREAS SHALL BE ADJUSTED TO GRADE OF TEMPORARY ROADWAY OR SIDEWALK.
10. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



THIS PLAN ACCURATE FOR TRAFFIC CONTROL ONLY



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| KHA PROJECT | 097515003 |
| DATE | 12/27/2017 |
| SCALE | AS SHOWN |
| DESIGNED BY | DW |
| DRAWN BY | DW |
| CHECKED BY | DC |

CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



TRAFFIC HANDLING & STAGE CONSTRUCTION PLANS
STAGE 2

SHEET NO. 33
 OF 61 SHEETS

TH-02

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LEGEND:

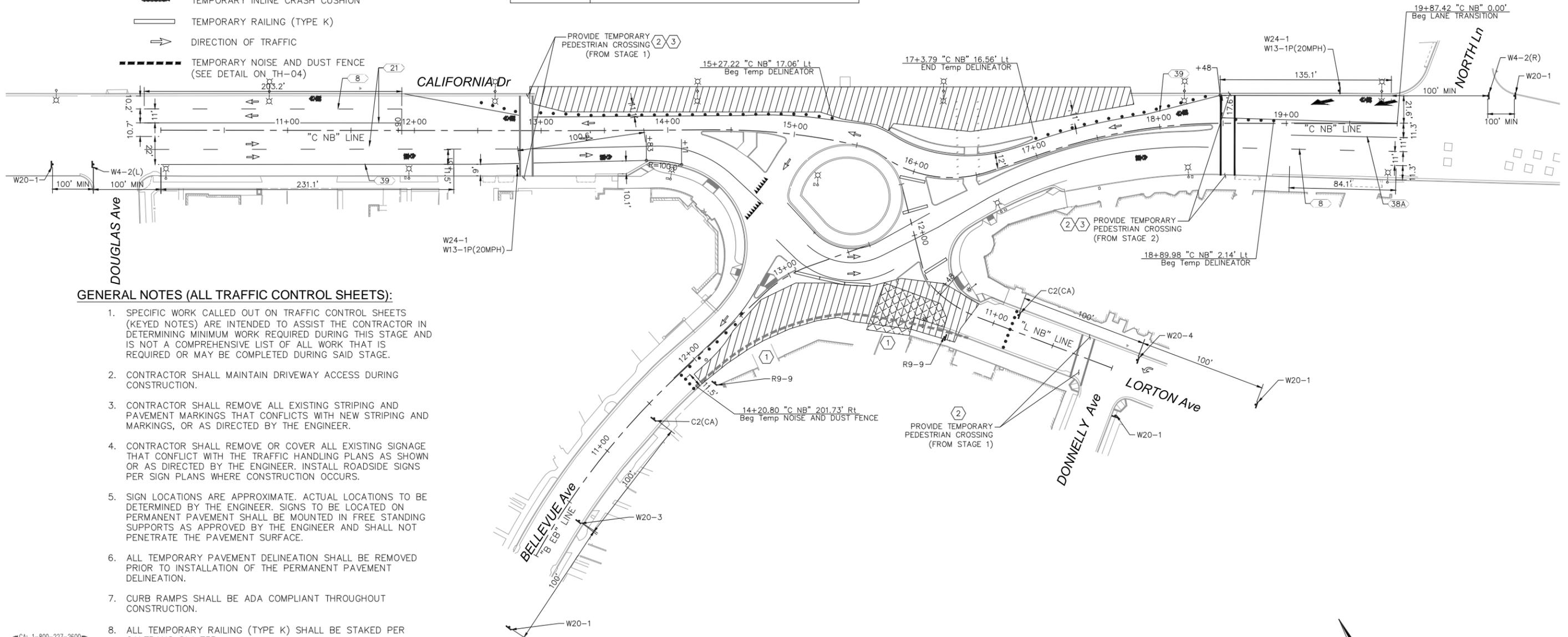
-  CONSTRUCTION AREA
-  MAINTAIN DRIVEWAY ACCESS
-  TEMPORARY PAVEMENT (0.50' HMA (TYPE A), 0.50' CLASS 2 AGGREGATE BASE)
-  TEMPORARY STRIPING DETAIL (PAINT)
-  TEMPORARY PAVEMENT MARKING (PAINT)
-  TEMPORARY ROADSIDE SIGN LOCATION
-  TEMPORARY CHANNELIZER (SURFACE MOUNTED) SPACED 10' O.C.
-  TEMPORARY INLINE CRASH CUSHION
-  TEMPORARY RAILING (TYPE K)
-  DIRECTION OF TRAFFIC
-  TEMPORARY NOISE AND DUST FENCE (SEE DETAIL ON TH-04)

STOP YIELD 

| STAGE 3 | |
|--------------|---|
| TRAFFIC | 1. SHIFT NORTHBOUND CALIFORNIA DR TRAFFIC TO COMPLETED STAGE 2 AND REDUCE TO ONE LANE. 2. SHIFT SOUTHBOUND CALIFORNIA DR TRAFFIC TO COMPLETED STAGE 2. 3. CLOSE LORTON AVE AFTER DONNELLY AVE AND CLOSE BELLEVUE AVE TO NORTHBOUND TRAFFIC. |
| CONSTRUCTION | 1. CONSTRUCT CURB AND BULBOUT IMPROVEMENTS ALONG CALIFORNIA DR. 2. CONSTRUCT SPLITTER ISLAND, CURB, AND BULBOUT IMPROVEMENTS ALONG LORTON AVE/BELLEVUE AVE. |

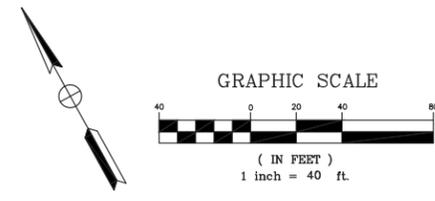
CONSTRUCTION NOTES (THIS SHEET ONLY):

- ① MAINTAIN ACCESS TO EXISTING BUSINESS ENTRANCES AND ADA ACCESSIBLE PATH (6' Min) AROUND CONSTRUCTION WORK AREA. CONSTRUCT TEMPORARY TIMBER WALKWAY THROUGH CONSTRUCTION ZONE AS REQUIRED. SEE DETAIL ON TH-04.
- ② PROVIDE TEMPORARY PEDESTRIAN CROSSING. CROSSING TO INCLUDE 10' CLEAR WIDTH, 12" WHITE PAINTED CROSSWALK STRIPING AND ADA COMPLIANT TEMPORARY HMA RAMPS AT THE EXISTING CURB, OR TEMPORARY RAMPS AS APPROVED BY THE ENGINEER. TEMPORARY RAMPS TO BE PLACED OUTSIDE OF VEHICULAR TRAVELED WAY.
- ③ PROVIDE TEMPORARY SOLAR RRFB. PLACE TO PROVIDE ADA ACCESS AROUND TEMPORARY RRFB, AND TO PUSH BUTTON AND TEMPORARY RAMP. PLACE TEMPORARY RRFB SUCH THAT THE FACE OF THE TEMPORARY FOUNDATION IS 2' MIN BEHIND THE EXISTING TC.



GENERAL NOTES (ALL TRAFFIC CONTROL SHEETS):

1. SPECIFIC WORK CALLED OUT ON TRAFFIC CONTROL SHEETS (KEYED NOTES) ARE INTENDED TO ASSIST THE CONTRACTOR IN DETERMINING MINIMUM WORK REQUIRED DURING THIS STAGE AND IS NOT A COMPREHENSIVE LIST OF ALL WORK THAT IS REQUIRED OR MAY BE COMPLETED DURING SAID STAGE.
2. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE ALL EXISTING STRIPING AND PAVEMENT MARKINGS THAT CONFLICTS WITH NEW STRIPING AND MARKINGS, OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING SIGNAGE THAT CONFLICT WITH THE TRAFFIC HANDLING PLANS AS SHOWN OR AS DIRECTED BY THE ENGINEER. INSTALL ROADSIDE SIGNS PER SIGN PLANS WHERE CONSTRUCTION OCCURS.
5. SIGN LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS TO BE DETERMINED BY THE ENGINEER. SIGNS TO BE LOCATED ON PERMANENT PAVEMENT SHALL BE MOUNTED IN FREE STANDING SUPPORTS AS APPROVED BY THE ENGINEER AND SHALL NOT PENETRATE THE PAVEMENT SURFACE.
6. ALL TEMPORARY PAVEMENT DELINEATION SHALL BE REMOVED PRIOR TO INSTALLATION OF THE PERMANENT PAVEMENT DELINEATION.
7. CURB RAMPS SHALL BE ADA COMPLIANT THROUGHOUT CONSTRUCTION.
8. ALL TEMPORARY RAILING (TYPE K) SHALL BE STAKED PER CALTRANS Std T3B.
9. SURFACE UTILITY FEATURES WITHIN TEMPORARY ROADWAY OR SIDEWALK AREAS SHALL BE ADJUSTED TO GRADE OF TEMPORARY ROADWAY OR SIDEWALK.
10. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



THIS PLAN ACCURATE FOR TRAFFIC CONTROL ONLY

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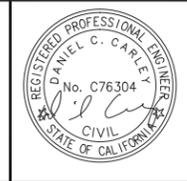
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| KHA PROJECT | 097515003 |
| DATE | 12/27/2017 |
| SCALE | AS SHOWN |
| DESIGNED BY | DW |
| DRAWN BY | DW |
| CHECKED BY | DC |

**CALIFORNIA DRIVE
ROUNDBOUT**

PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY
CA



**TRAFFIC HANDLING & STAGE
CONSTRUCTION PLANS
STAGE 3**

SHEET NO. 34
OF 61 SHEETS

TH-03

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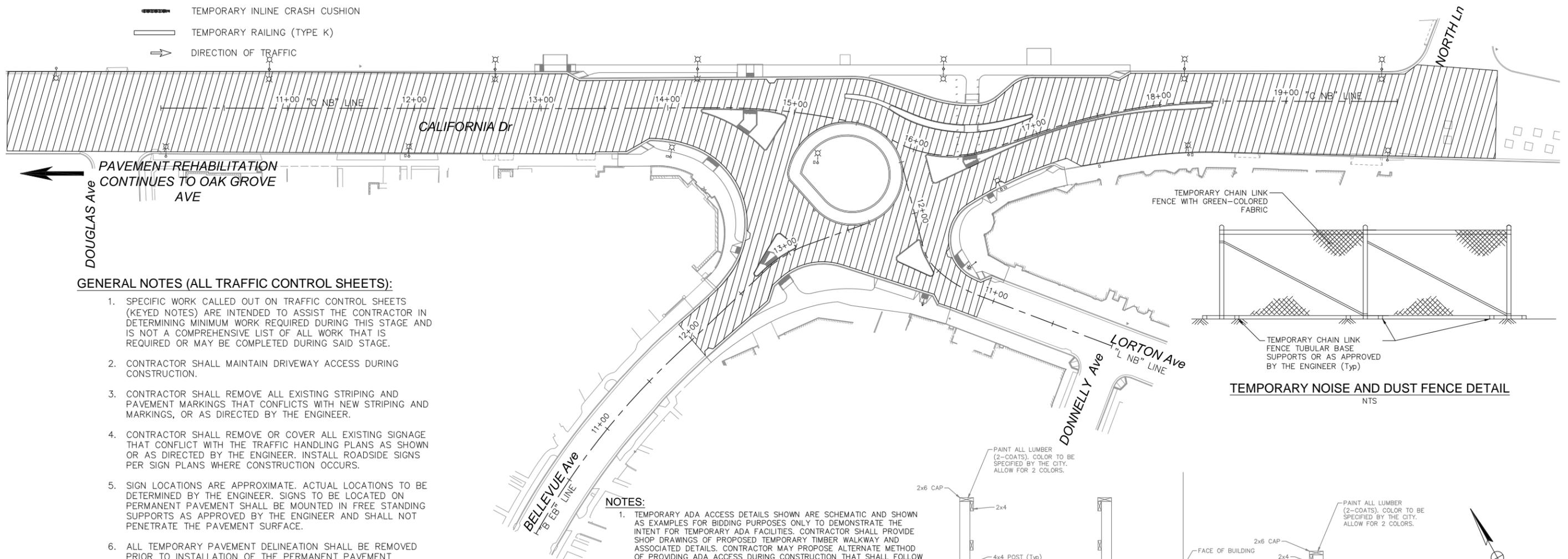
LEGEND:

-  CONSTRUCTION AREA
-  MAINTAIN DRIVEWAY ACCESS
-  TEMPORARY PAVEMENT (0.50' HMA (TYPE A), 0.50' CLASS 2 AGGREGATE BASE)
-  TEMPORARY STRIPING DETAIL (PAINT)
-  TEMPORARY "YIELD" PAVEMENT MARKING (PAINT)
-  TEMPORARY "STOP" PAVEMENT MARKING (PAINT)
-  TEMPORARY PAVEMENT MARKING (PAINT)
-  TEMPORARY ROADSIDE SIGN LOCATION
-  TEMPORARY CHANNELIZER (SURFACE MOUNTED) SPACED 10' O.C.
-  TEMPORARY INLINE CRASH CUSHION
-  TEMPORARY RAILING (TYPE K)
-  DIRECTION OF TRAFFIC

| STAGE 4 | |
|--------------|--|
| TRAFFIC | 1. ESTABLISH FULL ROUNDABOUT YIELD CONTROL AT INTERSECTION. |
| CONSTRUCTION | 1. PLACE FINAL HMA LIFT. COLD PLANE AND CONFORM TO EXISTING PAVEMENT. |
| | 2. COLD PLANE AND OVERLAY REMAINING AREAS TO OAK GROVE AVE AND BURLINGAME AVE. |
| | 3. INSTALL FINAL PAVEMENT MARKINGS AND PAVEMENT DELINEATION. |
| | 4. INSTALL FINAL ROADSIDE SIGNS. |

CONSTRUCTION NOTES (THIS SHEET ONLY):

- ① MAINTAIN ACCESS TO EXISTING BUSINESS ENTRANCES AND ADA ACCESSIBLE PATH (6' Min) AROUND CONSTRUCTION WORK AREA. CONSTRUCT TEMPORARY TIMBER WALKWAY THROUGH CONSTRUCTION ZONE AS REQUIRED. SEE DETAIL ON TH-04.
- ② PROVIDE TEMPORARY PEDESTRIAN CROSSING. CROSSING TO INCLUDE 10' CLEAR WIDTH, 12" WHITE PAINTED CROSSWALK STRIPING AND ADA COMPLIANT TEMPORARY HMA RAMPS AT THE EXISTING CURB, OR TEMPORARY RAMPS AS APPROVED BY THE ENGINEER. TEMPORARY RAMPS TO BE PLACED OUTSIDE OF VEHICULAR TRAVELED WAY.
- ③ PROVIDE TEMPORARY SOLAR RRFB. PLACE TO PROVIDE ADA ACCESS AROUND TEMPORARY RRFB, AND TO PUSH BUTTON AND TEMPORARY RAMP. PLACE TEMPORARY RRFB SUCH THAT THE FACE OF THE TEMPORARY FOUNDATION IS 2' MIN BEHIND THE EXISTING TC.

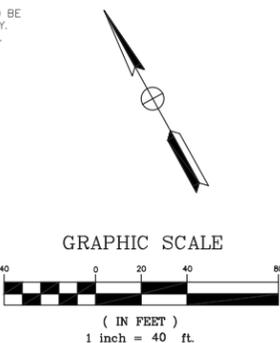
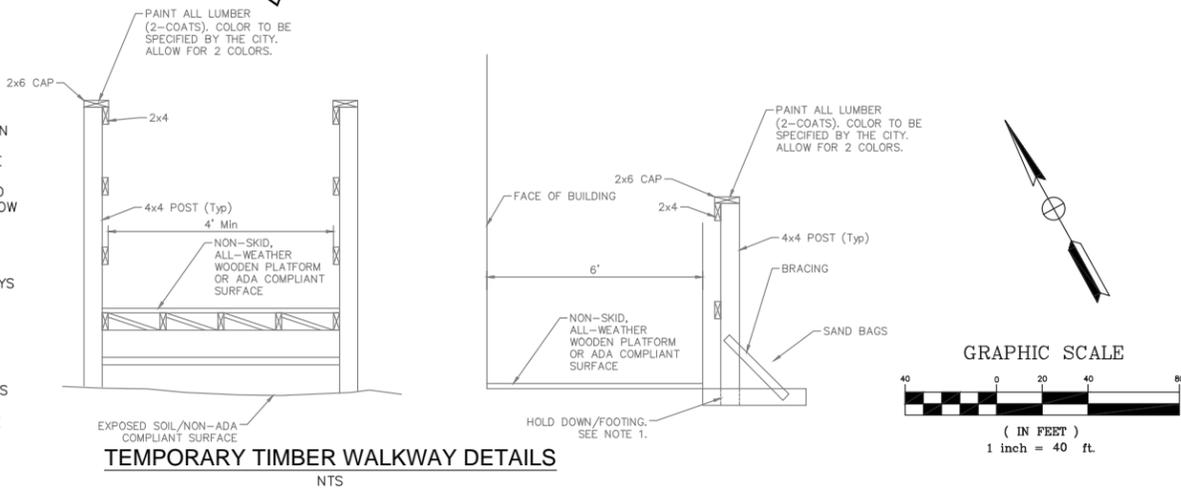
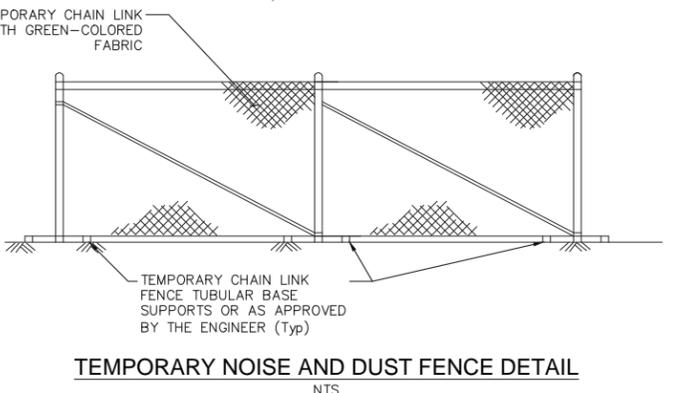


GENERAL NOTES (ALL TRAFFIC CONTROL SHEETS):

1. SPECIFIC WORK CALLED OUT ON TRAFFIC CONTROL SHEETS (KEYED NOTES) ARE INTENDED TO ASSIST THE CONTRACTOR IN DETERMINING MINIMUM WORK REQUIRED DURING THIS STAGE AND IS NOT A COMPREHENSIVE LIST OF ALL WORK THAT IS REQUIRED OR MAY BE COMPLETED DURING SAID STAGE.
2. CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS DURING CONSTRUCTION.
3. CONTRACTOR SHALL REMOVE ALL EXISTING STRIPING AND PAVEMENT MARKINGS THAT CONFLICTS WITH NEW STRIPING AND MARKINGS, OR AS DIRECTED BY THE ENGINEER.
4. CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING SIGNAGE THAT CONFLICT WITH THE TRAFFIC HANDLING PLANS AS SHOWN OR AS DIRECTED BY THE ENGINEER. INSTALL ROADSIDE SIGNS PER SIGN PLANS WHERE CONSTRUCTION OCCURS.
5. SIGN LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS TO BE DETERMINED BY THE ENGINEER. SIGNS TO BE LOCATED ON PERMANENT PAVEMENT SHALL BE MOUNTED IN FREE STANDING SUPPORTS AS APPROVED BY THE ENGINEER AND SHALL NOT PENETRATE THE PAVEMENT SURFACE.
6. ALL TEMPORARY PAVEMENT DELINEATION SHALL BE REMOVED PRIOR TO INSTALLATION OF THE PERMANENT PAVEMENT DELINEATION.
7. CURB RAMPS SHALL BE ADA COMPLIANT THROUGHOUT CONSTRUCTION.
8. ALL TEMPORARY RAILING (TYPE K) SHALL BE STAKED PER CALTRANS Std T3B.
9. SURFACE UTILITY FEATURES WITHIN TEMPORARY ROADWAY OR SIDEWALK AREAS SHALL BE ADJUSTED TO GRADE OF TEMPORARY ROADWAY OR SIDEWALK.
10. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

NOTES:

1. TEMPORARY ADA ACCESS DETAILS SHOWN ARE SCHEMATIC AND SHOWN AS EXAMPLES FOR BIDDING PURPOSES ONLY TO DEMONSTRATE THE INTENT FOR TEMPORARY ADA FACILITIES. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF PROPOSED TEMPORARY TIMBER WALKWAY AND ASSOCIATED DETAILS. CONTRACTOR MAY PROPOSE ALTERNATE METHOD OF PROVIDING ADA ACCESS DURING CONSTRUCTION THAT SHALL FOLLOW THE REQUIREMENTS BELOW.
2. REQUIREMENTS FOR TEMPORARY TIMBER WALKWAY:
 - 2.1. MAINTAIN SAFE ADA ACCESS FROM CROSSWALKS TO ALL DOORWAYS AND PRIVATE PROPERTY ACCESS LOCATIONS.
 - 2.2. TIMBER PLATFORMS, RAILINGS AND TEMPORARY BRIDGES TO BE IN-PLACE AT THE TIMES REQUIRED AS SHOWN IN THE PROJECT SPECIFICATIONS.
 - 2.3. PROVIDE WATER FILLED BARRIERS OR K-RAIL TO SEPARATE WORK AREA FROM TRAFFIC.
 - 2.4. INCLUDED NON-SKID, ALL-WEATHER SURFACE FOR ALL ADA PATHS OF TRAVEL.
 - 2.5. ALL JOINTS BETWEEN TIMBER PANELS/PLYWOOD SHEETS SHALL BE TAPED.



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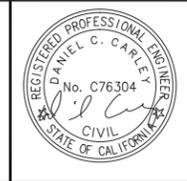


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| DATE | 12/27/2017 |
| SCALE | AS SHOWN |
| DESIGNED BY | DW |
| DRAWN BY | DW |
| CHECKED BY | DC |

CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



TRAFFIC HANDLING & STAGE CONSTRUCTION PLANS
STAGE 4

SHEET NO. 35
 OF 61 SHEETS
TH-04

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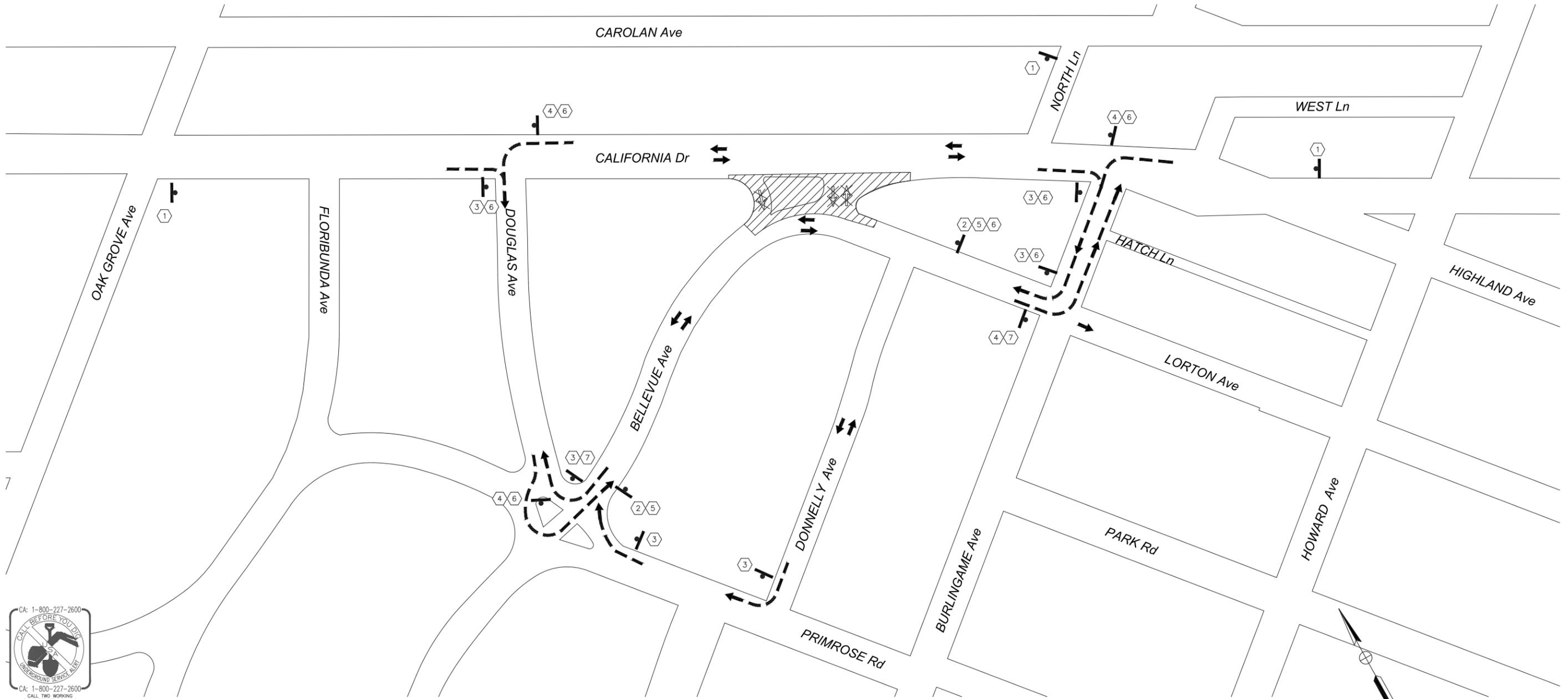
LEGEND:

-  ROAD CLOSED
-  DIRECTION OF DETOUR
-  TEMPORARY CONSTRUCTION AREA SIGN
-  TEMPORARY CONSTRUCTION AREA SIGN No.
-  CONSTRUCTION AREA

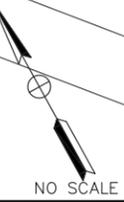
CONSTRUCTION NOTES (THIS SHEET ONLY):

1. SIGN LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS TO BE DETERMINED BY THE ENGINEER.
2. ALL DETOUR ROUTE SIGNING MUST BE IN PLACE PRIOR TO CLOSURE OF CALIFORNIA/BELLEVUE INTERSECTION.

| ADVANCED WARNING AND DETOUR SIGNS | | | |
|-----------------------------------|-----------|-------------------|--------------------|
| SIGN No. | SIGN CODE | SIGN MESSAGE | PANEL SIZE (L x D) |
| 1 | W20-1 | ROAD WORK AHEAD | 48"x48" |
| 2 | W20-3 | ROAD CLOSED AHEAD | 48"x48" |
| 3 | M4-10R | DETOUR (Rt ARROW) | 48"x18" |
| 4 | M4-10L | DETOUR (Lt ARROW) | 48"x18" |
| 5 | SC3(CA) | DETOUR (UP ARROW) | 48"x18" |
| 6 | CUSTOM | BELLEVUE AVENUE | 36"x18" |
| 7 | CUSTOM | CALIFORNIA AVENUE | 36"x18" |



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| KHA PROJECT | 097515003 |
| DATE | 12/27/2017 |
| SCALE | AS SHOWN |
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| DRAWN BY | DW |
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CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



DETOUR PLAN
STAGE 1 & 2

SHEET NO. 36
 OF 61 SHEETS

DE-01

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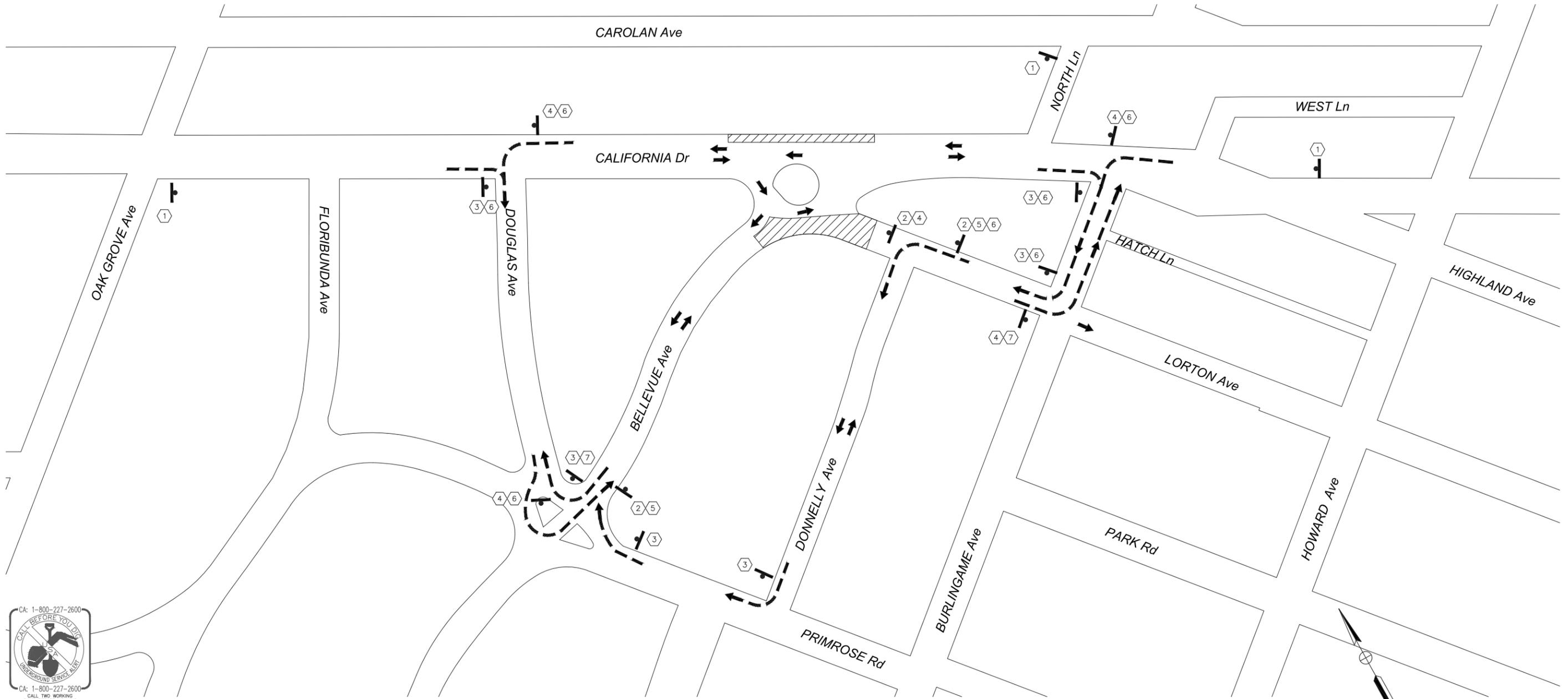
LEGEND:

-  ROAD CLOSED
-  DIRECTION OF DETOUR
-  TEMPORARY CONSTRUCTION AREA SIGN
-  TEMPORARY CONSTRUCTION AREA SIGN No.
-  CONSTRUCTION AREA

CONSTRUCTION NOTES (THIS SHEET ONLY):

1. SIGN LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS TO BE DETERMINED BY THE ENGINEER.
2. ALL DETOUR ROUTE SIGNING MUST BE IN PLACE PRIOR TO CLOSURE OF CALIFORNIA/BELLEVUE INTERSECTION.

| ADVANCED WARNING AND DETOUR SIGNS | | | |
|-----------------------------------|-----------|-------------------|--------------------|
| SIGN No. | SIGN CODE | SIGN MESSAGE | PANEL SIZE (L x D) |
| 1 | W20-1 | ROAD WORK AHEAD | 48"x48" |
| 2 | W20-3 | ROAD CLOSED AHEAD | 48"x48" |
| 3 | M4-10R | DETOUR (Rt ARROW) | 48"x18" |
| 4 | M4-10L | DETOUR (Lt ARROW) | 48"x18" |
| 5 | SC3(CA) | DETOUR (UP ARROW) | 48"x18" |
| 6 | CUSTOM | BELLEVUE AVENUE | 36"x18" |
| 7 | CUSTOM | CALIFORNIA AVENUE | 36"x18" |



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 DATE
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 SCALE AS SHOWN
 DESIGNED BY DW
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**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY
 CA



**DETOUR PLAN
 STAGE 3**

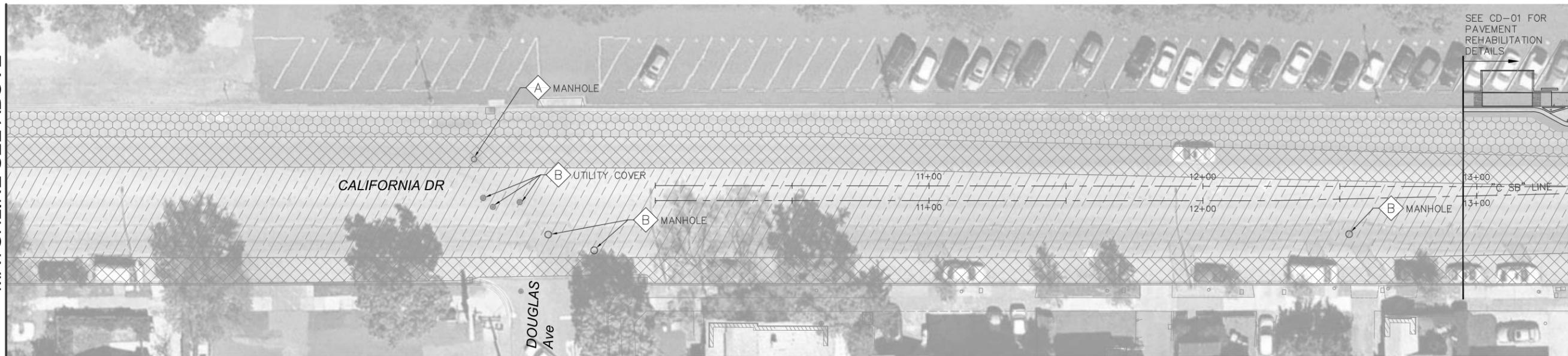
SHEET NO. 37
 OF 61 SHEETS

DE-02

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MATCHLINE SEE BELOW



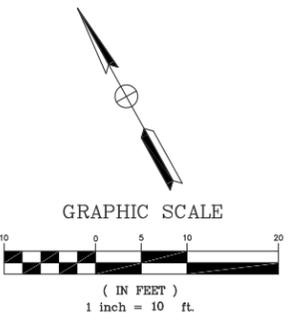
MATCHLINE SEE ABOVE

LEGEND:

-  1 HMA PAVEMENT
(SEE TX-02 FOR SECTION DETAILS)
-  4 COLD PLANE & HMA (TYPE A) OVERLAY
DEPTH VARIES
(SEE TX-02 FOR DETAILS)
-  5 0.15' COLD PLANE
0.15' HMA (TYPE A) OVERLAY
(SEE TX-02 FOR DETAILS)
-  WEDGE COLD PLANE (0.15' Max)
0.15' HMA (TYPE A) OVERLAY
(SEE TX-03 FOR DETAILS)
-  0.15' HMA (TYPE A) OVERLAY
-  A LOWER AND RAISE MANHOLE OR UTILITY COVER
-  B ADJUST TO GRADE

NOTES:

1. THE CONTRACTOR SHALL CALL USA AT LEAST 48 HOURS BEFORE STARTING CONSTRUCTION FOR LOCATING UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS. VERIFY UTILITY LOCATIONS PRIOR TO PERFORMING WORK. THE CONTRACTOR SHALL TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITIES WITH AND ADJACENT TO THE PROJECT AREA, INCLUDING BOTH THOSE SHOWN AND NOT SHOWN IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES.
2. TIE OUT ALL MANHOLES, WATER VALVE COVERS, CLEAN OUTS, PULL BOXES, 5G BOXES, AND MONUMENTS, THEN PROVIDE DATA TO THE CITY REPRESENTATIVE 14 DAYS PRIOR TO ANY SURFACE REHABILITATION.
3. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN A MINIMUM OF 10 WORKING DAYS PRIOR TO BEGINNING COLD PLANE CONSTRUCTION. DO NOT START WORK WITHOUT TRAFFIC CONTROL PLAN APPROVED BY THE CITY.
4. CONTRACTOR SHALL PROTECT MONUMENTS IN PLACE AND SHALL NOTIFY THE CITY INSPECTOR IF ANY ARE IDENTIFIED WITHIN THE LIMITS OF THE WORK.
5. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING PAINT OR THERMOPLASTIC OUTSIDE OF PAVEMENT REHABILITATION LIMITS, OR LIMITS OF PROPOSED STRIPING AS SHOWN ON SS-SHEETS.
6. COLD PLANE AND EXACT DIGOUT LIMITS SHALL BE MARKED AND CONFIRMED, IN THE FIELD BY THE CITY INSPECTOR PRIOR TO CONSTRUCTION. THE MINIMUM WIDTH OF EXISTING PAVEMENT BETWEEN GUTTER AND PROPOSED DIGOUT LIMITS SHALL NOT BE LESS THAN 1'. IF LESS THAN 1' OF EXISTING PAVEMENT WILL REMAIN BETWEEN DIGOUT AREA AND GUTTER LIP, DIGOUT LIMITS SHALL EXTEND TO THE LIP OF GUTTER.
7. UNLESS OTHERWISE NOTED, ALL UTILITIES ARE TO REMAIN.
8. SEE SS-SHEETS FOR SIGNING AND STRIPING PLANS.
9. INSTALL DETECTOR LOOPS PER CALTRANS RSP ES-5A AND ES-5B. SPlice NEW LOOPS WITH EXISTING DETECTOR LEAD IN CABLES IN EXISTING PULL BOXES OR DETECTOR HANDHOLES. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER THE LOCATION AND TYPE OF PROPOSED LOOPS PRIOR TO INSTALLATION.
10. CONTRACTOR TO ADJUST UTILITY LIDS/MANHOLES TO GRADE OF NEW FINISH GRADE OF HMA OVERLAY.
11. COLD PLANE TO INCLUDE EXISTING AC WITHIN EXISTING CONCRETE GUTTER (WHERE PRESENT). HMA OVERLAY TO INCLUDE FILLING EXISTING CONCRETE GUTTER TO THE FACE OF EXISTING CURB WHEN EXISTING LIP OF GUTTER IS NOT PRESENT.

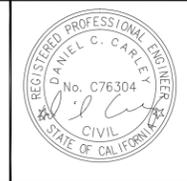


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KHA PROJECT
097515003
DATE
12/27/2017
SCALE AS SHOWN
DESIGNED BY DW
DRAWN BY DW
CHECKED BY DC

**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA

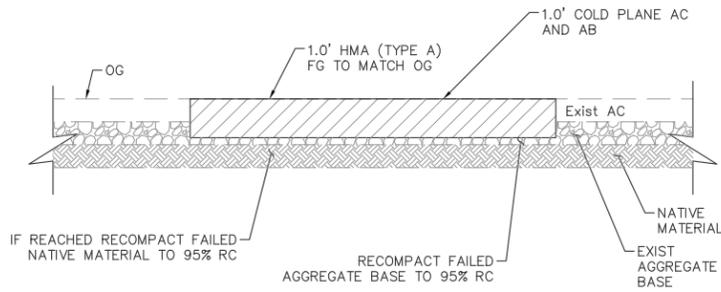


**PAVEMENT
 REHABILITATION PLANS**

SHEET NO. 38
 OF 61 SHEETS

PV-01

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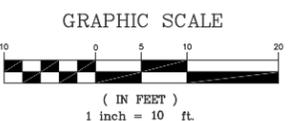
BASE FAILURE REPAIR (DIGOUT) DETAIL

LEGEND:

- 1 HMA PAVEMENT (SEE TX-02 FOR SECTION DETAILS)
- 4 COLD PLANE & HMA (TYPE A) OVERLAY DEPTH VARIES (SEE TX-02 FOR DETAILS)
- 5 0.15' COLD PLANE
- 0.15' HMA (TYPE A) OVERLAY (SEE TX-02 FOR DETAILS)
- WEDGE COLD PLANE (0.15' Max)
- 0.15' HMA (TYPE A) OVERLAY (SEE TX-03 FOR DETAILS)
- 0.15' HMA (TYPE A) OVERLAY
- A LOWER AND RAISE MANHOLE OR UTILITY COVER
- B ADJUST TO GRADE

NOTES:

1. THE CONTRACTOR SHALL CALL USA AT LEAST 48 HOURS BEFORE STARTING CONSTRUCTION FOR LOCATING UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS. VERIFY UTILITY LOCATIONS PRIOR TO PERFORMING WORK. THE CONTRACTOR SHALL TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITIES WITH AND ADJACENT TO THE PROJECT AREA, INCLUDING BOTH THOSE SHOWN AND NOT SHOWN IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES.
2. TIE OUT ALL MANHOLES, WATER VALVE COVERS, CLEAN OUTS, PULL BOXES, 5G BOXES, AND MONUMENTS, THEN PROVIDE DATA TO THE CITY REPRESENTATIVE 14 DAYS PRIOR TO ANY SURFACE REHABILITATION.
3. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN A MINIMUM OF 10 WORKING DAYS PRIOR TO BEGINNING COLD PLANE CONSTRUCTION. DO NOT START WORK WITHOUT TRAFFIC CONTROL PLAN APPROVED BY THE CITY.
4. CONTRACTOR SHALL PROTECT MONUMENTS IN PLACE AND SHALL NOTIFY THE CITY INSPECTOR IF ANY ARE IDENTIFIED WITHIN THE LIMITS OF THE WORK.
5. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING PAINT OR THERMOPLASTIC OUTSIDE OF PAVEMENT REHABILITATION LIMITS, OR LIMITS OF PROPOSED STRIPING AS SHOWN ON SS-SHEETS.
6. COLD PLANE AND EXACT DIGOUT LIMITS SHALL BE MARKED AND CONFIRMED, IN THE FIELD BY THE CITY INSPECTOR PRIOR TO CONSTRUCTION. THE MINIMUM WIDTH OF EXISTING PAVEMENT BETWEEN GUTTER AND PROPOSED DIGOUT LIMITS SHALL NOT BE LESS THAN 1'. IF LESS THAN 1' OF EXISTING PAVEMENT WILL REMAIN BETWEEN DIGOUT AREA AND GUTTER LIP, DIGOUT LIMITS SHALL EXTEND TO THE LIP OF GUTTER.
7. UNLESS OTHERWISE NOTED, ALL UTILITIES ARE TO REMAIN.
8. SEE SS-SHEETS FOR SIGNING AND STRIPING PLANS.
9. INSTALL DETECTOR LOOPS PER CALTRANS RSP ES-5A AND ES-5B. SPlice NEW LOOPS WITH EXISTING DETECTOR LEAD IN CABLES IN EXISTING PULL BOXES OR DETECTOR HANDHOLES. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER THE LOCATION AND TYPE OF PROPOSED LOOPS PRIOR TO INSTALLATION.
10. CONTRACTOR TO ADJUST UTILITY LIDS/MANHOLES TO GRADE OF NEW FINISH GRADE OF HMA OVERLAY.
11. COLD PLANE TO INCLUDE EXISTING AC WITHIN EXISTING CONCRETE GUTTER (WHERE PRESENT). HMA OVERLAY TO INCLUDE FILLING EXISTING CONCRETE GUTTER TO THE FACE OF EXISTING CURB WHEN EXISTING LIP OF GUTTER IS NOT PRESENT.



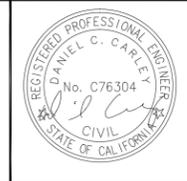
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**CALIFORNIA DRIVE
ROUNDBOUT**

PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY CA

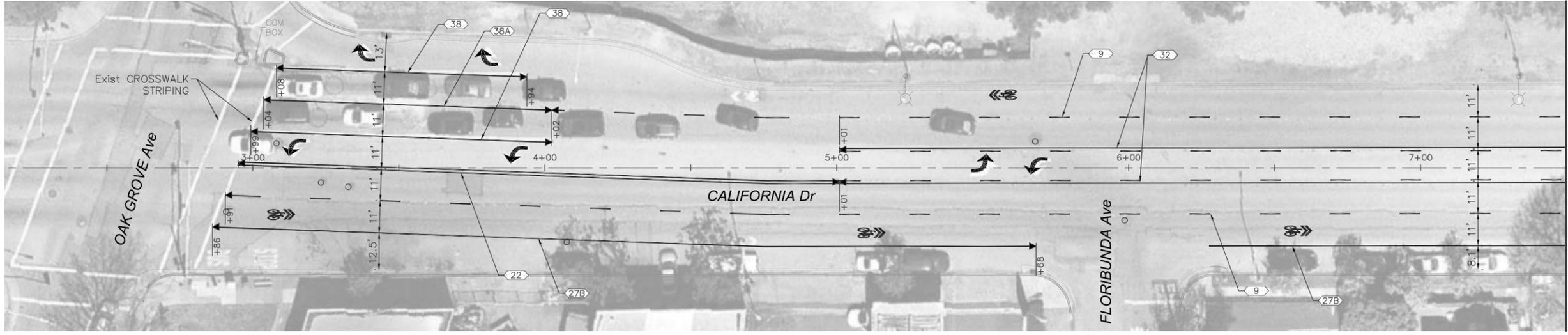


**PAVEMENT
REHABILITATION PLANS**

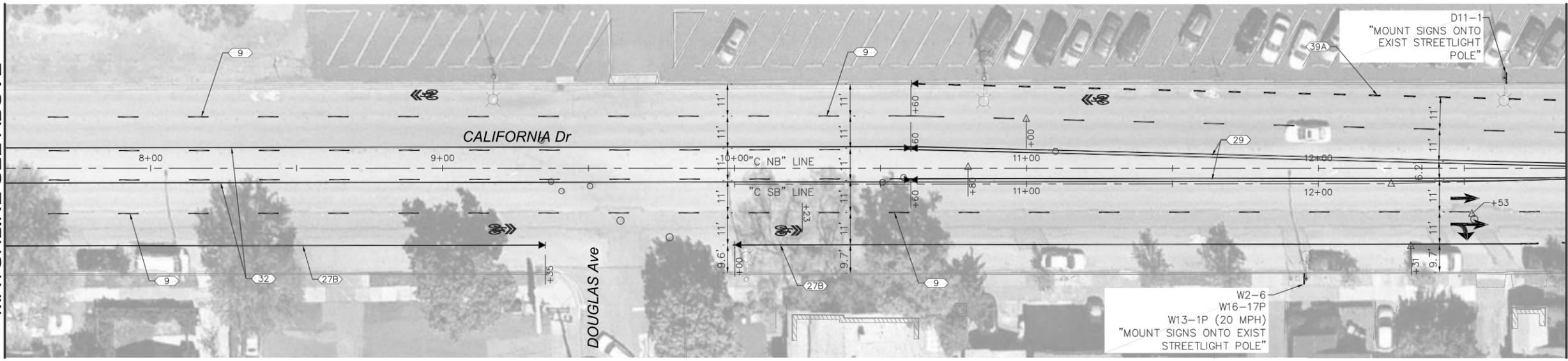
SHEET NO. 39
OF 61 SHEETS

PV-02

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MATCHLINE SEE BELOW



MATCHLINE SEE ABOVE

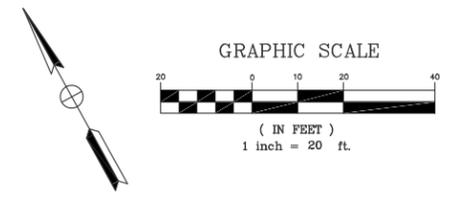
MATCHLINE
12+85 "C NB" LINE
SEE SS-02

LEGEND:

- PROPOSED STRIPING DETAIL (SEE CALTRANS REVISED STANDARD PLANS)
- EXISTING STRIPING DETAIL (SEE CALTRANS REVISED STANDARD PLANS)
- STRIPING DETAIL CHANGE
- STRIPING DETAIL LIMIT
- STRIPING ANGLE POINT
- PROPOSED SHARROW MARKING
- PROPOSED TYPE I 10' ARROW
- PROPOSED TYPE IV (L) ARROW
- PROPOSED TYPE VII (L) ARROW
- PROPOSED TYPE VII (R) ARROW

GENERAL NOTES:

1. ALL EXISTING SIGNS SHALL BE PROTECTED IN PLACE UNLESS SPECIFIED FOR REMOVAL OR RELOCATION.
2. ALL SIGN LOCATIONS ARE APPROXIMATE. FINAL SIGN LOCATIONS SHALL BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
3. ALL EXISTING STRIPING CONFLICTING WITH PROPOSED STRIPING SHALL BE REMOVED BY GRINDING PRIOR TO NEW STRIPING INSTALLATION.



