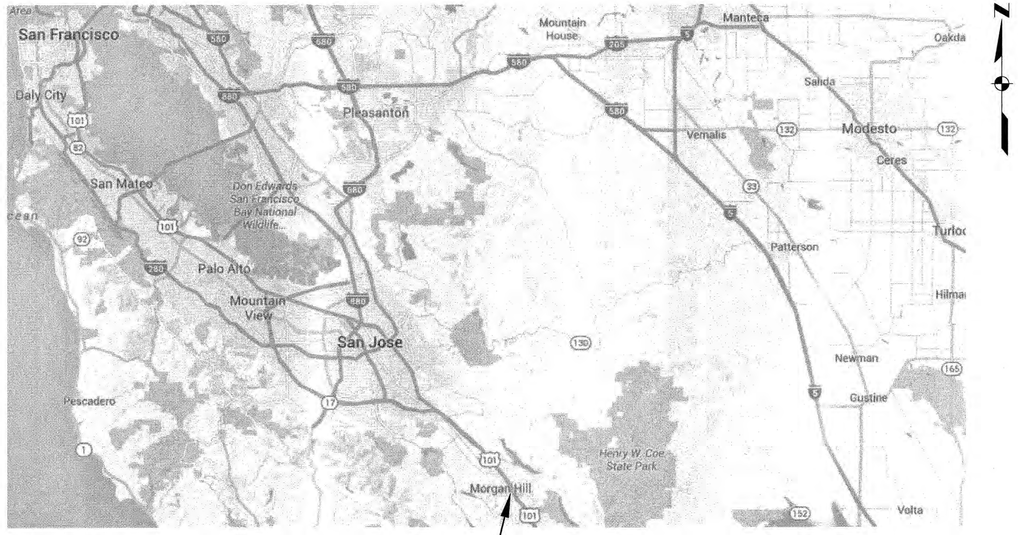
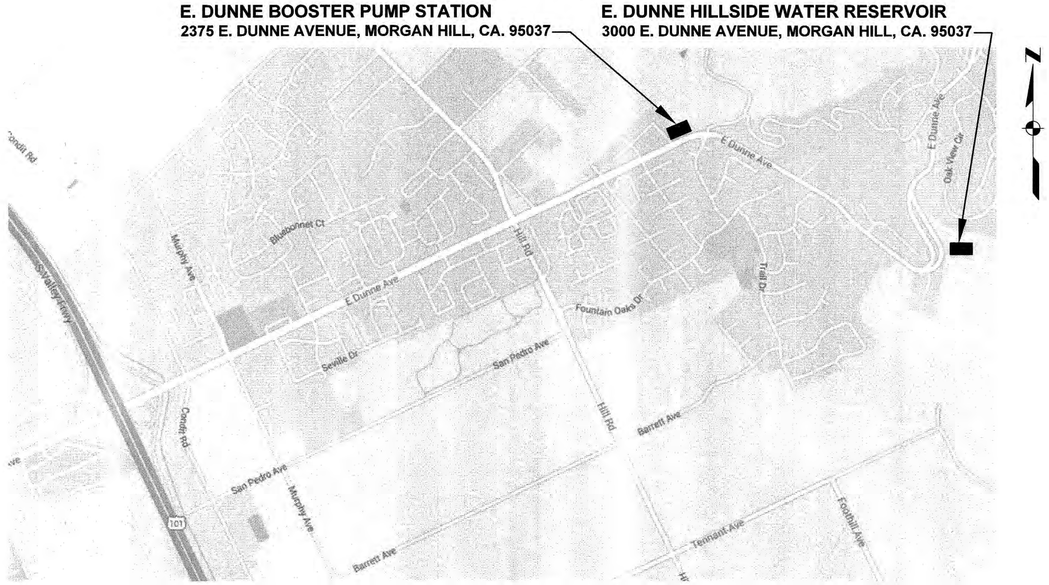
CITY OF MORGAN HILL
SANTA CLARA COUNTY, CALIFORNIA
EAST DUNNE HILLSIDE WATER RESERVOIR



VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE

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SCALES
0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER
RONALD LEE BARRETT
No. C45453
Exp. 12/31/24
CIVIL
STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

p:\proj\ Revisions

WORK ACCEPTED: BY: INSPECTOR: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN:	DESIGN:	HOR:
NEB	DLB	
CHECKED:		VERT:
DBH		
APPROVED:	DATE:	JOB NUMBER:
	4/30/24	K/J 2368021*00

SCOTT C. CREER RCE 58579 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

TITLE SHEET, SHEET INDEX, VICINITY MAP AND LOCATION MAP

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 01 OF 76
G-01

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

SHEET SIZE: 24x36
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CITY OF MORGAN HILL GENERAL NOTES:

1. TEMPORARY BENCHMARK - BASED ON A CITY APPROVED BENCHMARK AS SHOWN ON THESE PLANS.
2. ALL EXISTING ELEVATIONS SHALL BE FIELD VERIFIED UNLESS OTHERWISE NOTED.
3. THE STANDARD SPECIFICATIONS AND DETAILS LATEST EDITION OF THE CITY OF MORGAN HILL SHALL GOVERN UNLESS OTHERWISE SPECIFIED HEREIN. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE CITY OF MORGAN HILL STANDARD DETAILS FOR CONSTRUCTION WHICH ARE HEREBY MADE A PART OF THESE PLANS. DEVIATIONS FROM THE STANDARD DETAILS MUST BE APPROVED BY THE ENGINEER.
4. CONTRACTOR SHALL NOT DESTROY EXISTING PERMANENT SURVEY MONUMENTS.
5. ARRANGE FOR A PRE-CONSTRUCTION MEETING WITH THE ENGINEER (MUNICIPAL CODE 17.32.250B) PRIOR TO COMMENCING ANY CONSTRUCTION IN THE PUBLIC RIGHT OF WAY AN ENCROACHMENT PERMIT SHALL BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT UPON COMPLETION OF SAID MEETING AND PRIOR TO CONSTRUCTION OF ANY IMPROVEMENTS WITHIN AN EXISTING PUBLIC RIGHT-OF-WAY, PUBLIC UTILITY EASEMENT OR PUBLIC SERVICE EASEMENT.
6. A GRADING PERMIT SHALL BE OBTAINED FROM THE CITY OF MORGAN HILL BUILDING DIVISION PRIOR TO ANY GRADING. A GRADING PERMIT DOES NOT GIVE CONTRACTOR PERMISSION TO COMMENCE OFF-SITE (STREET) GRADING. ONLY UPON COMPLETION OF A PRE-CONSTRUCTION MEETING, SHALL CONTRACTOR COMMENCE OFF-SITE GRADING.
7. NOTIFY THE PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO COMMENCEMENT OF ANY WORK IN THE PUBLIC RIGHT OF WAY AT THAT TIME AN "INSPECTION REQUEST FORM" SHALL BE COMPLETED TO ENSURE PROPER SCHEDULING OF AN INSPECTION WITH THE ENGINEER.
8. PRESERVE ALL SURROUNDING PROPERTY BY CONFINING OPERATIONS TO WITHIN THE "LIMITS OF WORK". RESPONSIBLE FOR MAINTAINING ACCESS FOR ALL ADJOINING RESIDENTS, PLACES OF BUSINESS, AND PROPERTIES AND PROVIDING WRITTEN NOTICE AT LEAST 24 HOURS IN ADVANCE OF ANY INTERRUPTION IN ACCESS OR SERVICE TO THE ABOVE PROPERTY OWNERS AS WELL AS TO THE ENGINEER.
9. CONTRACTOR SHALL ONLY USE EQUIPMENT PROVIDED WITH A SPARK ARRESTOR DEVICE TO REDUCE A POTENTIAL FIRE HAZARD.
10. RIGHT OF MODIFICATION:
    CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
11. WATER & DUST CONTROL:
    PROVIDE A WATER TRUCK AT ALL TIMES. CONTRACTOR WILL BE ALLOWED TO DRAW WATER FROM THE CITY OF MORGAN HILL WATER DISTRIBUTION SYSTEM ONLY AFTER OBTAINING A HYDRANT METER FROM THE PUBLIC WORKS DEPARTMENT AND AN INSPECTION OF THE WATER TRUCK FOR A PROPER BACKFLOW DEVICE OR "AIR-GAP" FILLING PIPE. KEEP DOWN DUST FROM CONSTRUCTION ACTIVITY TO THE MAXIMUM EVENT POSSIBLE. CLEAN ALL EXISTING STREETS, CURBS, GUTTERS, AND SIDEWALKS AFFECTED BY THE PROJECT AT THE END OF EACH WORKING DAY.
12. MATERIAL STORAGE:
    NO MATERIAL SHALL BE STORED NEAR THE EDGE OF PAVEMENT, TRAVELED WAY, SIDEWALK, DRIVEWAY, OR SHOULDER LINE WHICH MAY CREATE A HAZARD FOR VEHICULAR AND PEDESTRIAN TRAFFIC.
13. TRAFFIC CONTROL:
    SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL TO THE PUBLIC WORKS DEPARTMENT A MINIMUM OF 5 DAYS PRIOR TO ANY WORK WITHIN AN EXISTING PUBLIC STREET. THE PLAN SHALL BE SIGNED BY A LICENSED TRAFFIC ENGINEER WHEN IT INVOLVES AN ARTERIAL STREET. PROVIDE ALL NECESSARY TRAFFIC CONTROL IN ACCORDANCE WITH THE LATEST EDITION OF A CALTRANS "MANUAL OF WARNING SIGNS, LIGHTS, AND DEVICES FOR USE IN PERFORMANCE OF WORK UPON HIGHWAYS", WHILE WORKING WITHIN THE PUBLIC RIGHT-OF-WAY. TWO TRAFFIC LANES (10' MIN.) SHALL BE OPEN TO VEHICULAR TRAFFIC DURING ALL HOURS, WEEKENDS, AND HOLIDAYS. ONE LANE ONE WAY TRAFFIC, MAY BE PERMITTED UNDER THE CONTROL OF NOT LESS THAN 2 (TWO) COMPETENT FLAGMEN DURING CONSTRUCTION OPERATIONS. STREET CLOSURES AND DETOURS SHALL ONLY TAKE PLACE UPON ENGINEER APPROVAL AND POLICE DEPARTMENT COORDINATION.
15. TRENCH EXCAVATION:
    EXERCISE DILIGENCE IN REVIEWING THE REFERENCED GEOTECHNICAL INVESTIGATION AND OTHER AVAILABLE RESOURCES TO FAMILIARIZE WITH THE SOIL CONDITIONS TO BE ENCOUNTERED IN THE COURSE OF WORK IDENTIFIED IN THESE PLANS. DO NOT CAUSE DAMAGE TO ADJACENT TREES OR EXISTING STRUCTURES ABOVE OR BELOW GRADE DURING TRENCH EXCAVATION. ALL ROCKS, BOULDERS, AND LARGE STONES ENCOUNTERED SHALL BE REMOVED TO PROVIDE A CLEARANCE OF 6 INCHES AROUND THE PIPE. THE TRENCH BOTTOM SHALL BE REFILLED TO GRADE WITH SAND, PEA GRAVEL, OR OTHER APPROVED GRANULAR MATERIAL. CLEAN 1/4 " OR 1/2 " PEA GRAVEL SHALL BE USED IN AREAS OF MOIST CONDITION OR WHERE THE SOIL HAS A HISTORY OF SUBSURFACE WATER. IF THE BOTTOM OF THE TRENCH IS FOUND TO CONSIST OF WET OR UNSTABLE MATERIAL INCAPABLE OF PROPERLY SUPPORTING THE PIPE, THE MATERIAL SHALL BE REMOVED TO A MINIMUM DEPTH OF 12 INCHES BELOW THE UNSTABLE LAYER FOR THE FULL WIDTH OF THE TRENCH AND REPLACED WITH APPROVED GRANULAR MATERIAL. TRENCH EXCAVATION MATERIAL DEPOSITED ADJACENT TO THE TRENCH SHALL BE PLACED AND LOCATED TO PREVENT SPILLAGE INTO THE OPEN TRENCH.
16. TRENCH SAFETY:
    PROVIDE ALL NECESSARY TRENCH SAFETY MEASURES FOR EXCAVATIONS. ALL TRENCH SAFETY MEASURES SHALL BE IN ACCORDANCE WITH THE LATEST CAL-OSHA GUIDELINES. PROVIDE EVIDENCE OF A CAL-OSHA TRENCHING PERMIT AT THE PRE-CONSTRUCTION MEETING.
17. EXCAVATIONS WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE BACKFILLED, COMPACTED, AND TEMPORARILY PAVED WITH COLD MIX "CUT BACK" TYPE A/C TO ALLOW FOR VEHICULAR AND PEDESTRIAN TRAFFIC PRIOR TO 4:00 P.M. THE USE OF TRENCH PLATES IS ALLOWED, PROVIDED THE CONTRACTOR COVERS ALL EDGES OF THE PLATES WITH COLD MIX MATERIAL. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAINTAIN ON A DAILY BASIS, INCLUDING WEEKENDS, THE AMOUNT OF MATERIAL NECESSARY TO MAINTAIN THE TRENCH SURFACE FLUSH WITH THE EXISTING STREET OR SIDEWALK. IN ADDITION, THE CONTRACTOR SHALL RESPOND TO AND CORRECT SHIFTING TRENCH PLATES REGARDLESS OF THE TIME OF DAY. IF CONTRACTOR FAILS TO CORRECT SINKING BACKFILL MATERIAL OR SHIFTING TRENCH PLATES IN A TIMELY MANNER, CITY SHALL RESERVE THE RIGHT TO CORRECT THE PROBLEM AND BACK CHARGE THE CONTRACTOR.
18. JOINING EXISTING PAVEMENT:
    EXISTING PAVEMENT WHICH IS TO BE JOINED BY NEW PAVEMENT SHALL BE SAW CUT VERTICAL TO PROVIDE STRAIGHT, TRUE, AND NEAT JOINTS. OVERLAPPING OF EXISTING PAVEMENT WITHOUT SAW CUTTING OR GRINDING SHALL NOT BE PERMITTED. THE VERTICAL EDGES SHALL BE TACKED PRIOR TO PAVING. TERMINALS OF ALL SURFACING INDICATED ON THE PLANS SHALL JOIN ANY EXISTING SURFACE IN A SMOOTH BUTT JOINT. CONFORM PAVING BY METHOD OF ABRASIVE GRINDING WILL BE ALLOWED UPON APPROVAL OF THE ENGINEER.
19. SANITARY SEWERS:
    ALL MANHOLES, SEWER MAINS, AND LATERALS MUST PASS A LEAKAGE TEST AS DESCRIBED IN THE CITY OF MORGAN HILL STANDARD DETAILS FOR CONSTRUCTION. AFTER ALL BACKFILL, TESTING, AND PAVEMENT RESTORATION HAS BEEN COMPLETED, THE CONTRACTOR SHALL FLUSH AND CLEAN ALL SEWER LINES 24 INCHES OR LESS IN DIAMETER BY THE "WAYNE BALL METHOD". AFTER THE LEAKAGE TEST, BUT PRIOR TO PAVING, THE UNDERGROUND CONTRACTOR MUST KEEP AN ACCURATE RECORD OF MANHOLES AND THE DISTANCE BETWEEN THEM AND EACH WYE BRANCH LATERAL, AND THEIR DIRECTION.
20. BEFORE ANY SEWERS ARE CONSTRUCTED, VERIFY THE ELEVATION AND LOCATION OF EXISTING SEWER LATERALS.

    WATER LINES:
22. CONTRACTOR SHALL NOT TURN OFF OR ON ANY VALVES BELONGING TO THE CITY'S WATER SYSTEM. ONLY DEPARTMENT OF PUBLIC WORKS PERSONNEL SHALL OPEN THE NECESSARY VALVES TO CONNECT NEW LINES. FAILURE TO FOLLOW THIS REQUIREMENT SHALL BE CONSIDERED AN "UNLAWFUL CONNECTION" AND MAY RESULT IN ISSUING OF A CITATION AND FINES AS SPECIFIED IN SECTION 13.04 OF THE MORGAN HILL MUNICIPAL CODE.
23. CONNECTIONS REQUIRING SHUT DOWN OF THE SYSTEM SHALL BE DONE BETWEEN THE HOURS OF 12:00 MIDNIGHT AND 6:00 A.M., AND ONLY UPON COORDINATION WITH THE DEPARTMENT OF PUBLIC WORKS.
24. ALL WATER LINES SHALL BE TESTED AFTER COMPLETION OF THE TRENCH BACKFILL AND COMPACTION OF THE FINAL BASE MATERIAL, BUT PRIOR TO THE PLACEMENT OF THE FINAL ROADWAY SURFACE.
25. THE CONCRETE CONTRACTOR SHALL STAMP A LETTER "W" ON THE FACE OF CURB DIRECTLY ABOVE THE WATER SERVICE.
26. FIRE HYDRANT: WET BARREL TYPE, CAST IRON BODY, TWO 2 1/2" OUTLETS AND ONE 4 1/2" OUTLET, CLOW MODEL F-960 WITH CLOW #40 BREAKOFF CHECK VALVE ASSEMBLY OR EQUAL.