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**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



SIGNING & STRIPING PLANS

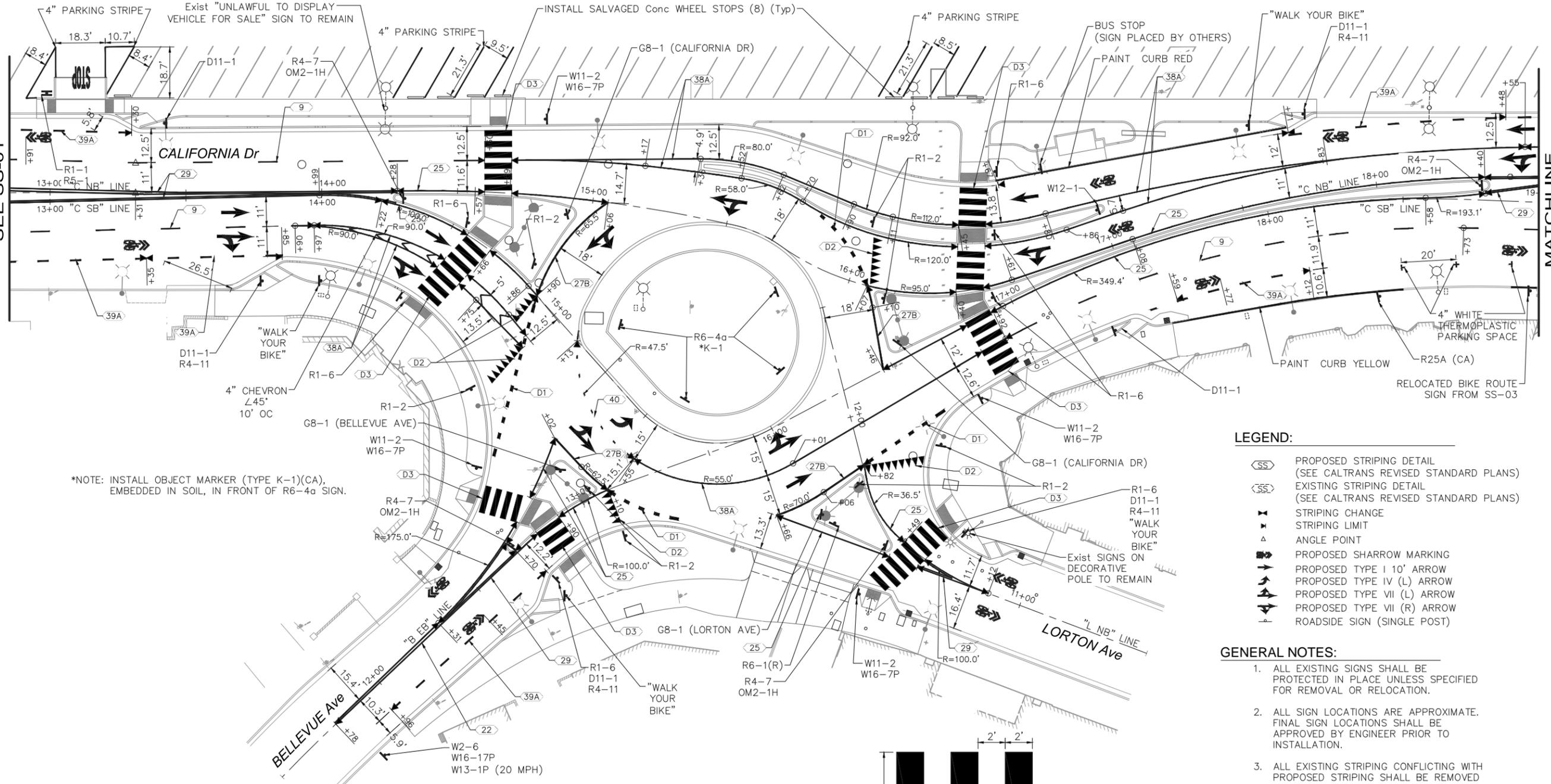
SHEET NO. 40
OF 61 SHEETS

SS-01

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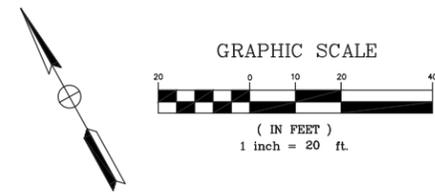
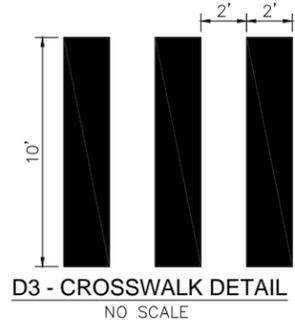
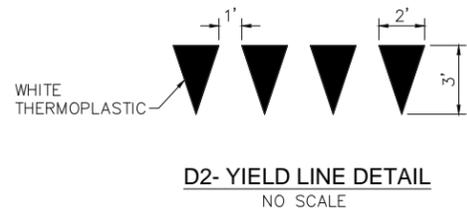
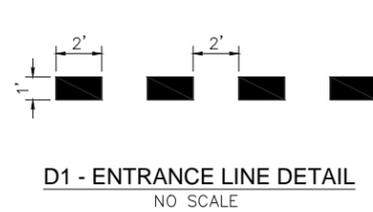
MATCHLINE
12+85 "C NB" LINE
SEE SS-01

MATCHLINE
19+00 "C SB" LINE
SEE SS-01



*NOTE: INSTALL OBJECT MARKER (TYPE K-1)(CA), EMBEDDED IN SOIL, IN FRONT OF R6-4a SIGN.

- LEGEND:**
- PROPOSED STRIPING DETAIL (SEE CALTRANS REVISED STANDARD PLANS)
 - EXISTING STRIPING DETAIL (SEE CALTRANS REVISED STANDARD PLANS)
 - STRIPING CHANGE
 - STRIPING LIMIT
 - ANGLE POINT
 - PROPOSED SHARROW MARKING
 - PROPOSED TYPE I 10' ARROW
 - PROPOSED TYPE IV (L) ARROW
 - PROPOSED TYPE VII (L) ARROW
 - PROPOSED TYPE VII (R) ARROW
 - ROADSIDE SIGN (SINGLE POST)
- GENERAL NOTES:**
- ALL EXISTING SIGNS SHALL BE PROTECTED IN PLACE UNLESS SPECIFIED FOR REMOVAL OR RELOCATION.
 - ALL SIGN LOCATIONS ARE APPROXIMATE. FINAL SIGN LOCATIONS SHALL BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
 - ALL EXISTING STRIPING CONFLICTING WITH PROPOSED STRIPING SHALL BE REMOVED BY GRINDING PRIOR TO NEW STRIPING INSTALLATION.
 - ALL PROPOSED STRIPING SHALL BE THERMOPLASTIC.



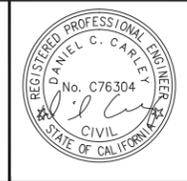
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| DESIGNED BY DW |
| DRAWN BY DW |
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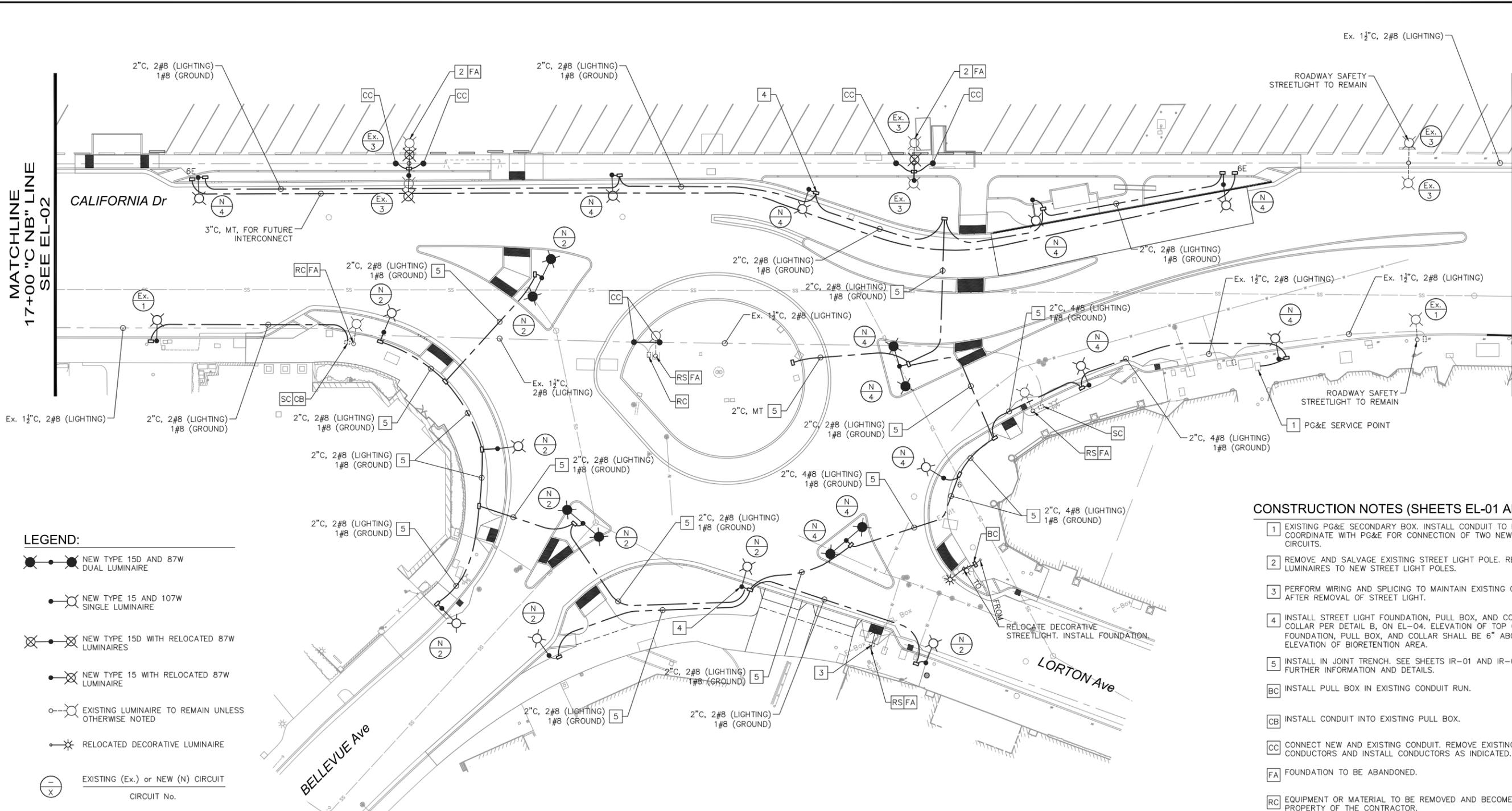
**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY
CA



SIGNING & STRIPING PLANS

SHEET NO. 41
OF 61 SHEETS
SS-02

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MATCHLINE
17+00 "C NB" LINE
SEE EL-02

MATCHLINE
19+00 "C SB" LINE
SEE EL-02

LEGEND:

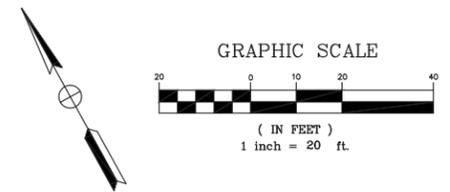
-  NEW TYPE 15D AND 87W DUAL LUMINAIRE
-  NEW TYPE 15 AND 107W SINGLE LUMINAIRE
-  NEW TYPE 15D WITH RELOCATED 87W LUMINAIRES
-  NEW TYPE 15 WITH RELOCATED 87W LUMINAIRE
-  EXISTING LUMINAIRE TO REMAIN UNLESS OTHERWISE NOTED
-  RELOCATED DECORATIVE LUMINAIRE
-  EXISTING (Ex.) or NEW (N) CIRCUIT
- CIRCUIT No.

CONSTRUCTION NOTES (SHEETS EL-01 AND EL-02)

- 1 EXISTING PG&E SECONDARY BOX. INSTALL CONDUIT TO BOX AND COORDINATE WITH PG&E FOR CONNECTION OF TWO NEW LIGHTING CIRCUITS.
- 2 REMOVE AND SALVAGE EXISTING STREET LIGHT POLE. RELOCATE LUMINAIRES TO NEW STREET LIGHT POLES.
- 3 PERFORM WIRING AND SPlicing TO MAINTAIN EXISTING CIRCUIT AFTER REMOVAL OF STREET LIGHT.
- 4 INSTALL STREET LIGHT FOUNDATION, PULL BOX, AND CONCRETE COLLAR PER DETAIL B, ON EL-04. ELEVATION OF TOP OF FOUNDATION, PULL BOX, AND COLLAR SHALL BE 6" ABOVE ELEVATION OF BIOTENTATION AREA.
- 5 INSTALL IN JOINT TRENCH. SEE SHEETS IR-01 AND IR-02 FOR FURTHER INFORMATION AND DETAILS.
- BC INSTALL PULL BOX IN EXISTING CONDUIT RUN.
- CB INSTALL CONDUIT INTO EXISTING PULL BOX.
- CC CONNECT NEW AND EXISTING CONDUIT. REMOVE EXISTING CONDUCTORS AND INSTALL CONDUCTORS AS INDICATED.
- FA FOUNDATION TO BE ABANDONED.
- RC EQUIPMENT OR MATERIAL TO BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR.
- RS REMOVE AND SALVAGE EQUIPMENT.

GENERAL NOTES

1. ALL NEW PULL BOXES SHALL BE NO. 5 UNLESS OTHERWISE NOTED ON PLAN.
2. EXISTING CONDUIT LIGHTING SHALL BE MAINTAINED UNTIL NEW STREET LIGHTING IS INSTALLED AND ENERGIZED.
3. SEE SHEET DD-02 FOR STANDARD TRENCH DETAIL.



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097515003
DATE
12/27/2017
SCALE AS SHOWN
DESIGNED BY RJD
DRAWN BY BDP
CHECKED BY KGA

**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME

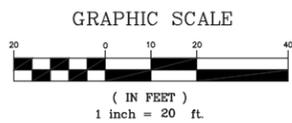
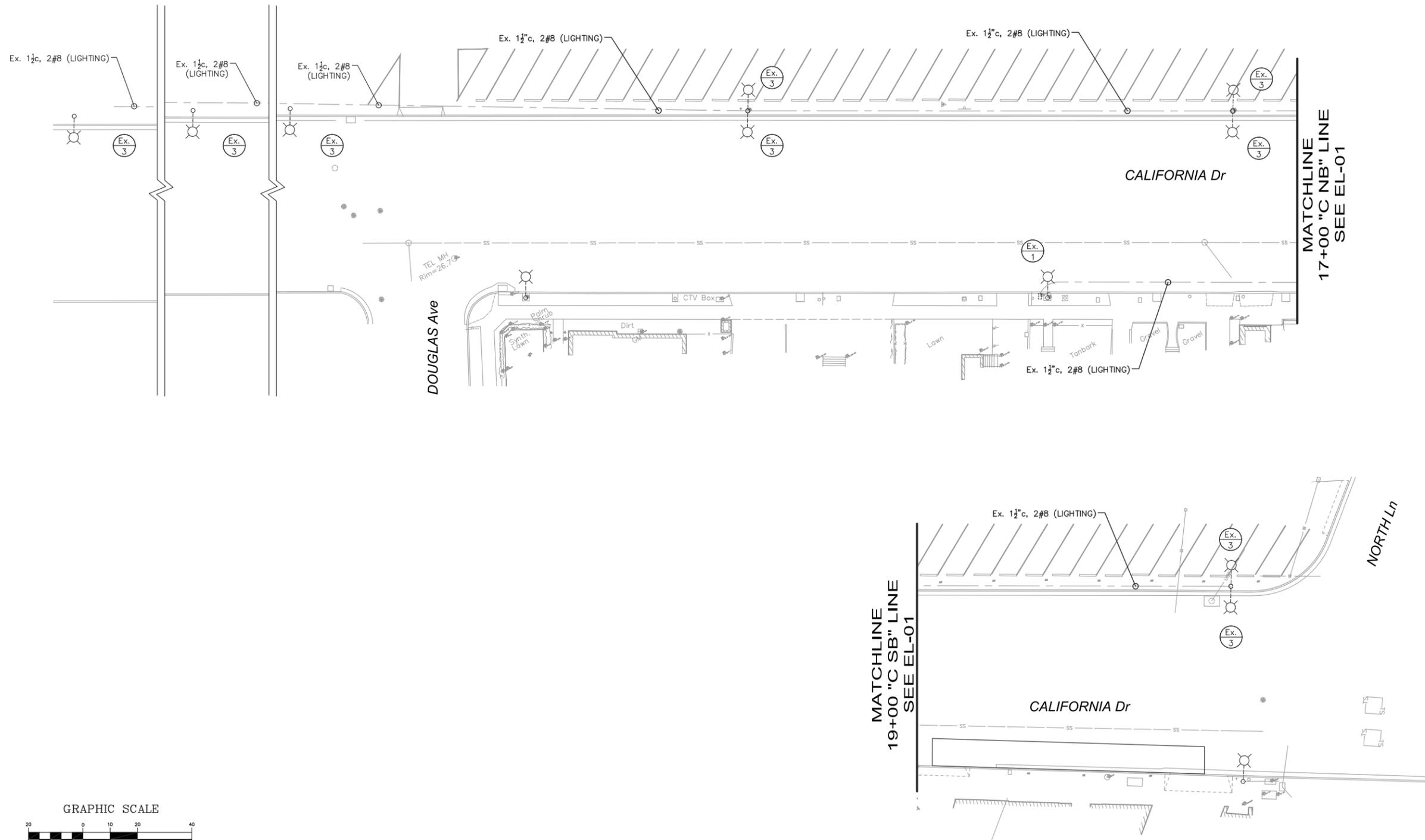


LIGHTING PLAN

SHEET NO. 43
OF 61 SHEETS

EL-01

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**CALIFORNIA DRIVE
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CITY OF BURLINGAME

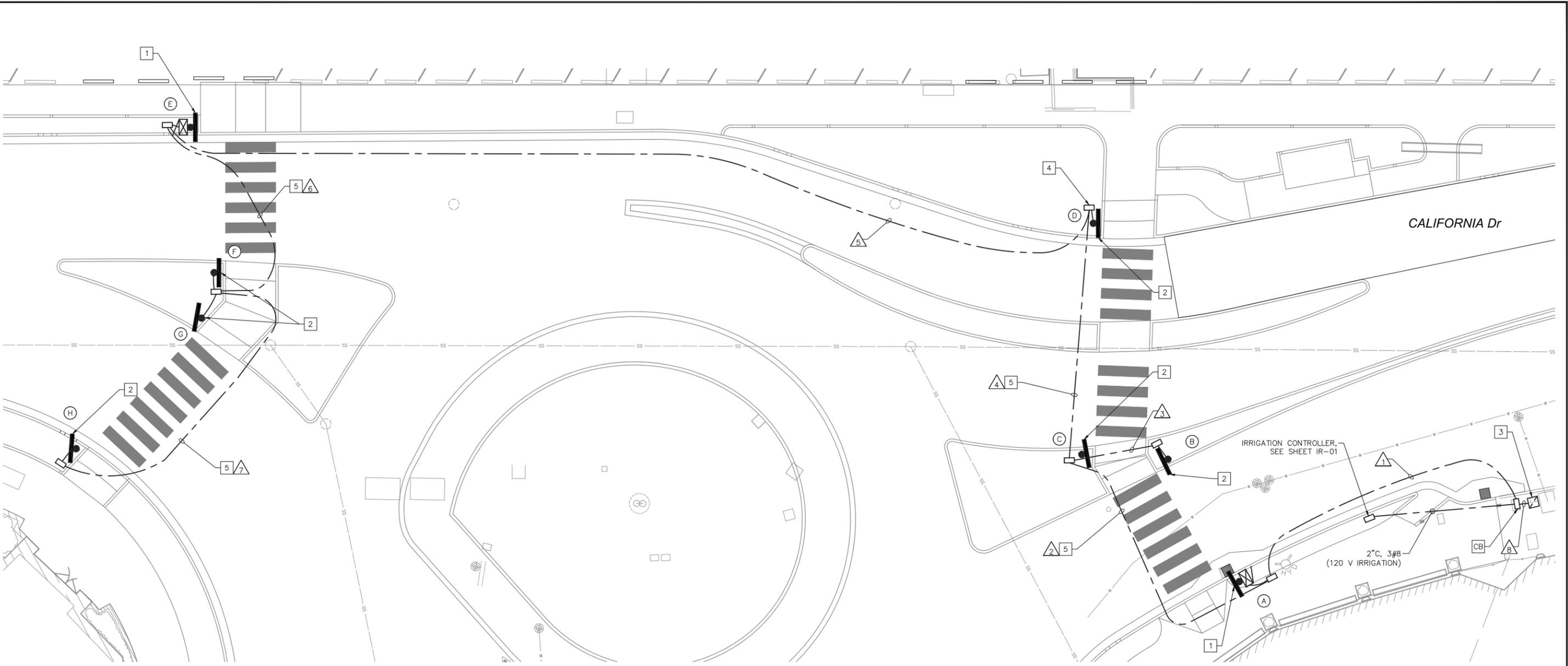
SAN MATEO COUNTY



**CALIFORNIA DRIVE APPROACH
 SAFETY LIGHTING**

SHEET NO. 44
 OF 61 SHEETS
EL-02

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CONSTRUCTION NOTES

- 1 FURNISH AND INSTALL RRFB ASSEMBLY ON 1-B POLE PER DETAIL A, SHEET EL-04. FURNISH AND INSTALL POLE MOUNTED RRFB CONTROL ENCLOSURE PER RRFB MANUFACTURER RECOMMENDATION.
- 2 FURNISH AND INSTALL RRFB ASSEMBLY ON 1B POLE PER DETAIL A, SHEET EL-04.
- 3 FURNISH AND INSTALL TWO CIRCUIT BREAKERS (15A,120V,1P) FOR RRFB, AND ONE CIRCUIT BREAKER (20A,120V,1P) FOR IRRIGATION IN EXISTING SERVICE ENCLOSURE.
- 4 INSTALL 1-B FOUNDATION, PULL BOX, AND CONCRETE COLLAR PER DETAIL C, ON EL-04. ELEVATION OF TOP OF FOUNDATION, PULL BOX, AND COLLAR SHALL BE 6" ABOVE ELEVATION OF BIOTENTION AREA.
- 5 INSTALL IN JOINT TRENCH. SEE SHEETS IR-01 AND IR-02 FOR FURTHER INFORMATION AND DETAILS.

LEGEND

- EXISTING SERVICE ENCLOSURE
- RRFB CONTROL ENCLOSURE
- RRFB ASSEMBLY

CONDUCTOR SCHEDULE

| AWG OR CABLE | CIRCUIT | CONDUIT RUNS | | | | | | | |
|--------------|------------------------------|--------------|-----|-----|-----|----|-----|----|-----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 4C#18 | RRFB LIGHT BAR | | 2 | 1 | 1 | | 2 | 1 | |
| #14 | PPB | | 4 | 2 | 2 | | 4 | 2 | |
| #8 | RRFB CONTROL ENCLOSURE POWER | 4 | 2 | 2 | 2 | 2 | | | 4 |
| #8 | IRRIGATION CONTROL POWER | | | | | | | | 2 |
| #8 | GROUND | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | CONDUIT SIZE (IN) | 2" | 2" | 2" | 2" | 2" | 2" | 2" | 2"E |
| | CONDUIT FILL % | 9% | 17% | 11% | 11% | 5% | 13% | 8% | 13% |

ALL CONDUIT AND CONDUCTORS ARE NEW UNLESS NOTED OTHERWISE
E - EXISTING

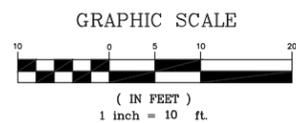
POLE AND EQUIPMENT SCHEDULE

| INSTALLATION NUMBER | STANDARD | | PPB | FRONT SIDE SIGNS | RRFB | ADDITIONAL EQUIPMENT |
|---------------------|----------|--------|-----|------------------------|------|---------------------------------------|
| | TYPE | HEIGHT | | | | |
| A | 1-B | 10' | | W11-2 W16-7P(LEFT) | 1 | RRFB CONTROLLER AND CABINET ENCLOSURE |
| B | 1-B | 10' | | W11-2 W16-7P(RIGHT) | 1 | |
| C | 1-B | 10' | | W11-2 W16-7P(RIGHT) | 1 | |
| D | 1-B | 10' | | W11-2 W16-7P(LEFT) | 1 | |
| E | 1-B | 10' | | W11-2 W16-7P(LEFT) | 1 | RRFB CONTROLLER AND CABINET ENCLOSURE |
| F | 1-B | 10' | | W11-2 W16-7P(RIGHT) | 1 | |
| G | 1-B | 10' | | W11-2 W16-7P(RIGHT) | 1 | |
| H | 1-B | 10' | | W11-2 W16-7P(LEFT) | 1 | |

* ALL EQUIPMENT IS NEW UNLESS NOTED OTHERWISE

GENERAL NOTES

- 1. ALL NEW PULL BOXES SHALL BE NO. 5 UNLESS OTHERWISE NOTED ON PLAN.



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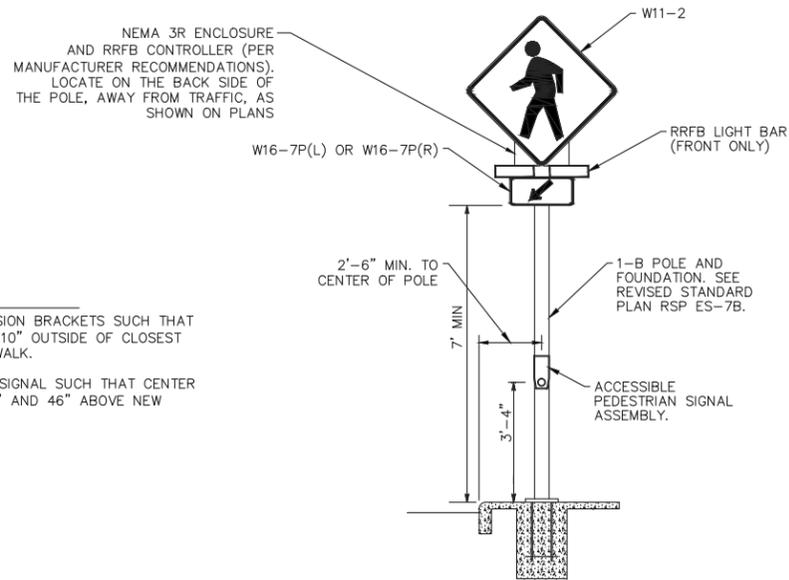
SAN MATEO COUNTY



**RECTANGULAR RAPID
FLASHING BEACON PLAN**

SHEET NO. 45
OF 61 SHEETS
EL-03

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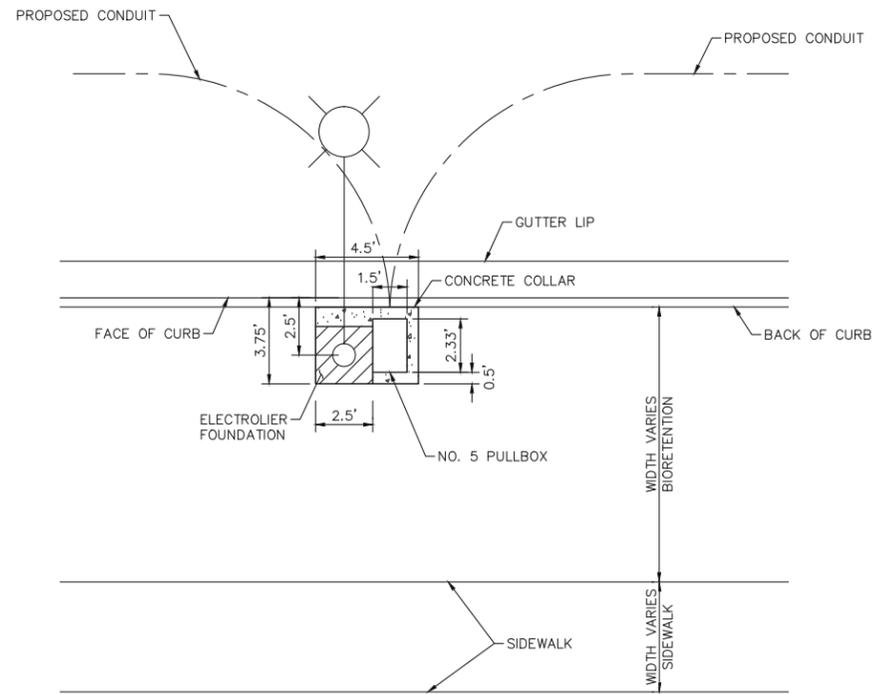


NOTES (DETAIL A ONLY)

1. INSTALL PUSH BUTTON ON EXTENSION BRACKETS SUCH THAT PUSH BUTTON IS NO MORE THAN 10" OUTSIDE OF CLOSEST EDGE OF THE BACK OF THE SIDEWALK.
2. INSTALL ACCESSIBLE PEDESTRIAN SIGNAL SUCH THAT CENTER OF PUSH BUTTON IS BETWEEN 40" AND 46" ABOVE NEW SIDEWALK SURFACE.

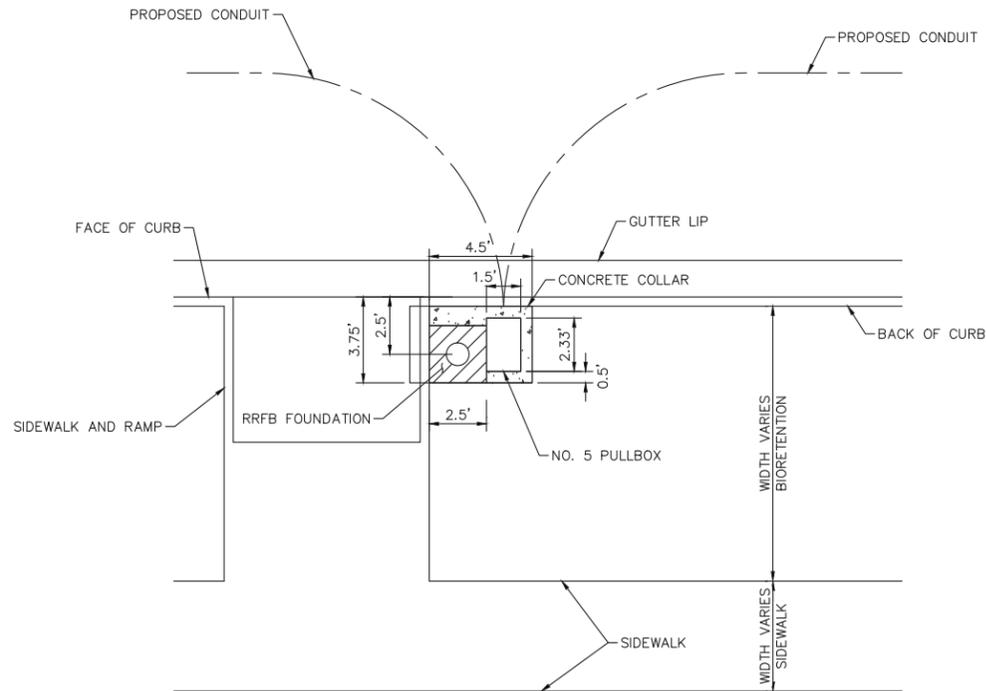
**DETAIL A
RRFB ASSEMBLY ON 1-B POLE**

N.T.S.



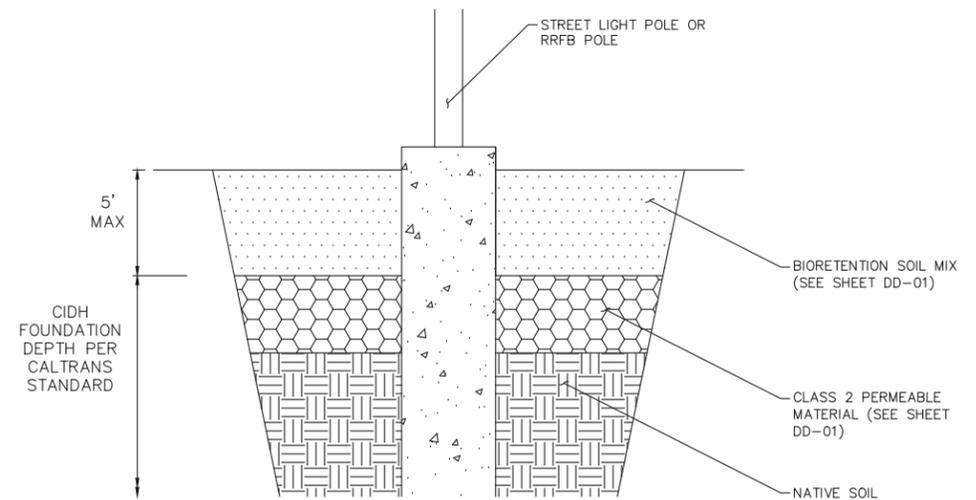
**DETAIL B
LED STREET LIGHT AND PULL BOX
IN BIORETENTION AREA INSTALLATION DETAIL**

N.T.S.



**DETAIL C
1-B POLE AND PULL BOX
IN BIORETENTION AREA INSTALLATION DETAIL**

N.T.S.



**DETAIL D
POLE FOUNDATION IN BIORETENTION AREA**

N.T.S.



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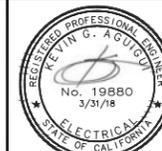
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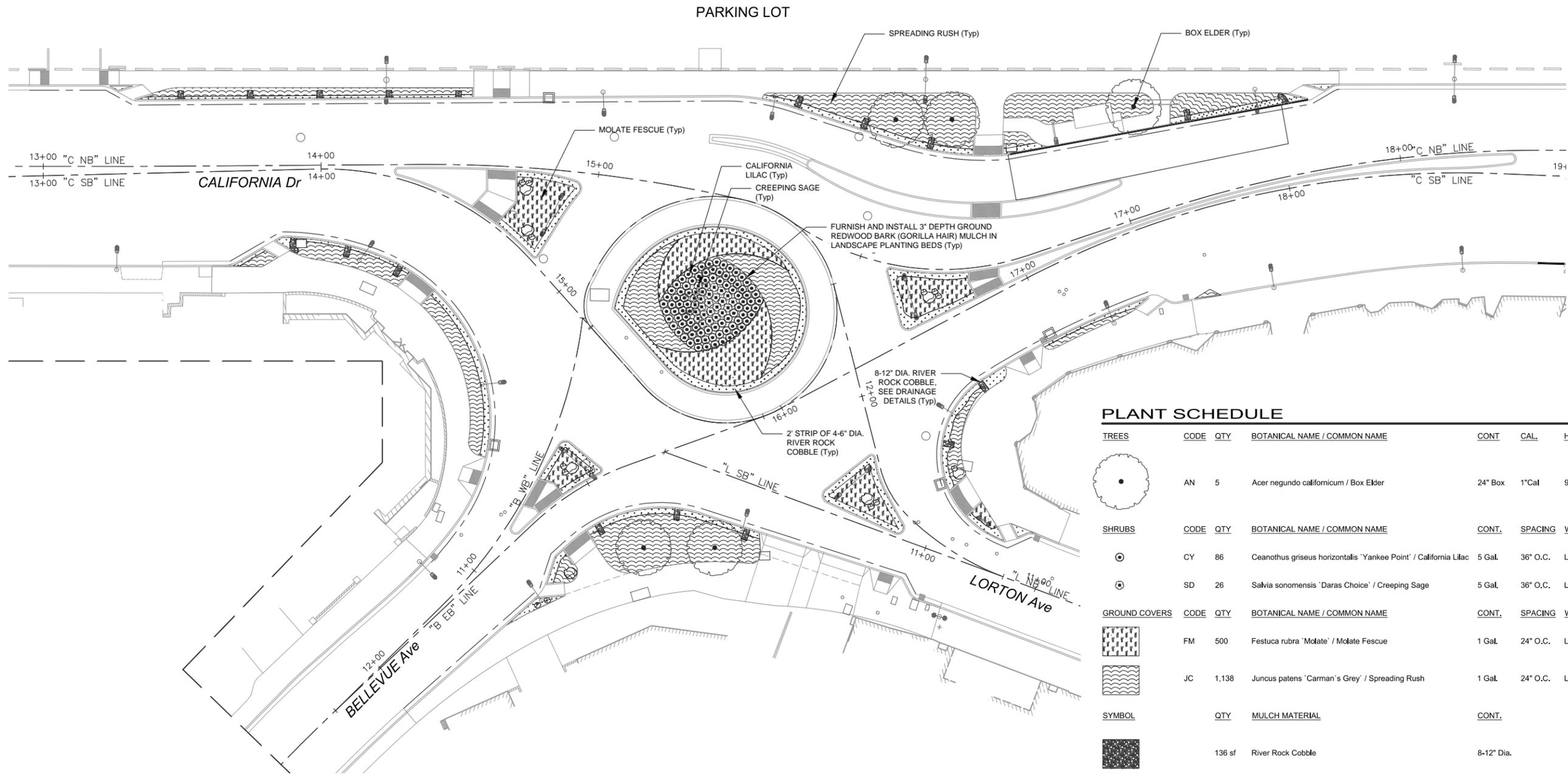


ELECTRICAL DETAILS

SHEET NO. 46
OF 61 SHEETS

EL-04

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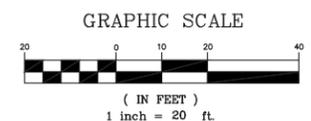


PLANT SCHEDULE

| TREES | CODE | QTY | BOTANICAL NAME / COMMON NAME | CONT. | CAL. | HEIGHT/SPREAD | WUCOLS |
|---------------|----------|-----------------------------|--|---------|----------|--------------------|--------|
| | AN | 5 | Acer negundo californicum / Box Elder | 24" Box | 1" Cal | 9'-10" H x 3'-4" W | M |
| SHRUBS | CODE | QTY | BOTANICAL NAME / COMMON NAME | CONT. | SPACING | WUCOLS | |
| | CY | 86 | Ceanothus griseus horizontalis 'Yankee Point' / California Lilac | 5 Gal. | 36" O.C. | L | |
| | SD | 26 | Salvia sonomensis 'Daras Choice' / Creeping Sage | 5 Gal. | 36" O.C. | L | |
| GROUND COVERS | CODE | QTY | BOTANICAL NAME / COMMON NAME | CONT. | SPACING | WUCOLS | |
| | FM | 500 | Festuca rubra 'Molate' / Molate Fescue | 1 Gal. | 24" O.C. | L | |
| | JC | 1,138 | Juncus patens 'Carman's Grey' / Spreading Rush | 1 Gal. | 24" O.C. | L | |
| SYMBOL | QTY | MULCH MATERIAL | CONT. | | | | |
| | 136 sf | River Rock Cobble | 8-12" Dia. | | | | |
| | 2,027 sf | River Rock Cobble | 4-6" Dia. | | | | |
| | 20 | Fieldstone Boulders - Brown | 4-2" Dia. | | | | |

GENERAL NOTES:

- SEE DRAINAGE PLANS FOR BIORETENTION AREA LOCATIONS AND DETAILS.
- ALL LANDSCAPE PLANTING BEDS ARE TO RECEIVE A MIN. DEPTH OF 3" GROUND REDWOOD BARK (GORILLA HAIR) MULCH.



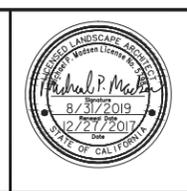
I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLAN *Michael P. Madsen*
MICHAEL P. MADSEN, LLA 5798

| No. | REVISIONS | DATE | BY |
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Kimley»Horn
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KHA PROJECT
097515003
DATE
12/27/2017
SCALE AS SHOWN
DESIGNED BY DW
DRAWN BY DW
CHECKED BY DC

**CALIFORNIA DRIVE
ROUNDBOUT**
PREPARED FOR
CITY OF BURLINGAME
SAN MATEO COUNTY CA

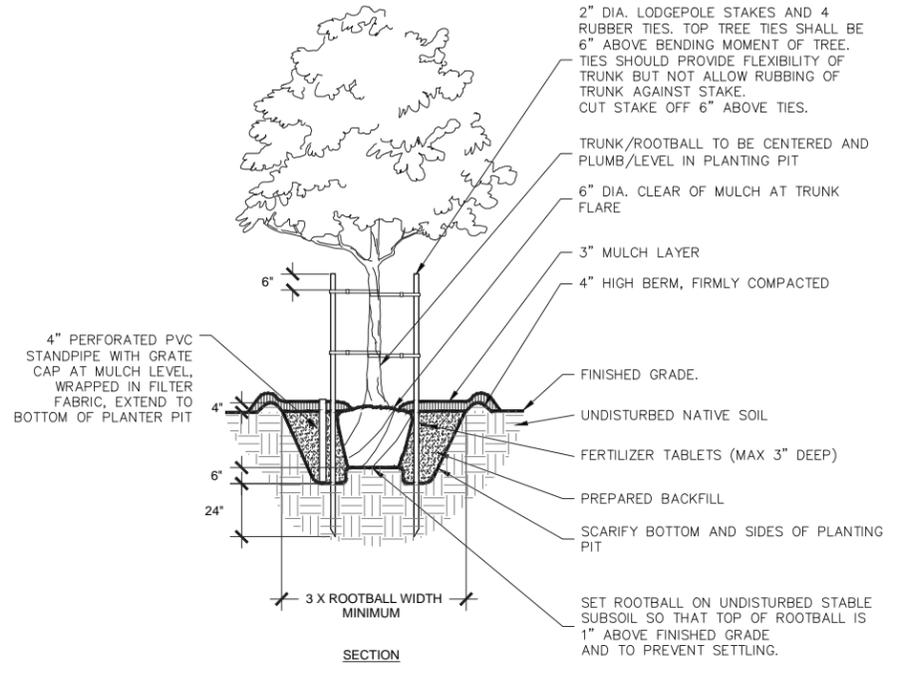
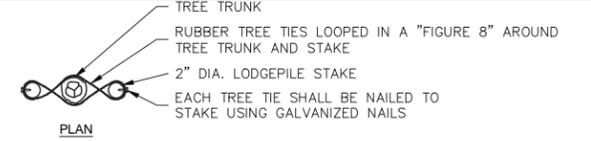


LANDSCAPE PLAN

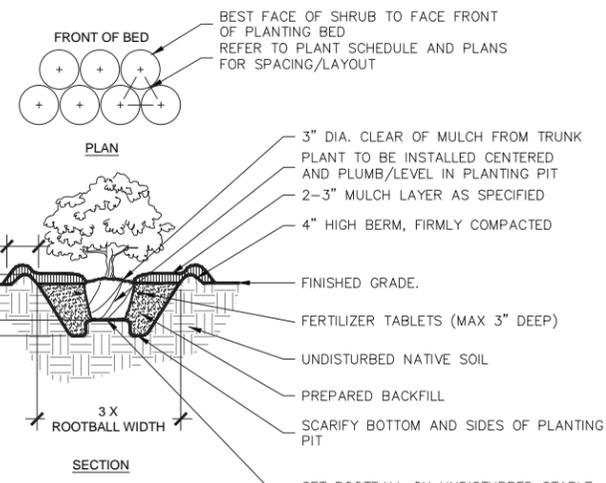
SHEET NO. 47
OF 61 SHEETS
LS-01

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- NOTES:**
1. REFERENCE PLANTING SPECIFICATIONS/ SPECIAL PROVISIONS 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.

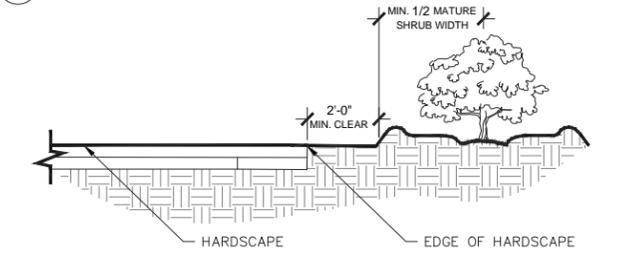


A TYPICAL TREE PLANTING

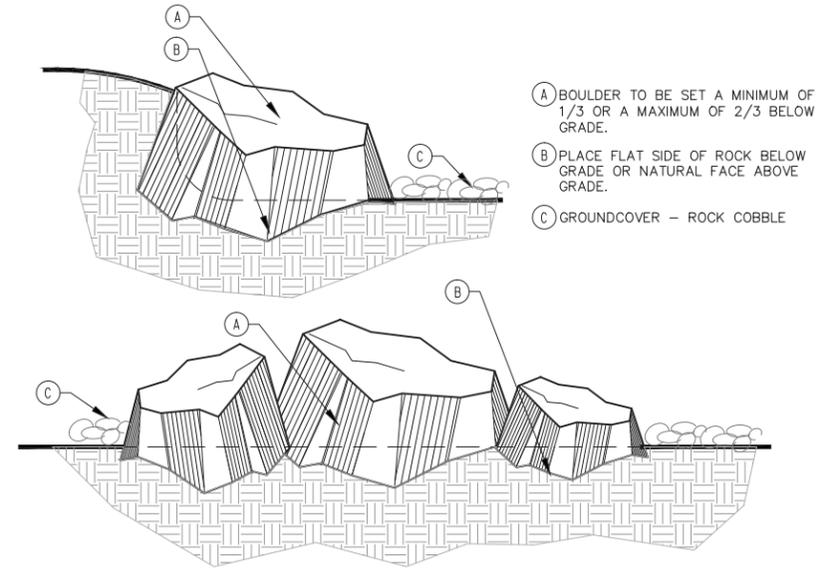


- NOTES:**
1. WHEN SHRUBS MASSED WITH GROUNDCOVER BEDS, ENTIRE BED TO BE AMENDED.
 2. WHEN SHRUBS ARE USED IN MASSES, PRUNE ALL SHRUBS TO ACHIEVE UNIFORM MASS/HEIGHT

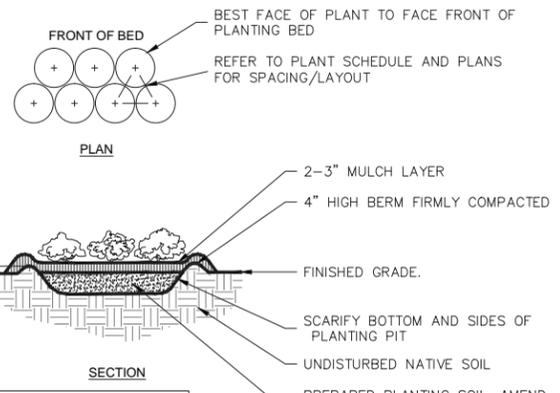
B TYPICAL SHRUB PLANTING



C SHRUB PLANTING AT HARDSCAPE



E DECORATIVE LANDSCAPE ROCK



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

D TYPICAL GROUNDCOVER PLANTING



| No. | REVISIONS | DATE | BY |
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**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY
 CA



LANDSCAPE DETAILS

SHEET NO. 48
 OF 61 SHEETS

LS-02

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SECTION: PLANTING

PART 1 GENERAL

1.1 SUMMARY

- A. THE SCOPE OF WORK INCLUDES ALL LABOR, MATERIALS, APPLIANCES, TOOLS, EQUIPMENT, FACILITIES, TRANSPORTATION AND SERVICES NECESSARY FOR, AND INCIDENTAL TO PERFORMING ALL OPERATIONS IN CONNECTION WITH FURNISHING, DELIVERY, AND INSTALLATION OF PLANT (ALSO KNOWN AS "LANDSCAPING") COMPLETE AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
B. THE SCOPE OF WORK IN THIS SECTION INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
1. LOCATE, PURCHASE, DELIVER AND INSTALL ALL SPECIFIED PLANTS.
2. WATER ALL SPECIFIED PLANTS.
3. MULCH, FERTILIZE, STAKE, AND PRUNE ALL SPECIFIED PLANTS.
4. MAINTENANCE OF ALL SPECIFIED PLANTS UNTIL THE BEGINNING OF THE WARRANTY PERIOD.
5. PLANT WARRANTY.
6. CLEAN UP AND DISPOSAL OF ALL EXCESS AND SURPLUS MATERIAL.
7. MAINTENANCE OF ALL SPECIFIED PLANTS DURING THE WARRANTY PERIOD.

1.2 CONTRACT DOCUMENTS

- A. SHALL CONSIST OF SPECIFICATIONS AND GENERAL CONDITIONS AND THE CONSTRUCTION DRAWINGS. THE INTENT OF THESE DOCUMENTS IS TO INCLUDE ALL LABOR, MATERIALS, AND SERVICES NECESSARY FOR THE PROPER EXECUTION OF THE WORK. THE DOCUMENTS ARE TO BE CONSIDERED AS ONE. WHATEVER IS CALLED FOR BY ANY PARTS SHALL BE AS BINDING AS IF CALLED FOR IN ALL PARTS.

1.3 RELATED DOCUMENTS AND REFERENCES

- A. RELATED DOCUMENTS:
1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION I SPECIFICATIONS APPLY TO WORK OF THIS SECTION
2. RELATED SPECIFICATION SECTIONS
a. SECTION - PLANTING SOIL
b. SECTION - IRRIGATION
B. REFERENCES: THE FOLLOWING SPECIFICATIONS AND STANDARDS OF THE ORGANIZATIONS AND DOCUMENTS LISTED IN THIS PARAGRAPH FORM A PART OF THE SPECIFICATION TO THE EXTENT REQUIRED BY THE REFERENCES THERETO. IN THE EVENT THAT THE REQUIREMENTS OF THE FOLLOWING REFERENCED STANDARDS AND SPECIFICATION CONFLICT WITH THIS SPECIFICATION SECTION THE REQUIREMENTS OF THIS SPECIFICATION SHALL PREVAIL. IN THE EVENT THAT THE REQUIREMENTS OF ANY OF THE FOLLOWING REFERENCED STANDARDS AND SPECIFICATIONS CONFLICT WITH EACH OTHER THE MORE STRINGENT REQUIREMENT SHALL PREVAIL OR AS DETERMINED BY THE OWNERS REPRESENTATIVE.
1. STATE OF CALIFORNIA, DEPARTMENT OF FOOD AND AGRICULTURE, REGULATIONS FOR NURSERY INSPECTIONS, RULES AND GRADING.
2. ANSI Z60.1 AMERICAN STANDARD FOR NURSERY STOCK, MOST CURRENT EDITION.
3. ANSI A 300 - STANDARD PRACTICES FOR TREE, SHRUB AND OTHER WOODY PLANT MAINTENANCE, MOST CURRENT EDITION AND PARTS.
4. INTERPRETATION OF PLANT NAMES AND DESCRIPTIONS SHALL REFERENCE THE FOLLOWING DOCUMENTS. WHERE THE NAMES OR PLANT DESCRIPTIONS DISAGREE BETWEEN THE SEVERAL DOCUMENTS, THE MOST CURRENT DOCUMENT SHALL PREVAIL.
a. USDA - THE GERMPASM RESOURCES INFORMATION NETWORK (GRIN) HTTP://WWW.ARS-GRIN.GOV/NPGS/SEARCHGRIN.HTML
b. MANUAL OF WOODY LANDSCAPE PLANTS; MICHAEL DIRR; STIPES PUBLISHING, CHAMPAIGN, ILLINOIS; MOST CURRENT EDITION.
c. THE NEW SUNSET WESTERN GARDEN BOOK, OXMOOR HOUSE, MOST CURRENT EDITION.
6. PRUNING PRACTICES SHALL CONFORM TO RECOMMENDATIONS "STRUCTURAL PRUNING: A GUIDE FOR THE GREEN INDUSTRY" MOST CURRENT EDITION; PUBLISHED BY URBAN TREE FOUNDATION, VISALIA, CALIFORNIA.
7. GLOSSARY OF ARBORICULTURAL TERMS, INTERNATIONAL SOCIETY OF ARBORICULTURE, CHAMPAIGN IL, MOST CURRENT EDITION.

1.4 VERIFICATION

- A. ALL SCALED DIMENSIONS ON THE DRAWINGS ARE APPROXIMATE. BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL DIMENSIONS AND QUANTITIES, AND SHALL IMMEDIATELY INFORM THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE INFORMATION ON THE DRAWINGS AND THE ACTUAL CONDITIONS, REFRAINING FROM DOING ANY WORK IN SAID AREAS UNTIL GIVEN APPROVAL TO DO SO BY THE OWNER'S REPRESENTATIVE.
B. IN THE CASE OF A DISCREPANCY IN THE PLANT QUANTITIES BETWEEN THE DRAWINGS AND THE PLANT CALL OUTS, LIST OR PLANT



SCHEDULE. THE NUMBER OF PLANTS OR SQUARE FOOTAGE OF THE PLANTING BED ACTUALLY DRAWN ON THE PLAN DRAWINGS SHALL BE DEEMED CORRECT AND PREVAIL.

1.5 PERMITS AND REGULATIONS

- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS RELATED TO THIS SECTION OF THE WORK UNLESS PREVIOUSLY EXCLUDED UNDER PROVISION OF THE CONTRACT OR GENERAL CONDITIONS. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS AND ORDINANCES BEARING ON THE OPERATION OR CONDUCT OF THE WORK AS DRAWN AND SPECIFIED. IF THE CONTRACTOR OBSERVES THAT A CONFLICT EXISTS BETWEEN PERMIT REQUIREMENTS AND THE WORK OUTLINED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING INCLUDING A DESCRIPTION OF ANY NECESSARY CHANGES AND CHANGES TO THE CONTRACT PRICE RESULTING FROM CHANGES IN THE WORK.
B. WHEREVER REFERENCES ARE MADE TO STANDARDS OR CODES IN ACCORDANCE WITH WHICH WORK IS TO BE PERFORMED OR TESTED, THE EDITION OR REVISION OF THE STANDARDS AND CODES CURRENT ON THE EFFECTIVE DATE OF THIS CONTRACT SHALL APPLY, UNLESS OTHERWISE EXPRESSLY SET FORTH.
C. IN CASE OF CONFLICT AMONG ANY REFERENCED STANDARDS OR CODES OR BETWEEN ANY REFERENCED STANDARDS AND CODES AND THE SPECIFICATIONS, THE MORE RESTRICTIVE STANDARD SHALL APPLY OR OWNER'S REPRESENTATIVE SHALL DETERMINE WHICH SHALL GOVERN.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

- A. THE CONTRACTOR SHALL ADEQUATELY PROTECT THE WORK, ADJACENT PROPERTY, AND THE PUBLIC, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES OR INJURY DUE TO HIS/HER ACTIONS.

1.7 CHANGES IN THE WORK

- A. THE OWNER'S REPRESENTATIVE MAY ORDER CHANGES IN THE WORK, AND THE CONTRACT SUM SHOULD BE ADJUSTED ACCORDINGLY. ALL SUCH ORDERS AND ADJUSTMENTS PLUS CLAIMS BY THE CONTRACTOR FOR EXTRA COMPENSATION MUST BE MADE AND APPROVED IN WRITING BEFORE EXECUTING THE WORK INVOLVED.
B. ALL CHANGES IN THE WORK, NOTIFICATIONS AND CONTRACTOR'S REQUEST FOR INFORMATION (RFI) SHALL CONFORM TO THE CONTRACT GENERAL CONDITION REQUIREMENTS.

1.8 CORRECTION OF WORK

- A. THE CONTRACTOR, AT THEIR OWN COST, SHALL RE-EXECUTE ANY WORK THAT FAILS TO CONFORM TO THE REQUIREMENTS OF THE CONTRACT AND SHALL REMEDY DEFECTS DUE TO FAULTY MATERIALS OR WORKMANSHIP UPON WRITTEN NOTICE FROM THE OWNER'S REPRESENTATIVE, AT THE SOONEST AS POSSIBLE TIME THAT CAN BE COORDINATED WITH OTHER WORK AND SEASONAL WEATHER DEMANDS.

1.9 DEFINITIONS

- ALL TERMS IN THIS SPECIFICATION SHALL BE AS DEFINED IN THE "GLOSSARY OF ARBORICULTURAL TERMS" OR AS MODIFIED BELOW.
A. BOXED TREES: A CONTAINER ROOT BALL PACKAGE MADE OF WOOD IN THE SHAPE OF A FOUR-SIDED BOX.
B. DEFECTIVE PLANT: ANY PLANT THAT FAILS TO MEET THE PLANT QUALITY REQUIREMENT OF THIS SPECIFICATION.
C. END OF WARRANTY FINAL ACCEPTANCE: THE DATE WHEN THE OWNER'S REPRESENTATIVE ACCEPTS THAT THE PLANTS AND WORK IN THIS SECTION MEET ALL THE REQUIREMENTS OF THE WARRANTY. IT IS INTENDED THAT THE MATERIALS AND WORKMANSHIP WARRANTY FOR PLANTING, PLANTING SOIL, AND IRRIGATION WORK RUN CONCURRENT WITH EACH OTHER.
D. HEALTHY: PLANTS THAT ARE GROWING IN A CONDITION THAT EXPRESSES LEAF SIZE, CROWN DENSITY, COLOR; AND WITH ANNUAL GROWTH RATES TYPICAL OF THE SPECIES AND CULTIVAR'S HORTICULTURAL DESCRIPTION, ADJUSTED FOR THE PLANTING SITE SOIL, DRAINAGE AND WEATHER CONDITIONS.
E. KINKED ROOT: A ROOT WITHIN THE ROOT PACKAGE THAT BENDS MORE THAN 90 DEGREES.
F. MAINTENANCE: ACTIONS THAT PRESERVE THE HEALTH OF PLANTS AFTER INSTALLATION AND AS DEFINED IN THIS SPECIFICATION.
G. MAINTENANCE PERIOD: THE TIME PERIOD, AS DEFINED IN THIS SPECIFICATION, WHICH THE CONTRACTOR IS TO PROVIDE MAINTENANCE.
H. NORMAL: THE PREVAILING PROTOCOL OF INDUSTRY STANDARD(S).
I. OWNER'S REPRESENTATIVE: THE PERSON APPOINTED BY THE OWNER TO REPRESENT THEIR INTEREST IN THE REVIEW AND APPROVAL OF THE WORK AND TO SERVE AS THE CONTRACTING AUTHORITY WITH THE CONTRACTOR. THE OWNER'S REPRESENTATIVE MAY APPOINT OTHER PERSONS TO REVIEW AND APPROVE ANY ASPECTS OF THE WORK.
J. REASONABLE AND REASONABLY: WHEN USED IN THIS SPECIFICATION RELATIVE TO PLANT QUALITY, IT IS INTENDED TO MEAN THAT THE CONDITIONS CITED WILL NOT AFFECT THE ESTABLISHMENT OR LONG TERM STABILITY, HEALTH OR GROWTH OF THE PLANT. THIS SPECIFICATION RECOGNIZES THAT IT IS NOT POSSIBLE TO PRODUCE PLANTS FREE OF ALL DEFECTS, BUT THAT SOME ACCEPTED INDUSTRY PROTOCOLS AND STANDARDS RESULT IN PLANTS UNACCEPTABLE TO THIS PROJECT.
WHEN REASONABLE OR REASONABLY IS USED IN RELATION TO OTHER ISSUES SUCH AS WEEDS, DISEASED, INSECTS, IT SHALL MEAN AT LEVELS LOW ENOUGH THAT NO TREATMENT WOULD BE REQUIRED WHEN APPLYING RECOGNIZED INTEGRATED PLANT MANAGEMENT PRACTICES.
THIS SPECIFICATION RECOGNIZES THAT SOME DECISIONS CANNOT BE TOTALLY BASED ON MEASURED FINDINGS AND THAT PROFESSIONAL JUDGMENT IS REQUIRED. IN CASES OF DIFFERING OPINION, THE OWNER'S REPRESENTATIVE'S EXPERT SHALL DETERMINE WHEN CONDITIONS ARE JUDGED AS REASONABLE.
K. ROOT BALL: THE MASS OF ROOTS INCLUDING ANY SOIL OR SUBSTRATE THAT IS SHIPPED WITH THE TREE WITHIN THE ROOT BALL PACKAGE.

- L. ROOT BALL PACKAGE. THE MATERIAL THAT SURROUNDS THE ROOT BALL DURING SHIPPING. THE ROOT PACKAGE MAY INCLUDE THE MATERIAL IN WHICH THE PLANT WAS GROWN, OR NEW PACKAGING PLACED AROUND THE ROOT BALL FOR SHIPPING.
M. ROOT COLLAR (ROOT CROWN, ROOT FLARE, TRUNK FLARE, FLARE): THE REGION AT THE BASE OF THE TRUNK WHERE THE MAJORITY OF THE STRUCTURAL ROOTS JOIN THE PLANT STEM, USUALLY AT OR NEAR GROUND LEVEL.
N. SHRUB: WOODY PLANTS WITH MATURE HEIGHT APPROXIMATELY LESS THAN 15 FEET.
O. SPADE HARVESTED AND TRANSPLANTED: FIELD GROWN TREES THAT ARE MECHANICALLY HARVESTED AND IMMEDIATELY TRANSPLANTED TO THE FINAL GROWING SITE WITHOUT BEING REMOVED FROM THE DIGGING MACHINE.
P. STEM: THE TRUNK OF THE TREE.
Q. SUBSTANTIAL COMPLETION ACCEPTANCE: THE DATE AT THE END OF THE PLANTING, PLANTING SOIL, AND IRRIGATION INSTALLATION WHERE THE OWNER'S REPRESENTATIVE ACCEPTS THAT ALL WORK IN THESE SECTIONS IS COMPLETE AND THE WARRANTY PERIOD HAS BEGUN. THIS DATE MAY BE DIFFERENT THAN THE DATE OF SUBSTANTIAL COMPLETION FOR THE OTHER SECTIONS OF THE PROJECT.
R. STEM GIRDLING ROOT: ANY ROOT MORE THAN 1/4 INCH DIAMETER CURRENTLY TOUCHING THE TRUNK, OR WITH THE POTENTIAL TO TOUCH THE TRUNK, ABOVE THE ROOT COLLAR APPROXIMATELY TANGENT TO THE TRUNK CIRCUMFERENCE OR CIRCLING THE TRUNK. ROOTS SHALL BE CONSIDERED AS STEM GIRDLING THAT HAVE, OR ARE LIKELY TO HAVE IN THE FUTURE, ROOT TO TRUNK BARK CONTACT.
S. STRUCTURAL ROOT: ONE OF THE LARGEST ROOTS EMERGING FROM THE ROOT COLLAR.
T. TREE: SINGLE AND MULTI-STEMMED PLANTS WITH MATURE HEIGHT APPROXIMATELY GREATER THAN 15 FEET.

1.10 SUBMITTALS

- A. SEE CONTRACT GENERAL CONDITIONS FOR POLICY AND PROCEDURE RELATED TO SUBMITTALS.
B. SUBMIT ALL PRODUCT SUBMITTALS 8 WEEKS PRIOR TO INSTALLATION OF PLANTINGS.
C. PRODUCT DATA: SUBMIT MANUFACTURER PRODUCT DATA AND LITERATURE DESCRIBING ALL PRODUCTS REQUIRED BY THIS SECTION TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. PROVIDE SUBMITTAL EIGHT WEEKS BEFORE THE INSTALLATION OF PLANTS.
D. PLANT GROWERS' CERTIFICATES: SUBMIT PLANT GROWERS' CERTIFICATES FOR ALL PLANTS INDICATING THAT EACH MEETS THE REQUIREMENTS OF THE SPECIFICATION, INCLUDING THE REQUIREMENTS OF TREE QUALITY, TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. PROVIDE SUBMITTAL EIGHT WEEKS BEFORE THE INSTALLATION OF PLANTS.
E. SAMPLES: SUBMIT SAMPLES OF EACH PRODUCT AND MATERIAL WHERE REQUIRED BY THE SPECIFICATION TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. LABEL SAMPLES TO INDICATE PRODUCT, CHARACTERISTICS, AND LOCATIONS IN THE WORK. SAMPLES WILL BE REVIEWED FOR APPEARANCE ONLY. COMPLIANCE WITH ALL OTHER REQUIREMENTS IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR.
F. PLANT SOURCES: SUBMIT SOURCES OF ALL PLANTS AS REQUIRED BY ARTICLE - "SELECTION OF PLANTS" TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.
G. CLOSE OUT SUBMITTALS: SUBMIT TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.
1. PLANT MAINTENANCE DATA AND REQUIREMENTS.

1.11 OBSERVATION OF THE WORK

- A. THE OWNER'S REPRESENTATIVE MAY OBSERVE THE WORK AT ANY TIME. THEY MAY REMOVE SAMPLES OF MATERIALS FOR CONFORMITY TO SPECIFICATIONS. REJECTED MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED AT THE CONTRACTOR'S EXPENSE. THE COST OF TESTING MATERIALS NOT MEETING SPECIFICATIONS SHALL BE PAID BY THE CONTRACTOR.
B. THE OWNER'S REPRESENTATIVE SHALL BE INFORMED OF THE PROGRESS OF THE WORK SO THE WORK MAY BE OBSERVED AT THE FOLLOWING KEY TIMES IN THE CONSTRUCTION PROCESS. THE OWNER'S REPRESENTATIVE SHALL BE AFFORDED SUFFICIENT TIME TO SCHEDULE VISIT TO THE SITE. FAILURE OF THE OWNER'S REPRESENTATIVE TO MAKE FIELD OBSERVATIONS SHALL NOT RELIEVE THE CONTRACTOR FROM MEETING ALL THE REQUIREMENTS OF THIS SPECIFICATION.
1. SITE CONDITIONS PRIOR TO THE START OF PLANTING: REVIEW THE SOIL AND DRAINAGE CONDITIONS.
2. COMPLETION OF THE PLANT LAYOUT STAKING: REVIEW OF THE PLANT LAYOUT.
3. PLANT QUALITY: REVIEW OF PLANT QUALITY AT THE TIME OF DELIVERY AND PRIOR TO INSTALLATION. REVIEW TREE QUALITY PRIOR TO UNLOADING WHERE POSSIBLE, BUT IN ALL CASES PRIOR TO PLANTING.
4. COMPLETION OF THE PLANTING: REVIEW THE COMPLETED PLANTING.

1.12 PRE-CONSTRUCTION CONFERENCE

- A. SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE AT LEAST SEVEN (7) DAYS BEFORE BEGINNING WORK TO REVIEW ANY QUESTIONS THE CONTRACTOR MAY HAVE REGARDING THE WORK, ADMINISTRATIVE PROCEDURES DURING CONSTRUCTION AND PROJECT WORK SCHEDULE.

1.13 QUALITY ASSURANCE

- A. SUBSTANTIAL COMPLETION ACCEPTANCE - ACCEPTANCE OF THE WORK PRIOR TO THE START OF THE WARRANTY PERIOD:
1. ONCE THE CONTRACTOR COMPLETES THE INSTALLATION OF ALL ITEMS IN THIS SECTION, THE OWNER'S REPRESENTATIVE WILL OBSERVE ALL WORK FOR SUBSTANTIAL COMPLETION ACCEPTANCE

UPON WRITTEN REQUEST OF THE CONTRACTOR. THE REQUEST SHALL BE RECEIVED AT LEAST TEN CALENDAR DAYS BEFORE THE ANTICIPATED DATE OF THE OBSERVATION.

- 2. SUBSTANTIAL COMPLETION ACCEPTANCE BY THE OWNER'S REPRESENTATIVE SHALL BE FOR GENERAL CONFORMANCE TO SPECIFIED SIZE, CHARACTER AND QUALITY AND NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR FULL CONFORMANCE TO THE CONTRACT DOCUMENTS, INCLUDING CORRECT SPECIES.
3. ANY PLANTS THAT ARE DEEMED DEFECTIVE AS DEFINED UNDER THE PROVISIONS BELOW SHALL NOT BE ACCEPTED.
B. THE OWNER'S REPRESENTATIVE WILL PROVIDE THE CONTRACTOR WITH WRITTEN ACKNOWLEDGMENT OF THE DATE OF SUBSTANTIAL COMPLETION ACCEPTANCE AND THE BEGINNING OF THE WARRANTY PERIOD AND PLANT MAINTENANCE PERIOD (IF PLANT MAINTENANCE IS INCLUDED).
C. CONTRACTOR'S QUALITY ASSURANCE RESPONSIBILITIES: THE CONTRACTOR IS SOLELY RESPONSIBLE FOR QUALITY CONTROL OF THE WORK.
D. INSTALLER QUALIFICATIONS: THE INSTALLER SHALL BE A FIRM HAVING AT LEAST 5 YEARS OF SUCCESSFUL EXPERIENCE OF A SCOPE SIMILAR TO THAT REQUIRED FOR THE WORK, INCLUDING THE HANDLING AND PLANTING OF LARGE SPECIMEN TREES IN URBAN AREAS. THE SAME FIRM SHALL INSTALL PLANTING SOIL (WHERE APPLICABLE) AND PLANT MATERIAL.
1. THE BIDDERS LIST FOR WORK UNDER THIS SECTION SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE.
2. INSTALLER FIELD SUPERVISION: WHEN ANY PLANTING WORK IS IN PROGRESS, INSTALLER SHALL MAINTAIN, ON SITE, A FULL-TIME SUPERVISOR WHO CAN COMMUNICATE IN ENGLISH WITH THE OWNER'S REPRESENTATIVE.
3. INSTALLER'S FIELD SUPERVISOR SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE AS A FIELD SUPERVISOR INSTALLING PLANTS AND TREES OF THE QUALITY AND SCALE OF THE PROPOSED PROJECT, AND CAN COMMUNICATE IN ENGLISH WITH THE OWNER'S REPRESENTATIVE.
4. THE INSTALLER'S CREW SHALL HAVE A MINIMUM OF 3 YEARS EXPERIENCE IN THE INSTALLATION OF PLANTING SOIL, PLANTINGS, AND IRRIGATION (WHERE APPLICABLE) AND INTERPRETATION OF SOIL PLANS, PLANTING PLANS AND IRRIGATION PLANS.
5. SUBMIT REFERENCES OF PAST PROJECTS, EMPLOYEE TRAINING CERTIFICATIONS THAT SUPPORT THAT THE CONTRACTORS MEETS ALL OF THE ABOVE INSTALLER QUALIFICATIONS AND APPLICABLE LICENSURES.

1.14 PLANT WARRANTY

THE CONTRACTOR AGREES TO REPLACE DEFECTIVE WORK AND DEFECTIVE PLANTS. THE OWNER'S REPRESENTATIVE SHALL MAKE THE FINAL DETERMINATION IF PLANTS MEET THESE SPECIFICATIONS OR THAT PLANTS ARE DEFECTIVE.

PLANTS WARRANTY SHALL BEGIN ON THE DATE OF SUBSTANTIAL COMPLETION ACCEPTANCE AND CONTINUE FOR THE FOLLOWING PERIODS, CLASSIFIED BY PLANT TYPE:

- A. TREES - 1 YEAR.
B. SHRUBS - 1 YEAR.
C. GROUND COVER AND PERENNIAL FLOWER PLANTS - 1 YEAR.

- 1. WHEN THE WORK IS ACCEPTED IN PARTS, THE WARRANTY PERIODS SHALL EXTEND FROM EACH OF THE PARTIAL SUBSTANTIAL COMPLETION ACCEPTANCES TO THE TERMINAL DATE OF THE LAST WARRANTY PERIOD. THUS, ALL WARRANTY PERIODS FOR EACH CLASS OF PLANT WARRANTY, SHALL TERMINATE AT ONE TIME.
2. ALL PLANTS SHALL BE WARRANTED TO MEET ALL THE REQUIREMENTS FOR PLANT QUALITY AT INSTALLATION IN THIS SPECIFICATION. DEFECTIVE PLANTS SHALL BE DEFINED AS PLANTS NOT MEETING THESE REQUIREMENTS. THE OWNER'S REPRESENTATIVE SHALL MAKE THE FINAL DETERMINATION THAT PLANTS ARE DEFECTIVE.
3. PLANTS DETERMINED TO BE DEFECTIVE SHALL BE REMOVED IMMEDIATELY UPON NOTIFICATION BY THE OWNER'S REPRESENTATIVE AND REPLACED WITHOUT COST TO THE OWNER, AS SOON AS WEATHER CONDITIONS PERMIT AND WITHIN THE SPECIFIED PLANTING PERIOD.
4. ANY WORK REQUIRED BY THIS SPECIFICATION OR THE OWNER'S REPRESENTATIVE DURING THE PROGRESS OF THE WORK, TO CORRECT PLANT DEFECTS INCLUDING THE REMOVAL OF ROOTS OR BRANCHES, OR PLANTING PLANTS THAT HAVE BEEN BARE ROOTED DURING INSTALLATION TO OBSERVE FOR OR CORRECT ROOT DEFECTS SHALL NOT BE CONSIDERED AS GROUNDS TO VOID ANY CONDITIONS OF THE WARRANTY. IN THE EVENT THAT THE CONTRACTOR DECIDES THAT SUCH REMEDIATION WORK MAY COMPROMISE THE FUTURE HEALTH OF THE PLANT, THE PLANT OR PLANTS IN QUESTION SHALL BE REJECTED AND REPLACED WITH PLANTS THAT DO NOT CONTAIN DEFECTS THAT REQUIRE REMEDIATION OR CORRECTION.
5. THE CONTRACTOR IS EXEMPT FROM REPLACING PLANTS, AFTER SUBSTANTIAL COMPLETION ACCEPTANCE AND DURING THE WARRANTY PERIOD, THAT ARE REMOVED BY OTHERS, LOST OR DAMAGED DUE TO OCCUPANCY OF PROJECT, LOST OR DAMAGED BY A THIRD PARTY, VANDALISM, OR ANY NATURAL DISASTER.
6. REPLACEMENTS SHALL CLOSELY MATCH ADJACENT SPECIMENS OF THE SAME SPECIES. REPLACEMENTS SHALL BE SUBJECT TO ALL REQUIREMENTS STATED IN THIS SPECIFICATION. MAKE ALL NECESSARY REPAIRS DUE TO PLANT REPLACEMENTS. SUCH REPAIRS SHALL BE DONE AT NO EXTRA COST TO THE OWNER.
7. THE WARRANTY OF ALL REPLACEMENT PLANTS SHALL EXTEND FOR AN ADDITIONAL ONE-YEAR PERIOD FROM THE DATE OF THEIR ACCEPTANCE AFTER REPLACEMENT. IN THE EVENT THAT A REPLACEMENT PLANT IS NOT ACCEPTABLE DURING OR AT THE END OF THE SAID EXTENDED WARRANTY PERIOD, THE OWNER'S REPRESENTATIVE MAY ELECT ONE MORE REPLACEMENT ITEMS OR CREDIT FOR EACH ITEM. THESE TERTIARY REPLACEMENT ITEMS ARE

NOT PROTECTED UNDER A WARRANTY PERIOD.

- 8. DURING AND BY THE END OF THE WARRANTY PERIOD, REMOVE ALL TREE WRAP, TIES, AND GUYING UNLESS AGREED TO BY THE OWNER'S REPRESENTATIVE TO REMAIN IN PLACE. ALL TREES THAT DO NOT HAVE SUFFICIENT CALIPER TO REMAIN UPRIGHT, OR THOSE REQUIRING ADDITIONAL ANCHORAGE IN WINDY LOCATIONS, SHALL BE STAKED OR REMAIN STAKED, IF REQUIRED BY THE OWNER'S REPRESENTATIVE.

E. END OF WARRANTY FINAL ACCEPTANCE - ACCEPTANCE OF PLANTS AT THE END OF THE WARRANTY PERIOD.

- 1. AT THE END OF THE WARRANTY PERIOD, THE OWNER'S REPRESENTATIVE SHALL OBSERVE ALL WARRANTED WORK, UPON WRITTEN REQUEST OF THE CONTRACTOR. THE REQUEST SHALL BE RECEIVED AT LEAST TEN CALENDAR DAYS BEFORE THE ANTICIPATED DATE FOR FINAL OBSERVATION.
2. END OF WARRANTY FINAL ACCEPTANCE WILL BE GIVEN ONLY WHEN ALL THE REQUIREMENTS OF THE WORK UNDER THIS SPECIFICATION AND IN SPECIFICATION SECTIONS PLANTING SOIL AND IRRIGATION HAVE BEEN MET.

1.15 SELECTION AND OBSERVATION OF PLANTS

- A. THE OWNER'S REPRESENTATIVE MAY REVIEW ALL PLANTS SUBJECT TO APPROVAL OF SIZE, HEALTH, QUALITY, CHARACTER, ETC. REVIEW OR APPROVAL OF ANY PLANT DURING THE PROCESS OF SELECTION, DELIVERY, INSTALLATION AND ESTABLISHMENT PERIOD SHALL NOT PREVENT THAT PLANT FROM LATER REJECTION IN THE EVENT THAT THE PLANT QUALITY CHANGES OR PREVIOUSLY EXISTING DEFECTS BECOME APPARENT THAT WERE NOT OBSERVED.
B. PLANT SELECTION: THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO SELECT AND OBSERVE ALL PLANTS AT THE NURSERY PRIOR TO DELIVERY AND TO REJECT PLANTS THAT DO NOT MEET SPECIFICATIONS AS SET FORTH IN THIS SPECIFICATION. IF A PARTICULAR DEFECT OR SUBSTANDARD ELEMENT CAN BE CORRECTED AT THE NURSERY, AS DETERMINED BY THE OWNER'S REPRESENTATIVE, THE AGREED UPON REMEDY MAY BE APPLIED BY THE NURSERY OR THE CONTRACTOR PROVIDED THAT THE CORRECTION ALLOWS THE PLANT TO MEET THE REQUIREMENTS SET FORTH IN THIS SPECIFICATION. ANY WORK TO CORRECT PLANT DEFECTS SHALL BE AT THE CONTRACTOR'S EXPENSE.
1. THE OWNER'S REPRESENTATIVE MAY MAKE INVASIVE OBSERVATION OF THE PLANT'S ROOT SYSTEM IN THE AREA OF THE ROOT COLLAR AND THE TOP OF THE ROOT BALL IN GENERAL IN ORDER TO DETERMINE THAT THE PLANT MEETS THE QUALITY REQUIREMENTS FOR DEPTH OF THE ROOT COLLAR AND PRESENCE OF ROOTS ABOVE THE ROOT COLLAR. SUCH OBSERVATIONS WILL NOT HARM THE PLANT.
2. CORRECTIONS ARE TO BE UNDERTAKEN AT THE NURSERY PRIOR TO SHIPPING.
C. THE CONTRACTOR SHALL BEAR ALL COST RELATED TO PLANT CORRECTIONS.
D. ALL PLANTS THAT ARE REJECTED SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND ACCEPTABLE REPLACEMENT PLANTS PROVIDED AT NO COST TO THE OWNER.
E. SUBMIT TO THE OWNER'S REPRESENTATIVE, FOR APPROVAL, PLANT SOURCES INCLUDING THE NAMES AND LOCATIONS OF NURSERIES PROPOSED AS SOURCES OF ACCEPTABLE PLANTS, AND A LIST OF THE PLANTS THEY WILL PROVIDE. THE PLANT LIST SHALL INCLUDE THE BOTANICAL AND COMMON NAME AND THE SIZE AT THE TIME OF SELECTION. OBSERVE ALL NURSERY MATERIALS TO DETERMINE THAT THE MATERIALS MEET THE REQUIREMENTS OF THIS SECTION.
F. TREES SHALL BE PURCHASED FROM THE GROWING NURSERY. RE-WHOLESALE PLANT SUPPLIERS SHALL NOT BE USED AS SOURCES UNLESS THE CONTRACTOR CAN CERTIFY THAT THE REQUIRED TREES ARE NOT DIRECTLY AVAILABLE FROM A GROWING NURSERY. WHEN RE-WHOLESALE SUPPLIERS ARE UTILIZED, THE CONTRACTOR SHALL SUBMIT THE NAME AND LOCATION OF THE GROWING NURSERY FROM WHERE THE TREES WERE OBTAINED BY THE RE-WHOLESALE SELLER. THE RE-WHOLESALE NURSERY SHALL BE RESPONSIBLE FOR ANY REQUIRED PLANT QUALITY CERTIFICATIONS.
G. THE CONTRACTOR SHALL REQUIRE THE GROWER OR RE-WHOLESALE SUPPLIER TO PERMIT THE OWNER'S REPRESENTATIVE TO OBSERVE THE ROOT SYSTEM OF ALL PLANTS AT THE NURSERY OR JOB SITE PRIOR TO PLANTING INCLUDING RANDOM REMOVAL OF SOIL OR SUBSTRATE AROUND THE BASE OF THE PLANT. OBSERVATION MAY BE AS FREQUENT AND AS EXTENSIVE AS NEEDED TO VERIFY THAT THE PLANTS MEET THE REQUIREMENTS OF THE SPECIFICATIONS AND CONFORM TO REQUIREMENTS.
H. WHERE REQUESTED BY THE OWNER'S REPRESENTATIVE, SUBMIT PHOTOGRAPHS OF PLANTS OR REPRESENTATIVE SAMPLES OF PLANTS. PHOTOGRAPHS SHALL BE LEGIBLE AND CLEARLY DEPICT THE PLANT SPECIMEN. EACH SUBMITTED IMAGE SHALL CONTAIN A HEIGHT REFERENCE, SUCH AS A MEASURING STICK. THE APPROVAL OF PLANTS BY THE OWNER'S REPRESENTATIVE VIA PHOTOGRAPH DOES NOT PRECLUDE THE OWNER'S REPRESENTATIVE'S RIGHT TO REJECT MATERIAL WHILE ON SITE.

Table with 4 columns: No., REVISIONS, DATE, BY. Contains a grid for tracking revisions.

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KHA PROJECT 097515003 DATE 12/27/2017 SCALE AS SHOWN DESIGNED BY DW DRAWN BY DW CHECKED BY DC SAN MATEO COUNTY CA



CALIFORNIA DRIVE ROUNDABOUT PREPARED FOR CITY OF BURLINGAME LANDSCAPE SPECIFICATIONS

SHEET NO. 49 OF 61 SHEETS LS-03

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1.16 PLANT SUBSTITUTIONS FOR PLANTS NOT AVAILABLE

A. SUBMIT ALL REQUESTS FOR SUBSTITUTIONS OF PLANT SPECIES, OR SIZE TO THE OWNER'S REPRESENTATIVE, FOR APPROVAL, PRIOR TO PURCHASING THE PROPOSED SUBSTITUTION. REQUEST FOR SUBSTITUTION SHALL BE ACCOMPANIED WITH A LIST OF NURSERIES CONTACTED IN THE SEARCH FOR THE REQUIRED PLANT AND A RECORD OF OTHER ATTEMPTS TO LOCATE THE REQUIRED MATERIAL. REQUESTS SHALL ALSO INCLUDE SOURCES OF PLANTS FOUND THAT MAY BE OF A SMALLER OR LARGER SIZE, OR A DIFFERENT SHAPE OR HABIT THAN SPECIFIED, OR PLANTS OF THE SAME GENUS AND SPECIES BUT DIFFERENT CULTIVAR ORIGIN, OR WHICH MAY OTHERWISE NOT MEET THE REQUIREMENTS OF THE SPECIFICATIONS, BUT WHICH MAY BE AVAILABLE FOR SUBSTITUTION.

1.17 SITE CONDITIONS

A. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF ALL SURFACE AND SUB-SURFACE CONDITIONS, AND TO NOTIFY THE OWNER'S REPRESENTATIVE, IN WRITING, OF ANY CIRCUMSTANCES THAT WOULD NEGATIVELY IMPACT THE HEALTH OF PLANTINGS. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

1. SHOULD SUBSURFACE DRAINAGE OR SOIL CONDITIONS BE ENCOUNTERED WHICH WOULD BE DETRIMENTAL TO GROWTH OR SURVIVAL OF PLANT MATERIAL, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING, STATING THE CONDITIONS AND SUBMIT A PROPOSAL COVERING COST OF CORRECTIONS. IF THE CONTRACTOR FAILS TO NOTIFY THE OWNER'S REPRESENTATIVE OF SUCH CONDITIONS, HE/SHE SHALL REMAIN RESPONSIBLE FOR PLANT MATERIAL UNDER THE WARRANTY CLAUSE OF THE SPECIFICATIONS.

B. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE LOCAL GROWING CONDITIONS, AND IF ANY SPECIFIED PLANTS WILL BE IN CONFLICT WITH THESE CONDITIONS, REPORT ANY POTENTIAL CONFLICTS, IN WRITING, TO THE OWNER'S REPRESENTATIVE.

C. THIS SPECIFICATION REQUIRES THAT ALL PLANTING SOIL AND IRRIGATION (IF APPLICABLE) WORK BE COMPLETED AND ACCEPTED PRIOR TO THE INSTALLATION OF ANY PLANTS.

1. PLANTING OPERATIONS SHALL NOT BEGIN UNTIL SUCH TIME THAT THE IRRIGATION SYSTEM IS COMPLETELY OPERATIONAL FOR THE AREA(S) TO BE PLANTED, AND THE IRRIGATION SYSTEM FOR THAT AREA HAS BEEN PRELIMINARILY OBSERVED AND APPROVED BY THE OWNER'S REPRESENTATIVE.

D. ACTUAL PLANTING SHALL BE PERFORMED DURING THOSE PERIODS WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE IN ACCORDANCE WITH LOCALLY ACCEPTED HORTICULTURAL PRACTICES.

1. DO NOT INSTALL PLANTS INTO SATURATED OR FROZEN SOILS. DO NOT INSTALL PLANTS DURING INCLEMENT WEATHER, SUCH AS RAIN OR SNOW OR DURING EXTREMELY HOT, COLD OR WINDY CONDITIONS.

1.18 PLANTING AROUND UTILITIES

A. CONTRACTOR SHALL CAREFULLY EXAMINE THE CIVIL, RECORD, AND SURVEY DRAWINGS TO BECOME FAMILIAR WITH THE EXISTING UNDERGROUND CONDITIONS BEFORE DIGGING.

B. DETERMINE LOCATION OF UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER THAT WILL AVOID POSSIBLE DAMAGE. HAND EXCAVATE, AS REQUIRED, MAINTAIN GRADE STAKES SET BY OTHERS UNTIL PARTIES CONCERNED MUTUALLY AGREE UPON REMOVAL.

C. NOTIFICATION OF A LOCAL UTILITY LOCATOR SERVICE, IS REQUIRED FOR ALL PLANTING AREAS. THE CONTRACTOR IS RESPONSIBLE FOR KNOWING THE LOCATION AND AVOIDING UTILITIES THAT ARE NOT COVERED BY THE LOCAL UTILITY LOCATOR SERVICE.

PART 2 PRODUCTS

2.1 PLANTS: GENERAL

A. STANDARDS AND MEASUREMENT: PROVIDE PLANTS OF QUANTITY, SIZE, GENUS, SPECIES, AND VARIETY OR CULTIVARS AS SHOWN AND SCHEDULED IN CONTRACT DOCUMENTS.

1. ALL PLANTS INCLUDING THE ROOT BALL DIMENSIONS OR CONTAINER SIZE TO TRUNK CALIPER RATIO SHALL CONFORM TO ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK" LATEST EDITION, UNLESS MODIFIED BY PROVISIONS IN THIS SPECIFICATION. WHEN THERE IS A CONFLICT BETWEEN THIS SPECIFICATION AND ANSI Z60.1, THIS SPECIFICATION SECTION SHALL BE CONSIDERED CORRECT.

2. PLANTS LARGER THAN SPECIFIED MAY BE USED IF ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. USE OF SUCH PLANTS SHALL NOT INCREASE THE CONTRACT PRICE. IF LARGER PLANTS ARE ACCEPTED THE ROOT BALL SIZE SHALL BE IN ACCORDANCE WITH ANSI Z-60.1. LARGER PLANTS MAY NOT BE ACCEPTABLE IF THE RESULTING ROOT BALL CANNOT BE FIT INTO THE REQUIRED PLANTING SPACE.

3. IF A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND NOT LESS THAN 50 PERCENT OF THE PLANTS SHALL BE AS LARGE AS THE MAXIMUM SIZE SPECIFIED.

THE MEASUREMENTS SPECIFIED ARE THE MINIMUM AND MAXIMUM SIZE ACCEPTABLE AND ARE THE MEASUREMENTS AFTER PRUNING, WHERE PRUNING IS REQUIRED.

B. PROPER IDENTIFICATION: ALL TREES SHALL BE TRUE TO NAME AS ORDERED OR SHOWN ON PLANTING PLANS AND SHALL BE LABELED INDIVIDUALLY OR IN GROUPS BY GENUS, SPECIES, VARIETY AND CULTIVAR.

C. COMPLIANCE: ALL TREES SHALL COMPLY WITH FEDERAL AND STATE LAWS AND REGULATIONS REQUIRING OBSERVATION FOR PLANT DISEASE, PESTS, AND WEEDS. OBSERVATION CERTIFICATES REQUIRED BY LAW SHALL ACCOMPANY EACH SHIPMENT OF PLANTS.

D. PLANT QUALITY:

1. GENERAL: PROVIDE HEALTHY STOCK, GROWN IN A NURSERY AND REASONABLY FREE OF DIE-BACK, DISEASE, INSECTS, EGGS, BORES, AND LARVAE. AT THE TIME OF PLANTING ALL PLANTS SHALL HAVE A ROOT SYSTEM, STEM, AND BRANCH FORM THAT WILL NOT RESTRICT NORMAL GROWTH, STABILITY AND HEALTH FOR THE EXPECTED LIFE OF THE PLANT

2. PLANT QUALITY ABOVE THE SOIL LINE:

a. PLANTS SHALL BE HEALTHY WITH THE COLOR, SHAPE, SIZE AND DISTRIBUTION OF TRUNK, STEMS, BRANCHES, BUDS AND LEAVES NORMAL TO THE PLANT TYPE SPECIFIED. TREE QUALITY ABOVE THE SOIL LINE SHALL COMPLY WITH THE PROJECT CROWN ACCEPTANCE DETAILS AND THE FOLLOWING:

1.) CROWN: THE FORM AND DENSITY OF THE CROWN SHALL BE TYPICAL FOR A YOUNG SPECIMEN OF THE SPECIES OR CULTIVAR PRUNED TO A CENTRAL AND DOMINANT LEADER.

A.) CROWN SPECIFICATIONS DO NOT APPLY TO PLANTS THAT HAVE BEEN SPECIFICALLY TRAINED IN THE NURSERY AS TOPIARY, ESPALIER, MULTI-STEM, CLUMP, OR UNIQUE SELECTIONS SUCH AS CONTORTED OR WEEPING CULTIVARS.

2.) LEAVES: THE SIZE, COLOR, AND APPEARANCE OF LEAVES SHALL BE TYPICAL FOR THE TIME OF YEAR AND STAGE OF GROWTH OF THE SPECIES OR CULTIVAR. TREES SHALL NOT SHOW SIGNS OF PROLONGED MOISTURE STRESS OR OVER WATERING AS INDICATED BY WILTED, SHRIVELED, OR DEAD LEAVES.

3.) BRANCHES: SHOOT GROWTH (LENGTH AND DIAMETER) THROUGHOUT THE CROWN SHOULD BE APPROPRIATE FOR THE AGE AND SIZE OF THE SPECIES OR CULTIVAR. TREES SHALL NOT HAVE DEAD, DISEASED, BROKEN, DISTORTED, OR OTHERWISE INJURED BRANCHES.

A.) MAIN BRANCHES SHALL BE DISTRIBUTED ALONG THE CENTRAL LEADER NOT CLUSTERED TOGETHER. THEY SHALL FORM A BALANCED CROWN APPROPRIATE FOR THE CULTIVAR/SPECIES.

B.) BRANCH DIAMETER SHALL BE NO LARGER THAN TWO-THIRDS (ONE-HALF IS PREFERRED) THE DIAMETER OF THE CENTRAL LEADER MEASURED 1 INCH ABOVE THE BRANCH UNION.

C.) THE ATTACHMENT OF THE LARGEST BRANCHES (SCAFFOLD BRANCHES) SHALL BE FREE OF INCLUDED BARK.

4.) TRUNK: THE TREE TRUNK SHALL BE RELATIVELY STRAIGHT, VERTICAL, AND FREE OF WOUNDS THAT PENETRATE TO THE WOOD (PROPERLY MADE PRUNING CUTS, CLOSED OR NOT, ARE ACCEPTABLE AND ARE NOT CONSIDERED WOUNDS), SUNBURNED AREAS, CONKS (FUNGAL FRUITING BODIES), WOOD CRACKS, SAP LEAKAGE, SIGNS OF BORING INSECTS, GALLS, CANKERS, GIRDLING TIES, OR LESIONS (MECHANICAL INJURY).

5.) TEMPORARY BRANCHES, UNLESS OTHERWISE SPECIFIED, CAN BE PRESENT ALONG THE LOWER TRUNK BELOW THE LOWEST MAIN (SCAFFOLD) BRANCH, PARTICULARLY FOR TREES LESS THAN 1 INCH IN CALIPER. THESE BRANCHES SHOULD BE NO GREATER THAN 3/8-INCH DIAMETER. CLEAR TRUNK SHOULD BE NO MORE THAN 40% OF THE TOTAL HEIGHT OF THE TREE.

b. TREES SHALL HAVE ONE CENTRAL LEADER. IF THE LEADER WAS HEADED, A NEW LEADER (WITH A LIVE TERMINAL BUD) AT LEAST ONE-HALF THE DIAMETER OF THE PRUNING CUT SHALL BE PRESENT.

1.) ALL TREES ARE ASSUMED TO HAVE ONE CENTRAL LEADER TREES UNLESS A DIFFERENT FORM IS SPECIFIED IN THE PLANT LIST OR DRAWINGS.

c. ALL GRAFT UNIONS, WHERE APPLICABLE, SHALL BE COMPLETELY CLOSED WITHOUT VISIBLE SIGN OF GRAFT REJECTION. ALL GRAFTS SHALL BE VISIBLE ABOVE THE SOIL LINE.

d. TRUNK CALIPER AND TAPER SHALL BE SUFFICIENT SO THAT THE LOWER FIVE FEET OF THE TRUNK REMAINS VERTICAL WITHOUT A STAKE. AUXILIARY STAKE MAY BE USED TO MAINTAIN A STRAIGHT LEADER IN THE UPPER HALF OF THE TREE.

3. PLANT QUALITY AT OR BELOW THE SOIL LINE:

a. PLANT ROOTS SHALL BE NORMAL TO THE PLANT TYPE SPECIFIED. ROOT OBSERVATIONS SHALL TAKE PLACE WITHOUT IMPACTING TREE HEALTH. ROOT QUALITY AT OR BELOW THE SOIL LINE SHALL COMPLY WITH THE PROJECT ROOT ACCEPTANCE DETAILS AND THE FOLLOWING:

1.) THE ROOTS SHALL BE REASONABLY FREE OF SCRAPES, BROKEN OR SPLIT WOOD.

2.) THE ROOT SYSTEM SHALL BE REASONABLY FREE OF INJURY FROM BIOTIC (E.G., INSECTS AND PATHOGENS) AND ABIOTIC (E.G., HERBICIDE TOXICITY AND SALT INJURY) AGENTS. WOUNDS RESULTING FROM ROOT PRUNING USED TO PRODUCE A HIGH QUALITY ROOT SYSTEM ARE NOT CONSIDERED INJURIES.

3.) A MINIMUM OF THREE STRUCTURAL ROOTS REASONABLY DISTRIBUTED AROUND THE TRUNK (NOT CLUSTERED ON ONE SIDE) SHALL BE FOUND IN EACH PLANT. ROOT DISTRIBUTION SHALL BE UNIFORM THROUGHOUT THE ROOT BALL, AND GROWTH SHALL BE APPROPRIATE FOR THE SPECIES.

A.) PLANTS WITH STRUCTURAL ROOTS ON ONLY ONE SIDE OF THE TRUNK (J ROOTS) SHALL BE REJECTED.

4.) THE ROOT COLLAR SHALL BE WITHIN THE UPPER 2 INCHES OF THE SUBSTRATE/SOIL. TWO STRUCTURAL ROOTS SHALL REACH THE SIDE OF THE ROOT BALL NEAR THE TOP SURFACE OF THE ROOT BALL. THE GROWER MAY REQUEST A MODIFICATION TO THIS REQUIREMENT FOR SPECIES WITH ROOTS THAT RAPIDLY DESCEND, PROVIDED THAT THE GROWER REMOVES ALL STEM GIRDLING ROOTS ABOVE THE STRUCTURAL ROOTS ACROSS THE TOP OF THE ROOT BALL.

5.) THE ROOT SYSTEM SHALL BE REASONABLY FREE OF STEM GIRDLING ROOTS OVER THE ROOT COLLAR OR KINKED ROOTS FROM NURSERY PRODUCTION PRACTICES.

6.) AT TIME OF OBSERVATIONS AND DELIVERY, THE ROOT BALL SHALL BE MOIST THROUGHOUT. ROOTS SHALL NOT SHOW SIGNS OF EXCESS SOIL MOISTURE CONDITIONS AS INDICATED BY STUNTED, DISCOLORED, DISTORTED, OR DEAD ROOTS.

E. SUBMITTALS: SUBMIT FOR APPROVAL THE REQUIRED PLANT QUALITY CERTIFICATIONS FROM THE GROWER WHERE PLANTS ARE TO BE PURCHASED, FOR EACH PLANT TYPE. THE CERTIFICATION MUST STATE THAT EACH PLANT MEETS ALL THE ABOVE PLANT QUALITY REQUIREMENTS.

1. THE GROWER'S CERTIFICATION OF PLANT QUALITY DOES NOT PROHIBIT THE OWNER'S REPRESENTATIVE FROM OBSERVING ANY PLANT OR REJECTING THE PLANT IF IT IS FOUND TO NOT MEET THE SPECIFICATION REQUIREMENTS.

2. CONTAINER PLANTS MAY BE PERMITTED ONLY WHEN INDICATED ON THE DRAWING, IN THIS SPECIFICATION, OR APPROVED BY THE OWNER'S REPRESENTATIVE.

3. PROVIDE PLANTS SHALL BE ESTABLISHED AND WELL ROOTED IN REMOVABLE CONTAINERS.

4. CONTAINER CLASS SIZE SHALL CONFORM TO ANSI Z60.1 FOR CONTAINER PLANTS FOR EACH SIZE AND TYPE OF PLANT.

2.2 PLANTING SOIL

A. PLANTING SOIL AS USED IN THIS SPECIFICATION MEANS THE SOIL AT THE PLANTING SITE, OR IMPORTED AS MODIFIED AND DEFINED IN SPECIFICATION SECTION PLANTING SOIL. IF THERE IS NO PLANTING SOIL SPECIFICATION, THE TERM PLANTING SOIL SHALL MEAN THE SOIL AT THE PLANTING SITE WITHIN THE PLANTING HOLE.

2.3 MULCH

A. MULCH SHALL BE GROUND REDWOOD BARK "GORILLA HAIR" SHREDDED FROM REDWOOD BARK SOURCES. THE SIZE RANGE SHALL BE A MINIMUM (LESS THAN 25% OR LESS OF VOLUME) FINE PARTICLES 3/8 INCH OR LESS IN SIZE, AND A MAXIMUM SIZE OF INDIVIDUAL PIECES (LARGEST 20% OR LESS OF VOLUME) SHALL BE APPROXIMATELY 1 TO 1-1/2 INCH IN DIAMETER AND MAXIMUM LENGTH APPROXIMATELY 4 TO 8". PIECES LARGER THAN 8 INCH LONG THAT ARE VISIBLE ON THE SURFACE OF THE MULCH AFTER INSTALLATION SHALL BE REMOVED.

1. IT IS UNDERSTOOD THAT MULCH QUALITY WILL VARY SIGNIFICANTLY FROM SUPPLIER TO SUPPLIER AND REGION TO REGION. THE ABOVE REQUIREMENTS MAY BE MODIFIED TO CONFORM TO THE SOURCE MATERIAL FROM LOCALLY RELIABLE SUPPLIERS AS APPROVED BY THE OWNER'S REPRESENTATIVE.

B. SUBMIT SUPPLIER'S PRODUCT SPECIFICATION DATA SHEET AND A ONE GALLON SAMPLE FOR APPROVAL.

2.4 TREE STAKING AND GUYING MATERIAL

A. STAKES SHALL BE LODGE POLE STAKES FREE OF KNOTS AND OF DIAMETERS AND LENGTHS APPROPRIATE TO THE SIZE OF PLANT AS REQUIRED TO ADEQUATELY SUPPORT THE PLANT.

B. SUBMIT MANUFACTURER'S PRODUCT DATA FOR APPROVAL.

PART 3 EXECUTION

3.1 SITE EXAMINATION

A. EXAMINE THE SURFACE GRADES AND SOIL CONDITIONS TO CONFIRM THAT THE REQUIREMENTS OF THE SPECIFICATION SECTION - PLANTING SOIL - AND THE SOIL AND DRAINAGE MODIFICATIONS INDICATED ON THE PLANTING SOIL PLAN AND DETAILS (IF APPLICABLE) HAVE BEEN COMPLETED. NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF ANY UNSATISFACTORY CONDITIONS.

3.2 DELIVERY, STORAGE AND HANDLING

A. PROTECT MATERIALS FROM DETERIORATION DURING DELIVERY AND STORAGE. ADEQUATELY PROTECT PLANTS FROM DRYING OUT, EXPOSURE OF ROOTS TO SUN, WIND OR EXTREMES OF HEAT AND COLD TEMPERATURES. IF PLANTING IS DELAYED MORE THAN 24 HOURS AFTER DELIVERY, SET PLANTS IN A LOCATION PROTECTED FROM SUN AND WIND. PROVIDE ADEQUATE WATER TO THE ROOT BALL PACKAGE DURING THE SHIPPING AND STORAGE PERIOD.

1. ALL PLANT MATERIALS MUST BE AVAILABLE FOR OBSERVATION PRIOR TO PLANTING.

2. USING A SOIL MOISTURE METER, PERIODICALLY CHECK THE SOIL MOISTURE IN THE ROOT BALLS OF ALL PLANTS TO ASSURE THAT THE PLANTS ARE BEING ADEQUATELY WATERED. VOLUMETRIC SOIL MOISTURE SHALL BE MAINTAINED ABOVE WILTING POINT AND BELOW FIELD CAPACITY FOR THE ROOT BALL SUBSTRATE OR SOIL.

B. DO NOT DELIVER MORE PLANTS TO THE SITE THAN THERE IS SPACE WITH ADEQUATE STORAGE CONDITIONS. PROVIDE A SUITABLE REMOTE STAGING AREA FOR PLANTS AND OTHER SUPPLIES.

1. THE OWNER'S REPRESENTATIVE OR CONTRACTOR SHALL APPROVE THE DURATION, METHOD AND LOCATION OF STORAGE OF PLANTS.

C. PROVIDE PROTECTIVE COVERING OVER ALL PLANTS DURING TRANSPORTING.

3.3 PLANTING SEASON

A. PLANTING SHALL ONLY BE PERFORMED WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE FOR PLANTING THE MATERIALS SPECIFIED IN ACCORDANCE WITH LOCALLY ACCEPTED PRACTICE. INSTALL PLANTS DURING THE PLANTING TIME AS ACCEPTED PRACTICE BY INTERNATIONAL SOCIETY OF ARBORICULTURE AND THE AMERICAN ASSOCIATION OF NURSERYMEN AND UNLESS OTHERWISE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE. IN THE EVENT THAT THE CONTRACTOR REQUEST PLANTING OUTSIDE THE DATES OF THE PLANTING SEASON, APPROVAL OF THE REQUEST DOES NOT CHANGE THE REQUIREMENTS OF THE WARRANTY.

3.4 ADVERSE WEATHER CONDITIONS

A. NO PLANTING SHALL TAKE PLACE DURING EXTREMELY HOT, DRY, WINDY OR FREEZING WEATHER.

3.5 COORDINATION WITH PROJECT WORK

A. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER WORK THAT MAY IMPACT THE COMPLETION OF THE WORK.

B. PRIOR TO THE START OF WORK, PREPARE A DETAILED SCHEDULE OF THE WORK FOR COORDINATION WITH OTHER TRADES.

C. COORDINATE THE RELOCATION OF ANY IRRIGATION LINES, HEADS OR THE CONDUITS OF OTHER UTILITY LINES THAT ARE IN CONFLICT WITH TREE LOCATIONS. ROOT BALLS SHALL NOT BE ALTERED TO FIT AROUND LINES. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY CONFLICTS ENCOUNTERED.

3.6 LAYOUT AND PLANTING SEQUENCE

A. RELATIVE POSITIONS OF ALL PLANTS AND TREES ARE SUBJECT TO APPROVAL OF THE OWNER'S REPRESENTATIVE.

B. NOTIFY THE OWNER'S REPRESENTATIVE, ONE (1) WEEK PRIOR TO LAYOUT. LAYOUT ALL INDIVIDUAL TREE AND SHRUB LOCATIONS. PLACE PLANTS ABOVE SURFACE AT PLANTING LOCATION OR PLACE A LABELED STAKE AT PLANTING LOCATION. LAYOUT BED LINES WITH PAINT FOR THE OWNER'S REPRESENTATIVE'S APPROVAL. SECURE THE OWNER'S REPRESENTATIVE'S ACCEPTANCE BEFORE DIGGING AND START OF PLANTING WORK.

C. WHEN APPLICABLE, PLANT TREES BEFORE OTHER PLANTS ARE INSTALLED.

D. IT IS UNDERSTOOD THAT PLANTS ARE NOT PRECISE OBJECTS AND THAT MINOR ADJUSTMENTS IN THE LAYOUT WILL BE REQUIRED AS THE PLANTING PLAN IS CONSTRUCTED. THESE ADJUSTMENTS MAY NOT BE APPARENT UNTIL SOME OR ALL OF THE PLANTS ARE INSTALLED. MAKE ADJUSTMENTS AS REQUIRED BY THE OWNER'S REPRESENTATIVE INCLUDING RELOCATING PREVIOUSLY INSTALLED PLANTS.

3.7 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION

A. PROTECT SOIL FROM COMPACTION DURING THE DELIVERY OF PLANTS TO THE PLANTING LOCATIONS, DIGGING OF PLANTING HOLES AND INSTALLING PLANTS.

1. WHERE POSSIBLE DELIVER AND PLANT TREES THAT REQUIRE THE USE OF HEAVY MECHANIZED EQUIPMENT PRIOR TO FINAL SOIL PREPARATION AND TILLING. WHERE POSSIBLE, RESTRICT THE DRIVING LANES TO ONE AREA INSTEAD OF DRIVING OVER AND COMPACTING A LARGE AREA OF SOIL.

2. TILL TO A DEPTH OF 6 INCHES, ALL SOIL THAT HAS BEEN DRIVEN OVER DURING THE INSTALLATION OF PLANTS.

3.8 SOIL MOISTURE

A. VOLUMETRIC SOIL MOISTURE LEVEL, IN BOTH THE PLANTING SOIL AND THE ROOT BALLS OF ALL PLANTS, PRIOR TO, DURING AND AFTER PLANTING SHALL BE ABOVE PERMANENT WILTING POINT AND BELOW FIELD CAPACITY FOR EACH TYPE OF SOIL TEXTURE WITHIN THE FOLLOWING RANGES.

| SOIL TYPE | PERMANENT WILTING POINT | FIELD CAPACITY |
|-----------------------------------|-------------------------|----------------|
| SAND, LOAMY SAND, SANDY LOAM | 5 - 8% | 12-18% |
| LOAM, SANDY CLAY, SANDY CLAY LOAM | 14 - 25% | 27-36% |
| CLAY LOAM, SILT LOAM | 11 - 22% | 31 - 36% |
| SILTY CLAY, SILTY CLAY LOAM | 22 - 27% | 38 - 41% |

1. VOLUMETRIC SOIL MOISTURE SHALL BE MEASURED WITH A DIGITAL MOISTURE METER. THE METER SHALL BE THE DIGITAL SOIL MOISTURE METER, DSM500 BY GENERAL SPECIALTY TOOLS AND INSTRUMENTS, OR APPROVED EQUIVALENT.

B. THE CONTRACTOR SHALL CONFIRM THE SOIL MOISTURE LEVELS WITH A MOISTURE METER. IF THE MOISTURE IS TOO HIGH, SUSPEND PLANTING OPERATIONS UNTIL THE SOIL MOISTURE DRAINS TO BELOW FIELD CAPACITY.

3.9 INSTALLATION OF PLANTS: GENERAL

A. INSTALLATION PLAN SHALL BE SUBMITTED A MINIMUM OF 14 DAYS PRIOR TO THE SCHEDULED INSTALLATION. PLAN SHOULD DESCRIBE THE METHODS, ACTIVITIES, MATERIALS AND SCHEDULE TO ACHIEVE INSTALLATION OF PLANTS.

B. OBSERVE EACH PLANT AFTER DELIVERY AND PRIOR TO INSTALLATION FOR DAMAGE OF OTHER CHARACTERISTICS THAT MAY CAUSE REJECTION OF THE PLANT. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY CONDITION OBSERVED.

C. NO MORE PLANTS SHALL BE DISTRIBUTED ABOUT THE PLANTING BED AREA THAN CAN BE PLANTED AND WATERED ON THE SAME DAY.

D. THE ROOT SYSTEM OF EACH PLANT, REGARDLESS OF ROOT BALL PACKAGE TYPE, SHALL BE OBSERVED BY THE CONTRACTOR, AT THE TIME OF PLANTING TO CONFIRM THAT THE ROOTS MEET THE REQUIREMENTS FOR PLANT ROOT QUALITY IN PART 2 PRODUCTS: PLANTS GENERAL: PLANT QUALITY. THE CONTRACTOR SHALL UNDERTAKE AT THE TIME OF PLANTING, ALL MODIFICATIONS TO THE ROOT SYSTEM REQUIRED BY THE OWNER'S REPRESENTATIVE TO MEET THESE QUALITY STANDARDS.

1. MODIFICATIONS, AT THE TIME OF PLANTING, TO MEET THE SPECIFICATIONS FOR THE DEPTH OF THE ROOT COLLAR AND REMOVAL OF STEM GIRDLING ROOTS AND CIRCLING ROOTS MAY

MAKE THE PLANT UNSTABLE OR STRESS THE PLANT TO THE POINT THAT THE OWNER'S REPRESENTATIVE MAY CHOOSE TO REJECT THE PLANT RATHER THAN PERMITTING THE MODIFICATION.

2. ANY MODIFICATIONS REQUIRED BY THE OWNER'S REPRESENTATIVE TO MAKE THE ROOT SYSTEM CONFORM TO THE PLANT QUALITY STANDARDS OUTLINED IN PART 2 PRODUCTS: PLANTS GENERAL: QUALITY, OR OTHER REQUIREMENTS RELATED TO THE PERMITTED ROOT BALL PACKAGE, SHALL NOT BE CONSIDERED AS GROUNDS TO MODIFY OR VOID THE PLANT WARRANTY.

3. THE RESULTING ROOT BALL MAY NEED ADDITIONAL STAKING AND WATER AFTER PLANTING. THE OWNER'S REPRESENTATIVE MAY REJECT THE PLANT IF THE ROOT MODIFICATION PROCESS MAKES THE TREE UNSTABLE OR IF THE TREE IS NOT HEALTHY AT THE END OF THE WARRANTY PERIOD. SUCH PLANTS SHALL STILL BE COVERED UNDER THE WARRANTY.

4. THE CONTRACTOR REMAINS RESPONSIBLE TO CONFIRM THAT THE GROWER HAS MADE ALL REQUIRED ROOT MODIFICATIONS NOTED DURING ANY NURSERY OBSERVATIONS.

E. CONTAINER AND BOXED ROOT BALL SHAVING: THE OUTER SURFACES OF ALL PLANTS IN CONTAINERS AND BOXES, INCLUDING THE TOP, SIDES AND BOTTOM OF THE ROOT BALL SHALL BE SHAVED TO REMOVE ALL CIRCLING, DESCENDING, AND MATTED ROOTS. SHAVING SHALL BE PERFORMED USING SAWS, KNIVES, SHARP SHOVELS OR OTHER SUITABLE EQUIPMENT THAT IS CAPABLE OF MAKING CLEAN CUTS ON THE ROOTS. SHAVING SHALL REMOVE A MINIMUM OF ONE INCH OF ROOT MAT OR UP TO 2 INCHES AS REQUIRED TO REMOVE ALL ROOT SEGMENTS THAT ARE NOT GROWING REASONABLY RADIAL TO THE TRUNK.

F. EXPOSED STEM TISSUE AFTER MODIFICATION: THE REQUIRED ROOT BALL MODIFICATIONS MAY RESULT IN STEM TISSUE THAT HAS NOT FORMED TRUNK BARK BEING EXPOSED ABOVE THE SOIL LINE. IF SUCH CONDITION OCCURS, WRAP THE EXPOSED PORTION OF THE STEM IN A PROTECTIVE WRAPPING WITH A WHITE FILTER FABRIC. SECURE THE FABRIC WITH BIODEGRADABLE MASKING TAPE. DO NOT USE STRING, TWINE, GREEN NURSERY TIES OR ANY OTHER MATERIAL THAT MAY GIRDLING THE TRUNK IF NOT REMOVED.

G. EXCAVATION OF THE PLANTING SPACE: USING HAND TOOLS OR TRACKED MINI-EXCAVATOR, EXCAVATE THE PLANTING HOLE INTO THE PLANTING SOIL TO THE DEPTH OF THE ROOT BALL MEASURED AFTER ANY ROOT BALL MODIFICATION TO CORRECT ROOT PROBLEMS, AND WIDE ENOUGH FOR WORKING ROOM AROUND THE ROOT BALL OR TO THE SIZE INDICATED ON THE DRAWING OR AS NOTED BELOW.

1. FOR TREES AND SHRUBS PLANTED IN SOIL AREAS THAT ARE NOT TILLED OR OTHERWISE MODIFIED TO A DEPTH OF AT LEAST 12 INCHES OVER A DISTANCE OF MORE THAN 10 FEET RADIUS FROM EACH TREE, OR 5 FEET RADIUS FROM EACH SHRUB, THE SOIL AROUND THE ROOT BALL SHALL BE LOOSENED AS DEFINED BELOW OR AS INDICATED ON THE DRAWINGS.

a. THE AREA OF LOOSENING SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF THE ROOT BALL AT THE SURFACE SLOPING TO 2 TIMES THE DIAMETER OF THE ROOT BALL AT THE DEPTH OF THE ROOT BALL.

b. LOOSENING IS DEFINED AS DIGGING INTO THE SOIL AND TURNING THE SOIL TO REDUCE THE COMPACTION. THE SOIL DOES NOT HAVE TO BE REMOVED FROM THE HOLE, JUST DUG, LIFTED AND TURNED. LIFTING AND TURNING MAY BE ACCOMPLISHED WITH A TRACKED MINI EXCAVATOR, OR HAND SHOVELS.

2. IF AN AUGER IS USED TO DIG THE INITIAL PLANTING HOLE, THE SOIL AROUND THE AUGER HOLE SHALL BE LOOSENED AS DEFINED ABOVE FOR TREES AND SHRUBS PLANTED IN SOIL AREAS THAT ARE NOT TILLED OR OTHERWISE MODIFIED.

3. THE MEASURING POINT FOR ROOT BALL DEPTH SHALL BE THE AVERAGE HEIGHT OF THE OUTER EDGE OF THE ROOT BALL AFTER ANY REQUIRED ROOT BALL MODIFICATION.

4. IF MOTORIZED EQUIPMENT IS USED TO DELIVER PLANTS TO THE PLANTING AREA OVER EXPOSED PLANTING BEDS, OR USED TO LOOSEN THE SOIL OR DIG THE PLANTING HOLES, ALL SOIL THAT HAS BEEN DRIVEN OVER SHALL BE TILLED TO A DEPTH OF 6 INCHES.

H. FOR TREES TO BE PLANTED IN PREPARED PLANTING SOIL THAT IS DEEPER THAN THE ROOT BALL DEPTH, COMPACT THE SOIL UNDER THE ROOT BALL USING A MECHANICAL TAMPER TO ASSURE A FIRM BEDDING FOR THE ROOT BALL. IF THERE IS MORE THAN 12 INCHES OF PLANTING SOIL UNDER THE ROOT BALL EXCAVATE AND TAMP THE PLANTING SOIL IN LIFTS NOT TO EXCEED 12 INCHES.

I. SET TOP OUTER EDGE OF THE ROOT BALL AT THE AVERAGE ELEVATION OF THE PROPOSED FINISH. SET THE PLANT PLUMB AND UPRIGHT IN THE CENTER OF THE PLANTING HOLE. THE TREE GRAFT, IF APPLICABLE, SHALL BE VISIBLE ABOVE THE GRADE. DO NOT PLACE SOIL ON TOP OF THE ROOT BALL.

J. THE OWNER'S REPRESENTATIVE MAY REQUEST THAT PLANTS ORIENTATION BE ROTATED WHEN PLANTED BASED ON THE FORM OF THE PLANT.

K. BACKFILL THE SPACE AROUND THE ROOT BALL WITH THE SAME PLANTING SOIL OR EXISTING SOIL THAT WAS EXCAVATED FOR THE PLANTING SPACE. SEE SPECIFICATION SECTION PLANTING SOIL, FOR REQUIREMENTS TO MODIFY THE SOIL WITHIN THE PLANTING BED.

L. BRACE ROOT BALL BY TAMPING PLANTING SOIL AROUND THE LOWER PORTION OF THE ROOT BALL. PLACE ADDITIONAL PLANTING SOIL AROUND BASE AND SIDES OF BALL IN SIX-INCH (6") LIFTS. LIGHTLY TAMP EACH LIFT USING FOOT PRESSURE OR HAND TOOLS TO SETTLE BACKFILL, SUPPORT THE TREE AND ELIMINATE VOIDS. DO NOT OVER COMPACT THE BACKFILL OR USE MECHANICAL OR PNEUMATIC TAMPING EQUIPMENT. OVER COMPACTION SHALL BE DEFINED AS GREATER THAN 85% OF MAXIMUM DRY DENSITY, STANDARD PROCTOR OR GREATER THAN 250 PSI AS MEASURED BY A CONE PENETROMETER WHEN THE VOLUMETRIC SOIL MOISTURE IS LOWER THAN FIELD CAPACITY.



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KHA PROJECT
097515003
DATE
12/27/2017
SCALE AS SHOWN
DESIGNED BY DW
DRAWN BY DW
CHECKED BY DC
SAN MATEO COUNTY



CALIFORNIA DRIVE
ROUNDBOUT
PREPARED FOR
CITY OF BURLINGAME
CA

LANDSCAPE SPECIFICATIONS

SHEET NO. 50
OF 61 SHEETS
LS-04

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- 3.12 STAKING AND GUYING**
- A. DO NOT STAKE OR GUY TREES UNLESS SPECIFICALLY REQUIRED BY THE CONTRACT DOCUMENTS, OR IN THE EVENT THAT THE CONTRACTOR FEELS THAT STAKING IS THE ONLY ALTERNATIVE WAY TO KEEP PARTICULAR TREES PLUMB.
 - 1. THE OWNER'S REPRESENTATIVE SHALL HAVE THE AUTHORITY TO REQUIRE THAT TREES ARE STAKED OR TO REJECT STAKING AS AN ALTERNATIVE WAY TO STABILIZE THE TREE.
 - 2. TREES THAT REQUIRED HEAVILY MODIFIED ROOT BALLS TO MEET THE ROOT QUALITY STANDARDS MAY BECOME UNSTABLE. THE OWNER'S REPRESENTATIVE MAY CHOOSE TO REJECT THESE TREES RATHER THAN UTILIZE STAKING TO TEMPORARILY SUPPORT THE TREE.
 - B. TREES THAT ARE GUYED SHALL HAVE THEIR GUYS AND STAKES REMOVED AFTER ONE FULL GROWING SEASON OR AT OTHER TIMES AS REQUIRED BY THE OWNER'S REPRESENTATIVE.
 - C. TREE GUYING SHALL UTILIZE THE TREE STAKING AND GUYING MATERIALS SPECIFIED. GUYING TO BE TIED IN SUCH A MANNER AS TO CREATE A MINIMUM 12-INCH LOOP TO PREVENT GIRDLING. REFER TO MANUFACTURER'S RECOMMENDATIONS AND THE PLANTING DETAIL FOR INSTALLATION.
 - 1. PLANTS SHALL STAND PLUMB AFTER STAKING OR GUYING.
 - 2. STAKES SHALL BE DRIVEN TO SUFFICIENT DEPTH TO HOLD THE TREE RIGID.
 - D. FOR TREES PLANTED IN PLANTING MIX OVER WATERPROOFED MEMBRANE, USE DEAD MEN BURIED 24 INCHES TO THE TOP OF THE DEAD MAN, IN THE SOIL. TIE THE GUY TO THE DEAD MAN WITH A DOUBLE WRAP OF LINE AROUND THE DEAD MAN FOLLOWED BY A DOUBLE HALF HITCH. WHEN GUYS ARE REMOVED, LEAVE THE DEAD MEN IN PLACE AND CUT THE GUY TAPE 12 INCHES ABOVE THE GROUND, LEAVING THE TAPE END COVERED IN MULCH.

- 3.10 PERMITTED ROOT BALL PACKAGES AND SPECIAL PLANTING REQUIREMENTS**
- A. CONTAINER (INCLUDES BOXED AND ABOVE-GROUND FABRIC CONTAINERS) PLANTS

THIS SPECIFICATION ASSUMES THAT MOST CONTAINER PLANTS HAVE SIGNIFICANT STEM GIRDLING AND CIRCLING ROOTS, AND THAT THE ROOT COLLAR IS TOO LOW IN THE ROOT BALL.

 - 1. REMOVE THE CONTAINER.
 - 2. PERFORM ROOT BALL SHAVING AS DEFINED IN INSTALLATION OF PLANTS: GENERAL ABOVE.
 - 3. REMOVE ALL ROOTS AND SUBSTRATE ABOVE THE ROOT COLLAR AND THE MAIN STRUCTURAL ROOTS ACCORDING TO ROOT CORRECTION DETAILS SO ROOT SYSTEM CONFORMS TO ROOT OBSERVATIONS DETAIL.
 - 4. REMOVE ALL SUBSTRATE AT THE BOTTOM OF THE ROOT BALL THAT DOES NOT CONTAIN ROOTS.
 - 5. USING A HOSE, POWER WASHER OR AIR EXCAVATION DEVICE, WASH OUT THE SUBSTRATE FROM AROUND THE TRUNK AND TOP OF THE REMAINING ROOT BALL AND FIND AND REMOVE ALL STEM GIRDLING ROOTS WITHIN THE ROOT BALL ABOVE THE TOP OF THE STRUCTURAL ROOTS.

- 3.11 GROUND COVER, PERENNIAL AND ANNUAL PLANTS**
- D. ASSURE THAT SOIL MOISTURE IS WITHIN THE REQUIRED LEVELS PRIOR TO PLANTING. IRRIGATION, IF REQUIRED, SHALL BE APPLIED AT LEAST 12 HOURS PRIOR TO PLANTING TO AVOID PLANTING IN MUDDY SOILS.
 - E. ASSURE THAT SOIL GRADES IN THE BEDS ARE SMOOTH AND AS SHOWN ON THE PLANS.
 - F. PLANTS SHALL BE PLANTED IN EVEN, TRIANGULARLY SPACED ROWS, AT THE INTERVALS CALLED OUT FOR ON THE DRAWINGS, UNLESS OTHERWISE NOTED. THE FIRST ROW OF ANNUAL FLOWER PLANTS SHALL BE 6 INCHES FROM THE BED EDGE UNLESS OTHERWISE DIRECTED.
 - G. DIG PLANTING HOLES SUFFICIENTLY LARGE ENOUGH TO INSERT THE ROOT SYSTEM WITHOUT DEFORMING THE ROOTS. SET THE TOP OF THE ROOT SYSTEM AT THE GRADE OF THE SOIL.
 - H. SCHEDULE THE PLANTING TO OCCUR PRIOR TO APPLICATION OF THE MULCH. IF THE BED IS ALREADY MULCHED, PULL THE MULCH FROM AROUND THE HOLE AND PLANT INTO THE SOIL. DO NOT PLANT THE ROOT SYSTEM IN THE MULCH. PULL MULCH BACK SO IT IS NOT ON THE ROOT BALL SURFACE.
 - I. PRESS SOIL TO BRING THE ROOT SYSTEM IN CONTACT WITH THE SOIL.
 - J. SPREAD ANY EXCESS SOIL AROUND IN THE SPACES BETWEEN PLANTS.
 - K. APPLY MULCH TO THE BED BEING SURE NOT TO COVER THE TOPS OF THE PLANTS WITH OR THE TOPS OF THE ROOT BALL WITH MULCH.
 - L. WATER EACH PLANTING AREA AS SOON AS THE PLANTING IS COMPLETED. APPLY ADDITIONAL WATER TO KEEP THE SOIL MOISTURE AT THE REQUIRED LEVELS. DO NOT OVER WATER.

- 3.15 PRUNING OF TREES AND SHRUBS**
- A. PRUNE PLANTS AS DIRECTED BY THE OWNER'S REPRESENTATIVE. PRUNING TREES SHALL BE LIMITED TO ADDRESSING STRUCTURAL DEFECTS AS SHOWN IN DETAILS; FOLLOW RECOMMENDATIONS IN "STRUCTURAL PRUNING: A GUIDE FOR THE GREEN INDUSTRY" PUBLISHED BY URBAN TREE FOUNDATION, VISALIA CA.
 - B. ALL PRUNING SHALL BE PERFORMED BY A PERSON EXPERIENCED IN STRUCTURAL TREE PRUNING.
 - C. EXCEPT FOR PLANTS SPECIFIED AS MULTI-STEMMED OR AS OTHERWISE INSTRUCTED BY THE OWNER'S REPRESENTATIVE, PRESERVE OR CREATE A CENTRAL LEADER.
 - D. PRUNING OF LARGE TREES SHALL BE DONE USING POLE PRUNERS OR IF NEEDED, FROM A LADDER OR HYDRAULIC LIFT TO GAIN ACCESS TO THE TOP OF THE TREE. DO NOT CLIMB IN NEWLY PLANTED TREES. SMALL TREES CAN BE STRUCTURALLY PRUNED BY LAYING THEM OVER BEFORE PLANTING. PRUNING MAY ALSO BE PERFORMED AT THE NURSERY PRIOR TO SHIPPING.
 - E. REMOVE AND REPLACE EXCESSIVELY PRUNED OR MALFORMED STOCK RESULTING FROM IMPROPER PRUNING THAT OCCURRED IN THE NURSERY OR AFTER.
 - F. PRUNING SHALL BE DONE WITH CLEAN, SHARP TOOLS.
 - G. NO TREE PAINT OR SEALANTS SHALL BE USED.

- 3.18 WATERING**
- A. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO ENSURE THAT ADEQUATE WATER IS PROVIDED TO ALL PLANTS FROM THE POINT OF INSTALLATION UNTIL THE DATE OF SUBSTANTIAL COMPLETION ACCEPTANCE. THE CONTRACTOR SHALL ADJUST THE AUTOMATIC IRRIGATION SYSTEM, IF AVAILABLE, AND APPLY ADDITIONAL OR ADJUST FOR LESS WATER USING HOSES AS REQUIRED.

- B. HAND WATER ROOT BALLS OF ALL PLANTS TO ASSURE THAT THE ROOT BALLS HAVE MOISTURE ABOVE WILT POINT AND BELOW FIELD CAPACITY. TEST THE MOISTURE CONTENT IN EACH ROOT BALL AND THE SOIL OUTSIDE THE ROOT BALL TO DETERMINE THE WATER CONTENT.
 - C. THE CONTRACTOR SHALL INSTALL 25 GALLON WATERING BAG FOR EACH TREE TO BE MAINTAINED AND USED FOR TREE WATERING DURING THE WARRANTY PERIOD.
 - 1. THE WATERING BAGS SHALL REMAIN THE PROPERTY OF THE OWNER AT THE COMPLETION OF THE WORK.
- 3.19 CLEAN-UP**
- A. DURING INSTALLATION, KEEP THE SITE FREE OF TRASH, PAVEMENTS REASONABLY CLEAN AND WORK AREA IN AN ORDERLY CONDITION AT THE END OF EACH DAY. REMOVE TRASH AND DEBRIS IN CONTAINERS FROM THE SITE NO LESS THAN ONCE A WEEK.
 - 1. IMMEDIATELY CLEAN UP ANY SPILLED OR TRACKED SOIL, FUEL, OIL, TRASH OR DEBRIS DEPOSITED BY THE CONTRACTOR FROM ALL SURFACES WITHIN THE PROJECT OR ON PUBLIC RIGHT OF WAYS AND NEIGHBORING PROPERTY.
 - 2. ONCE INSTALLATION IS COMPLETE, WASH ALL SOIL FROM PAVEMENTS AND OTHER STRUCTURES. ENSURE THAT MULCH IS CONFINED TO PLANTING BEDS AND THAT ALL TAGS AND FLAGGING TAPE ARE REMOVED FROM THE SITE. THE OWNER'S REPRESENTATIVE'S SEALS ARE TO REMAIN ON THE TREES AND REMOVED AT THE END OF THE WARRANTY PERIOD.
 - 3. MAKE ALL REPAIRS TO GRADES, RUTS, AND DAMAGE BY THE PLANT INSTALLER TO THE WORK OR OTHER WORK AT THE SITE.
 - 4. REMOVE AND DISPOSE OF ALL EXCESS PLANTING SOIL, SUBSOIL, MULCH, PLANTS, PACKAGING, AND OTHER MATERIAL BROUGHT TO THE SITE BY THE CONTRACTOR.

- 3.20 PROTECTION DURING CONSTRUCTION**
- A. THE CONTRACTOR SHALL PROTECT PLANTING AND RELATED WORK AND OTHER SITE WORK FROM DAMAGE DUE TO PLANTING OPERATIONS, OPERATIONS BY OTHER CONTRACTORS OR TRESPASSERS. MAINTAIN PROTECTION DURING INSTALLATION UNTIL SUBSTANTIAL COMPLETION ACCEPTANCE. TREAT, REPAIR OR REPLACE DAMAGED WORK IMMEDIATELY.
 - B. DAMAGE DONE BY THE CONTRACTOR, OR ANY OF THEIR SUB-CONTRACTORS TO EXISTING OR INSTALLED PLANTS, OR ANY OTHER PARTS OF THE WORK OR EXISTING FEATURES TO REMAIN, INCLUDING ROOTS, TRUNK OR BRANCHES OF LARGE EXISTING TREES, SOIL, PAVING, UTILITIES, LIGHTING, IRRIGATION, OTHER FINISHED WORK AND SURFACES INCLUDING THOSE ON ADJACENT PROPERTY, SHALL BE CLEANED, REPAIRED OR REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER. THE OWNER'S REPRESENTATIVE SHALL DETERMINE WHEN SUCH CLEANING, REPLACEMENT OR REPAIR IS SATISFACTORY.

- 3.21 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE**
- DURING THE PROJECT WORK PERIOD AND PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE, THE CONTRACTOR SHALL MAINTAIN ALL PLANTS.
- A. MAINTENANCE DURING THE PERIOD PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE SHALL CONSIST OF PRUNING, WATERING, CULTIVATING, WEEDING, MULCHING, REMOVAL OF DEAD MATERIAL, REPAIRING AND REPLACING OF TREE STAKES, REPAIRING AND REPLACING OF DAMAGED TREE WRAP MATERIAL, RESETTLING PLANTS TO PROPER GRADES AND UPRIGHT POSITION, AND FURNISHING AND APPLYING SUCH SPRAYS AS ARE NECESSARY TO KEEP PLANTINGS REASONABLY FREE OF DAMAGING INSECTS AND DISEASE, AND IN HEALTHY CONDITION. THE THRESHOLD FOR APPLYING INSECTICIDES AND HERBICIDE SHALL FOLLOW ESTABLISHED INTEGRATED PEST MANAGEMENT (IPM) PROCEDURES. MULCH AREAS SHALL BE KEPT REASONABLY FREE OF WEEDS, GRASS.
- 3.22 SUBSTANTIAL COMPLETION ACCEPTANCE**
- A. UPON WRITTEN NOTICE FROM THE CONTRACTOR, THE OWNERS REPRESENTATIVE SHALL REVIEW THE WORK AND MAKE A DETERMINATION IF THE WORK IS SUBSTANTIALLY COMPLETE.
 - 1. NOTIFICATION SHALL BE AT LEAST 7 DAYS PRIOR TO THE DATE THE CONTRACTOR IS REQUESTING THE REVIEW.
 - 2. THE DATE OF SUBSTANTIAL COMPLETION OF THE PLANTING SHALL BE THE DATE WHEN THE OWNER'S REPRESENTATIVE ACCEPTS THAT ALL WORK IN PLANTING, PLANTING SOIL, AND IRRIGATION INSTALLATION SECTIONS IS COMPLETE.
 - 3. THE PLANT WARRANTY PERIOD BEGINS AT DATE OF WRITTEN NOTIFICATION OF SUBSTANTIAL COMPLETION FROM THE OWNER'S REPRESENTATIVE. THE DATE OF SUBSTANTIAL COMPLETION MAY BE DIFFERENT THAN THE DATE OF SUBSTANTIAL COMPLETION FOR THE OTHER SECTIONS OF THE PROJECT.

- 3.23 MAINTENANCE DURING THE WARRANTY PERIOD BY THE PLANT INSTALLER**
- A. DURING THE WARRANTY PERIOD, PROVIDE ALL MAINTENANCE FOR ALL PLANTINGS TO KEEP THE PLANTS IN A HEALTHY STATE AND THE PLANTING AREAS CLEAN AND NEAT.
 - B. GENERAL REQUIREMENTS:
 - 1. ALL WORK SHALL BE UNDERTAKEN BY TRAINED PLANTING CREWS UNDER THE SUPERVISION OF A FOREMAN WITH A MINIMUM OF 5 YEARS EXPERIENCE SUPERVISING COMMERCIAL PLANT MAINTENANCE CREWS.
 - 2. ALL CHEMICAL AND FERTILIZER APPLICATIONS SHALL BE MADE BY LICENSED APPLICATORS FOR THE TYPE OF CHEMICALS TO BE USED. ALL WORK AND CHEMICAL USE SHALL COMPLY WITH ALL APPLICABLE LOCAL, PROVINCIAL AND FEDERAL REQUIREMENTS.
 - 3. ASSURE THAT HOSES AND WATERING EQUIPMENT AND OTHER MAINTENANCE EQUIPMENT DOES NOT BLOCK PATHS OR BE PLACED IN A MANNER THAT MAY CREATE TRIPPING HAZARDS. USE STANDARD SAFETY WARNING BARRIERS AND OTHER PROCEDURES TO MAINTAIN THE SITE IN A SAFE MANNER FOR VISITORS AT ALL TIMES.

- 4. ALL WORKERS SHALL WEAR REQUIRED SAFETY EQUIPMENT AND APPAREL APPROPRIATE FOR THE TASKS BEING UNDERTAKEN.
- 5. THE CONTRACTOR SHALL NOT STORE MAINTENANCE EQUIPMENT AT THE SITE AT TIMES WHEN THEY ARE NOT IN USE UNLESS AUTHORIZED IN WRITING BY THE OWNER'S REPRESENTATIVE.
- 6. MAINTENANCE VEHICLES SHALL NOT PARK ON THE SITE INCLUDING WALKS AND LAWN AREAS AT ANY TIME WITHOUT THE OWNER'S REPRESENTATIVE'S WRITTEN PERMISSION.
- 7. MAINTAIN A DETAILED LOG OF ALL MAINTENANCE ACTIVITIES INCLUDING TYPES OF TASKS, DATE OF TASK, TYPES AND QUANTITIES OF MATERIALS AND PRODUCTS USED, WATERING TIMES AND AMOUNTS, AND NUMBER OF EACH CREW. PERIODICALLY REVIEW THE LOGS WITH THE OWNER'S REPRESENTATIVE, AND SUBMIT A COPY OF THE LOGS AT THE END OF EACH YEAR OF THE MAINTENANCE AGREEMENT.
- 8. MEET WITH THE OWNER'S REPRESENTATIVE A MINIMUM OF THREE TIMES A YEAR TO REVIEW THE PROGRESS AND DISCUSS ANY CHANGES THAT ARE NEEDED IN THE MAINTENANCE PROGRAM. AT THE END OF THE WARRANTY PERIOD ATTEND A HAND OVER MEETING TO FORMALLY TRANSFER THE RESPONSIBILITIES OF MAINTENANCE TO THE OWNER'S REPRESENTATIVE. PROVIDE ALL INFORMATION ON PAST MAINTENANCE ACTIVITIES AND PROVIDE A LIST OF CRITICAL TASKS THAT WILL BE NEEDED OVER THE NEXT 12 MONTHS. PROVIDE ALL MAINTENANCE LOGS AND SOIL TEST DATA. MAKE THE CONTRACTOR'S SUPERVISOR AVAILABLE FOR A MINIMUM OF ONE YEAR AFTER THE END OF THE WARRANTY PERIOD TO ANSWER QUESTIONS ABOUT PAST MAINTENANCE.

- C. PROVIDE THE FOLLOWING MAINTENANCE TASKS:
- 1. WATERING; PROVIDE ALL WATER REQUIRED TO KEEP SOIL WITHIN AND AROUND THE ROOT BALLS AT OPTIMUM MOISTURE CONTENT FOR PLANT GROWTH.
 - a. MAINTAIN ALL WATERING SYSTEMS AND EQUIPMENT AND KEEP THEM OPERATIONAL.
 - b. MONITOR SOIL MOISTURE TO PROVIDE SUFFICIENT WATER. CHECK SOIL MOISTURE AND ROOT BALL MOISTURE WITH A SOIL MOISTURE METER ON A REGULAR BASIS AND RECORD MOISTURE READINGS. DO NOT OVER WATER.
 - 2. SOIL NUTRIENT LEVELS: TAKE A MINIMUM OF 4 SOIL SAMPLES FROM AROUND THE SITE IN THE SPRING AND FALL AND HAVE THEM TESTED BY AN ACCREDITED AGRICULTURAL SOIL TESTING LAB FOR CHEMICAL COMPOSITION OF PLANT REQUIRED NUTRIENTS, PH, SALT AND % ORGANIC MATTER. TEST RESULTS SHALL INCLUDE LABORATORY RECOMMENDATIONS FOR NUTRIENT APPLICATIONS. APPLY FERTILIZERS AT RATES RECOMMENDED BY THE SOIL TEST.
 - a. MAKE ANY OTHER SOIL TEST AND/OR PLANT TISSUE TEST THAT MAY BE INDICATED BY PLANT CONDITIONS THAT MAY NOT BE RELATED TO SOIL NUTRIENT LEVELS SUCH AS SOIL CONTAMINATED BY OTHER CHEMICALS OR LACK OF CHEMICAL UPTAKE BY THE PLANT.
 - 3. PLANT PRUNING: REMOVE CROSS OVER BRANCHING, SHORTEN OR REMOVE DEVELOPING CO DOMINANT LEADERS, DEAD WOOD AND WINTER-DAMAGED BRANCHES. UNLESS DIRECTED BY THE OWNER'S REPRESENTATIVE, DO NOT SHEAR PLANTS OR MAKE HEADING CUTS.
 - 4. RESTORE PLANTS: RESET ANY PLANTS THAT HAVE SETTLED OR ARE LEANING AS SOON AS THE CONDITION IS NOTICED.
 - 5. GUYING AND STAKING: MAINTAIN PLANT GUYS IN A TAUGHT POSITION. REMOVE TREE GUYS AND STAKING AFTER THE FIRST FULL GROWING SEASON UNLESS DIRECTED BY OWNER'S REPRESENTATIVE.
 - 6. WEED CONTROL: KEEP ALL BEDS FREE OF WEEDS. HAND-REMOVE ALL WEEDS AND ANY PLANTS THAT DO NOT APPEAR ON THE PLANTING PLAN. CHEMICAL WEED CONTROL IS PERMITTED ONLY WITH THE APPROVAL OF THE OWNER'S REPRESENTATIVE. SCHEDULE WEEDING AS NEEDED BUT NOT LESS 12 TIMES PER YEAR.
 - 7. TRASH REMOVAL: REMOVE ALL TRASH AND DEBRIS FROM ALL PLANTING BEDS AND MAINTAIN THE BEDS IN A NEAT AND TIDY APPEARANCE. THE NUMBER OF TRASH AND DEBRIS REMOVAL VISITS SHALL BE NO LESS THAN 12 TIMES PER YEAR AND MAY COINCIDE WITH OTHER MAINTENANCE VISITS.
 - 8. PLANT PEST CONTROL: MAINTAIN DISEASE, INSECTS AND OTHER PESTS AT MANAGEABLE LEVELS. MANAGEABLE LEVELS SHALL BE DEFINED AS DAMAGE TO PLANTS THAT MAY BE NOTICEABLE TO A PROFESSIONAL BUT NOT TO THE AVERAGE PERSON. USE LEAST INVASIVE METHODS TO CONTROL PLANT DISEASE AND INSECT OUTBREAKS.
 - D. THE OWNER'S REPRESENTATIVE MUST APPROVE IN ADVANCE THE USE OF ALL CHEMICAL PESTICIDE APPLICATIONS.
 - 9. PLANT REPLACEMENT: REPLACE ALL PLANTS THAT ARE DEFECTIVE AS DEFINED IN THE WARRANTY PROVISIONS, AS SOON AS THE PLANT DECLINE IS OBVIOUS AND IN SUITABLE WEATHER AND SEASON FOR PLANTING AS OUTLINED IN ABOVE SECTIONS. PLANTS THAT BECOME DEFECTIVE DURING THE MAINTENANCE PERIOD SHALL BE COVERED AND REPLACED UNDER THE WARRANTY PROVISIONS.
 - 10. MULCH: REFRESH MULCH ONCE A YEAR TO MAINTAIN COMPLETE COVERAGE BUT DO NOT OVER MULCH. AT NO TIME SHALL THE OVERALL MULCH THICKNESS BE GREATER THAN 4 INCHES. DO NOT APPLY MULCH WITHIN 6 INCHES OF THE TRUNKS OR STEMS OF ANY PLANTS. REPLACEMENT MULCH SHALL MEET THE REQUIREMENTS OF THE ORIGINAL APPROVED MATERIAL. MULCH SHALL BE NO MORE THAN ONE INCH ON TOP OF THE ROOT BALL SURFACE.
 - 11. BED EDGING: CHECK AND MAINTAIN EDGES BETWEEN MULCH AND LAWN AREAS IN SMOOTH NEAT LINES AS ORIGINALLY SHOWN ON THE DRAWINGS.
 - 12. LEAF, FRUIT AND OTHER PLANT DEBRIS REMOVAL: REMOVE FALL LEAF, SPENT FLOWERS, FRUIT AND PLANT PART ACCUMULATIONS FROM BEDS AND PAVED SURFACES. MAINTAIN ALL SURFACE WATER

- 13. DAMAGE FROM SITE USE: REPAIR OF DAMAGE BY SITE VISITORS AND EVENTS, BEYOND NORMAL WEAR, ARE NOT PART OF THIS MAINTENANCE. THE OWNER'S REPRESENTATIVE MAY REQUEST THAT THE CONTRACTOR REPAIR DAMAGE BEDS OR PLANTINGS FOR AN ADDITIONAL COST. ALL ADDITIONAL WORK SHALL BE APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
- 3.24 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION**
- A. AT THE END OF THE WARRANTY AND MAINTENANCE PERIOD THE OWNER'S REPRESENTATIVE SHALL OBSERVE THE WORK AND ESTABLISH THAT ALL PROVISIONS OF THE CONTRACT ARE COMPLETE AND THE WORK IS SATISFACTORY.
 - 1. IF THE WORK IS SATISFACTORY, THE MAINTENANCE PERIOD WILL END ON THE DATE OF THE FINAL OBSERVATION.
 - 2. IF THE WORK IS DEEMED UNSATISFACTORY, THE MAINTENANCE PERIOD WILL CONTINUE AT NO ADDITIONAL EXPENSE TO THE OWNER UNTIL THE WORK HAS BEEN COMPLETED, OBSERVED, AND APPROVED BY THE OWNER'S REPRESENTATIVE.
 - B. FAILURE TO PASS OBSERVATION: IF THE WORK FAILS TO PASS FINAL OBSERVATION, ANY SUBSEQUENT OBSERVATIONS MUST BE RESCHEDULED AS PER ABOVE. THE COST TO THE OWNER FOR ADDITIONAL OBSERVATIONS WILL BE CHARGED TO THE CONTRACTOR AT THE PREVAILING HOURLY RATE OF THE OWNERS REPRESENTATIVE.

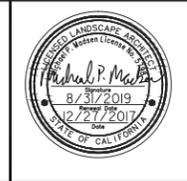


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**CALIFORNIA DRIVE
ROUNDBOUT**

PREPARED FOR
CITY OF BURLINGAME

SAN MATEO COUNTY



**LANDSCAPE
SPECIFICATIONS**

SHEET NO. 51
OF 61 SHEETS

LS-05

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SECTION: PLANTING SOIL

PART 1 GENERAL

1.1 SUMMARY

- A. THE SCOPE OF WORK INCLUDES ALL LABOR, MATERIALS, TOOLS, SUPPLIES, EQUIPMENT, FACILITIES, TRANSPORTATION AND SERVICES NECESSARY FOR, AND INCIDENTAL TO PERFORMING ALL OPERATIONS IN CONNECTION WITH FURNISHING, DELIVERY, AND INSTALLATION OF PLANTING SOIL AND /OR THE MODIFICATION OF EXISTING SITE SOIL FOR USE AS PLANTING SOIL, COMPLETE AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
- B. THE SCOPE OF WORK IN THIS SECTION INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
 1. LOCATE, PURCHASE, DELIVER AND INSTALL IMPORTED PLANTING SOIL AND SOIL AMENDMENTS.
 2. FINE GRADE PLANTING SOIL.
 3. INSTALL COMPOST INTO PLANTING SOIL.
 4. CLEAN UP AND DISPOSAL OF ALL EXCESS AND SURPLUS MATERIAL.

1.2 CONTRACT DOCUMENTS

- A. SHALL CONSIST OF SPECIFICATIONS, GENERAL CONDITIONS, AND THE DRAWINGS. THE INTENT OF THESE DOCUMENTS IS TO INCLUDE ALL LABOR, MATERIALS, AND SERVICES NECESSARY FOR THE PROPER EXECUTION OF THE WORK. THE DOCUMENTS ARE TO BE CONSIDERED AS ONE. WHATEVER IS CALLED FOR BY ANY PARTS SHALL BE AS BINDING AS IF CALLED FOR IN ALL PARTS.

1.3 RELATED DOCUMENTS AND REFERENCES

- A. RELATED DOCUMENTS:
 1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATIONS, APPLY TO WORK OF THIS SECTION.
 2. RELATED SPECIFICATION SECTION
 - a. PLANTING SPECIFICATIONS
 - b. IRRIGATION SPECIFICATIONS
- B. REFERENCES: THE FOLLOWING SPECIFICATIONS AND STANDARDS OF THE ORGANIZATIONS AND DOCUMENTS LISTED IN THIS PARAGRAPH FORM A PART OF THE SPECIFICATION TO THE EXTENT REQUIRED BY THE REFERENCES THERETO. IN THE EVENT THAT THE REQUIREMENTS OF THE FOLLOWING REFERENCED STANDARDS AND SPECIFICATION CONFLICT WITH THIS SPECIFICATION SECTION THE REQUIREMENTS OF THIS SPECIFICATION SHALL PREVAIL. IN THE EVENT THAT THE REQUIREMENTS OF ANY OF THE FOLLOWING REFERENCED STANDARDS AND SPECIFICATIONS CONFLICT WITH EACH OTHER THE MORE STRINGENT REQUIREMENT SHALL PREVAIL.
 1. ASTM: AMERICAN SOCIETY OF TESTING MATERIALS CITED SECTION NUMBERS.
 2. U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2003. NATIONAL SOIL SURVEY HANDBOOK, TITLE 430-VI. AVAILABLE ONLINE.
 3. US COMPOSTING COUNCIL [WWW.COMPOSTINGCOUNCIL.ORG](http://www.compostingcouncil.org) AND [HTTP://COMPOSTINGCOUNCIL.ORG/ADMIN/WP-CONTENT/PLUGINS/WP-PDFUPLOAD/PDF/191/LANDSCAPEARCH_SPECS.PDF](http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/191/LANDSCAPEARCH_SPECS.PDF).
 4. METHODS OF SOIL ANALYSIS, AS PUBLISHED BY THE SOIL SCIENCE SOCIETY OF AMERICA ([HTTP://WWW.SOILS.ORG/](http://www.soils.org/)).
 5. UP BY ROOTS: HEALTHY SOILS AND TREES IN THE BUILT ENVIRONMENT. 2008. J. URBAN. INTERNATIONAL SOCIETY OF ARBORICULTURE, CHAMPAIGN, IL.

1.4 VERIFICATION

- A. ALL SCALED DIMENSIONS ON THE DRAWINGS ARE APPROXIMATE. BEFORE PROCEEDING WITH ANY WORK, THE CONTRACTOR SHALL CAREFULLY CHECK AND VERIFY ALL DIMENSIONS AND QUANTITIES, AND SHALL IMMEDIATELY INFORM THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE INFORMATION ON THE DRAWINGS AND THE ACTUAL CONDITIONS, REFRAINING FROM DOING ANY WORK IN SAID AREAS UNTIL GIVEN APPROVAL TO DO SO BY THE OWNER'S REPRESENTATIVE.

1.5 PERMITS AND REGULATIONS

- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS RELATED TO THIS SECTION OF THE WORK UNLESS PREVIOUSLY EXCLUDED UNDER PROVISION OF THE CONTRACT OR GENERAL CONDITIONS. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS AND ORDINANCES BEARING ON THE OPERATION OR CONDUCT OF THE WORK AS DRAWN AND SPECIFIED. IF THE CONTRACTOR OBSERVES THAT A CONFLICT EXISTS BETWEEN PERMIT REQUIREMENTS AND THE WORK OUTLINED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING INCLUDING A DESCRIPTION OF ANY NECESSARY CHANGES AND CHANGES TO THE CONTRACT PRICE RESULTING FROM CHANGES IN THE WORK.
- B. WHEREVER REFERENCES ARE MADE TO STANDARDS OR CODES IN ACCORDANCE WITH WHICH WORK IS TO BE PERFORMED OR TESTED, THE EDITION OR REVISION OF THE STANDARDS AND CODES CURRENT ON THE EFFECTIVE DATE OF THIS CONTRACT SHALL APPLY, UNLESS OTHERWISE EXPRESSLY SET FORTH.
- C. IN CASE OF CONFLICT AMONG ANY REFERENCED STANDARDS OR

CODES OR AMONG ANY REFERENCED STANDARDS AND CODES AND THE SPECIFICATIONS, THE MORE RESTRICTIVE STANDARD SHALL APPLY OR OWNER'S REPRESENTATIVE SHALL DETERMINE WHICH SHALL GOVERN.

- D. COMPLY WITH THE REQUIREMENTS OF THE CALIFORNIA CODE OF REGULATION TITLE 23 WATERS, DIVISION 2 DEPARTMENT OF WATER RESOURCES CHAPTER 2.7 MODEL WATER EFFICIENT LANDSCAPE ORDINANCE, 492.5 SOIL MANAGEMENT REPORT.

- 1. WHERE REQUIREMENTS OF SPECIFICATION SECTION PLANTING SOIL ARE MORE STRINGENT THAN THE CALIFORNIA CODE, THE MORE STRINGENT REQUIREMENTS SHALL PREVAIL.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

- A. THE CONTRACTOR SHALL ADEQUATELY PROTECT THE WORK, ADJACENT PROPERTY, AND THE PUBLIC, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES OR INJURY DUE TO THE CONTRACTOR'S ACTIONS.

1.7 CHANGES IN WORK

- A. THE OWNER'S REPRESENTATIVE MAY ORDER CHANGES IN THE WORK, AND THE CONTRACT SUM ADJUSTED ACCORDINGLY. ALL SUCH ORDERS AND ADJUSTMENTS PLUS CLAIMS BY THE CONTRACTOR FOR EXTRA COMPENSATION MUST BE MADE AND APPROVED IN WRITING BEFORE EXECUTING THE WORK INVOLVED.
- B. ALL CHANGES IN THE WORK, NOTIFICATIONS AND CONTRACTOR'S REQUEST FOR INFORMATION (RFI) SHALL CONFORM TO THE CONTRACT GENERAL CONDITION REQUIREMENTS.

1.8 CORRECTION OF WORK

- A. THE CONTRACTOR SHALL RE-EXECUTE ANY WORK THAT FAILS TO CONFORM TO THE REQUIREMENTS OF THE CONTRACT AND SHALL REMEDY DEFECTS DUE TO FAULTY MATERIALS OR WORKMANSHIP UPON WRITTEN NOTICE FROM THE OWNER'S REPRESENTATIVE, AT THE SOONEST POSSIBLE TIME THAT CAN BE COORDINATED WITH OTHER WORK AND SEASONAL WEATHER DEMANDS BUT NOT MORE THAN 180 (ONE HUNDRED AND EIGHTY) DAYS AFTER NOTIFICATION.

1.9 DEFINITIONS

- A. ACCEPTABLE DRAINAGE: DRAINAGE RATE IS SUFFICIENT FOR THE PLANTS TO BE GROWN. NOT TOO FAST AND NOT TOO SLOW. TYPICAL RATES FOR INSTALLED PLANTING SOIL ARE BETWEEN 1 - 5 INCHES PER HOUR. TURF SOILS ARE OFTEN HIGHER, BUT DRAINAGE RATES ABOVE 2 - 3 INCHES PER HOUR WILL DRY OUT VERY FAST. IN NATURAL UNDISTURBED SOIL A MUCH LOWER DRAINAGE RATE, AS LOW AS 1/8TH INCH PER HOUR CAN STILL SUPPORT GOOD PLANT GROWTH. WETLAND PLANTS CAN GROW ON TOP OF PERCHED WATER LAYERS OR EVEN WITHIN SEASONAL PERCHED WATER LAYERS, BUT COULD BECOME UNSTABLE IN HIGH WIND EVENTS.
- B. AMENDMENT: MATERIAL ADDED TO TOPSOIL TO PRODUCE PLANTING SOIL MIX. AMENDMENTS ARE CLASSIFIED AS GENERAL SOIL AMENDMENTS, FERTILIZERS, BIOLOGICAL, AND PH AMENDMENTS.
- C. BIOLOGICAL AMENDMENT: AMENDMENTS SUCH AS MYCORRHIZAL ADDITIVES, COMPOST TEA OR OTHER PRODUCTS INTENDED TO CHANGE THE SOIL BIOLOGY.
- D. COMPACTED SOIL: SOIL WHERE THE DENSITY OF THE SOIL IS GREATER THAN THE THRESHOLD FOR ROOT LIMITING, AND FURTHER DEFINED IN THIS SPECIFICATION.
- E. COMPOST: WELL DECOMPOSED STABLE ORGANIC MATERIAL AS DEFINED BY THE US COMPOSTING COUNCIL AND FURTHER DEFINED IN THIS SPECIFICATION.
- F. DRAINAGE: THE RATE AT WHICH SOIL WATER MOVES THROUGH THE SOIL TRANSITIONING THE SOIL FROM SATURATED CONDITION TO FIELD CAPACITY. MOST OFTEN EXPRESSED AS SATURATED HYDRAULIC CONDUCTIVITY (KSAT); UNITS ARE INCHES PER HOUR.
- G. END OF WARRANTY ACCEPTANCE: THE DATE WHEN THE OWNER'S REPRESENTATIVE ACCEPTS THAT THE PLANTS AND WORK IN THIS SECTION MEET ALL THE REQUIREMENTS OF THE WARRANTY. IT IS INTENDED THAT THE MATERIALS AND WORKMANSHIP WARRANTY FOR PLANTING, PLANTING SOIL, AND IRRIGATION (IF APPLICABLE) WORK RUN CONCURRENT WITH EACH OTHER, AND FURTHER DEFINED IN THIS SPECIFICATION.
- H. EXISTING SOIL: MINERAL SOIL EXISTING AT THE LOCATIONS OF PROPOSED PLANTING AFTER THE MAJORITY OF THE CONSTRUCTION WITHIN AND AROUND THE PLANTING SITE IS COMPLETED AND JUST PRIOR TO THE START OF WORK TO PREPARE THE PLANTING AREA FOR SOIL MODIFICATION AND/OR PLANTING, AND FURTHER DEFINED IN THIS SPECIFICATION.
- I. FERTILIZER: AMENDMENT USED FOR THE PURPOSE OF ADJUSTING SOIL NUTRIENT COMPOSITION AND BALANCE.
- J. FINE GRADING: THE FINAL GRADING OF THE SOIL TO ACHIEVE EXACT CONTOURS AND POSITIVE DRAINAGE, OFTEN ACCOMPLISHED BY HAND RAKES OR DRAG RAKES OTHER SUITABLE DEVICES, AND FURTHER DEFINED IN THIS SPECIFICATION, AND FURTHER DEFINED IN THIS SPECIFICATION.
- K. FINISHED GRADE: SURFACE OR ELEVATION OF PLANTING SOIL AFTER FINAL GRADING AND 12 MONTHS OF SETTLEMENT OF THE SOIL, AND FURTHER DEFINED IN THIS SPECIFICATION.
- L. GRADED SOIL: SOIL WHERE THE A HORIZON HAS BEEN STRIPPED AND RELOCATED OR RE-SPREAD; CUTS AND FILLS DEEPER THAN 12 INCHES, AND FURTHER DEFINED IN THIS SPECIFICATION.
- M. INSTALLED SOIL: PLANTING SOIL AND EXISTING SITE SOIL THAT IS SPREAD AND OR GRADED TO FORM A PLANTING SOIL, AND FURTHER DEFINED IN THIS SPECIFICATION.
- N. MINOR DISTURBANCE: MINOR GRADING THAT ONLY ADJUSTS THE A HORIZON SOIL, MINOR SURFACE COMPACTION IN THE TOP 6 INCHES OF THE SOIL, APPLICATIONS OF FERTILIZERS, INSTALLATION OF UTILITY PIPES SMALLER THAN 18 INCHES IN DIAMETER THRU THE SOIL ZONE.
- O. OWNER'S REPRESENTATIVE: THE PERSON OR ENTITY, APPOINTED BY THE OWNER TO REPRESENT THEIR INTEREST IN THE REVIEW AND APPROVAL OF THE WORK AND TO SERVE AS THE CONTRACTING AUTHORITY WITH THE CONTRACTOR. THE OWNER'S REPRESENTATIVE MAY APPOINT OTHER PERSONS TO REVIEW AND APPROVE ANY ASPECTS OF THE WORK.
- P. PED: A CLUMP OR CLOD OF SOIL HELD TOGETHER BY A COMBINATION OF CLAY, ORGANIC MATTER, AND FUNGAL HYPHAE, RETAINING THE ORIGINAL STRUCTURE OF THE HARVESTED SOIL.

Q. PLANTING SOIL: TOPSOIL, OR PLANTING SOIL MIXES WHICH ARE IMPORTED OR EXISTING AT THE SITE, OR MADE FROM COMPONENTS THAT EXIST AT THE SITE, OR ARE IMPORTED TO THE SITE; AND FURTHER DEFINED IN THIS SPECIFICATION.

R. POOR DRAINAGE: SOIL DRAINAGE THAT IS SLOWER THAN THAT TO WHICH THE PLANTS CAN ADAPT. THIS IS A WIDE RANGE OF METRICS, BUT GENERALLY IF THE SOIL IS TURNING GRAY IN COLOR IT IS REASONABLE PREFERABLE TO EITHER TO PLANT MOISTURE ADAPTIVE PLANTS AT SMALLER SIZES THAT ARE YOUNG IN AGE WITH SHALLOW ROOT BALLS OR LOOK AT OPTIONS TO IMPROVE THE DRAINAGE

S. SCARIFY: LOOSENING AND ROUGHENING THE SURFACE OF SOIL AND SUB SOIL PRIOR TO ADDING ADDITIONAL SOIL ON TOP, AND FURTHER DEFINED IN THIS SPECIFICATION.

T. SOIL FRACTURING: DEEP LOOSENING THE SOIL TO THE DEPTHS SPECIFIED BY USING A BACK HOE, AND FURTHER DEFINED IN THIS SPECIFICATION.

U. SOIL HORIZONS: AS DEFINED IN THE USDA NATIONAL SOIL SURVEY HANDBOOK
[HTTP://WWW.NRCS.USDA.GOV/WPS/PORTAL/NRCS/DETAIL/SOILS/SCIENTISTS?CID=NRACS142P2_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists?cid=nracs142p2_054242).

V. SOIL TILLING: LOOSENING THE SURFACE OF THE SOIL TO THE DEPTHS SPECIFIED WITH A ROTARY TINE TILLING MACHINE, ROTO TILLER, (OR SPADE TILLER), AND FURTHER DEFINED IN THIS SPECIFICATION.

W. SUBGRADE: SURFACE OR ELEVATION OF SUBSOIL REMAINING AFTER COMPLETING EXCAVATION, OR TOP SURFACE OF A FILL OR BACKFILL, BEFORE PLACING PLANTING SOIL.

X. SUBSTANTIAL COMPLETION ACCEPTANCE: THE DATE AT THE END OF THE PLANTING, PLANTING SOIL, AND IRRIGATION INSTALLATION (IF APPLICABLE) WHERE THE OWNER'S REPRESENTATIVE ACCEPTS THAT ALL WORK IN THESE SECTIONS IS COMPLETE AND THE WARRANTY PERIOD HAS BEGUN. THIS DATE MAY BE DIFFERENT THAN THE DATE OF SUBSTANTIAL COMPLETION FOR THE OTHER SECTIONS OF THE PROJECT, AND FURTHER DEFINED IN THIS SPECIFICATION.

Y. TOPSOIL: NATURALLY PRODUCED AND HARVESTED SOIL FROM THE A HORIZON OR UPPER LAYERS OR THE SOIL AS FURTHER DEFINED IN THIS SPECIFICATION.

Z. UNDISTURBED SOIL: SOILS WITH THE ORIGINAL A HORIZON INTACT THAT HAVE NOT BEEN GRADED OR COMPACTED.

1.10 SUBMITTALS

- A. SEE THE CONTRACT GENERAL CONDITIONS FOR POLICY AND PROCEDURES RELATED TO SUBMITTALS.
- B. SUBMIT ALL PRODUCT SUBMITTALS EIGHT WEEKS PRIOR TO THE START OF THE SOIL WORK.
- C. PRODUCT DATA AND CERTIFICATES: FOR EACH TYPE OF MANUFACTURED PRODUCT, SUBMIT DATA AND CERTIFICATES THAT THE PRODUCT MEETS THE SPECIFICATION REQUIREMENTS, SIGNED BY THE PRODUCT MANUFACTURER, AND COMPLYING WITH THE FOLLOWING:
 1. SUBMIT MANUFACTURERS OR SUPPLIER'S PRODUCT DATA AND LITERATURE CERTIFIED ANALYSIS FOR STANDARD PRODUCTS AND BULK MATERIALS, COMPLYING WITH TESTING REQUIREMENTS AND REFERENCED STANDARDS AND SPECIFIC REQUESTED TESTING.
 - a. FOR EACH COMPOST PRODUCT SUBMIT THE FOLLOWING ANALYSIS BY A RECOGNIZED LABORATORY:
 - 1.) PH
 - 2.) SALT CONCENTRATION (ELECTRICAL CONDUCTIVITY)
 - 3.) MOISTURE CONTENT %, (WET WEIGHT BASIS)
 - 4.) PARTICLE SIZE % PASSING A SELECTED MESH SIZE, DRY WEIGHT BASIS
 - 5.) STABILITY CARBON DIOXIDE EVOLUTION RATE MG CO2-C PER G OM PER DAY
 - 6.) SOLVITA MATURITY TEST
 - 7.) PHYSICAL CONTAMINANTS (INERTS) %, DRY WEIGHT BASIS
 - 8.) US EPA CLASS A STANDARD, 40CFR § 503.13, TABLES 1 AND 3 LEVELS CHEMICAL CONTAMINANTS MG/KG (PPM)
 - b. FOR COARSE SAND PRODUCT SUBMIT THE FOLLOWING ANALYSIS BY A RECOGNIZED LABORATORY:
 - 1.) PH
 - 2.) PARTICLE SIZE DISTRIBUTION (PERCENT PASSING THE FOLLOWING SIEVE SIZES):
 - 3/8 INCH (9.5 MM)
 - NO 4 (4.75 MM)
 - NO 8 (2.36 MM)
 - NO 16(1.18 MM)
 - NO 30 (.60 MM)
 - NO 50 (.30 MM)
 - NO 100 (.15 MM)
 - NO 200 (.075 MM)

D. SAMPLES: SUBMIT SAMPLES OF EACH PRODUCT AND MATERIAL, WHERE REQUIRED BY PART 2 OF THE SPECIFICATION, TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. LABEL SAMPLES TO INDICATE PRODUCT, CHARACTERISTICS, AND LOCATIONS IN THE WORK. SAMPLES WILL BE REVIEWED FOR APPEARANCE ONLY.

- 1. SUBMIT SAMPLES A MINIMUM OF 8 WEEKS PRIOR TO THE ANTICIPATED DATE OF THE START OF SOIL INSTALLATION.
- 2. SAMPLES OF ALL TOPSOIL, COARSE SAND, COMPOST AND PLANTING SOIL SHALL BE SUBMITTED AT THE SAME TIME AS THE PARTICLE SIZE AND PHYSICAL ANALYSIS OF THAT MATERIAL.

E. SOIL TESTING FOR IMPORTED AND EXISTING TOPSOIL, EXISTING SITE SOIL TO BE MODIFIED AS PLANTING SOIL AND PLANTING SOIL MIXES.

- 1. TOPSOIL, EXISTING SITE SOIL AND PLANTING SOIL MIX TESTING: SUBMIT SOIL TEST ANALYSIS REPORT FOR EACH SAMPLE OF TOPSOIL, EXISTING SITE SOIL AND PLANTING SOIL FROM AN APPROVED SOIL-TESTING LABORATORY AND WHERE INDICATED IN PART 2 OF THE SPECIFICATION AS FOLLOWS:
 - a. SUBMIT TOPSOIL, PLANTING SOIL, COMPOST, AND COARSE SAND FOR TESTING AT LEAST 8 WEEKS BEFORE SCHEDULED INSTALLATION OF PLANTING SOIL MIXES. SUBMIT PLANTING SOIL MIX TEST NO MORE THAN 2 WEEKS AFTER THE APPROVAL OF

THE TOPSOIL, COMPOST AND COARSE SAND. DO NOT SUBMIT TO THE TESTING LABORATORY, PLANTING SOIL MIXES, FOR TESTING UNTIL ALL TOPSOIL, COMPOST AND COARSE SAND HAVE BEEN APPROVED.

b. IF TESTS FAIL TO MEET THE SPECIFICATIONS, OBTAIN OTHER SOURCES OF MATERIAL, RETEST AND RESUBMIT UNTIL ACCEPTED BY THE OWNER'S REPRESENTATIVE.

c. ALL SOIL TESTING WILL BE AT THE EXPENSE OF THE CONTRACTOR.

2. SUBMIT ALL TESTING REQUIRED BY CALIFORNIA CODE OF REGULATION TITLE 23 WATERS, DIVISION 2 DEPARTMENT OF WATER RESOURCES CHAPTER 2.7 MODEL WATER EFFICIENT LANDSCAPE ORDINANCE, 492.5 SOIL MANAGEMENT REPORT.

3. PROVIDE A PARTICLE SIZE ANALYSIS (% DRY WEIGHT) AND USDA SOIL TEXTURE ANALYSIS. SOIL TESTING OF PLANTING SOIL MIXES SHALL ALSO INCLUDE USDA GRADATION (PERCENTAGE) OF GRAVEL, COARSE SAND, MEDIUM SAND, AND FINE SAND IN ADDITION TO SILT AND CLAY.

4. PROVIDE THE FOLLOWING OTHER SOIL PROPERTIES:

- a. PH AND BUFFER PH.
- b. PERCENT ORGANIC CONTENT BY OVEN DRIED WEIGHT.
- c. NUTRIENT LEVELS BY PARTS PER MILLION INCLUDING: PHOSPHORUS, POTASSIUM, MAGNESIUM, MANGANESE, IRON, ZINC AND CALCIUM. NUTRIENT TEST SHALL INCLUDE THE TESTING LABORATORY RECOMMENDATIONS FOR SUPPLEMENTAL ADDITIONS TO THE SOIL FOR OPTIMUM GROWTH OF THE PLANTINGS SPECIFIED.
- d. SOLUBLE SALT BY ELECTRICAL CONDUCTIVITY OF A 1:2 SOIL WATER SAMPLE MEASURED IN MILLIOHM PER CM.
- e. CATION EXCHANGE CAPACITY (CEC).

1.11 OBSERVATION OF THE WORK

A. THE OWNER'S REPRESENTATIVE MAY OBSERVE THE WORK AT ANY TIME. THEY MAY REMOVE SAMPLES OF MATERIALS FOR CONFORMITY TO SPECIFICATIONS. REJECTED MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED AT THE CONTRACTOR'S EXPENSE. THE COST OF TESTING MATERIALS NOT MEETING SPECIFICATIONS SHALL BE PAID BY THE CONTRACTOR.

B. THE OWNER'S REPRESENTATIVE SHALL BE INFORMED OF THE PROGRESS OF THE WORK SO THE WORK MAY BE OBSERVED AT THE FOLLOWING KEY TIMES IN THE CONSTRUCTION PROCESS. THE OWNER'S REPRESENTATIVE SHALL BE AFFORDED SUFFICIENT TIME TO SCHEDULE VISIT TO THE SITE. FAILURE OF THE OWNER'S REPRESENTATIVE TO MAKE FIELD OBSERVATIONS SHALL NOT RELIEVE THE CONTRACTOR FROM MEETING ALL THE REQUIREMENTS OF THIS SPECIFICATION.

- 1. EXISTING SOIL CONDITIONS REVIEW: PRIOR TO THE START OF ANY SOIL MODIFICATION THAT WILL UTILIZE OR MODIFY THE EXISTING SOIL.
- 2. EXCAVATION REVIEW: OBSERVE EACH AREA OF EXCAVATION PRIOR TO THE INSTALLATION OF ANY PLANTING SOIL.
- 3. COMPLETION OF SOIL MODIFICATIONS REVIEW: UPON COMPLETION OF ALL SOIL MODIFICATION AND INSTALLATION OF PLANTING SOIL.
- 4. COMPLETION OF FINE GRADING AND SURFACE SOIL MODIFICATIONS REVIEW: UPON COMPLETION OF ALL SURFACE SOIL MODIFICATIONS AND FINE GRADING BUT PRIOR TO THE INSTALLATION OF SHRUBS, GROUND COVERS, OR LAWNS.

1.12 PRE-CONSTRUCTION CONFERENCE

A. SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE AT LEAST SEVEN (7) DAYS BEFORE BEGINNING WORK TO REVIEW ANY QUESTIONS THE CONTRACTOR MAY HAVE REGARDING THE WORK, ADMINISTRATIVE PROCEDURES DURING CONSTRUCTION AND PROJECT WORK SCHEDULE.

1.13 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: THE INSTALLER SHALL BE A FIRM HAVING AT LEAST 5 YEARS OF EXPERIENCE OF A SCOPE SIMILAR TO THAT REQUIRED FOR THE WORK, INCLUDING THE PREPARATION, MIXING AND INSTALLATION OF SOIL MIXES TO SUPPORT PLANTING. THE INSTALLER OF THE WORK IN SECTION: PLANTING, SHALL BE THE SAME FIRM INSTALLING THE WORK IN THIS SECTION.

1. INSTALLER FIELD SUPERVISION: WHEN ANY PLANTING SOIL WORK IS IN PROGRESS, INSTALLER SHALL MAINTAIN, ON SITE, AN EXPERIENCED FULL-TIME SUPERVISOR WHO CAN COMMUNICATE IN ENGLISH WITH THE OWNER'S REPRESENTATIVE.

2. INSTALLER'S FIELD SUPERVISOR SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE AS A FIELD SUPERVISOR INSTALLING SOIL, SHALL BE TRAINED AND PROFICIENT IN THE USE OF FIELD SURVEYING EQUIPMENT TO ESTABLISH GRADES AND CAN COMMUNICATE IN ENGLISH WITH THE OWNER'S REPRESENTATIVE.

3. THE INSTALLER'S CREW SHALL BE EXPERIENCED IN THE INSTALLATION OF PLANTING SOIL, PLANTINGS, AND IRRIGATION (WHERE APPLICABLE) AND INTERPRETATION OF PLANTING PLANS, SOIL INSTALLATION PLANS, AND IRRIGATION PLANS (WHERE APPLICABLE).

4. SUBMIT 3 REFERENCES OF PAST PROJECTS AND EMPLOYEE TRAINING CERTIFICATIONS THAT SUPPORT THAT THE CONTRACTORS MEET ALL OF THE ABOVE INSTALLER QUALIFICATIONS AND APPLICABLE LICENSURES.

B. SOIL TESTING LABORATORY QUALIFICATIONS: AN INDEPENDENT LABORATORY, WITH THE EXPERIENCE AND CAPABILITY TO CONDUCT THE TESTING INDICATED AND THAT SPECIALIZES IN USDA AGRICULTURAL SOIL TESTING, PLANTING SOIL MIXES, AND THE TYPES OF TESTS TO BE PERFORMED. GEOTECHNICAL ENGINEERING TESTING LABS SHALL NOT BE USED.

C. ALL DELIVERED AND INSTALLED PLANTING SOIL SHALL CONFORM TO THE APPROVED SUBMITTALS SAMPLE COLOR, TEXTURE AND APPROVED TEST ANALYSIS.

1. THE OWNER'S REPRESENTATIVE MAY REQUEST SAMPLES OF THE DELIVERED OR INSTALLED SOIL BE TESTED FOR ANALYSIS TO CONFIRM THE PLANTING SOIL CONFORMS TO THE APPROVED MATERIAL.

2. ALL TESTING SHALL BE PERFORMED BY THE SAME SOIL LAB THAT PERFORMED THE ORIGINAL PLANTING SOIL TESTING.

3. TESTING RESULTS SHALL BE WITHIN 10% PLUS OR MINUS OF THE VALUES MEASURED IN THE APPROVED PLANTING SOIL MIXES.

4. ANY PLANTING SOIL THAT FAILS TO MEET THE ABOVE CRITERIA, IF REQUESTED BY THE OWNER'S REPRESENTATIVE, SHALL BE REMOVED AND NEW SOIL INSTALLED.

1.14 SITE CONDITIONS

A. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF ALL SURFACE AND SUBSURFACE CONDITIONS, AND TO NOTIFY THE OWNER'S REPRESENTATIVE, IN WRITING, OF ANY CIRCUMSTANCES THAT WOULD NEGATIVELY IMPACT THE HEALTH OF PLANTINGS. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

1. SHOULD SUBSURFACE DRAINAGE OR SOIL CONDITIONS BE ENCOUNTERED WHICH WOULD BE DETRIMENTAL TO GROWTH OR SURVIVAL OF PLANT MATERIAL, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING, STATING THE CONDITIONS AND SUBMIT A PROPOSAL COVERING COST OF CORRECTIONS. IF THE CONTRACTOR FAILS TO NOTIFY THE OWNER'S REPRESENTATIVE OF SUCH CONDITIONS, THEY SHALL REMAIN RESPONSIBLE FOR PLANT MATERIAL UNDER THE WARRANTEE CLAUSE OF THE SPECIFICATIONS.

2. THIS SPECIFICATION REQUIRES THAT ALL PLANTING SOIL AND IRRIGATION (IF APPLICABLE) WORK BE COMPLETED AND ACCEPTED PRIOR TO THE INSTALLATION OF ANY PLANTS.

1.15 SOIL COMPACTION - GENERAL REQUIREMENTS

A. EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE DEFINED IN THIS SPECIFICATION, THE FOLLOWING PARAMETERS SHALL DEFINE THE GENERAL DESCRIPTION OF THE THRESHOLD POINTS OF SOIL COMPACTION IN EXISTING, MODIFIED OR INSTALLED SOIL AND SUBSOIL.

- 1. STANDARD PROCTOR METHOD ASTM D 698
- B. THE FOLLOWING ARE THRESHOLD LEVELS OF COMPACTION AS DETERMINED BY EACH METHOD.

1. ACCEPTABLE COMPACTION: GOOD ROOTING ANTICIPATED, BUT INCREASING SETTLEMENT EXPECTED AS COMPACTION IS REDUCED AND/OR IN SOIL WITH A HIGH ORGANIC MATTER CONTENT.

a. STANDARD PROCTOR METHOD - 75-85% SOIL BELOW 75% IS UNSTABLE AND WILL SETTLE EXCESSIVELY.

2. ROOT LIMITING COMPACTION: ROOT GROWTH IS LIMITED WITH FEWER, SHORTER AND SLOWER GROWING ROOTS.

a. STANDARD PROCTOR METHOD - ABOVE APPROXIMATELY 85%.

3. EXCESSIVE COMPACTION: ROOTS NOT LIKELY TO GROW BUT CAN PENETRATE SOIL WHEN SOIL IS ABOVE FIELD CAPACITY.

a. STANDARD PROCTOR METHOD - ABOVE 90%.

1.16 DELIVERY, STORAGE, AND HANDLING

A. WEATHER: DO NOT MIX, DELIVER, PLACE OR GRADE SOILS WHEN FROZEN OR WITH MOISTURE ABOVE FIELD CAPACITY.

B. PROTECT SOIL AND SOIL STOCKPILES, INCLUDING THE STOCKPILES AT THE SOIL BLENDER'S YARD, FROM WIND, RAIN AND WASHING THAT CAN ERODE SOIL OR SEPARATE FINES AND COARSE MATERIAL, AND CONTAMINATION BY CHEMICALS, DUST AND DEBRIS THAT MAY BE DETRIMENTAL TO PLANTS OR SOIL DRAINAGE. COVER STOCKPILES WITH PLASTIC SHEETING OR FABRIC AT THE END OF EACH WORKDAY.

C. ALL MANUFACTURED PACKAGED PRODUCTS AND MATERIAL SHALL BE DELIVERED TO THE SITE IN UNOPENED CONTAINERS AND STORED IN A DRY ENCLOSED SPACE SUITABLE FOR THE MATERIAL AND MEETING ALL ENVIRONMENTAL REGULATIONS. BIOLOGICAL ADDITIVES SHALL BE PROTECTED FROM EXTREME COLD AND HEAT. ALL PRODUCTS SHALL BE FRESHLY MANUFACTURED AND DATED FOR THE YEAR IN WHICH THE PRODUCTS ARE TO BE USED.

D. DELIVER ALL CHEMICAL AMENDMENTS IN ORIGINAL, UNOPENED CONTAINERS WITH ORIGINAL LABELS INTACT AND LEGIBLE, WHICH STATE THE GUARANTEED CHEMICAL ANALYSIS. STORE ALL CHEMICALS IN A WEATHER PROTECTED ENCLOSURE.

E. BULK MATERIAL: COORDINATE DELIVERY AND STORAGE WITH OWNER'S REPRESENTATIVE AND CONFINE MATERIALS TO NEAT PILES IN AREAS ACCEPTABLE TO OWNER'S REPRESENTATIVE.

1.17 EXCAVATING AND GRADING AROUND UTILITIES

A. CONTRACTOR SHALL CAREFULLY EXAMINE THE CIVIL, RECORD, AND SURVEY DRAWINGS TO BECOME FAMILIAR WITH THE EXISTING UNDERGROUND CONDITIONS BEFORE DIGGING.

B. DETERMINE LOCATION OF UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER THAT WILL AVOID DAMAGE. HAND EXCAVATE AS REQUIRED. MAINTAIN GRADE STAKES SET BY OTHERS UNTIL PARTIES CONCERNED MUTUALLY AGREE UPON REMOVAL.

C. NOTIFICATION OF THE LOCAL UTILITY LOCATOR SERVICE, IS REQUIRED FOR ALL PLANTING AREAS. THE CONTRACTOR IS RESPONSIBLE FOR KNOWING THE LOCATION AND AVOIDING UTILITIES THAT ARE NOT COVERED BY THE LOCAL UTILITY LOCATOR SERVICE.

PART 2 PRODUCTS

2.1 IMPORTED TOPSOIL

A. IMPORTED TOPSOIL DEFINITION: FERTILE, FRIABLE SOIL CONTAINING LESS THAN 5% TOTAL VOLUME OF THE COMBINATION OF SUBSOIL, REFUSE, ROOTS LARGER THAN 1 INCH DIAMETER, HEAVY, STICKY OR STIFF CLAY, STONES LARGER THAN 2 INCHES IN DIAMETER, NOXIOUS SEEDS, STICKS, BRUSH, LITTER, OR ANY SUBSTANCES DELETERIOUS TO PLANT GROWTH. THE PERCENT (%) OF THE ABOVE OBJECTS SHALL BE CONTROLLED BY SOURCE SELECTION NOT BY SCREENING THE SOIL. TOPSOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND THE SUPPORT OF VEGETATIVE GROWTH. IMPORTED TOPSOIL SHALL NOT CONTAIN WEED SEEDS IN QUANTITIES THAT CAUSE NOTICEABLE WEED INFESTATIONS IN THE FINAL PLANTING BEDS. IMPORTED TOPSOIL SHALL MEET THE FOLLOWING PHYSICAL AND CHEMICAL CRITERIA:

- 1. SOIL TEXTURE: USDA LOAM, SANDY CLAY LOAM OR SANDY LOAM WITH CLAY CONTENT BETWEEN 15 AND 25% AND A COMBINED CLAY/SILT CONTENT OF NO MORE THAN 55%.
- 2. PH VALUE SHALL BE BETWEEN 5.5 AND 7.0.
- 3. PERCENT ORGANIC MATTER (OM): 2.0-5.0%, BY DRY WEIGHT.



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| <p>© 2015 KIMLEY-HORN AND ASSOCIATES, INC. 4637 CHABOT DRIVE, SUITE 300, PLEASANTON, CA 94588 PHONE: 925-598-4840 WWW.KIMLEY-HORN.COM</p> | <p>KHA PROJECT 097515003</p> <p>DATE 12/27/2017</p> <p>SCALE AS SHOWN</p> <p>DESIGNED BY DW</p> <p>DRAWN BY DW</p> <p>CHECKED BY DC</p> | <p>CALIFORNIA DRIVE ROUNDABOUT</p> <p>PREPARED FOR CITY OF BURLINGAME</p> <p>SAN MATEO COUNTY CA</p> | | <p>LANDSCAPE SPECIFICATIONS</p> | <p>SHEET NO. <u>52</u> OF <u>61</u> SHEETS</p> <p>LS-06</p> |
| No. | REVISIONS | DATE | BY | | |

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- 4. SOLUBLE SALT LEVEL: LESS THAN 2 MMHO/CM.
- 5. SOIL CHEMISTRY SUITABLE FOR GROWING THE PLANTS SPECIFIED.
- B. IMPORTED TOPSOIL SHALL BE A HARVESTED SOIL FROM FIELDS OR DEVELOPMENT SITES. THE ORGANIC CONTENT AND PARTICLE SIZE DISTRIBUTION SHALL BE THE RESULT OF NATURAL SOIL FORMATION, MANUFACTURED SOILS WHERE COARSE SAND, COMPOSTED ORGANIC MATERIAL OR CHEMICAL ADDITIVES HAS BEEN ADDED TO THE SOIL TO MEET THE REQUIREMENTS OF THIS SPECIFICATION SECTION SHALL NOT BE ACCEPTABLE.
- C. IMPORTED TOPSOIL FOR PLANTING SOIL SHALL NOT HAVE BEEN SCREENED AND SHALL RETAIN SOIL PEDS OR CLODS LARGER THAN 2 INCHES IN DIAMETER THROUGHOUT THE STOCKPILE AFTER HARVESTING.
- D. PROVIDE A ONE GALLON SAMPLE FROM EACH IMPORTED TOPSOIL SOURCE WITH REQUIRED SOIL TESTING RESULTS. THE SAMPLE SHALL BE A MIXTURE OF THE RANDOM SAMPLES TAKEN AROUND THE SOURCE STOCKPILE OR FIELD.

- 2.2 COMPOST**
- A. COMPOST: BLENDED AND GROUND LEAF, WOOD AND OTHER PLANT BASED MATERIAL, COMPOSTED FOR A MINIMUM OF 9 MONTHS AND AT TEMPERATURES SUFFICIENT TO BREAK DOWN ALL WOODY FIBERS, SEEDS AND LEAF STRUCTURES, FREE OF TOXIC MATERIAL AT LEVELS THAT ARE HARMFUL TO PLANTS OR HUMANS. SOURCE MATERIAL SHALL BE YARD WASTE TRIMMINGS BLENDED WITH OTHER PLANT OR MANURE BASED MATERIAL DESIGNED TO PRODUCE COMPOST HIGH IN FUNGAL MATERIAL.
 - 1. COMPOST SHALL BE COMMERCIALY PREPARED COMPOST AND MEET US COMPOST COUNCIL STA/MECC CRITERIA OR AS MODIFIED IN THIS SECTION FOR "COMPOST AS A LANDSCAPE BACKFILL MIX COMPONENT".
[HTTP://COMPOSTINGCOUNCIL.ORG/ADMIN/WP-CONTENT/PLUGINS/WP-PDFUPLOAD/PDF/191/LANDSCAPEARCH_SPECS.PDF](http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/191/LANDSCAPEARCH_SPECS.PDF)
 - 2. COMPOST SHALL COMPLY WITH THE FOLLOWING PARAMETERS:
 - a. PH: 5.5 – 8.0.
 - b. SOIL SALT (ELECTRICAL CONDUCTIVITY): MAXIMUM 5 DS/M (MMHOS/CM).
 - c. MOISTURE CONTENT %, WET WEIGHT BASIS: 30 – 60.
 - d. PARTICLE SIZE, DRY WEIGHT BASIS: 98% PASS THROUGH 3/4 INCH SCREEN OR SMEAR.
 - e. STABILITY CARBON DIOXIDE EVOLUTION RATE: MG CO2-C/ G OM/ DAY < 2.
 - f. SOLVITA MATURITY TEST: > 6.
 - g. PHYSICAL CONTAMINANTS (INERTS), %, DRY WEIGHT BASIS: <1%
 - h. CHEMICAL CONTAMINANTS, MG/KG (PPM): MEET OR EXCEED US EPA CLASS A STANDARD, 40CFR § 503.32(A) LEVEL REQUIREMENTS.
 - i. BIOLOGICAL CONTAMINANTS SELECT PATHOGENS FECAL COLIFORM BACTERIA, OR SALMONELLA, MEET OR EXCEED US EPA CLASS A STANDARD, 40 CFR § 503.32(A) LEVEL REQUIREMENTS.
 - B. PROVIDE A ONE GALLON SAMPLE WITH MANUFACTURER'S LITERATURE AND MATERIAL CERTIFICATION THAT THE PRODUCT MEETS THE REQUIREMENTS.

- 2.3 COARSE SAND**
- A. CLEAN, WASHED, SAND, FREE OF TOXIC MATERIALS
 - 1. COARSE CONCRETE SAND, ASTM C-33 FINE AGGREGATE, WITH A FINES MODULUS INDEX OF 2.8 AND 3.2.
 - 2. COARSE SANDS SHALL BE CLEAN, SHARP, NATURAL COARSE SANDS FREE OF LIMESTONE, SHALE AND SLATE PARTICLES. MANUFACTURED COARSE SAND SHALL NOT BE PERMITTED.
 - 3. PH SHALL BE LOWER THAN 7.0.
 - 4. PROVIDE COARSE SAND WITH THE FOLLOWING PARTICLE SIZE DISTRIBUTION:
- | SIEVE | PERCENT PASSING |
|-------------------|-----------------|
| 3/8 INCH (9.5 MM) | 100 |
| NO 4 (4.75 MM) | 95 – 100 |
| NO 8 (2.36 MM) | 80 – 100 |
| NO 16 (1.18 MM) | 50 – 85 |
| NO 30 (.60 MM) | 25 – 60 |
| NO 50 (.30 MM) | 10 – 30 |
| NO 100 (.15 MM) | 2 – 10 |
| NO 200 (0.75 MM) | 2–5 |

- B. PROVIDE A ONE GALLON SAMPLE WITH MANUFACTURER'S LITERATURE AND MATERIAL CERTIFICATION THAT THE PRODUCT MEETS THE REQUIREMENTS.
- 2.4 LIME**
- A. ASTM C 602, AGRICULTURAL LIMESTONE CONTAINING A MINIMUM 80 PERCENT CALCIUM CARBONATE EQUIVALENT AND AS FOLLOWS:
 - 1. CLASS: CLASS T, WITH A MINIMUM 99 PERCENT PASSING THROUGH NO. 8 (2.36-MM) SIEVE AND A MINIMUM 75 PERCENT PASSING THROUGH NO. 60 (0.25-MM) SIEVE.



- 2. PROVIDE LIME IN FORM OF DOLOMITIC LIMESTONE.
- B. PROVIDE MANUFACTURER'S LITERATURE AND MATERIAL CERTIFICATION THAT THE PRODUCT MEETS THE REQUIREMENTS.

- 2.5 MODIFIED EXISTING SOIL (SOIL SUITABLE FOR PLANTING WITH INDICATED MODIFICATION)**
- A. GENERAL DEFINITION: SURFACE SOIL IN THE AREAS DESIGNATED ON THE SOILS PLAN AS MODIFIED EXISTING SOIL HAS BEEN ALTERED AND/OR GRADED BEFORE OR DURING THE CONSTRUCTION PROCESS BUT IS STILL CONSIDERED ACCEPTABLE FOR PLANTING AND LONG TERM HEALTH OF THE PLANTS SPECIFIED WITH THE PROPOSED MODIFICATIONS. MODIFICATIONS RESPOND TO THE SOIL PROBLEMS EXPECTED OR ENCOUNTERED. THE OWNER'S REPRESENTATIVE SHALL VERIFY THAT THE SOIL IN THE DESIGNATED AREAS IS SUITABLE FOR MODIFICATION AT THE BEGINNING OF PLANTING BED PREPARATION WORK IN THAT AREA.
 - 1. THE OWNER'S REPRESENTATIVE SHALL VERIFY THAT THE SOIL IN THE DESIGNATED AREAS IS SUITABLE FOR THE SPECIFIED MODIFICATION AT THE BEGINNING OF PLANTING BED PREPARATION WORK IN THAT AREA. IN THE EVENT THAT THE WORK OF THIS PROJECT CONSTRUCTION HAS DAMAGED THE EXISTING SOIL IN AREAS DESIGNATED FOR MODIFICATION TO THE POINT WHERE THE SOIL IS NO LONGER SUITABLE TO SUPPORT THE PLANTS SPECIFIED WITH THE SPECIFIED MODIFICATION, THE OWNER'S REPRESENTATIVE MAY REQUIRE FURTHER MODIFICATION OF THE DAMAGED SOIL UP TO AN INCLUDING REMOVAL AND REPLACEMENT WITH SOIL OF EQUAL QUALITY TO THE SOIL THAT WOULD HAVE RESULTED FROM THE MODIFICATION. DAMAGE MAY INCLUDE FURTHER COMPACTION, CONTAMINATION, GRADING, CREATION OF HARD PAN OR DRAINAGE PROBLEM, AND LOSS OF THE O, AND OR A HORIZON.
 - 2. GENERAL REQUIREMENTS FOR ALL SOIL MODIFICATIONS:
 - a. TAKE SOIL SAMPLES, TEST FOR CHEMICAL PROPERTIES, AND MAKE APPROPRIATE ADJUSTMENTS.
 - b. UNLESS OTHERWISE INSTRUCTED, REMOVE ALL EXISTING PLANTS, ROOT THATCH, AND NON-SOIL DEBRIS FROM THE SURFACE OF THE SOIL USING EQUIPMENT THAT DOES NOT ADD TO THE COMPACTION IN THE SOIL.
 - c. ALL SOIL GRADING, TILLING AND LOOSENING MUST BE COMPLETED AT TIMES WHEN THE SOIL MOISTURE IS BELOW FIELD CAPACITY. ALLOW SOIL TO DRAIN FOR AT LEAST TWO DAYS AFTER ANY RAIN EVENT MORE THAN 1 INCH IN 24 HOURS, OR LONG ENOUGH SO THAT THE SOIL DOES NOT MAKE THE HAND MUDDY WHEN SQUEEZED.
 - d. PROVIDE PRE-EMERGENT WEED CONTROL AFTER THE SOIL WORK IS COMPLETE AND PLANTS PLANTED BUT PRIOR TO ADDING MULCH TO THE SURFACE, IF INDICATED BY WEED TYPE AND DEGREE OF THREAT.
 - B. MODIFIED EXISTING SOIL – COMPACTED SUBSOIL
 - 1. DESCRIPTION OF CONDITION TO BE MODIFIED: DEEP SOIL COMPACTION THE RESULT OF PREVIOUS GRADING, FILLING AND DYNAMIC OR STATIC COMPACTION FORCES. ORIGINAL A HORIZON LIKELY REMOVED OR BURIED. THE SOIL ORGANIC MATTER, PH AND CHEMISTRY IN THE A HORIZON IS LIKELY NOT SUITABLE FOR THE PROPOSED PLANTS AND SHOULD BE MODIFIED AS REQUIRED.
 - 2. SOIL RIPPING:
 - a. STEP ONE: AFTER GRADING AND REMOVING ALL PLANTS AND DEBRIS FROM THE SURFACE, USING A TRACKED DOZER OR SIMILAR LARGE GRADING EQUIPMENT, LOOSEN THE SOIL BY DRAGGING A RIPPING SHANK OR CHISEL THRU THE SOIL TO DEPTHS OF 24 INCHES WITH RIPPING SHANKS SPACED 18 INCHES OR LESS APART IN TWO DIRECTIONS. THE NUMBER OF SHANKS PER PULL IS DEPENDENT ON THE DEGREE OF SOIL COMPACTION AND THE SIZE OF THE DOZER.
 - b. STEP 2: SPREAD 3-4 INCHES OF COMPOST OVER THE RIPPED AREA AND TILL INTO THE TOP 6 INCHES OF THE SOIL SURFACE.

- 2.6 PLANTING SOIL MIXES**
- A. GENERAL DEFINITION: MIXES OF EXISTING SOIL OR IMPORTED TOPSOIL, COARSE SAND, AND OR COMPOST TO MAKE A NEW SOIL THAT MEETS THE PROJECT GOALS FOR THE INDICATED PLANTING AREA. THESE MAY BE MIXED OFF SITE OR ONSITE, AND WILL VARY IN MIX COMPONENTS AND PROPORTIONS AS INDICATED.
 - B. PLANTING MIX – MODERATELY SLOW DRAINING SOIL FOR TREES AND SHRUB BEDS
 - 1. A MIX OF IMPORTED TOPSOIL, COARSE SAND AND COMPOST. THE APPROXIMATE MIX RATIO SHALL BE:
MIX COMPONENT % BY MOIST VOLUME
IMPORTED TOPSOIL UNSCREENED 45 – 50%
COARSE SAND 40 – 45%
COMPOST 10%
 - 2. FINAL TESTED ORGANIC MATTER BETWEEN 2.75 AND 4% (BY DRY WEIGHT).
 - 3. MIX THE COARSE SAND AND COMPOST TOGETHER FIRST AND THEN ADD TO THE TOPSOIL. MIX WITH A LOADER BUCKET TO LOOSELY INCORPORATE THE TOPSOIL INTO THE COARSE SAND/COMPOST MIX. DO NOT OVER MIX! DO NOT MIX WITH A SOIL BLENDING MACHINE. DO NOT SCREEN THE SOIL. CLUMPS OF SOIL, COMPOST AND COARSE SAND WILL BE PERMITTED IN THE OVERALL MIX.
 - 4. AT THE TIME OF FINAL GRADING, ADD FERTILIZER IF REQUIRED TO THE PLANTING SOIL AT RATES RECOMMENDED BY THE TESTING RESULTS FOR THE PLANTS TO BE GROWN.
 - 5. PROVIDE A ONE GALLON SAMPLE WITH TESTING DATA THAT INCLUDES RECOMMENDATIONS FOR CHEMICAL ADDITIVES FOR THE TYPES OF PLANTS TO BE GROWN. SAMPLES AND TESTING DATA SHALL BE SUBMITTED AT THE SAME TIME.

- 2.7 PRE-EMERGENT HERBICIDES**
- A. CHEMICAL HERBICIDES ARE DESIGNED TO PREVENT SEEDS OF SELECTIVE PLANTS FROM GERMINATING. EXACT TYPE OF HERBICIDE SHALL BE BASED ON THE SPECIFIC PLANTS TO BE CONTROLLED AND THE MOST EFFECTIVE DATE OF APPLICATION.
 - B. SUBMIT REPORT OF EXPECTED WEED PROBLEMS AND THE RECOMMENDATION OF THE MOST EFFECTIVE CONTROL FOR APPROVAL BY OWNER'S REPRESENTATIVE. PROVIDE MANUFACTURER'S LITERATURE AND MATERIAL CERTIFICATION THAT THE PRODUCT MEETS THE REQUIREMENTS.

- PART 3 EXECUTION**
- 3.1 SITE EXAMINATION**
- A. PRIOR TO INSTALLATION OF PLANTING SOIL, EXAMINE SITE TO CONFIRM THAT EXISTING CONDITIONS ARE SATISFACTORY FOR THE WORK OF THIS SECTION TO PROCEED.
 - 1. CONFIRM THAT THE SUBGRADE IS AT THE PROPER ELEVATION AND COMPACTED AS REQUIRED. SUBGRADE ELEVATIONS SHALL SLOPE TOWARD THE UNDER DRAIN LINES AS SHOWN ON THE DRAWINGS.
 - 2. CONFIRM THAT SURFACE ALL AREAS TO BE FILLED WITH PLANTING SOIL ARE FREE OF CONSTRUCTION DEBRIS, REFUSE, COMPRESSIBLE OR BIODEGRADABLE MATERIALS, STONES GREATER THAN 2 INCHES DIAMETER, SOIL CRUSTING FILMS OF SILT OR CLAY THAT REDUCES OR STOPS DRAINAGE FROM THE PLANTING SOIL INTO THE SUBSOIL; AND/OR STANDING WATER. REMOVE UNSUITABLE MATERIAL FROM THE SITE.
 - 3. CONFIRM THAT NO ADVERSE DRAINAGE CONDITIONS ARE PRESENT.
 - 4. CONFIRM THAT NO CONDITIONS ARE PRESENT WHICH ARE DETRIMENTAL TO PLANT GROWTH.
 - 5. CONFIRM THAT UTILITY WORK HAS BEEN COMPLETED PER THE DRAWINGS.
 - 6. CONFIRM THAT IRRIGATION WORK, WHICH IS SHOWN TO BE INSTALLED BELOW PREPARED SOIL LEVELS, HAS BEEN COMPLETED.
 - B. IF UNSATISFACTORY CONDITIONS ARE ENCOUNTERED, NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY TO DETERMINE CORRECTIVE ACTION BEFORE PROCEEDING.
- 3.2 COORDINATION WITH PROJECT WORK**
- A. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER WORK THAT MAY IMPACT THE COMPLETION OF THE WORK.
 - B. PRIOR TO THE START OF WORK, PREPARE A DETAILED SCHEDULE OF THE WORK FOR COORDINATION WITH OTHER TRADES.
 - C. COORDINATE THE RELOCATION OF ANY IRRIGATION LINES, HEADS OR THE CONDUITS OF OTHER UTILITY LINES THAT ARE IN CONFLICT WITH TREE LOCATIONS. ROOT BALLS SHALL NOT BE ALTERED TO FIT AROUND LINES. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY CONFLICTS ENCOUNTERED.

- 3.3 GRADE AND ELEVATION CONTROL**
- A. PROVIDE GRADE AND ELEVATION CONTROL DURING INSTALLATION OF PLANTING SOIL. UTILIZE GRADE STAKES, SURVEYING EQUIPMENT, AND OTHER MEANS AND METHODS TO ASSURE THAT GRADES AND CONTOURS CONFORM TO THE GRADES INDICATED ON THE PLANS.

- 3.4 SITE PREPARATION**
- D. EXCAVATE TO THE PROPOSED SUBGRADE. MAINTAIN ALL REQUIRED ANGLES OF REPOSE OF THE ADJACENT MATERIALS AS SHOWN ON THE DRAWINGS OR AS REQUIRED BY THIS SPECIFICATION. DO NOT OVER EXCAVATE COMPACTED SUBGRADES OF ADJACENT PAVEMENT OR STRUCTURES. MAINTAIN A SUPPORTING 1:1 SIDE SLOPE OF COMPACTED SUBGRADE MATERIAL ALONG THE EDGES OF ALL PAVING AND STRUCTURES WHERE THE BOTTOM OF THE PAVING OR STRUCTURE IS ABOVE THE BOTTOM ELEVATION OF THE EXCAVATED PLANTING AREA.
 - E. REMOVE ALL CONSTRUCTION DEBRIS AND MATERIAL INCLUDING ANY CONSTRUCTION MATERIALS FROM THE SUBGRADE.
 - F. CONFIRM THAT THE SUBGRADE IS AT THE PROPER ELEVATION AND COMPACTED AS REQUIRED. SUBGRADE ELEVATIONS SHALL SLOPE APPROXIMATELY PARALLEL TO THE FINISHED GRADE AND/OR TOWARD THE SUBSURFACE DRAIN LINES AS SHOWN ON THE DRAWINGS.
 - G. IN AREAS WHERE PLANTING SOIL IS TO BE SPREAD, CONFIRM SUBGRADE HAS BEEN SCARIFIED.
 - H. PROTECT ADJACENT WALLS, WALKS AND UTILITIES FROM DAMAGE OR STAINING BY THE SOIL. USE 1/2 INCH PLYWOOD AND OR PLASTIC SHEETING AS DIRECTED TO COVER EXISTING CONCRETE, METAL AND MASONRY WORK AND OTHER ITEMS AS DIRECTED DURING THE PROGRESS OF THE WORK.
 - 1. AT THE END OF EACH WORKING DAY, CLEAN UP ANY SOIL OR DIRT SPILLED ON ANY PAVED SURFACE.
 - 2. ANY DAMAGE TO THE PAVING OR SITE FEATURES OR WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

- 3.5 SOIL MOISTURE**
- A. VOLUMETRIC SOIL MOISTURE LEVEL, IN BOTH THE PLANTING SOIL AND THE ROOT BALLS OF ALL PLANTS, PRIOR TO, DURING AND AFTER PLANTING SHALL BE ABOVE PERMANENT WILT POINT AND BELOW FIELD CAPACITY FOR EACH TYPE OF SOIL TEXTURE WITHIN THE FOLLOWING RANGES.
- | SOIL TEXTURE | PERMANENT WILTING POINT | FIELD CAPACITY |
|-----------------------------------|-------------------------|----------------|
| SAND, LOAMY SAND, SANDY LOAM | 5 – 8% | 12 – 18% |
| LOAM, SANDY CLAY, SANDY CLAY LOAM | 14 – 25% | 27 – 36% |
| CLAY LOAM, SILT LOAM | 11 – 22% | 31 – 36% |
| SILTY CLAY, SILTY CLAY LOAM | 22 – 27% | 38 – 41% |
- B. THE CONTRACTOR SHALL CONFIRM THE SOIL MOISTURE LEVELS WITH A MOISTURE METER (DIGITAL SOIL MOISTURE METER, DSM500 BY GENERAL SPECIALTY TOOLS AND INSTRUMENTS, OR APPROVED EQUIVALENT). IF MOISTURE IS FOUND TO BE TOO LOW, THE PLANTING HOLES SHALL BE FILLED WITH WATER AND ALLOWED TO DRAIN BEFORE STARTING ANY PLANTING OPERATIONS. IF THE MOISTURE IS TOO HIGH, SUSPEND PLANTING OPERATIONS UNTIL THE SOIL MOISTURE DRAINS TO BELOW FIELD CAPACITY.

- 3.6 PLANTING SOIL AND PLANTING SOIL MIX INSTALLATION**
- A. PRIOR TO INSTALLING ANY PLANTING SOIL FROM STOCKPILES OR PLANTING SOIL MIXES BLENDED OFF SITE, THE OWNER'S REPRESENTATIVE SHALL APPROVE THE CONDITION OF THE SUBGRADE AND THE PREVIOUSLY INSTALLED SUBGRADE PREPARATION AND THE INSTALLATION OF SUBSURFACE DRAINAGE.
 - B. ALL EQUIPMENT UTILIZED TO INSTALL OR GRADE PLANTING SOILS SHALL BE WIDE TRACK OR BALLOON TIRE MACHINES RATED WITH A GROUND PRESSURE OF 4 PSI OR LESS. ALL GRADING AND SOIL DELIVERY EQUIPMENT SHALL HAVE BUCKETS EQUIPPED WITH 6 INCH LONG TEETH TO SCARIFY ANY SOIL THAT BECOMES COMPACTED.
 - C. IN AREAS OF SOIL INSTALLATION ABOVE EXISTING SUBSOIL, SCARIFY THE SUBGRADE MATERIAL PRIOR TO INSTALLING PLANTING SOIL.
 - 1. SCARIFY THE SUBSOIL OF THE SUBGRADE TO A DEPTH OF 3 – 6 INCHES WITH THE TEETH OF THE BACK HOE OR LOADER BUCKET,

- TILLER OR OTHER SUITABLE DEVICE.
- 2. IMMEDIATELY INSTALL THE PLANTING SOIL. PROTECT THE LOOSENEED AREA FROM TRAFFIC. DO NOT ALLOW THE LOOSENEED SUBGRADE TO BECOME COMPACTED.
- 3. IN THE EVENT THAT THE LOOSENEED AREA BECOMES OVERLY COMPACTED, LOOSEN THE AREA AGAIN PRIOR TO INSTALLING THE PLANTING SOIL.
- D. INSTALL THE PLANTING SOIL IN 12 – 18 INCH LIFTS TO THE REQUIRED DEPTHS. APPLY COMPACTING FORCES TO EACH LIFT AS REQUIRED TO ATTAIN THE REQUIRED COMPACTION. SCARIFY THE TOP OF EACH LIFT PRIOR TO ADDING MORE PLANTING SOIL BY DRAGGING THE TEETH OF A LOADER BUCKET OR BACKHOE ACROSS THE SOIL SURFACE TO ROUGHEN THE SURFACE.
- E. PHASE WORK SUCH THAT EQUIPMENT TO DELIVER OR GRADE SOIL DOES NOT HAVE TO OPERATE OVER PREVIOUSLY INSTALLED PLANTING SOIL. WORK IN ROWS OF LIFTS THE WIDTH OF THE EXTENSION OF THE BUCKET ON THE LOADER. INSTALL ALL LIFTS IN ONE ROW BEFORE PROCEEDING TO THE NEXT. WORK OUT FROM THE FURTHEST PART OF EACH BED FROM THE SOIL DELIVERY POINT TO THE EDGE OF THE EACH BED AREA.
- F. WHERE POSSIBLE PLACE LARGE TREES FIRST AND FILL PLANTING SOIL AROUND THE ROOT BALL.
- G. INSTALLING SOIL WITH SOIL OR MULCH BLOWERS OR SOIL SLINGERS SHALL NOT BE PERMITTED DUE TO THE OVER MIXING AND SOIL PED BREAKDOWN CAUSE BY THIS TYPE OF EQUIPMENT.
- H. WHERE TRAVEL OVER INSTALLED SOIL IS UNAVOIDABLE, LIMIT PATHS OF TRAFFIC TO REDUCE THE IMPACT OF COMPACTION IN PLANTING SOIL. EACH TIME EQUIPMENT PASSES OVER THE INSTALLED SOIL IT SHALL REVERSE OUT OF THE AREA ALONG THE SAME PATH WITH THE TEETH OF THE BUCKET DROPPED TO SCARIFY THE SOIL. COMPLY WITH THE PARAGRAPH "COMPACTION REDUCTION" IN THE EVENT THAT SOIL BECOMES OVER COMPACTED.
- I. THE DEPTHS AND GRADES SHOWN ON THE DRAWINGS ARE THE FINAL GRADES AFTER SETTLEMENT AND SHRINKAGE OF THE COMPOST MATERIAL. THE CONTRACTOR SHALL INSTALL THE PLANTING SOIL AT A HIGHER LEVEL TO ANTICIPATE THIS REDUCTION OF PLANTING SOIL VOLUME. A MINIMUM SETTLEMENT OF APPROXIMATELY 10 – 15% OF THE SOIL DEPTH IS EXPECTED. ALL GRADE INCREASES ARE ASSUMED TO BE AS MEASURED PRIOR TO ADDITION OF SURFACE COMPOST TILL LAYER, MULCH, OR SOD.

- 3.7 COMPACTION REQUIREMENTS FOR INSTALLED OR MODIFIED PLANTING SOIL**
- A. COMPACT INSTALLED PLANTING SOIL TO THE COMPACTION RATES INDICATED COMPACT EACH SOIL LIFT AS THE SOIL IS INSTALLED.
 - B. INSTALLED PLANTING SOIL MIX AND RE-SPREAD EXISTING SOIL SHALL HAVE A SOIL DENSITY THROUGH THE REQUIRED DEPTH OF THE INSTALLED LAYERS OF SOIL, SUCH THAT THE PENETROMETER READS APPROXIMATELY 75 TO 250 PSI AT SOIL MOISTURE APPROXIMATELY THE MID-POINT BETWEEN WILT POINT AND FIELD CAPACITY. THIS WILL BE APPROXIMATELY BETWEEN 75 AND 82% OF MAXIMUM DRY DENSITY STANDARD PROCTOR.
 - C. MAINTAIN MOISTURE CONDITIONS WITHIN THE PLANTING SOIL DURING INSTALLATION OR MODIFICATION TO ALLOW FOR SATISFACTORY COMPACTION. SUSPEND OPERATIONS IF THE PLANTING SOIL BECOMES WET. APPLY WATER IF THE SOIL IS OVERLY DRY.
 - D. PROVIDE ADEQUATE EQUIPMENT TO ACHIEVE CONSISTENT AND UNIFORM COMPACTION OF THE PLANTING SOILS. USE THE SMALLEST EQUIPMENT THAT CAN REASONABLY PERFORM THE TASK OF SPREADING AND COMPACTION. USE THE SAME EQUIPMENT AND METHODS OF COMPACTION USED TO CONSTRUCT THE PLANTING SOIL MOCKUP.
 - E. DO NOT PASS MOTORIZED EQUIPMENT OVER PREVIOUSLY INSTALLED AND COMPACTED SOIL EXCEPT AS AUTHORIZED BELOW.
 - 1. LIGHT WEIGHT EQUIPMENT SUCH AS TRENCHING MACHINES OR MOTORIZED WHEEL BARROWS IS PERMITTED TO PASS OVER FINISHED SOIL WORK.
 - 2. IF WORK AFTER THE INSTALLATION AND COMPACTION OF SOIL COMPACTS THE SOIL TO LEVELS GREATER THAN THE ABOVE REQUIREMENTS, FOLLOW THE REQUIREMENTS OF THE PARAGRAPH "OVER COMPACTION REDUCTION" BELOW.

- 3.8 OVER COMPACTION REDUCTION**
- A. ANY SOIL THAT BECOMES COMPACTED TO A DENSITY GREATER THAN THE SPECIFIED DENSITY AND/OR THE DENSITY IN THE APPROVED MOCKUP SHALL BE DUG UP AND REINSTALLED. THIS REQUIREMENT INCLUDES COMPACTION CAUSED BY OTHER SUB-CONTRACTORS AFTER THE PLANTING SOIL IS INSTALLED AND APPROVED.
 - B. SURFACE ROTO TILLING SHALL NOT BE CONSIDERED ADEQUATE TO REDUCE OVER COMPACTION AT LEVELS 6 INCHES OR GREATER BELOW FINISHED GRADE.
- 3.9 INSTALLATION OF CHEMICAL ADDITIVES**
- A. FOLLOWING THE INSTALLATION OF EACH SOIL AND PRIOR TO FINE GRADING AND INSTALLATION OF THE COMPOST TILL LAYER, APPLY CHEMICAL ADDITIVES AS RECOMMENDED BY THE SOIL TEST, AND APPROPRIATE TO THE SOIL AND SPECIFIC PLANTS TO BE INSTALLED.
 - B. TYPES, APPLICATION RATES AND METHODS OF APPLICATION SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO ANY APPLICATIONS.

- 3.10 FINE GRADING**
- A. THE OWNER'S REPRESENTATIVE SHALL APPROVE ALL ROUGH GRADING PRIOR TO THE INSTALLATION OF COMPOST, FINE GRADING, PLANTING, AND MULCHING.
 - B. GRADE THE FINISH SURFACE OF ALL PLANTED AREAS TO MEET THE GRADES SHOWN ON THE DRAWINGS, ALLOWING THE FINISHED GRADES TO REMAIN HIGHER (10 – 15% OF DEPTH OF SOIL MODIFICATION) THAN THE GRADES ON THE GRADING PLAN, AS DEFINED IN PARAGRAPH PLANTING SOIL INSTALLATION, TO ANTICIPATE SETTLEMENT OVER THE FIRST YEAR.
 - C. UTILIZE HAND EQUIPMENT, SMALL GARDEN TRACTORS WITH RAKES, OR SMALL GARDEN TRACTORS WITH BUCKETS WITH TEETH FOR FINE GRADING TO KEEP SURFACE ROUGH WITHOUT FURTHER COMPACTION. DO NOT USE THE FLAT BOTTOM OF A LOADER BUCKET TO FINE GRADE, AS IT WILL CAUSE THE FINISHED GRADE TO BECOME OVERLY SMOOTH AND OR SLIGHTLY COMPRESSED.
 - D. PROVIDE FOR POSITIVE DRAINAGE FROM ALL AREAS TOWARD THE EXISTING INLETS, DRAINAGE STRUCTURES AND OR THE EDGES OF PLANTING BEDS. ADJUST GRADES AS DIRECTED TO REFLECT ACTUAL CONSTRUCTED FIELD CONDITIONS OF PAVING, WALL AND INLET ELEVATIONS. NOTIFY THE OWNER'S REPRESENTATIVE IN THE EVENT THAT

- CONDITIONS MAKE IT IMPOSSIBLE TO ACHIEVE POSITIVE DRAINAGE.
- E. PROVIDE SMOOTH, ROUNDED TRANSITIONS BETWEEN SLOPES OF DIFFERENT GRADIENTS AND DIRECTION. MODIFY THE GRADE SO THAT THE FINISH GRADE BEFORE ADDING MULCH AND AFTER SETTLEMENT IS ONE OR TWO INCHES BELOW ALL PAVING SURFACES OR AS DIRECTED BY THE DRAWINGS.
- F. FILL ALL DIPS AND REMOVE ANY BUMPS IN THE OVERALL PLANE OF THE SLOPE. THE TOLERANCE FOR DIPS AND BUMPS IN SHRUB AND GROUND COVER PLANTING AREAS SHALL BE A 2 INCH DEVIATION FROM THE PLANE IN 10 FEET. THE TOLERANCE FOR DIPS AND BUMPS IN LAWN AREAS SHALL BE A 1 INCH DEVIATION FROM THE PLANE IN 10 FEET.

- 3.11 INSTALLATION OF COMPOST TILL LAYER**
- A. AFTER PLANTING SOIL MIXES ARE INSTALLED IN PLANTING BED AREAS AND JUST PRIOR TO THE INSTALLATION OF SHRUB OR GROUNDCOVER PLANTINGS, SPREAD 3 – 4 INCHES OF COMPOST OVER THE BEDS AND ROTO TILL INTO THE TOP 4 – 6 INCHES OF THE PLANTING SOIL. THIS STEP WILL RAISE GRADES SLIGHTLY ABOVE THE GRADES REQUIRED IN PARAGRAPH "FINE GRADING". THIS SPECIFICATION ANTICIPATES THAT THE RAISE IN GRADE DUE TO THIS TILLING WILL SETTLE WITHIN A FEW MONTHS AFTER INSTALLATION AS COMPOST BREAKS DOWN. ADDITIONAL SETTLEMENT AS DEFINED IN PARAGRAPH "PLANTING SOIL AND PLANTING SOIL MIX INSTALLATION" MUST STILL BE ACCOUNTED FOR IN THE SETTING OF FINAL GRADES.

- 3.12 CLEAN-UP**
- A. DURING INSTALLATION, KEEP THE SITE FREE OF TRASH, PAVEMENTS REASONABLY CLEAN AND WORK AREA IN AN ORDERLY CONDITION AT THE END OF EACH DAY. REMOVE TRASH AND DEBRIS IN CONTAINERS FROM THE SITE NO LESS THAN ONCE A WEEK.
 - 1. IMMEDIATELY CLEAN UP ANY SPILLED OR TRACKED SOIL, FUEL, OIL, TRASH OR DEBRIS DEPOSITED BY THE CONTRACTOR FROM ALL SURFACES WITHIN THE PROJECT OR ON PUBLIC RIGHT OF WAYS AND NEIGHBORING PROPERTY.
 - B. ONCE INSTALLATION IS COMPLETE, WASH ALL SOIL FROM PAVEMENTS AND OTHER STRUCTURES. ENSURE THAT MULCH IS CONFINED TO PLANTING BEDS AND THAT ALL TAGS AND FLAGGING TAPE ARE REMOVED FROM THE SITE. THE OWNER'S REPRESENTATIVE SEALS ARE TO REMAIN ON THE TREES AND REMOVED AT THE END OF THE WARRANTY PERIOD.
 - 1. MAKE ALL REPAIRS TO GRADES, RUTS, AND DAMAGE TO THE WORK OR OTHER WORK AT THE SITE.
 - 2. REMOVE AND DISPOSE OF ALL EXCESS PLANTING SOIL, SUBSOIL, MULCH, PLANTS, PACKAGING, AND OTHER MATERIAL BROUGHT TO THE SITE BY THE CONTRACTOR.

- 3.13 PLANTING SOIL AND MODIFIED EXISTING SOIL PROTECTION**
- A. THE CONTRACTOR SHALL PROTECT INSTALLED AND/OR MODIFIED PLANTING SOIL FROM DAMAGE INCLUDING CONTAMINATION AND OVER COMPACTION DUE TO OTHER SOIL INSTALLATION, PLANTING OPERATIONS, AND OPERATIONS BY OTHER CONTRACTORS OR TRESPASSERS. MAINTAIN PROTECTION DURING INSTALLATION UNTIL ACCEPTANCE. UTILIZE FENCING AND MATTING AS REQUIRED OR DIRECTED TO PROTECT THE FINISHED SOIL WORK. TREAT, REPAIR OR REPLACE DAMAGED PLANTING SOIL IMMEDIATELY.
 - B. LOOSEN COMPACTED PLANTING SOIL AND REPLACE PLANTING SOIL THAT HAS BECOME CONTAMINATED AS DETERMINED BY THE OWNER'S REPRESENTATIVE. PLANTING SOIL SHALL BE LOOSENEED OR REPLACED AT NO EXPENSE TO THE OWNER.
 - 1. TILL AND RESTORE GRADES TO ALL SOIL THAT HAS BEEN DRIVEN OVER OR COMPACTED DURING THE INSTALLATION OF PLANTS.
 - 2. WHERE MODIFIED EXISTING SOIL HAS BECOME CONTAMINATED AND NEEDS TO BE REPLACED, PROVIDE IMPORTED SOIL THAT IS OF SIMILAR COMPOSITION, DEPTH AND DENSITY AS THE SOIL THAT WAS REMOVED.

- 3.14 PROTECTION DURING CONSTRUCTION**
- A. THE CONTRACTOR SHALL PROTECT PLANTING AND RELATED WORK AND OTHER SITE WORK FROM DAMAGE DUE TO PLANTING OPERATIONS, OPERATIONS BY OTHER CONTRACTORS OR TRESPASSERS.
 - 1. MAINTAIN PROTECTION DURING INSTALLATION UNTIL THE DATE OF PLANT ACCEPTANCE (SEE SPECIFICATIONS SECTION – PLANTING). TREAT, REPAIR OR REPLACE DAMAGED WORK IMMEDIATELY.
 - B. DAMAGE DONE BY THE CONTRACTOR, OR ANY OF THEIR SUB-CONTRACTORS TO EXISTING OR INSTALLED PLANTS, OR ANY OTHER PARTS OF THE WORK OR EXISTING FEATURES TO REMAIN, INCLUDING LARGE EXISTING TREES, SOIL, PAVING, UTILITIES, LIGHTING, IRRIGATION, OTHER FINISHED WORK AND SURFACES INCLUDING THOSE ON ADJACENT PROPERTY, SHALL BE CLEANED, REPAIRED OR REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER. THE OWNER'S REPRESENTATIVE SHALL DETERMINE WHEN SUCH CLEANING, REPLACEMENT OR REPAIR IS SATISFACTORY. DAMAGE TO EXISTING TREES SHALL BE ASSESSED BY A CERTIFIED ARBORIST.

- 3.15 SUBSTANTIAL COMPLETION ACCEPTANCE**
- A. UPON WRITTEN NOTICE FROM THE CONTRACTOR, THE OWNERS REPRESENTATIVE SHALL REVIEW THE WORK AND MAKE A DETERMINATION IF THE WORK IS SUBSTANTIALLY COMPLETE.
 - B. THE DATE OF SUBSTANTIAL COMPLETION OF THE PLANTING SOIL SHALL BE THE DATE WHEN THE OWNER'S REPRESENTATIVE ACCEPTS THAT ALL WORK IN PLANTING, PLANTING SOIL, AND IRRIGATION INSTALLATION SECTIONS IS COMPLETE.

- 3.16 FINAL ACCEPTANCE / SOIL SETTLEMENT**
- A. AT THE END OF THE PLANT WARRANTY AND MAINTENANCE PERIOD, (SEE SPECIFICATION SECTION – PLANTING) THE OWNER'S REPRESENTATIVE SHALL OBSERVE THE SOIL INSTALLATION WORK AND ESTABLISH THAT ALL PROVISIONS OF THE CONTRACT ARE COMPLETE AND THE WORK IS SATISFACTORY.
 - 1. RESTORE ANY SOIL SETTLEMENT AND OR EROSION AREAS TO THE GRADES SHOWN ON THE DRAWINGS. WHEN RESTORING SOIL GRADES REMOVE PLANTS AND MULCH AND ADD SOIL BEFORE RESTORING THE PLANTING. DO NOT ADD SOIL OVER THE ROOT BALLS OF PLANTS OR ON TOP OF MULCH.
 - B. FAILURE TO PASS ACCEPTANCE: IF THE WORK FAILS TO PASS FINAL ACCEPTANCE, ANY SUBSEQUENT OBSERVATIONS MUST BE RESCHEDULED AS PER ABOVE. THE COST TO THE OWNER FOR ADDITIONAL OBSERVATIONS WILL BE CHARGED TO THE CONTRACTOR AT THE PREVAILING HOURLY RATE OF THE OWNER'S REPRESENTATIVE.

END OF SECTION 32 9100

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**CALIFORNIA DRIVE
ROUNDABOUT
PREPARED FOR
CITY OF BURLINGAME**

KHA PROJECT 097515003
DATE 12/27/2017
SCALE AS SHOWN
DESIGNED BY DW
DRAWN BY DW
CHECKED BY DC

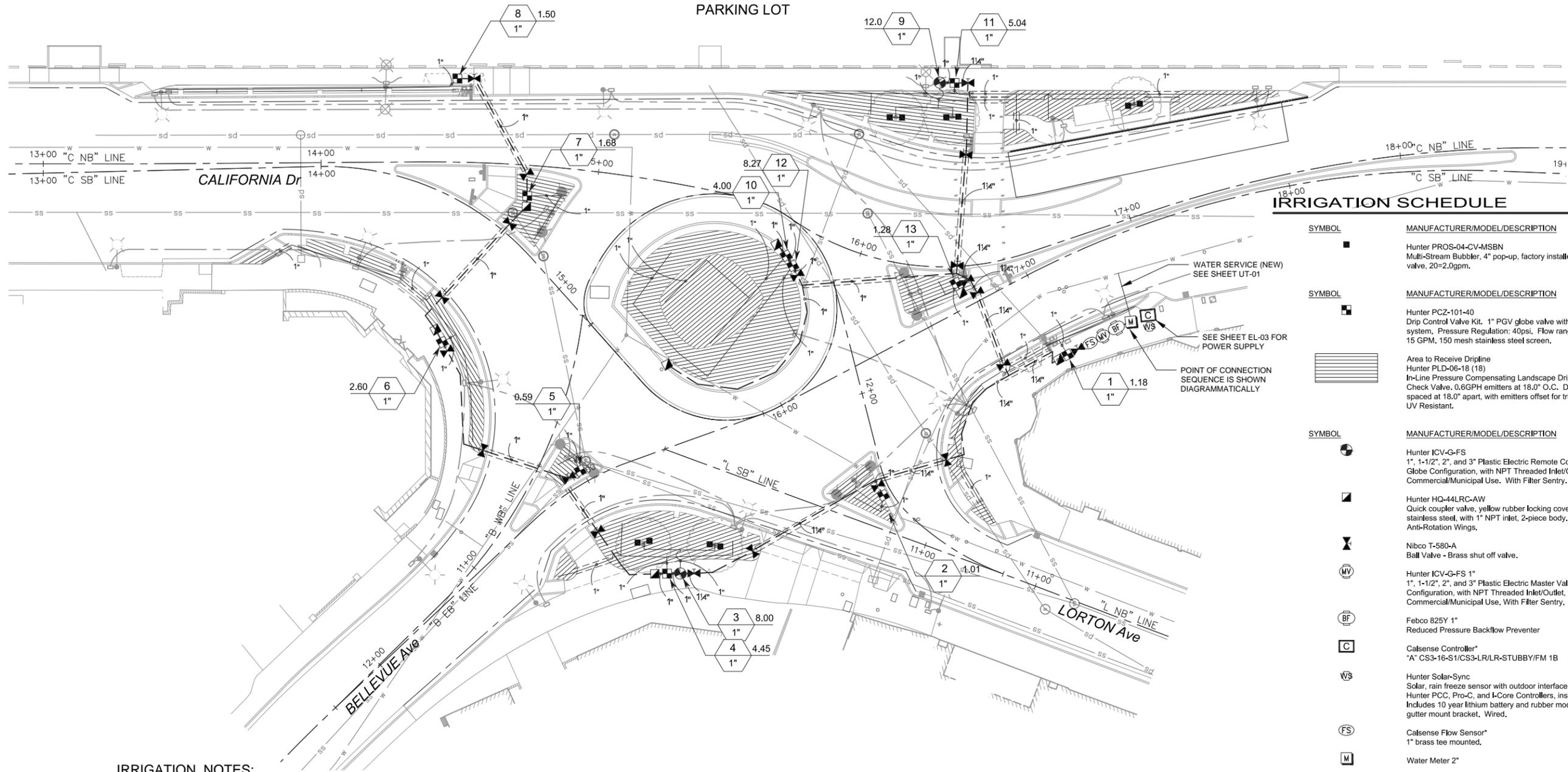


LANDSCAPE SPECIFICATIONS

LS-07

SHEET NO. 53
OF 61 SHEETS

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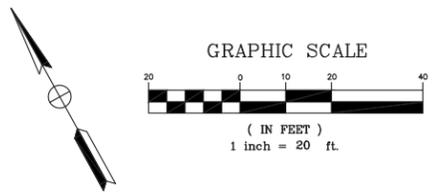


| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION | QTY |
|--------|--|------------|
| ■ | Hunter PROS-04-CV-MSBN Multi-Stream Bubbler, 4" pop-up, factory installed drain check valve, 20=2.0gpm. | 10 |
| ■ | Hunter PCZ-101-40 Drip Control Valve Kit. 1" PGV globe valve with 1" HY100 filter system, Pressure Regulation: 40psi, Flow range: 0.5 GPM to 15 GPM, 150 mesh stainless steel screen. | 11 |
| ▨ | Area to Receive Dripline Hunter PLD-06-18 (18) In-Line Pressure Compensating Landscape Dripline with Built-in Check Valve, 0.6GPH emitters at 18.0" O.C. Dripline laterals spaced at 18.0" apart, with emitters offset for triangular pattern. UV Resistant. | 7,113 s.f. |
| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION | QTY |
| ⊙ | Hunter ICV-G-FS 1", 1-1/2", 2", and 3" Plastic Electric Remote Control Valves, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use. With Filter Sentry. | 2 |
| ⊠ | Hunter HQ-44LRC-AW Quick coupler valve, yellow rubber locking cover, red brass and stainless steel, with 1" NPT inlet, 2-piece body. Acme Key with Anti-Rotation Wings. | 7 |
| ⊘ | Nibco T-580-A Ball Valve - Brass shut off valve. | 20 |
| ⊙ | Hunter ICV-G-FS 1" 1", 1-1/2", 2", and 3" Plastic Electric Master Valve, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use. With Filter Sentry. | 1 |
| ⊙ | Febco 825Y 1" Reduced Pressure Backflow Preventer | 1 |
| ⊙ | Calsense Controller* *A CS3-16-S1/CS3-LR/LR-STUBBY/FM 1B | 1 |
| ⊙ | Hunter Solar-Sync Solar, rain freeze sensor with outdoor interface, connects to Hunter PCC, Pro-C, and I-Core Controllers, install as noted. Includes 10 year lithium battery and rubber module cover, and gutter mount bracket. Wired. | 1 |
| ⊙ | Calsense Flow Sensor* 1" brass tee mounted. | 1 |
| ⊙ | Water Meter 2" | 1 |
| --- | Irrigation Lateral Line: PVC Schedule 40 | 1,116 l.f. |
| --- | Irrigation Mainline: PVC Schedule 40 | 755.7 l.f. |
| --- | Pipe Sleeve: PVC Schedule 40 | 390.0 l.f. |

IRRIGATION NOTES:

- LOCATIONS OF IRRIGATION METER, POINT OF CONNECTION SEQUENCE, CONTROLLER, MAIN LINE, LATERAL LINE, AND ASSOCIATED APPURTENANCES ARE SHOWN DIAGRAMMATICALLY.
- ALL IRRIGATION EQUIPMENT IS TO BE INSTALLED WITHIN THE PROJECT LIMITS OF CONSTRUCTION. VERIFY ALL LAYOUTS IN FIELD WITH CITY'S REPRESENTATIVE.
- CONTRACTOR TO CUT, CAP, CONNECT, ADJUST, ABANDON, REPLACE, REPAIR, RELOCATE, AND/OR SALVAGE EXISTING IRRIGATION SYSTEM TO ACCOMMODATE NEW IMPROVEMENTS.
- CONTRACTOR TO FIELD LOCATE AND VERIFY EXISTING IRRIGATION PRIOR TO DEMOLITION AND COORDINATE WITH CITY STAFF TO TIE EXISTING IRRIGATION INTO PROPOSED IRRIGATION IMPROVEMENTS.
- CONTRACTOR TO ADJUST ALL HEADS AS NEEDED TO ACCOMMODATE ANY VERTICAL OBSTRUCTIONS THAT MAY OCCUR, INCLUDING BUT NOT LIMITED TO LIGHT POLES, FIRE HYDRANTS, FENCES, ETC. VERIFY ALL HEAD LAYOUT WITH CITY'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.
- CONTRACTOR TO REFERENCE SHEET UT-01 FOR ALL UTILITIES AND POTENTIAL CONFLICTS.

FINAL LOCATION FOR ALL SLEEVES TO BE CONFIRMED IN THE FIELD WITH THE PROJECT ENGINEER PRIOR TO CONSTRUCTION.



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KHA PROJECT 097515003
 DATE 12/27/2017
 SCALE AS SHOWN
 DESIGNED BY DW
 DRAWN BY DW
 CHECKED BY DC

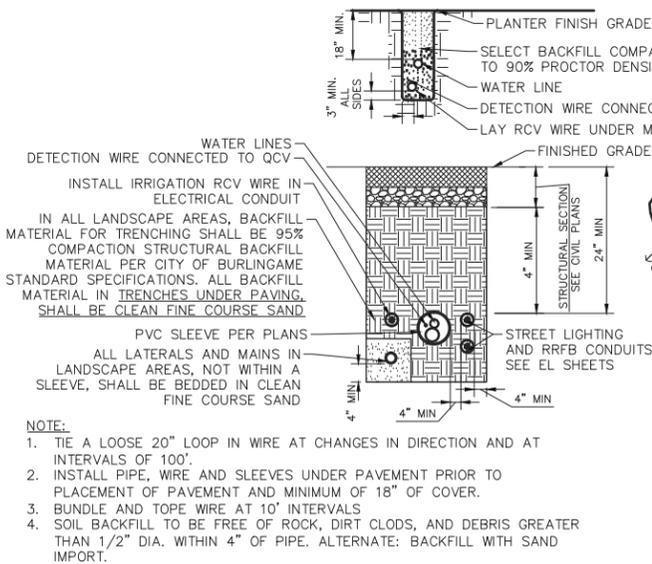
CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



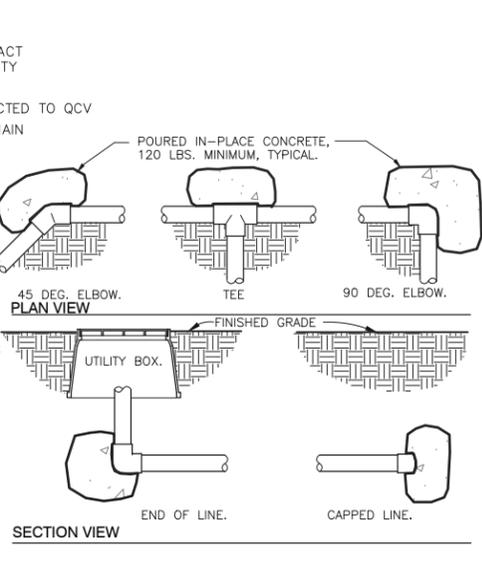
IRRIGATION PLAN

SHEET NO. 54
 OF 61 SHEETS
IR-01

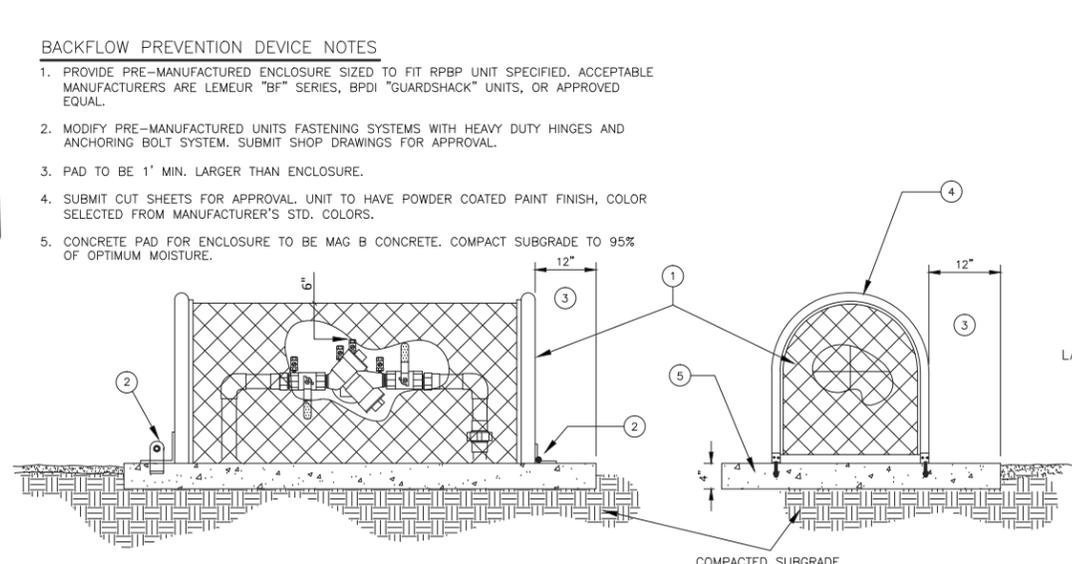
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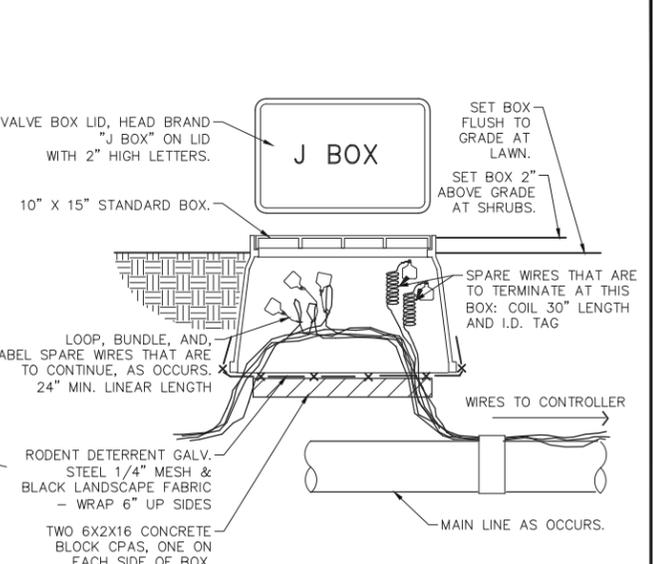
A TRENCHING DETAIL
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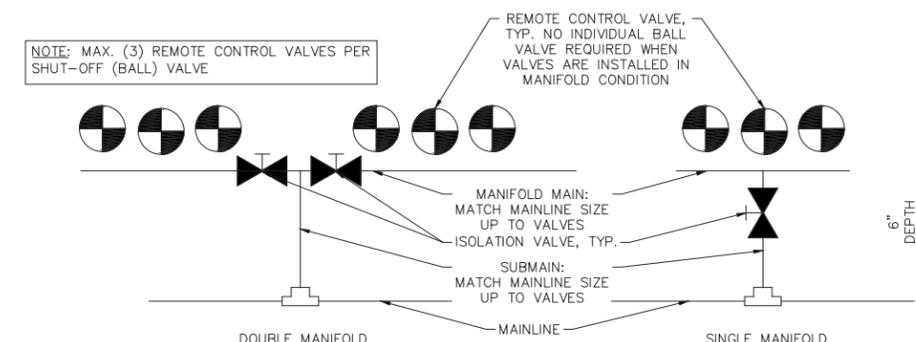
B THRUST BLOCKING
NOT TO SCALE



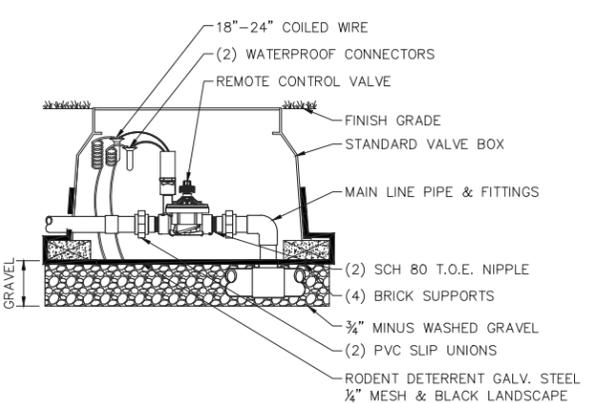
C FEBCO 825Y BACKFLOW PREVENTION DEVICE AND ENCLOSURE
NOT TO SCALE



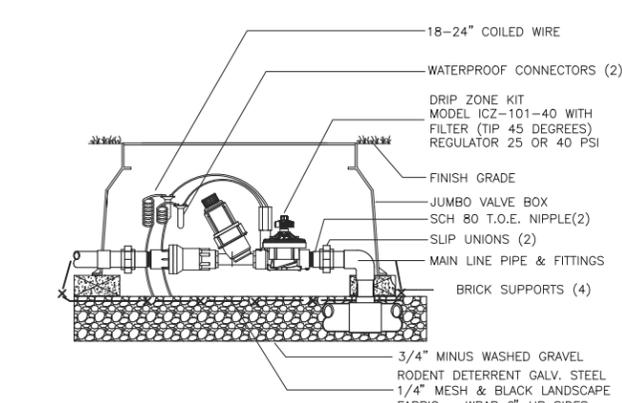
D WIRE BUNDLE JUNCTION BOX
NOT TO SCALE



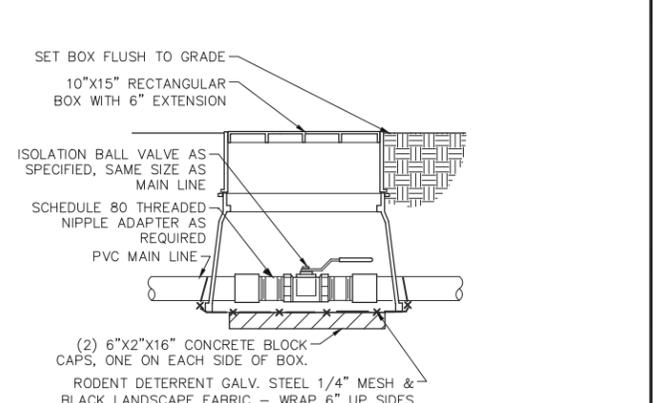
E TYPICAL VALVE MANIFOLD
NOT TO SCALE



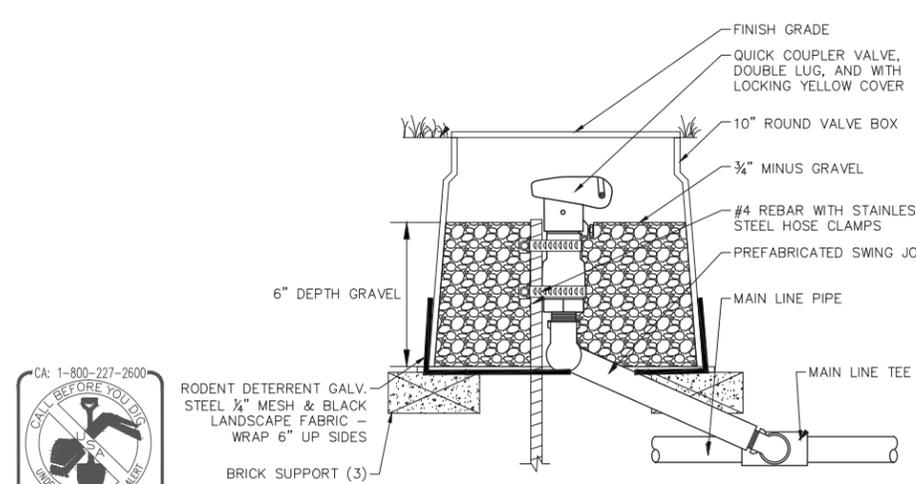
F REMOTE CONTROL VALVE
NOT TO SCALE



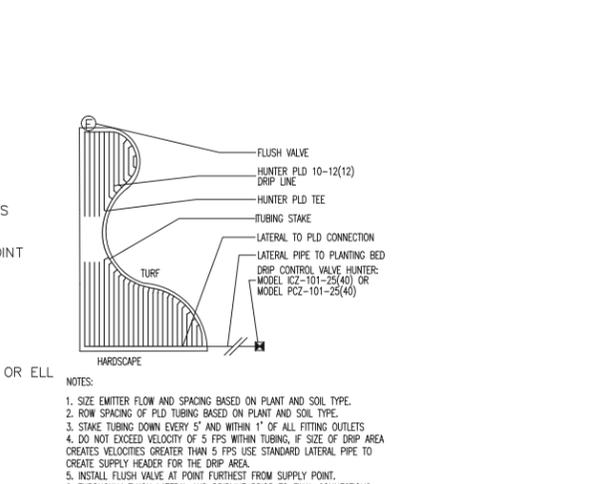
G DRIP CONTROL ZONE KIT
1 1/2" = 1'-0"



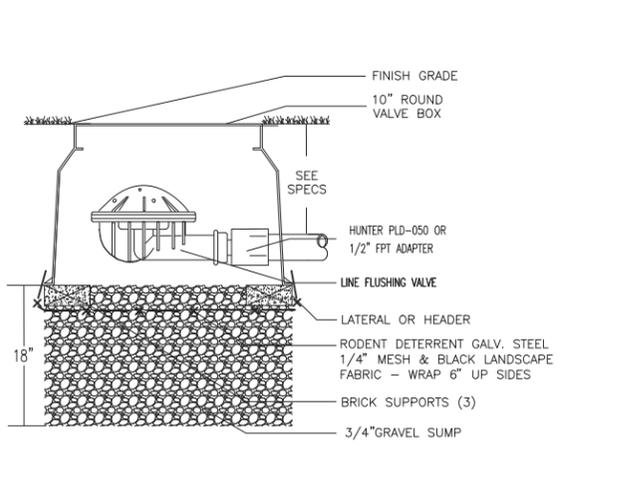
H ISOLATION BALL VALVE
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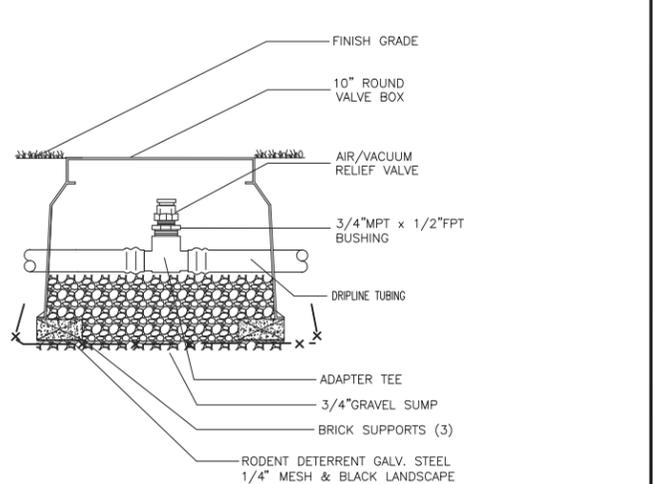
I QUICK COUPLER VALVE
NOT TO SCALE



J PLD LAYOUT
NOT TO SCALE



K AUTOMATIC FLUSH VALVE
NOT TO SCALE



L AIR RELIEF VALVE
NOT TO SCALE



- BACKFLOW PREVENTION DEVICE NOTES**
1. PROVIDE PRE-MANUFACTURED ENCLOSURE SIZED TO FIT RBPB UNIT SPECIFIED. ACCEPTABLE MANUFACTURERS ARE LEMEUR "BF" SERIES, BFDI "GUARDSHACK" UNITS, OR APPROVED EQUAL.
 2. MODIFY PRE-MANUFACTURED UNITS FASTENING SYSTEMS WITH HEAVY DUTY HINGES AND ANCHORING BOLT SYSTEM. SUBMIT SHOP DRAWINGS FOR APPROVAL.
 3. PAD TO BE 1" MIN. LARGER THAN ENCLOSURE.
 4. SUBMIT CUT SHEETS FOR APPROVAL. UNIT TO HAVE POWDER COATED PAINT FINISH, COLOR SELECTED FROM MANUFACTURER'S STD. COLORS.
 5. CONCRETE PAD FOR ENCLOSURE TO BE MAG B CONCRETE. COMPACT SUBGRADE TO 95% OF OPTIMUM MOISTURE.

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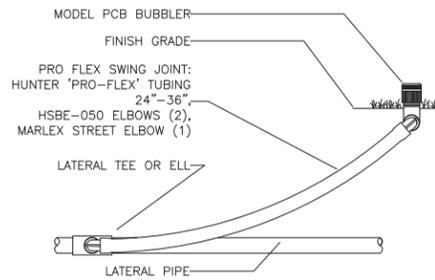
CALIFORNIA DRIVE ROUNDABOUT
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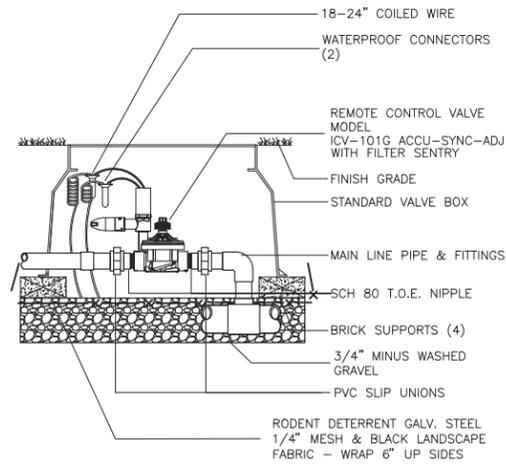
IRRIGATION CALCS & DETAILS

SHEET NO. 55 OF 61 SHEETS
IR-02

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A BUBBLER DETAIL
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B IVC 1" GLOBE MASTER VALVE
NOT TO SCALE

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:
 ETWU (HYDROZONE) = ESTIMATED TOTAL WATER USE (GAL / YEAR)
 ETO = REFERENCE EVAPOTRANSPIRATION (INCHES / YEAR)
 ETAF = ET ADJUSTMENT FACTOR = PF / IE
 PF = PLANT FACTOR (WUCOLS)
 HA = HYDROZONE AREA (S.F.) (16 SF / TREE)
 C2 = CONVERSION FACTOR
 IE = IRRIGATION EFFICIENCY
 SLA = SPECIAL LANDSCAPE AREA (S.F.)
 ETWU (HYDROZONE) = (ETO * PF * HA * C2) / (IE)
 MAWA = (ETO)(0.62)[(ETAF * TOTAL HA) + (1 - ETAF) * SLA]

HYDROZONE A (DRIP)

| ETO | PF | HA | CONVERSION FACTOR | IE | ETWU (GAL/YEAR) |
|-----|-----|-------|-------------------|------|-----------------|
| 39 | 0.2 | 7,082 | 0.62 | 0.81 | 42,282 |

HYDROZONE B (BUBBLERS)

| ETO | PF | HA | CONVERSION FACTOR | IE | ETWU (GAL/YEAR) |
|-----|-----|----|-------------------|------|-----------------|
| 39 | 0.5 | 80 | 0.62 | 0.81 | 1,194 |

ESTIMATED TOTAL WATER USE (ETWU, GAL/YR) **43,476**

MAWA (MAXIMUM APPLIED WATER ALLOWANCE)

| ETO | ETAF | TOTAL HA | CONVERSION FACTOR | MAWA (GAL/YR) |
|-----|------|----------|-------------------|---------------|
| 39 | 0.45 | 7,162 | 0.62 | 77,930 |

ESTIMATED ANNUAL WATER USE (% OF MAWA) **56**

IRRIGATION SCHEDULING INFORMATION

| HYDROZONE "A" | DRIP | (1) 16 MIN. RUN PER DAY, EVERY 4 DAYS |
|---------------------------------|----------|---------------------------------------|
| HYDROZONE "B" | BUBBLERS | (1) 10 MIN. RUN (4) DAYS PER WEEK |
| SEASONAL ADJUSTMENT GUIDELINES: | 50% | DEC. 16 - MAR. 14 |
| | 75% | MAR. 15 - JUNE 14 |
| | 100% | JUNE 15 - SEPT. 14 |
| | 75% | SEPT. 15 - DEC. 14 |

- NOTES:
1. WATERING TIMES SHALL BE BETWEEN THE HOURS OF 9 P.M. AND 6 A.M.
 2. WATERING REQUIREMENTS ARE APPROXIMATE PER SEASON AND SHOULD BE ADJUSTED TO REFLECT SEASONAL FLUCTUATIONS IN AVERAGE PRECIPITATION.
 3. "IRRIGATION SCHEDULING INFORMATION" IS TO BE USED FOR WATERING TIME/DURATION/FREQUENCY FOR THE FIRST THREE YEARS, HOWEVER THE SYSTEM SHOULD BE MONITORED FREQUENTLY AND ADJUSTED TO MEET THE NEEDS OF THE PLANT MATERIAL AS MATURE ROOT SYSTEMS DEVELOP.
 4. ALL PLANTS TO RECEIVE APPROPRIATE ADDITIONAL WATERING DURING INSTALLATION PERIOD IN ORDER TO ESTABLISH HEALTHY AND DEEP ROOT GROWTH.

CRITICAL ANALYSIS

Generated: 2016-12-07 14:37

P.O.C. NUMBER: 01
Water Source Information:

FLOW AVAILABLE
Water Meter Size: 1"
Flow Available: 20.23 gpm

PRESSURE AVAILABLE
Static Pressure at POC: 65.00 psi
Elevation Change: 5.00 ft
Service Line Size: 1"
Length of Service Line: 20.00 ft
Pressure Available: 61.00 psi

DESIGN ANALYSIS
Maximum Multi-valve Flow: 20.00 gpm
Flow Available at POC: 20.23 gpm
Residual Flow Available: 0.23 gpm

Critical Station: 10
Design Pressure: 30 psi
Elevation Loss: 0.00 psi
Friction Loss: 4.3 psi
Fittings Loss: 0.43 psi
Loss through Valve: 8.09 psi
Pressure Req. at Critical Station: 42.83 psi
Loss for Fittings: 0.12 psi
Loss for Main Line: 1.23 psi
Loss for POC to Valve Elevation: 0.00 psi
Loss for Backflow: 11.20 psi
Loss for Master Valve: 3.00 psi
Loss for Water Meter: 2.20 psi
Critical Station Pressure at POC: 60.58 psi
Pressure Available: 61.00 psi
Residual Pressure Available: 0.42 psi



| No. | REVISIONS | DATE | BY |
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Kimley»Horn
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| KHA PROJECT | 097515003 |
| DATE | 12/27/2017 |
| SCALE | AS SHOWN |
| DESIGNED BY | DW |
| DRAWN BY | DW |
| CHECKED BY | DC |

CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



IRRIGATION DETAILS

SHEET NO. 56 OF 61 SHEETS
IR-03

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SECTION: IRRIGATION

PART 1 GENERAL

1.1 SUMMARY

A. IRRIGATION SYSTEM REQUIRED FOR THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FURNISHING OF ALL LABOR, TOOLS, MATERIALS, APPLIANCES, TESTS, PERMITS, TAXES, ETC., NECESSARY FOR THE INSTALLATION OF A LANDSCAPE IRRIGATION SYSTEM AS HEREIN SPECIFIED AND SHOWN ON THE DRAWINGS, AND THE REMOVAL OF ALL DEBRIS FROM THE SITE.

1. LOCATE, PURCHASE, DELIVER AND INSTALL PIPING, CONDUIT, SLEEVES, 120 VOLT AND LOW VOLTAGE ELECTRICAL AND WATER CONNECTIONS, VALVES, BACKFLOW PREVENTER DEVICES, CONTROLLERS, RAIN SENSORS, SPRAY AND BUBBLER HEADS, DRIP IRRIGATION LINES, AND ASSOCIATED ACCESSORIES FOR A FULLY OPERATIONAL AUTOMATIC IRRIGATION SYSTEM.

2. TRENCHING AND WATER SETTLING OF BACKFILL MATERIAL.

3. TESTING AND STARTUP OF THE IRRIGATION SYSTEM.

4. PREPARE AN AS BUILT RECORD SET OF DRAWINGS.

5. TRAINING OF THE OWNER'S MAINTENANCE PERSONNEL IN THE OPERATIONAL REQUIREMENTS OF THE IRRIGATION SYSTEM.

6. CLEAN UP AND DISPOSAL OF ALL EXCESS AND SURPLUS MATERIAL.

7. MAINTENANCE OF THE IRRIGATION SYSTEM DURING THE PROSCRIBED MAINTENANCE PERIOD.

B. THE SYSTEM SHALL EFFICIENTLY AND EVENLY IRRIGATE ALL AREAS AND BE COMPLETE IN EVERY RESPECT AND SHALL BE LEFT READY FOR OPERATION TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

C. COORDINATE WITH OTHER TRADES, AS NEEDED TO COMPLETE WORK, INCLUDING BUT NOT LIMITED TO WATER METER, POINT OF CONNECTION (POC) AND BACKFLOW PREVENTER DEVICE (BFPD) LOCATION AND ELECTRICAL HOOKUPS.

1.2 CONTRACT DOCUMENTS

A. SHALL CONSIST OF SPECIFICATIONS AND ITS GENERAL CONDITIONS AND THE DRAWINGS. THE INTENT OF THESE DOCUMENTS IS TO INCLUDE ALL LABOR, MATERIALS, AND SERVICES NECESSARY FOR THE PROPER EXECUTION OF THE WORK. THE DOCUMENTS ARE TO BE CONSIDERED AS ONE. WHATEVER IS CALLED FOR BY ANY PART SHALL BE AS BINDING AS IF CALLED FOR IN ALL PARTS.

1.3 RELATED DOCUMENTS AND REFERENCES

A. RELATED DOCUMENTS:

1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION I SPECIFICATIONS, APPLY TO WORK OF THIS SECTION.

2. RELATED SPECIFICATION SECTIONS

a. SECTION - PLANTING

b. SECTION - PLANTING SOIL

B. REFERENCES:

1. AMERICAN SOCIETY OF TESTING MATERIALS (ASTM): CITED SECTION NUMBERS.

2. NATIONAL SANITATION FOUNDATION (NSF): RATING SYSTEM.

3. IRRIGATION ASSOCIATION: TURF & LANDSCAPE IRRIGATION BEST MANAGEMENT PRACTICES

1.4 VERIFICATION

A. IRRIGATION PIPING AND RELATED EQUIPMENT ARE DRAWN DIAGRAMMATICALLY. SCALED DIMENSIONS ARE APPROXIMATE ONLY. BEFORE PROCEEDING WITH WORK, CAREFULLY CHECK AND VERIFY DIMENSIONS AND IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF DISCREPANCIES BETWEEN THE DRAWINGS OR SPECIFICATIONS AND THE ACTUAL CONDITIONS. ALTHOUGH SIZES AND LOCATIONS OF PLANTS AND OR IRRIGATION EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, IT IS NOT WITHIN THE SCOPE OF THE DRAWINGS TO SHOW ALL NECESSARY OFFSETS, OBSTRUCTIONS, OR SITE CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL THE WORK IN SUCH A MANNER THAT IT WILL BE IN CONFORMANCE TO SITE CONDITIONS, COMPLETE, AND IN GOOD WORKING ORDER.

B. PIPING AND EQUIPMENT IS TO BE LOCATED WITHIN THE DESIGNATED PLANTING AREAS WHEREVER POSSIBLE UNLESS SPECIFICALLY DEFINED OR DIMENSIONED OTHERWISE.

1.5 PERMITS AND REGULATIONS

A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS RELATED TO THIS SECTION OF THE WORK UNLESS PREVIOUSLY EXCLUDED UNDER PROVISION OF THE CONTRACT OR GENERAL CONDITIONS. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS AND ORDINANCES BEARING ON THE OPERATION OR CONDUCT OF THE WORK AS DRAWN AND SPECIFIED. IF THE CONTRACTOR OBSERVES THAT A CONFLICT EXISTS BETWEEN PERMIT REQUIREMENTS AND THE WORK OUTLINED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR

SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING INCLUDING A DESCRIPTION OF ANY NECESSARY CHANGES AND CHANGES TO THE CONTRACT PRICE RESULTING FROM CHANGES IN THE WORK.

B. WHEREVER REFERENCES ARE MADE TO STANDARDS OR CODES IN ACCORDANCE WITH WHICH WORK IS TO BE PERFORMED OR TESTED, THE EDITION OR REVISION OF THE STANDARDS AND CODES CURRENT ON THE EFFECTIVE DATE OF THIS CONTRACT SHALL APPLY, UNLESS OTHERWISE EXPRESSLY SET FORTH.

C. IN CASE OF CONFLICT AMONG ANY REFERENCED STANDARDS OR CODES OR BETWEEN ANY REFERENCED STANDARDS AND CODES AND THE SPECIFICATIONS, THE MORE RESTRICTIVE STANDARD SHALL APPLY OR OWNER'S REPRESENTATIVE SHALL DETERMINE WHICH SHALL GOVERN.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. THE CONTRACTOR SHALL ADEQUATELY PROTECT THE WORK, ADJACENT PROPERTY, AND THE PUBLIC, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES OR INJURY DUE TO THE CONTRACTOR'S ACTIONS.

1.7 CHANGES IN THE WORK

A. THE OWNER'S REPRESENTATIVE MAY ORDER CHANGES IN THE WORK, AND THE CONTRACT SUM BEING ADJUSTED ACCORDINGLY. ALL SUCH ORDERS AND ADJUSTMENTS PLUS CLAIMS BY THE CONTRACTOR FOR EXTRA COMPENSATION MUST BE MADE AND APPROVED IN WRITING BEFORE EXECUTING THE WORK INVOLVED.

B. ALL CHANGES IN THE WORK, NOTIFICATIONS AND CONTRACTOR'S REQUEST FOR INFORMATION (RFI) SHALL CONFORM TO THE CONTRACT GENERAL CONDITION REQUIREMENTS.

1.8 CORRECTION OF WORK

A. THE CONTRACTOR SHALL RE-EXECUTE ANY WORK THAT FAILS TO CONFORM TO THE REQUIREMENTS OF THE CONTRACT AND SHALL REMEDY DEFECTS DUE TO FAULTY MATERIALS OR WORKMANSHIP UPON WRITTEN NOTICE FROM THE OWNER'S REPRESENTATIVE, AT THE SOONEST AS POSSIBLE TIME THAT CAN BE COORDINATED WITH OTHER WORK, AND SEASONAL WEATHER DEMANDS, BUT NOT MORE THAN 90 (NINETY) DAYS AFTER NOTIFICATION.

1.9 DEFINITIONS

A. OWNER'S REPRESENTATIVE: THE PERSON APPOINTED BY THE OWNER TO REPRESENT THEIR INTEREST IN THE REVIEW AND APPROVAL OF THE WORK AND TO SERVE AS THE CONTRACTING AUTHORITY WITH THE CONTRACTOR. THE OWNER'S REPRESENTATIVE MAY APPOINT OTHER PERSONS TO REVIEW AND APPROVE ANY ASPECTS OF THE WORK.

B. SUBSTANTIAL COMPLETION ACCEPTANCE: THE DATE AT THE END OF THE PLANTING, PLANTING SOIL, AND IRRIGATION INSTALLATION WHERE THE OWNER'S REPRESENTATIVE ACCEPTS THAT ALL WORK IN THESE SECTIONS IS COMPLETE AND THE WARRANTY PERIOD HAS BEGUN. THIS DATE MAY BE DIFFERENT THAT THE DATE OF SUBSTANTIAL COMPLETION FOR THE OTHER SECTIONS OF THE PROJECT.

C. FINAL ACCEPTANCE: THE DATE WHEN THE OWNER'S REPRESENTATIVE ACCEPTS THAT THE PLANTS AND WORK IN THIS SECTION MEET ALL THE REQUIREMENTS OF SPECIFICATION. IT IS INTENDED THAT THE MATERIALS AND WORKMANSHIP WARRANTY FOR PLANTING, PLANTING SOIL, AND IRRIGATION WORK RUN CONCURRENTLY.

1.10 SUBMITTALS

A. SEE THE CONTRACT GENERAL CONDITIONS FOR POLICY AND PROCEDURES RELATED TO SUBMITTALS.

B. PRODUCT DATA

1. SUBMIT A MINIMUM OF (3) COMPLETE LISTS OF ALL IRRIGATION EQUIPMENT TO BE USED, MANUFACTURER'S BROCHURES, MAINTENANCE MANUALS, WARRANTIES AND OPERATING INSTRUCTIONS, WITHIN 15 DAYS AFTER THE NOTICE TO PROCEED.

2. THE SUBMITTALS SHALL BE PACKAGED AND PRESENTED IN AN ORGANIZED MANNER, IN THE QUANTITY DESCRIBED IN DIVISION 1 OF THE SPECIFICATIONS. PROVIDE A TABLE OF CONTENTS OF ALL SUBMITTED ITEMS.

3. CLEARLY IDENTIFY ON EACH SUBMITTED SHEET BY UNDERLINING OR HIGHLIGHTING (ON EACH COPY) THE SPECIFIC PRODUCT BEING SUBMITTED FOR APPROVAL. FAILURE TO CLEARLY IDENTIFY THE SPECIFIC PRODUCT BEING SUBMITTED WILL RESULT IN A REJECTION FOR THE ENTIRE SUBMITTAL. NO SUBSTITUTIONS OF MATERIAL OR PROCEDURES SHALL BE MADE CONCERNING THESE DOCUMENTS WITHOUT THE WRITTEN CONSENT OF AN ACCEPTED EQUIVALENT BY THE OWNER'S REPRESENTATIVE.

4. EQUIPMENT OR MATERIALS INSTALLED OR FURNISHED WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE, MAY BE REJECTED BY THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR SHALL BE REQUIRED TO REMOVE SUCH MATERIALS FROM THE SITE AT THEIR OWN EXPENSE.

5. APPROVAL OF SUBSTITUTION OF MATERIAL AND/OR PRODUCTS, OTHER THAN THOSE SPECIFIED SHALL NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE, AT THEIR OWN EXPENSE, FOR ALL CHANGES THAT MAY RESULT FROM THE APPROVED SUBSTITUTIONS, WHICH AFFECT THE INSTALLATION OR OPERATIONS OTHER ITEMS OF THEIR OWN WORK AND/OR THE WORK OF OTHER CONTRACTORS.

C. SAMPLES: SAMPLES OF THE EQUIPMENT MAY BE REQUIRED AT THE REQUEST OF THE OWNER'S REPRESENTATIVE IF THE EQUIPMENT IS OTHER THAN THAT SPECIFIED.

D. OTHER SUBMITTALS: SUBMIT FOR APPROVAL:

1. DOCUMENTATION OF THE INSTALLER'S QUALIFICATIONS.

2. AS BUILT RECORD SET OF DRAWINGS.

3. TESTING DATA FROM ALL REQUIRED PRESSURE TESTING.

4. BACKFLOW PREVENTION DEVICE CERTIFICATION: CERTIFICATION

FROM THE MANUFACTURER OR THEIR REPRESENTATIVE THAT THE BACK FLOW PREVENTION DEVICE HAS BEEN INSTALLED CORRECTLY ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.

5. BOOSTER PUMP CERTIFICATION: CERTIFICATION FROM THE MANUFACTURER OR THEIR REPRESENTATIVE THAT THE BOOSTER PUMP HAS BEEN INSTALLED CORRECTLY ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.

6. IRRIGATION CONTROLLER CERTIFICATION: CERTIFICATION FROM THE MANUFACTURER OR AN AUTHORIZED DISTRIBUTOR THAT THE CONTROLLER HAS BEEN INSTALLED CORRECTLY ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.

1.11 OBSERVATION OF THE WORK

A. THE OWNER'S REPRESENTATIVE MAY INSPECT THE WORK AT ANY TIME. THEY MAY REMOVE SAMPLES OF MATERIALS FOR CONFORMITY TO SPECIFICATIONS. REJECTED MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED AT THE CONTRACTOR'S EXPENSE. THE COST OF TESTING MATERIALS NOT MEETING SPECIFICATIONS SHALL BE PAID BY THE CONTRACTOR.

B. THE OWNER'S REPRESENTATIVE SHALL BE INFORMED OF THE PROGRESS OF THE WORK SO THE WORK MAY BE OBSERVED AT THE FOLLOWING KEY TIMES IN THE CONSTRUCTION PROCESS. THE OWNER'S REPRESENTATIVE SHALL BE AFFORDED SUFFICIENT TIME TO SCHEDULE VISIT TO THE SITE. FAILURE OF THE OWNER'S REPRESENTATIVE TO MAKE FIELD OBSERVATIONS SHALL NOT RELIEVE THE CONTRACTOR FROM MEETING ALL THE REQUIREMENTS OF THIS SPECIFICATION.

1. TRENCHING, DIRECTIONAL BORING, AND SLEEVING REVIEW.

2. HYDROSTATIC PRESSURE TESTING.

3. ADJUSTMENT AND COVERAGE TEST.

4. PRE-MAINTENANCE OBSERVATION.

5. FINAL ACCEPTANCE / SYSTEM MALFUNCTION CORRECTIONS.

1.12 PRE-CONSTRUCTION CONFERENCE

A. SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE AT LEAST SEVEN (7) DAYS BEFORE BEGINNING WORK TO REVIEW ANY QUESTIONS THE CONTRACTOR MAY HAVE REGARDING THE WORK, ADMINISTRATIVE PROCEDURES DURING CONSTRUCTION AND PROJECT WORK SCHEDULE.

1.13 QUALITY ASSURANCE

A. IT IS THE INTENTION OF THIS SPECIFICATION TO ACCOMPLISH THE WORK OF INSTALLING AN AUTOMATIC IRRIGATION SYSTEM, WHICH WILL OPERATE IN AN EFFICIENT AND SATISFACTORY MANNER. THE IRRIGATION SYSTEM SHALL BE INSTALLED AND MADE OPERATIONAL ACCORDING TO THE WORKMANLIKE STANDARDS ESTABLISHED FOR LANDSCAPE INSTALLATION AND SPRINKLER IRRIGATION OPERATION AS SET FORTH BY THE MOST RECENT BEST MANAGEMENT PRACTICES (BMP) OF THE IRRIGATION ASSOCIATION.

B. THE SPECIFICATION CAN ONLY INDICATE THE INTENT OF THE WORK TO BE PERFORMED RATHER THAN A DETAILED DESCRIPTION OF THE PERFORMANCE OF THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL SAID MATERIALS AND EQUIPMENT IN SUCH A MANNER THAT THEY SHALL OPERATE EFFICIENTLY AND EVENLY AND SUPPORT OPTIMUM PLANT GROWTH AND HEALTH.

C. THE OWNER'S REPRESENTATIVE SHALL BE THE SOLE JUDGE OF THE TRUE INTENT OF THE DRAWINGS AND SPECIFICATIONS AND OF THE QUALITY OF ALL MATERIALS FURNISHED IN PERFORMANCE OF THE CONTRACT.

D. THE CONTRACTOR SHALL KEEP ONE COPY OF ALL DRAWINGS AND SPECIFICATIONS ON THE WORK SITE, IN GOOD ORDER. THE CONTRACTOR SHALL MAKE THESE DOCUMENTS AVAILABLE TO THE OWNER'S REPRESENTATIVE WHEN REQUESTED.

E. IN THE EVENT OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE SPECIFICATION, THE FINAL DECISION AS TO WHICH SHALL BE FOLLOWED, SHALL BE MADE BY THE OWNER'S REPRESENTATIVE.

F. IN THE EVENT THE INSTALLATION IS CONTRADICTORY TO THE DIRECTION OF THE OWNER'S REPRESENTATIVE, THE INSTALLATION SHALL BE RECTIFIED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL IMMEDIATELY BRING ANY SUCH DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

G. IT SHALL BE DISTINCTLY UNDERSTOOD THAT NO ORAL STATEMENT OF ANY PERSON SHALL BE ALLOWED IN ANY MANNER TO MODIFY ANY OF THE CONTRACT PROVISIONS. CHANGES SHALL BE MADE ONLY ON WRITTEN AUTHORIZATION OF THE OWNER'S REPRESENTATIVE.

H. INSTALLER QUALIFICATIONS: THE INSTALLER SHALL BE A FIRM HAVING AT LEAST 5 YEARS OF SUCCESSFUL EXPERIENCE OF A SCOPE SIMILAR TO THAT REQUIRED FOR THE WORK.

1. INSTALLER FIELD SUPERVISION: THE INSTALLER SHALL MAINTAIN ON SITE AN EXPERIENCED FULL-TIME SUPERVISOR WHO CAN COMMUNICATE IN ENGLISH WITH THE OWNER'S REPRESENTATIVE.

2. SUBMIT THE INSTALLER'S QUALIFICATIONS FOR APPROVAL.

1.14 IRRIGATION SYSTEM WARRANTY

A. THE CONTRACTOR SHALL WARRANT ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF 1 YEAR FOLLOWING THE ACCEPTANCE OF THE WORK.

1. ANY PARTS OF THE IRRIGATION WORK THAT FAILS OR IS DEFECTIVE SHALL BE REPLACED OR RECONSTRUCTED AT NO EXPENSE TO THE OWNER INCLUDING BUT NOT LIMITED TO: RESTORING GRADES THAT HAVE SETTLED IN TRENCHES AND EXCAVATIONS RELATED TO THE WORK. RECONSTRUCTION SHALL INCLUDE ANY PLANTINGS, SOIL, MULCH OR OTHER PARTS OF THE CONSTRUCTED LANDSCAPE THAT MAY BE DAMAGED DURING THE REPAIR OR THAT RESULTS FROM SOIL SETTLEMENT.

B. THE DATE OF ACCEPTANCE OF THE WORK AND START OF THE GUARANTEE PERIOD SHALL BE DETERMINED BY THE OWNER'S REPRESENTATIVE, UPON THE FINDING THAT THE ENTIRE IRRIGATION SYSTEM IS INSTALLED AS DESIGNED AND SPECIFIED, AND FOUND TO BE OPERATING CORRECTLY, SUPPLYING WATER EVENLY TO ALL PLANTING AND/OR LAWN AREAS.

C. THE SYSTEM CONTROLLER SHALL BE WARRANTED BY THE EQUIPMENT MANUFACTURER AGAINST EQUIPMENT MALFUNCTION AND DEFECTS FOR A PERIOD OF 1 YEAR, FOLLOWING THE ACCEPTANCE OF THE WORK.

D. NEITHER THE FINAL ACCEPTANCE NOR ANY PROVISION IN THE CONTRACT DOCUMENTS SHALL RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR FAULTY MATERIALS OR WORKMANSHIP. THE CONTRACTOR SHALL REMEDY ANY DEFECTS WITHIN A PERIOD OF 7 DAYS (S) FROM THE DATE OF NOTIFICATION OF A DEFECT.

1.15 SITE CONDITIONS

A. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF ALL SURFACE AND SUB-SURFACE CONDITIONS, AND TO NOTIFY THE OWNER'S REPRESENTATIVE, IN WRITING, OF ANY CIRCUMSTANCES THAT WOULD NEGATIVELY IMPACT THE INSTALLATION OF THE WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

1.16 DELIVERY, STORAGE, AND HANDLING

A. ALL MATERIALS AND EQUIPMENT SHALL BE STORED PROPERLY AND PROTECTED AS REQUIRED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR DAMAGES OR LOSS BY WEATHER OR OTHER CAUSE TO WORK UNDER THE CONTRACT. MATERIALS SHALL BE FURNISHED IN AMPLIFIED QUANTITIES AND AT SUCH TIMES AS TO ENSURE UNINTERRUPTED PROGRESS OF THE WORK.

B. DELIVER THE PRODUCTS TO THE JOB SITE IN THEIR ORIGINAL UNOPENED CONTAINER WITH LABELS INTACT AND LEGIBLE AT TIME OF USE.

C. STORE IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.

1.17 PROTECTION

A. THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PROTECTION OF ALL THEIR WORK FROM DAMAGE, DESTRUCTION, OR LOSS, AND SHALL PROTECT THE OWNER'S PROPERTY FROM DAMAGE ARISING IN CONNECTION WITH THIS CONTRACT. CONTRACTOR SHALL MAKE GOOD ANY SUCH DAMAGE, DESTRUCTION, LOSS OR INJURY. CONTRACTOR SHALL ADEQUATELY PROTECT ADJACENT PROPERTY AS PROVIDED BY LAW AND THE CONTRACT DOCUMENTS.

B. THE CONTRACTOR SHALL MAINTAIN SUFFICIENT SAFEGUARDS, SUCH AS RAILINGS, TEMPORARY WALKS, LIGHTS, ETC., AGAINST THE OCCURRENCE OF ACCIDENTS, INJURIES OR DAMAGE TO ANY PERSON OR PROPERTY RESULTING FROM THEIR WORK, AND SHALL ALONE BE RESPONSIBLE FOR THE SAME IF SUCH OCCURS.

C. ALL EXISTING PAVING, STRUCTURES, EQUIPMENT OR PLANT MATERIAL SHALL BE PROTECTED AT ALL TIMES, INCLUDING THE IRRIGATION SYSTEM RELATED TO PLANTS, FROM DAMAGE BY WORKERS AND EQUIPMENT. THE CONTRACTOR SHALL FOLLOW ALL PROTECTION REQUIREMENTS INCLUDING PLANT PROTECTION PROVISION OF THE GENERAL CONTRACT DOCUMENTS. ALL DAMAGES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. REPAIRS AND OR REPLACEMENT SHALL BE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE, INCLUDING THE SELECTION OF A CONTRACTOR TO UNDERTAKE THE REPAIR OR MAINTENANCE. REPAIRS SHALL BE AT NO COST TO THE OWNER.

1. FOR TREES DAMAGED TO THE POINT WHERE THEY WILL NOT BE EXPECTED TO SURVIVE OR WHICH ARE SEVERELY DISFIGURED AND THAT ARE TOO LARGE TO REPLACE, THE COST OF DAMAGES SHALL BE AS DETERMINED BY THE OWNER'S ARBORIST USING ACCEPTED TREE VALUE EVALUATION METHODS.

D. THE CONTRACTOR SHALL REFRAIN FROM TRENCHING WITHIN THE DRIP LINE OF ANY EXISTING TREE TO REMAIN. THE OWNER'S REPRESENTATIVE MAY REQUIRE THE CONTRACTOR TO RELOCATE PROPOSED IRRIGATION WORK, BORE LINES BENEATH ROOTS OR USE AIR SPADE TECHNOLOGY TO DIG TRENCHES THROUGH AND UNDER THE ROOT SYSTEM TO AVOID DAMAGE TO EXISTING TREE ROOT AREAS.

1.18 EXCAVATING AROUND UTILITIES

A. CONTRACTOR SHALL CAREFULLY EXAMINE THE CIVIL RECORD, AND SURVEY DRAWINGS TO BECOME FAMILIAR WITH THE EXISTING UNDERGROUND CONDITIONS BEFORE DIGGING.

1. DO NOT BEGIN ANY EXCAVATION UNTIL ALL UNDERGROUND UTILITIES HAVE BEEN LOCATED AND MARKED.

a. DETERMINE LOCATION OF UNDERGROUND UTILITIES AND PERFORM WORK IN A MANNER THAT WILL AVOID POSSIBLE DAMAGE. HAND EXCAVATE, AS REQUIRED, MAINTAIN STAKES AND OR MARKINGS SET BY OTHERS UNTIL PARTIES CONCERNED MUTUALLY AGREE TO THEIR REMOVAL.

B. NOTIFICATION OF A LOCAL UTILITY LOCATOR SERVICE, IS REQUIRED FOR ALL EXCAVATION AROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR KNOWING THE LOCATION AND AVOIDING UTILITIES THAT ARE NOT COVERED BY THE LOCAL UTILITY LOCATOR SERVICE.

C. SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG-ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A 'PERMIT TO EXCAVATE' WILL BE VALID. FOR YOUR DIG-ALERT IDENTIFICATION NUMBER CALL UNDERGROUND SERVICE ALERT TOLL FREE 1-800-422-4133 TWO WORKING DAYS BEFORE BEGINNING CONSTRUCTION.

1.19 POINT OF CONNECTION

A. THE POINT OF CONNECTION OF THE IRRIGATION SYSTEM TO ITS ELECTRICAL POWER SOURCES SHALL BE PROVIDED BY THE GENERAL CONTRACTOR'S LICENSED ELECTRICAL CONTRACTOR PER GOVERNING CODES AT THE LOCATION SHOWN ON THE DRAWINGS. THE IRRIGATION CONTRACTOR WILL CONNECT THE POWER TO PROVIDED JUNCTION BOX OR GROUNDED PLUG RECEPTACLE.

B. THE POINT OF CONNECTION OF THE IRRIGATION SYSTEM TO ITS POTABLE AND OR NON-POTABLE WATER SOURCES, INCLUDING THE MAIN SHUTOFF VALVE AND BACKFLOW PREVENTER SHALL BE PROVIDED BY THE GENERAL CONTRACTOR'S LICENSED PLUMBING CONTRACTOR PER GOVERNING CODES AT THE LOCATION SHOWN ON THE DRAWINGS. THE MINIMUM SIZE AND WATER PRESSURE OF THE PRESSURIZED LINE WILL BE AS NOTED ON THE IRRIGATION DRAWING.

1.20 TEMPORARY UTILITIES

A. ALL TEMPORARY PIPING, WIRING, METERS, PANELS AND OTHER RELATED APPURTENANCES REQUIRED BETWEEN SOURCE OF SUPPLY AND POINT OF USE SHALL BE PROVIDED BY THE CONTRACTOR AND COORDINATED WITH THE OWNER'S REPRESENTATIVE. EXISTING UTILITIES MAY BE USED WITH THE WRITTEN PERMISSION OF THE OWNER.

1.21 CUTTING, PATCHING, TRENCHING AND DIGGING

A. THE CONTRACTOR SHALL DO ALL CUTTING, FITTING, TRENCHING OR PATCHING OF THEIR WORK THAT MAY BE REQUIRED TO MAKE ITS SEVERAL PARTS COME TOGETHER AS SHOWN UPON, OR IMPLIED BY, THE DRAWINGS AND SPECIFICATIONS FOR THE COMPLETED PROJECT.

B. DIGGING AND TRENCHING OPERATIONS SHALL BE SUSPENDED WHEN THE SOIL MOISTURE IS ABOVE FIELD CAPACITY.

1.22 USE OF PREMISES

A. THE CONTRACTOR SHALL CONFINE THEIR APPARATUS; THE STORAGE OF MATERIALS, AND THE OPERATIONS OF THEIR WORKERS TO LIMITS INDICATED BY THE LAW, ORDINANCES, OR PERMITS AND SHALL NOT UNREASONABLY ENCUMBER THE PREMISES WITH THEIR MATERIALS.

B. CONTRACTOR PARKING, AND MATERIAL AND EQUIPMENT STORAGE SHALL IN AREAS APPROVED BY THE OWNER'S REPRESENTATIVE.

1.23 AS BUILT RECORD SET OF DRAWINGS

A. IMMEDIATELY UPON THE INSTALLATION OF ANY BURIED PIPE OR EQUIPMENT, THE CONTRACTOR SHALL INDICATE ON THE PROGRESS RECORD DRAWINGS THE LOCATIONS OF SAID PIPE OR EQUIPMENT. THE PROGRESS RECORD DRAWINGS SHALL BE MADE AVAILABLE AT ANY TIME FOR REVIEW BY THE OWNER'S REPRESENTATIVE.

B. BEFORE FINAL ACCEPTANCE OF WORK, THE CONTRACTOR SHALL PROVIDE AN AS BUILT RECORD SET OF DRAWINGS SHOWING THE IRRIGATION SYSTEM WORK AS BUILT. THE DRAWINGS SHALL BE TRANSMITTED TO THE OWNER'S REPRESENTATIVE IN PAPER FORMAT AND AS A PDF FILE OF EACH DOCUMENT ON COMPACT DISK OR FLASH DRIVE. THE DRAWINGS SHALL INCLUDE ALL INFORMATION SHOWN ON THE ORIGINAL CONTRACT DOCUMENT AND REVISED TO REFLECT ALL CHANGES IN THE WORK. THE DRAWINGS SHALL INCLUDE THE FOLLOWING ADDITIONAL INFORMATION

1. ALL VALVES SHALL BE NUMBERED BY STATION AND CORRESPONDING NUMBERS SHALL BE SHOWN ON THE AS BUILT RECORD SET OF DRAWINGS.

2. ALL MAIN LINE PIPE OR IRRIGATION EQUIPMENT INCLUDING SLEEVES, VALVES, CONTROLLERS, IRRIGATION WIRE RUNS WHICH DEVIATE FROM THE MAINLINE LOCATION, BACKFLOW PREVENTERS, REMOTE CONTROL VALVES, GROUNDING RODS, SHUT-OFF VALVES, RAIN SENSORS, WIRE SPLICE LOCATIONS, AND QUICK COUPLING VALVES SHALL BE LOCATED BY TWO (2) MEASURED DIMENSIONS, TO THE NEAREST ONE-HALF FOOT. DIMENSIONS SHALL BE GIVEN FROM PERMANENT OBJECTS SUCH AS BUILDINGS, SIDEWALKS, CURBS, WALLS, STRUCTURES AND DRIVEWAYS. ALL CHANGES IN DIRECTION AND DEPTH OF MAIN LINE PIPE SHALL BE NOTED EXACTLY AS INSTALLED. DIMENSIONS FOR PIPES SHALL BE SHOWN AT NO GREATER THAN A 50 FT. MAXIMUM INTERVAL.

3. AS BUILT RECORD SET OF DRAWINGS SHALL BE SIGNED AND DATED BY THE CONTRACTOR ATTESTING TO AND CERTIFYING THE ACCURACY OF THE AS BUILT RECORD SET OF DRAWINGS. AS BUILT RECORD SET OF DRAWINGS SHALL HAVE "AS BUILT RECORD SET OF DRAWINGS", COMPANY NAME, ADDRESS, PHONE NUMBER AND THE NAME OF THE PERSON WHO CREATED THE DRAWING AND THE CONTACT NAME (IF DIFFERENT).

C. THE OWNER SHALL MAKE THE ORIGINAL CONTRACT DRAWING FILES AVAILABLE TO THE CONTRACTOR.

1.24 CONTROLLER CHARTS

A. PROVIDE ONE CONTROLLER CHART FOR EACH AUTOMATIC CONTROLLER INSTALLED.

1. ON THE INSIDE SURFACE OF THE COVER OF EACH AUTOMATIC CONTROLLER, PREPARE AND MOUNT A COLOR-CODED CHART SHOWING THE VALVES, MAIN LINE, AND SYSTEMS SERVICED BY THAT PARTICULAR CONTROLLER. ALL VALVES SHALL BE NUMBERED TO MATCH THE OPERATION SCHEDULE AND THE DRAWINGS. ONLY THOSE AREAS CONTROLLED BY THAT CONTROLLER SHALL BE SHOWN. THIS CHART SHALL BE A PLOT PLAN, ENTIRE OR PARTIAL, SHOWING BUILDING, WALKS, ROADS AND WALLS. THE PLAN, REDUCED AS NECESSARY AND LEGIBLE IN ALL DETAILS, SHALL BE MADE TO A SIZE THAT WILL FIT INTO THE CONTROLLER COVER. THIS PRINT SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE AND SHALL BE PROTECTED IN LAMINATED IN A PLASTIC COVER AND BE SECURED TO THE INSIDE BACK OF THE CONTROLLER CABINET DOOR.

2. THE CONTROLLER CHART SHALL BE COMPLETED AND APPROVED PRIOR TO ACCEPTANCE OF THE WORK.

1.25 TESTING

A. PROVIDE ALL REQUIRED SYSTEM TESTING WITH WRITTEN REPORTS AS DESCRIBED IN PART 3.



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Table with 2 columns: Field Name, Value. Rows include KHA PROJECT (097515003), DATE (12/27/2017), SCALE (AS SHOWN), DESIGNED BY (DW), DRAWN BY (DW), CHECKED BY (DC).

SAN MATEO COUNTY

CALIFORNIA DRIVE ROUNDABOUT PREPARED FOR CITY OF BURLINGAME



IRRIGATION SPECIFICATIONS

SHEET NO. 57 OF 61 SHEETS

IR-04

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1.26 OPERATION AND MAINTENANCE MANUALS AND GUARANTEES

- A. PREPARE AND DELIVER TO THE OWNER'S REPRESENTATIVE WITHIN TEN CALENDAR DAYS PRIOR TO COMPLETION OF CONSTRUCTION, TWO 3-RING HARD COVER BINDERS CONTAINING THE FOLLOWING INFORMATION:
 1. INDEX SHEET STATING CONTRACTOR'S ADDRESS AND TELEPHONE NUMBER, LIST OF EQUIPMENT WITH NAME AND ADDRESSES OF LOCAL MANUFACTURERS' REPRESENTATIVES.
 2. CATALOG AND PARTS SHEETS ON ALL MATERIAL AND EQUIPMENT.
 3. GUARANTEE STATEMENT. THE START OF THE GUARANTEE PERIOD SHALL BE THE DATE THE IRRIGATION SYSTEM IS ACCEPTED BY THE OWNER.
 4. COMPLETE OPERATING AND MAINTENANCE INSTRUCTION FOR ALL MAJOR EQUIPMENT.
 5. IRRIGATION PRODUCT MANUFACTURERS WARRANTIES.
- B. IN ADDITION TO THE ABOVE-MENTIONED MAINTENANCE MANUALS, PROVIDE THE OWNER'S MAINTENANCE PERSONNEL WITH INSTRUCTIONS FOR MAINTAINING MAJOR EQUIPMENT AND SHOW EVIDENCE IN WRITING TO THE OWNER'S REPRESENTATIVE AT THE CONCLUSION OF THE PROJECT THAT THIS HAS BEEN RENDERED.

PART 2 PRODUCTS

2.1 MATERIALS GENERAL

- A. ALL MATERIALS SHALL BE OF STANDARD, APPROVED AND FIRST GRADE QUALITY AND SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND ACCEPTED.
- B. THE USE OF A MANUFACTURER'S NAME AND MODEL OR CATALOG NUMBER IS FOR THE PURPOSE OF ESTABLISHING THE STANDARD OF QUALITY AND CONFIGURATION DESIRED ONLY. OTHER MANUFACTURER'S EQUIPMENT MAY BE SUBMITTED FOR APPROVAL WITH WRITTEN APPROVAL BY THE OWNER'S REPRESENTATIVE. SUBSTITUTED EQUIPMENT SHALL NOT SUBSTANTIALLY ALTER THE OPERATIONS OF THE SYSTEM.
- E. APPROVAL OF ANY ITEMS OR SUBSTITUTIONS INDICATES ONLY THAT THE PRODUCT(S) APPARENTLY MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS ON THE BASIS OF THE INFORMATION OR SAMPLES SUBMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF SUBSTITUTED ITEMS. IF THE SUBSTITUTION PROVES TO BE UNSATISFACTORY OR NOT COMPATIBLE WITH OTHER PARTS OF THE SYSTEM, THE CONTRACTOR SHALL REPLACE SAID ITEMS WITH THE ORIGINALLY SPECIFIED ITEMS, INCLUDING ALL NECESSARY WORK AND MODIFICATIONS TO REPLACE THE ITEMS, AT NO COST TO THE OWNER.

2.2 PIPING MATERIAL

- A. INDIVIDUAL TYPES OF PIPE AND FITTINGS SUPPLIED ARE TO BE OF COMPATIBLE MANUFACTURER UNLESS OTHERWISE APPROVED. PIPE SIZES SHOWN ARE NOMINAL INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- B. PLASTIC PIPE:
 1. ALL PIPE SHALL BE FREE OF BLISTERS, INTERNAL STRIATIONS, CRACKS, OR ANY OTHER DEFECTS OR IMPERFECTIONS. THE PIPE SHALL BE CONTINUOUSLY AND PERMANENTLY MARKED WITH THE FOLLOWING INFORMATION: MANUFACTURER'S NAME OR TRADE MARK, SIZE, CLASS AND TYPE OF PIPE PRESSURE RATING, QUALITY CONTROL IDENTIFICATIONS, DATE OF EXTRUSION, AND NATIONAL SANITATION FOUNDATION (NSF) RATING.
 2. PRESSURE MAIN LINE FOR PIPING UPSTREAM OF REMOTE CONTROL VALVES AND QUICK COUPLING VALVES:
 - a. PIPE SMALLER THAN 2 INCH DIAMETER SHALL BE PLASTIC PIPE FOR USE WITH SOLVENT WELD OR THREADED FITTINGS. SHALL BE MANUFACTURED RIGID VIRGIN POLYVINYL CHLORIDE (PVC) 1220, TYPE 1, GRADE 2 CONFORMING TO ASTM D 1785, DESIGNATED AS SCHEDULE 40.
 - b. PIPE 2 - 3 INCH DIAMETER SHALL BE MANUFACTURED RIGID VIRGIN POLYVINYL CHLORIDE (PVC), TYPE 1, GRADE 2 CONFORMING TO ASTM D 1785, DESIGNATED AS BELL GASKET CLASS 315.
 - c. PIPE LARGER THAN 3 INCH DIAMETER SHALL BE MANUFACTURED RIGID VIRGIN POLYVINYL CHLORIDE (PVC), TYPE 1, GRADE 2 CONFORMING TO ASTM D 1785, DESIGNATED AS BELL GASKET CLASS 200 PVC.
 3. NON_PRESSURE LATERAL LINE FOR PIPING DOWNSTREAM OF REMOTE CONTROL VALVES: PLASTIC PIPE FOR USE WITH SOLVENT WELD OR THREADED FITTINGS. SHALL BE MANUFACTURED RIGID VIRGIN POLYVINYL CHLORIDE PVC 1220 (TYPE 1, GRADE 2) CONFORMING TO ASTM D 1785, DESIGNATED AS CLASS 200, 3/4 MINIMUM SIZE.

- A. GALVANIZED PIPE SHALL BE USED FOR ABOVE GROUND CONNECTIONS TO, BACKFLOW PREVENTION DEVICE ASSEMBLIES, HOSE BIBS, AND BOOSTER PUMPS AND AS SHOWN ON THE PLANS AND DETAILS.
 1. PIPE SHALL BE HOT DIP GALVANIZED CONTINUOUS WELDED, SEAMLESS, SCHEDULE 40 CONFORMING TO APPLICABLE CURRENT ASTM STANDARDS.
- 2.3 FITTINGS AND CONNECTIONS**
 - A. POLYVINYL CHLORIDE PIPE FITTINGS AND CONNECTIONS: TYPE II, GRADE 1, SCHEDULE 40, HIGH IMPACT MOLDED FITTINGS, MANUFACTURED FROM VIRGIN COMPOUNDS AS SPECIFIED FOR PIPING TAPERED SOCKET OR MOLDED THREAD TYPE, SUITABLE FOR EITHER SOLVENT WELD OR SCREWED CONNECTIONS. MACHINE THREADED FITTINGS AND PLASTIC SADDLE AND FLANGE FITTINGS ARE NOT ACCEPTABLE. FURNISH FITTINGS PERMANENTLY MARKED WITH FOLLOWING INFORMATION: NOMINAL PIPE SIZE, TYPE AND SCHEDULE OF MATERIAL, AND NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL. PVC FITTINGS SHALL CONFORM TO ASTM D2464 AND D2466.
 - B. BRASS PIPE FITTINGS, UNIONS AND CONNECTIONS: STANDARD 125 POUND CLASS 85% RED BRASS FITTINGS AND CONNECTIONS, IPS THREADED.
 - C. PVC SCHEDULE 80 THREADED RISERS AND NIPPLES: TYPE I, GRADE 1, SCHEDULE 80, HIGH IMPACT MOLDED, MANUFACTURED FROM VIRGIN COMPOUNDS AS SPECIFIED FOR PIPING AND CONFORMING TO ASTM D-2464. THREADED ENDS SHALL BE MOLDED THREADS ONLY. MACHINED THREADS ARE NOT ACCEPTABLE.
 - D. GALVANIZED PIPE FITTINGS SHALL BE GALVANIZED MALLEABLE IRON GROUND JOINT SCHEDULE 40 CONFORMING TO APPLICABLE CURRENT ASTM STANDARDS.

2.4 SOLVENT CEMENTS AND THREAD LUBRICANT

- A. SOLVENT CEMENTS SHALL COMPLY WITH ASTM D2564. SOCKET JOINTS SHALL BE MADE PER RECOMMENDED PROCEDURES FOR JOINING PVC PLASTIC PIPE AND FITTINGS WITH PVC SOLVENT CEMENT AND PRIMER BY THE PIPE AND FITTING MANUFACTURER AND PROCEDURES OUTLINED IN THE APPENDIX OF ASTM D2564.
- B. THREAD LUBRICANT SHALL BE TEFLON RIBBON-TYPE, OR APPROVED EQUAL, SUITABLE FOR THREADED INSTALLATIONS AS PER MANUFACTURER'S RECOMMENDATIONS.
- C. PIPE JOINT COMPOUND (PIPE DOPE) SHALL BE USED ON ALL GALVANIZED THREADED CONNECTIONS. PIPE JOINT COMPOUND IS A WHITE COLORED, NON-SEPARATING THREAD SEALANT COMPOUND DESIGNED TO SEAL THREADED CONNECTIONS AGAINST LEAKAGE DUE TO INTERNAL PRESSURE. IT SHALL CONTAIN PTFE (POLYTETRAFLUOROETHYLENE) TO PERMIT A TIGHTER ASSEMBLY WITH LOWER TORQUE, SECURE PERMANENT SEALING OF ALL THREADED CONNECTIONS AND ALLOW FOR EASY DISASSEMBLY WITHOUT STRIPPING OR DAMAGING THREADS.

2.5 BACKFLOW PREVENTION DEVICES

- A. THE BACKFLOW PREVENTION DEVICE SHALL BE CERTIFIED TO NSF/ANSI 372 SHALL BE ASSE LISTED 1013, RATED TO 180 DEGREE F, AND SUPPLIED WITH FULL PORT BALL VALVES.
- B. THE MAIN BODY AND ACCESS COVERS SHALL BE LOW LEAD BRONZE (ASTM B 584)
- C. THE SEAT RING AND ALL INTERNAL POLYMERS SHALL BE NSF LISTED NORYL AND THE SEAT DISC ELASTOMERS SHALL BE SILICONE.
- D. BACKFLOW PREVENTER SHALL BE AS INDICATED ON THE DRAWINGS.

2.6 PRESSURE REGULATOR

- A. PRESSURE REGULATOR SHALL CERTIFIED TO NSF/ANSI 372, CONSISTING OF LOW LEAD BRONZE BODY BELL HOUSING, A SEPARATE ACCESS CAP SHALL BE THREADED TO THE BODY AND SHALL NOT REQUIRE THE USE OF FERROUS SCREWS.
- B. THE MAIN VALVE BODY SHALL BE CAST BRONZE (ASTM B 584).
- C. THE ACCESS COVERS SHALL BE BRONZE (ASTM B 584 OR BRASS ASTM B 16)
- D. THE ASSEMBLY SHALL BE OF THE BALANCED PISTON DESIGN AND SHALL REDUCE THE PRESSURE IN BOTH FLOW AND NO FLOW CONDITIONS.
- E. PRESSURE REGULATOR SHALL BE AS INDICATED ON THE DRAWINGS.

2.7 WYE STRAINER

- A. STRAINER SHALL CONFORM TO MIL -S-16293, AND BE ANSI 3RD PARTY CERTIFIED TO COMPLY WITH THE STATES LEAD PLUMBING LAW 0.25% MAXIMUM WEIGHTED AVERAGE LEAD CONTENT.
- B. THE MAIN BODY SHALL BE LOW LEAD BRONZE (ASTM B 584)
- C. THE ACCESS COVERS SHALL BE YELLOW BRASS OR CAST BRONZE (ASTM B 16 OR ASTM B 584)
- D. STRAINER SCREEN SHALL BE 300 SERIES STAINLESS STEEL AVAILABLE IN 20, 40, 60, 80, OR 100 MESH.
- F. WYE STRAINER SHALL BE AS INDICATED ON THE PLANS.

2.8 BACKFLOW PREVENTER CAGE

- A. A HEAVY-DUTY STEEL MESH CAGE WITH RUST PROOF FINISH. THE CAGING SHALL BE SIZED TO ALLOW SPACE FOR THE ENTIRE PIPING ASSEMBLY ASSOCIATED WITH THE BACKFLOW PREVENTER UNIT, AND ALL ASSOCIATED EQUIPMENT.
- B. THE CAGE SHALL INCLUDE THE MANUFACTURERS' STANDARD TAMPER PROOF LOCKING MECHANISM.
- C. PROVIDE A CONCRETE BASE AS DETAILED ON THE DRAWINGS.
- D. BACKFLOW PREVENTER CAGE TYPE, MANUFACTURER AND COLOR SHALL BE AS INDICATED ON THE PLANS.

2.9 BALL VALVES

- A. BALL VALVES FOR 3/4 INCH THROUGH 2 - 1/2 INCH SHALL BE OF PVC, BLOCK, TRU-UNION DESIGN WITH EDPDM SEALS AND O-RING.

- B. BALL VALVES FOR 3 INCH AND LARGER SHALL BE GATE DESIGN AND SHALL BE IRON BODY, BRASS OR BRONZE MOUNTED AWWA GATE VALVES, AND SHALL HAVE A CLEAR WATERWAY EQUAL TO THE FULL NOMINAL DIAMETER OF THE VALVE, AND SHALL BE RUBBER GASKET, FLANGED OR MECHANICAL JOINT ONLY, AND SHALL BE ABLE TO WITHSTAND A CONTINUOUS WORKING PRESSURE OF 150 PSI. VALVE SHALL BE EQUIPPED WITH A SQUARE-OPERATING NUT.
- C. ALL BALL VALVES LOCATED IN A VALVE MANIFOLD SHALL BE THE SAME SIZE AS THE MAIN LINE (1-1/2 INCH SIZE MINIMUM), PROVIDE PIPE-REDUCING ADAPTERS DOWN STREAM OF VALVES, AS REQUIRED. ALL BALL VALVES IN LINE SHALL BE THE SAME SIZE AS THE PIPE.
- D. BALL VALVES SHALL BE AS INDICATED ON THE DRAWINGS.

2.10 CHECK VALVES

- A. SWING CHECK VALVES 2 INCH AND SMALLER SHALL BE 200 LBS., W.O.G., BRONZE CONSTRUCTION WITH REPLACEABLE COMPOSITION, NEOPRENE OR RUBBER DISC AND SHALL MEET OR EXCEED FEDERAL SPECIFICATION WW-V-5LD, CLASS A, TYPE IV.
- B. ANTI-DRAIN VALVES SHALL BE OF HEAVY-DUTY VIRGIN PVC CONSTRUCTION WITH FEMALE IRON PIPE THREAD INLET AND OUTLET. INTERNAL PARTS SHALL BE STAINLESS STEEL AND NEOPRENE. ANTI-DRAIN VALVES SHALL BE FIELD ADJUSTABLE AGAINST DRAW OUT FROM 5 TO 40 FEET OF HEAD.
- C. CHECK VALVES SHALL BE AS INDICATED ON THE DRAWINGS.

2.11 REMOTE CONTROL VALVES

- A. REMOTE CONTROL VALVES SHALL BE ELECTRICALLY OPERATED, SINGLE SEAT, NORMALLY CLOSED CONFIGURATION, EQUIPPED WITH FLOW CONTROL ADJUSTMENT AND CAPABILITY FOR MANUAL OPERATION.
- B. VALVES SHALL BE ACTUATED BY A NORMALLY CLOSED LOW WATTAGE SOLENOID USING 24 VOLTS, 50/60 CYCLE SOLENOID POWER REQUIREMENT. SOLENOID SHALL BE EPOXY ENCASED. A UNION SHALL BE INSTALLED ON THE DISCHARGE END.
- C. REMOTE CONTROL VALVES SHALL BE WIRED TO CONTROLLER IN SAME NUMERICAL SEQUENCE AS INDICATED ON DRAWINGS.
- D. REMOTE CONTROL VALVES SHALL BE AS INDICATED ON THE DRAWINGS.

2.12 MASTER CONTROL VALVES

- A. MASTER CONTROL VALVE SHALL BE COMPATIBLE WITH THE IRRIGATION CONTROLLER.
- B. MASTER CONTROL VALVES SHALL BE AS INDICATED ON THE DRAWINGS.

2.13 FLOW SENSOR

- A. FLOW SENSOR SHALL BE COMPATIBLE WITH THE IRRIGATION CONTROLLER.
- B. FLOW SENSOR SHALL BE AS INDICATED ON THE DRAWINGS.

2.14 HYDROMETER

- A. HYDROMETER SHALL BE COMPATIBLE WITH THE IRRIGATION CONTROLLER.
- B. HYDROMETER SHALL BE AS INDICATED ON THE DRAWINGS.

2.15 QUICK COUPLER VALVES

- A. QUICK COUPLER VALVES SHALL BE A ONE OR TWO PIECE, HEAVY-DUTY BRASS CONSTRUCTION WITH A WORKING PRESSURE OF 150 PSI WITH A BUILT IN FLOW CONTROL AND A SELF-CLOSING VALVE.
- B. QUICK COUPLER SHALL BE EQUIPPED WITH LOCKING RED BRASS CAP COVERED WITH DURABLE YELLOW THERMO-PLASTIC RUBBER COVER. KEY SIZE SHALL BE COMPATIBLE WITH QUICK COUPLER AND OF SAME MANUFACTURER.
- C. QUICK COUPLER VALVES SHALL BE AS INDICATED ON THE DRAWINGS.

2.16 SPRINKLER HEADS

- A. ALL SPRINKLER HEADS SHALL HAVE CHECK VALVES INSTALLED.
- B. ALL SPRINKLER HEADS SHALL BE AS INDICATED ON THE DRAWINGS.
- C. RISER NIPPLES FOR ALL SPRINKLER HEADS SHALL BE THE SAME SIZE AS THE RISER OPENING IN THE SPRINKLER BODY AND FABRICATED AS SHOWN ON THE DRAWINGS.

2.17 AUTOMATIC CONTROLLER

- A. CONTROLLER SHALL BE HOUSED IN A STURDY, LOCKING, WEATHER-RESISTANT CASE, FURNISHED FOR MAXIMUM EXTERIOR PROTECTION.
- B. CONTROLLER SHALL BE EQUIPPED WITH EVAPO-TRANSPIRATION (ET) SENSOR, WHICH ADJUSTS THE CONTROLLER PROGRAMMING BASED ON LOCAL CLIMATIC CONDITIONS. THE SENSOR SHALL ALSO HAVE A RAIN SENSING SHUT-OFF SWITCH, WIND SENSING SHUT OFF SWITCH, AND FREEZE SENSING SHUT-OFF SWITCH.
 1. IF A MOISTURE SENSOR IS USED IN LIEU OF AN EVAPO-TRANSPIRATION SENSOR AN ADDITIONAL SENSOR, WHICH HAS A RAIN-SENSING SHUT-OFF SWITCH, WIND SENSING SHUT-OFF SWITCH, AND FREEZE SENSING SHUT-OFF SWITCH SHALL BE PROVIDED.
- C. AUTOMATIC CONTROLLER SHALL BE AS INDICATED ON THE DRAWINGS.

2.18 ELECTRICAL CONTROL WIRING

- A. LOW VOLTAGE
 1. THE ELECTRICAL CONTROL WIRE SHALL BE DIRECT BURIAL TYPE UF, NO. 14 AWG, SOLID, SINGLE CONDUCTOR, COPPER WIRE UL APPROVED OR LARGER, IF REQUIRED TO OPERATE SYSTEM AS DESIGNED.
 2. FOR 2-WIRE CONTROLLERS ALL IRRIGATION WIRE FOR THE CONTROLLER, FLOW SENSOR, MASTER VALVE, HYDROMETER, REMOTE CONTROL VALVES AND MOISTURE SENSORS SHALL BE PER THE CONTROLLER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

- 3. COLOR CODE WIRES TO EACH VALVE. COMMON WIRE SHALL BE WHITE.
- 4. IF MULTIPLE CONTROLLERS ARE BEING UTILIZED, AND WIRE PATHS OF DIFFERENT CONTROLLERS CROSS EACH OTHER, BOTH COMMON AND CONTROL WIRES FROM EACH CONTROLLER TO BE OF DIFFERENT COLORS.
- 5. CONTROL WIRE SPLICES: SPLICES ARE WHEN REQUIRED SHALL BE PLACED IN SPLICE BOXES.
- 6. WIRE CONNECTIONS SHALL BE PER THE CONTROLLER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

B. HIGH VOLTAGE

- 1. SHALL BE OF TYPE AS REQUIRED BY LOCAL CODES AND ORDINANCES.
- 2. SHALL BE OF PROPER SIZE TO ACCOMMODATE NEEDS OF EQUIPMENT IT IS TO SERVE.

2.19 VALVE BOXES AND MATERIALS

- A. VALVE BOXES: VALVE BOXES SHALL BE CONSTRUCTED OF ABS (ACRYLONITRILE BUTADIENE STYRENE) PLASTIC, GREEN IN COLOR, WITH RIGID BASE AND SIDES AND SHALL BE SUPPLIED WITH BOLT LOCK COVER SECURED WITH STAINLESS STEEL BOLTS. COVER SHALL BE IDENTIFIED AS SHOWN ON DRAWINGS. PROVIDE BOX EXTENSIONS AS REQUIRED.
 1. MASTER VALVES, FLOW SENSORS, REMOTE CONTROL IRRIGATION VALVES, GATE VALVES, AND BALL VALVES 3 INCH OR LESS IN SIZE SHALL USE A 14 INCH X 19 INCH X 12 INCH RECTANGULAR BOX.
 2. QUICK COUPLER VALVES, WIRE SPLICES, AND GROUNDING RODS SHALL USE A 10 INCH CIRCULAR BOX.

2.20 CONCRETE THRUST BLOCKS

- A. CONCRETE THRUST BLOCKS SHALL BE SIZED PER THE PIPE MANUFACTURES REQUIREMENT OR AS INDICATED ON THE DRAWINGS.

2.21 VALVE IDENTIFICATION TAGS

- A. VALVE IDENTIFICATION TAGS SHALL BE 2.25 INCH X 2.65 INCH POLYURETHANE. COLOR: POTABLE WATER; YELLOW / NON-POTABLE WATER; PURPLE. TAGS SHALL BE PERMANENTLY ATTACHED TO EACH REMOTE CONTROL VALVE WITH TAMPER PROOF SEALS AS INDICATED ON THE DRAWINGS.

2.22 EQUIPMENT TO BE FURNISHED TO OWNER

- A. TWO (2) SETS OF KEYS FOR EACH AUTOMATIC CONTROLLER.
- B. TWO (2) 48 INCH TEE WRENCHES FOR OPERATING THE GATE VALVES.
- C. THREE (3) SETS OF SPECIAL TOOLS REQUIRED FOR REMOVING, DISASSEMBLING AND ADJUSTING EACH TYPE OF SPRINKLER AND VALVE SUPPLIED ON THIS PROJECT.
- D. FIVE (5) EXTRA SPRINKLER HEADS, NOZZLES, SHRUB ADAPTERS, NOZZLE FILTER SCREENS, FOR EACH TYPE USED ON THE PROJECT.
- E. TWO (2) QUICK COUPLER KEYS TO MATCH MANUFACTURER TYPE OF QUICK COUPLER.

2.23 INCIDENTAL MATERIALS AND EQUIPMENT

- A. FURNISH ALL MATERIALS AND EQUIPMENT NOT SPECIFIED ABOVE, BUT WHICH ARE NECESSARY FOR COMPLETION OF THE WORK AS INTENDED.

2.24 MAIN LINE LOCATOR TAPE

- A. 3 - INCH WIDE PLASTIC DETECTABLE LOCATOR TAPE.

2.25 MAIN LINE AND LATERAL LINE BEDDING SAND

- A. SAND SHALL CONSIST OF NATURAL OR MANUFACTURED GRANULAR MATERIAL, FREE OF ORGANIC MATERIAL, MICA, LOAM, CLAY OR OTHER SUBSTANCES NOT SUITABLE FOR THE INTENDED PURPOSE.
- B. SAND SHALL BE MASONRY SAND ASTM C 144 OR COARSE CONCRETE SAND, ASTM C 33.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

- A. CODE REQUIREMENTS SHALL BE THOSE OF STATE AND MUNICIPAL CODES AND REGULATIONS LOCALLY GOVERNING THIS WORK, PROVIDING THAT ANY REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, NOT CONFLICTING THEREWITH, BUT EXCEEDING THE CODE REQUIREMENTS, SHALL GOVERN UNLESS WRITTEN PERMISSION TO THE CONTRARY IS GRANTED BY THE OWNER'S REPRESENTATIVE.
- B. EXTREME CARE SHALL BE EXERCISED AT ALL TIMES BY THE CONTRACTOR IN EXCAVATING AND WORKING IN THE PROJECT AREA DUE TO EXISTING UTILITIES AND IRRIGATION SYSTEMS TO REMAIN. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR EXPENSES INCURRED IN THE REPAIR OF DAMAGES CAUSED BY THEIR OPERATION.
 1. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND MAINTAINING EXISTING IRRIGATION MAIN LINES THAT SUPPLY WATER TO AREAS ON THE SITE AS NOTED ON THE DRAWINGS AND OUTSIDE OF THE PROPOSED LIMIT OF WORK. THE CONTRACTOR SHALL RELOCATE OR REPLACE EXISTING IRRIGATION MAIN LINE PIPING AS REQUIRED TO PROVIDE A CONTINUOUS SUPPLY OF WATER TO ALL AREAS OF EXISTING IRRIGATION ON SITE.
 - a. PROVIDING CONTINUOUS WATER SUPPLY SHALL INCLUDE HAND WATERING AND OR THE USE OF WATERING TRUCKS TO PROVIDE ADEQUATE WATER.
 2. PLAN LOCATIONS OF BACKFLOW PREVENTERS, VALVES, CONTROLLERS, IRRIGATION LINES, SLEEVES, SPRAY HEADS AND OTHER EQUIPMENT ARE DIAGRAMMATIC AND INDICATE THE SPACING AND RELATIVE LOCATIONS OF ALL INSTALLATIONS. FINAL SITE CONDITIONS AND EXISTING AND PROPOSED PLANTINGS SHALL DETERMINE FINAL

LOCATIONS AND ADJUSTED AS NECESSARY AND AS DIRECTED TO MEET EXISTING AND PROPOSED CONDITIONS AND OBTAIN COMPLETE WATER COVERAGE. MINOR CHANGES IN LOCATIONS OF THE ABOVE FROM LOCATIONS SHOWN SHALL BE MADE AS NECESSARY TO AVOID EXISTING AND PROPOSED TREES, PIPING, UTILITIES, STRUCTURES, ETC. AT THE CONTRACTOR'S EXPENSE OR WHEN DIRECTED BY THE OWNER'S REPRESENTATIVE.

- 1. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR RELOCATION OF ANY ITEMS WITHOUT FIRST OBTAINING THE OWNER'S REPRESENTATIVE'S APPROVAL. THE CONTRACTOR SHALL REMOVE AND RELOCATE SUCH ITEMS AT THEIR EXPENSE IF SO DIRECTED BY THE OWNER'S REPRESENTATIVE.
 - D. PRIOR TO ANY WORK THE CONTRACTOR SHALL STAKE OUT LOCATIONS OF ALL PIPE, VALVES, EQUIPMENT AND IRRIGATION HEADS AND EMITTERS USING AN APPROVED STAKING METHOD AND MAINTAIN THE STAKING OF THE APPROVED LAYOUT IN ACCORDANCE WITH THE DRAWINGS AND ANY REQUIRED MODIFICATIONS. VERIFY ALL HORIZONTAL AND VERTICAL SITE DIMENSIONS PRIOR TO STAKING OF HEADS. DO NOT EXCEED SPACING SHOWN ON DRAWINGS FOR ANY GIVEN AREA. IF SUCH MODIFIED SPACING DEMAND ADDITIONAL OR LESS MATERIAL THAN SHOWN ON THE DRAWINGS, NOTIFY THE OWNER'S REPRESENTATIVE BEFORE BEGINNING ANY WORK IN THE ADJACENT AREA.
 - E. STUB OUT MAIN LINE AT ALL END RUNS AND AS SHOWN ON DRAWINGS. STUB OUT WIRES FOR FUTURE CONNECTION WHERE INDICATED ON PLAN AND AS DIRECTED.
 - F. POINT OF CONNECTION SHALL BE APPROXIMATELY AS SHOWN ON DRAWINGS. CONNECT NEW UNDERGROUND PIPING AND VALVES AND PROVIDE ALL FLANGES, ADAPTERS OR OTHER NECESSARY FITTINGS FOR CONNECTION.
 - G. PERMISSION TO SHUT OFF ANY EXISTING IN-USE WATER LINE MUST BE OBTAINED 48 HOURS IN ADVANCE, IN WRITING FROM THE OWNER. THE CONTRACTOR SHALL RECEIVE INSTRUCTIONS FROM THE OWNER'S REPRESENTATIVE AS TO THE EXACT LENGTH OF TIME OF EACH SHUT-OFF.
 - H. NO FITTINGS SHALL BE INSTALLED ON PIPE UNDERNEATH PAVEMENT OR WALLS.
 - I. PRIOR TO STARTING ANY WORK, CONTRACTOR SHALL OBTAIN A READING OF EXISTING STATIC WATER PRESSURE (NO FLOW CONDITION) AT THE DESIGNATED POINT OF CONNECTION AND IMMEDIATELY SUBMIT WRITTEN VERIFICATION OF PRESSURE WITH DATE AND TIME OF RECORDING TO OWNER'S REPRESENTATIVE.
- 3.2 TRENCHING, DIRECTIONAL BORING AND SLEEVING**
- A. PERFORM ALL TRENCHING, DIRECTIONAL BORING, SLEEVING AND EXCAVATIONS AS REQUIRED FOR THE INSTALLATION OF THE WORK INCLUDED UNDER THIS SECTION, INCLUDING SHORING OF EARTH BANKS TO PREVENT CAVE_INS.
 - B. THE CONTRACTOR MAY DIRECTIONAL BORE LINES WHERE IT IS PRACTICAL OR WHERE REQUIRED ON THE PLANS.
 1. EXTEND THE BORE 1' PAST THE EDGE OF PAVEMENT UNLESS NOTED DIFFERENTLY ON THE PLANS
 2. CAP ENDS OF EACH BORE AND LOCATE ENDS AT FINISHED GRADE USING METAL STAKES.
 3. ALL BORING AND SLEEVING SHALL HAVE DETECTABLE LOCATOR TAPE PLACED AT THE ENDS OF THE PIPE.
 - C. MAKE TRENCHES FOR MAINS, LATERALS AND CONTROL WIRING STRAIGHT AND TRUE TO GRADE AND FREE OF PROTRUDING STONES, ROOTS OR OTHER MATERIAL THAT WOULD PREVENT PROPER BEDDING OF PIPE OR WIRE.
 - D. EXCAVATE TRENCHES WIDE ENOUGH TO ALLOW A MINIMUM OF 4 - INCH BETWEEN PARALLEL PIPELINES AND 8 INCH FROM LINES OF OTHER TRADES. MAINTAIN 3 - INCH VERTICAL CLEARANCE BETWEEN IRRIGATION LINES. MINIMUM TRANSVERSE ANGLE IS 45 DEGREES. ALL PIPES SHALL BE ABLE TO BE SERVICED OR REPLACED WITHOUT DISTURBING THE OTHER PIPES.
 - E. TRENCHES FOR PIPELINES SHALL BE MADE OF SUFFICIENT DEPTH TO PROVIDE THE MINIMUM COVER FROM FINISHED GRADE AS FOLLOWS:
 1. PRESSURE MAIN LINE: 18 INCHES BELOW FINISH GRADE AND 24-30 INCHES BELOW PAVED AREAS IN SCHEDULE 40 PVC SLEEVES.



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| SCALE | AS SHOWN |
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**CALIFORNIA DRIVE
ROUNDBOUT
CITY OF BURLINGAME**

PREPARED FOR
SAN MATEO COUNTY

CA



IRRIGATION SPECIFICATIONS

IR-05

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| SHEET NO. <u>58</u> OF <u>61</u> SHEETS |
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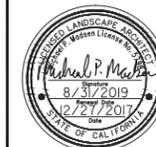


| No. | REVISIONS | DATE | BY |
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 PHONE: 925-398-4840
 WWW.KIMLEY-HORN.COM

KHA PROJECT
097515003
 DATE
12/27/2017
 SCALE AS SHOWN
 DESIGNED BY DW
 DRAWN BY DW
 CHECKED BY DC

**CALIFORNIA DRIVE
 ROUNDABOUT**
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA

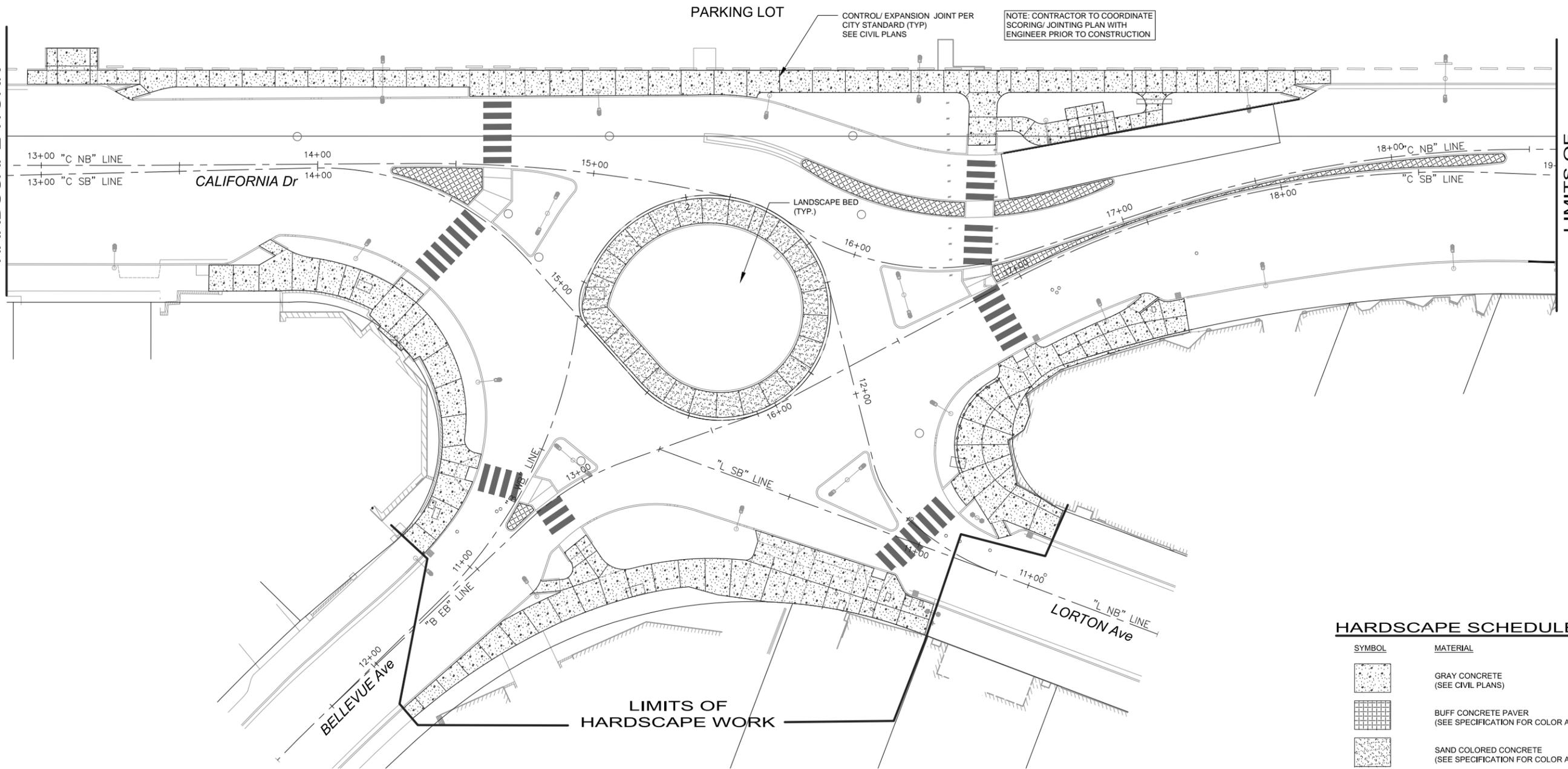


HARDSCAPE PLAN

SHEET NO. 60
 OF 61 SHEETS
HS-01

LIMITS OF
HARDSCAPE WORK

LIMITS OF
HARDSCAPE WORK



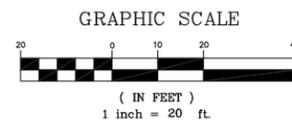
PARKING LOT

CONTROL/ EXPANSION JOINT PER
CITY STANDARD (TYP)
SEE CIVIL PLANS

NOTE: CONTRACTOR TO COORDINATE
SCORING/ JOINTING PLAN WITH
ENGINEER PRIOR TO CONSTRUCTION

HARDSCAPE SCHEDULE

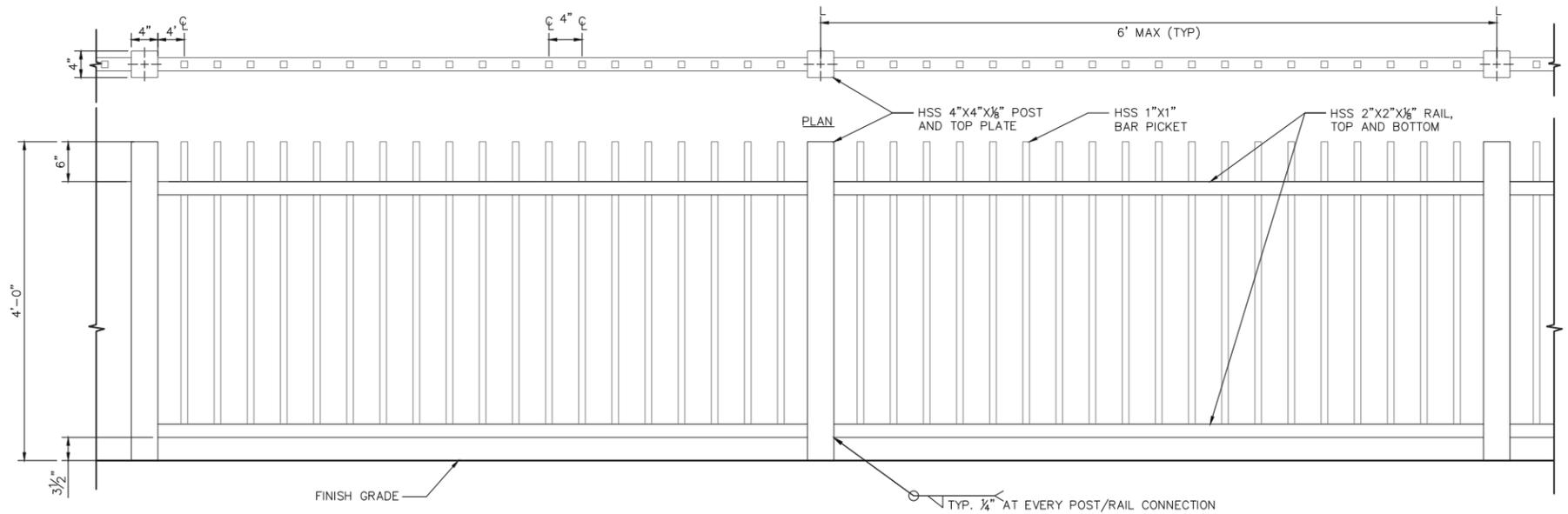
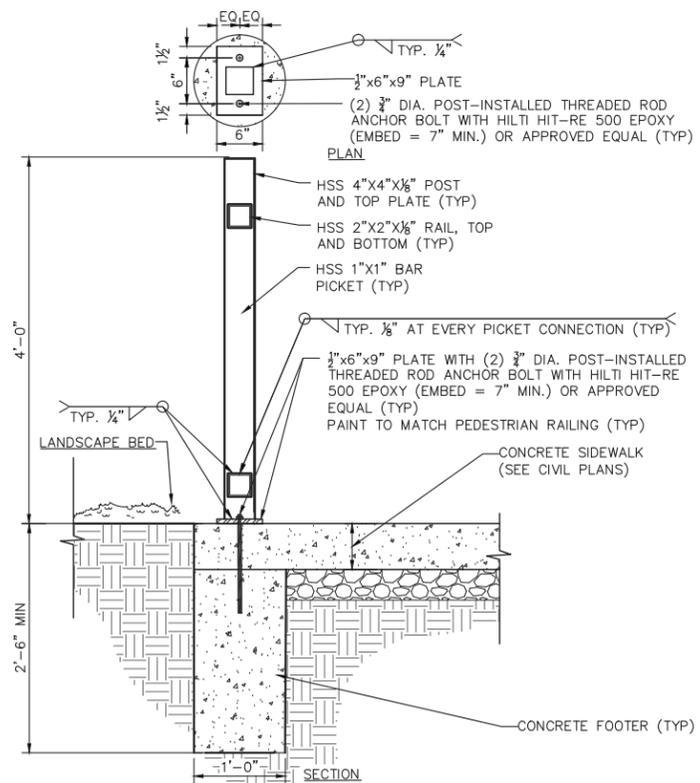
| SYMBOL | MATERIAL |
|--------|---|
| | GRAY CONCRETE (SEE CIVIL PLANS) |
| | BUFF CONCRETE PAVER (SEE SPECIFICATION FOR COLOR AND FINISH) |
| | SAND COLORED CONCRETE (SEE SPECIFICATION FOR COLOR AND FINISH) |
| | PEDESTRIAN RAILING (SEE DETAIL A ON SHEET HS-02) |
| | LIGHT POLES (SEE ELECTRICAL PLANS) |



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RAILING FABRICATION NOTES:

1. ALL PEDESTRIAN RAILING AND COMPONENTS FABRICATED FROM STEEL
2. POST SPACING TO VARY WHEN TOTAL RAILING LENGTH REQUIRES (CONTRACTOR TO FIELD VERIFY POTENTIAL UTILITY CONFLICTS TO DETERMINE FENCE, POST AND FOOTING LOCATION MODIFICATIONS REQUIRED).
3. ASSEMBLY COLOR: DARK BRONZE
4. CAP ENDS OF POSTS. GRIND ALL WELDS FLUSH TO SURFACE. SEE SPECIFICATIONS FOR ADDITIONAL WELDING NOTES.
5. ALL FENCE GATE ELEMENTS TO BE HOT-DIP GALVANIZED PER ASTM A123 AT A RATE OF 2 OZ. / SQUARE FOOT.
6. ALL STEEL SHALL CONFORM TO ASTM A529, GRADE 50 OR ASTM A36 UNLESS NOTED OTHERWISE.
7. DESIGN, FABRICATION, AND ERECTION OF STEEL PEDESTRIAN RAILING SHALL CONFORM TO THE LATEST AISC CODE AND SPECIFICATIONS, INCLUDING THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS.
8. WELDING SHALL COMPLY WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS. ALL WELD SIZES NOT INDICATED ON PLANS SHALL COMPLY WITH THE LATEST AWS D1.1 UNLESS OTHERWISE NOTED. ALL WELDS SHALL BE CONTINUOUS.
9. FINISHES:
 - A. ALL RAILING COMPONENTS SHALL RECEIVE ONE COAT OF JASSCO PREP AND PRIMER AFTER GALVANIZATION AND PRIOR TO APPLICATION OF PRIMER.
 - B. PRIMER COATING FOR FENCE COMPONENTS SHALL CONSIST OF VISTA POINT METAL PRO COATING PRIMER / FINISH. SURFACES IN DIRECT CONTACT WITH CONCRETE OR MORTAR SHALL NOT RECEIVE PRIMER COATING.
 - C. ALL RAILING COMPONENTS TO BE FINISHED WITH TWO COATS OF SHERWIN-WILLIAMS CO. SEMI-GLOSS PRO-INDUSTRIAL (HIGH PERFORMANCE) PAINT OR APPROVED EQUAL. COLOR TO BE MATTE BLACK. SUBMIT METAL COLOR SAMPLES PRIOR TO FABRICATION FOR APPROVAL BY ENGINEER.
 - J. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,600 PSI AT 28 DAYS.



FOR INFORMATION ONLY
 CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND STRUCTURAL CERTIFICATION FOR REVIEW AND APPROVAL BY ENGINEER PRIOR TO FABRICATION AND INSTALLATION.



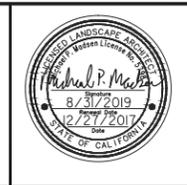
A PEDESTRIAN RAILING
 SCALE: N.T.S.

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CALIFORNIA DRIVE ROUNDABOUT
 PREPARED FOR
CITY OF BURLINGAME
 SAN MATEO COUNTY CA



HARDSCAPE DETAILS

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| SHEET NO. 61 |
| OF 61 SHEETS |
| HS-02 |