    BACKFILL & COMPACTION:
27. JETTING AND/OR FLOODING OF TRENCH BACKFILL MATERIAL IS NOT PERMITTED.
28. EXCAVATION MATERIAL MAY BE TEMPORARILY DEPOSITED ON-SITE IN AREAS AND AT DEPTHS DESIGNATED BY THE CITY AND WITH APPROVAL OF THE ENGINEER.
29. THE MINIMUM RELATIVE COMPACTION FOR TRENCH BACKFILL, SUBGRADE AND BASE MATERIAL SHALL BE 95 % THROUGHOUT THE PROJECT UNLESS NOTED OTHERWISE.
30. ANY AGGREGATE BASE THAT BECOMES CONTAMINATED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED BASE.
31. EROSION CONTROL: AN EROSION CONTROL PLAN IS REQUIRED PRIOR TO ANY CONSTRUCTION. SAID PLAN SHALL MEET THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE LOMA PRIETA RESOURCE CONSERVATION DISTRICT. CONTRACTOR IS RESPONSIBLE FOR INITIATING THE REQUIRED EROSION CONTROL MEASURES DURING THE ABOVE TIME PERIOD.

PROJECT GENERAL NOTES:

1. PERFORM ALL WORK IN ACCORDANCE WITH THE CITY OF MORGAN HILL STANDARDS.
2. THE CONTRACTOR SHALL, THROUGHOUT THE PERFORMANCE OF THE WORK, MAINTAIN ADEQUATE AND CONTINUOUS PROTECTION OF ALL WORK AND TEMPORARY FACILITIES AGAINST LOSS OR DAMAGE FROM WHATEVER CAUSE, SHALL PROTECT THE PROPERTY OF THE CITY AND THIRD PARTIES FROM LOSS OR DAMAGE FROM WHATEVER CAUSE ARISING OUT OF THE PERFORMANCE OF THE WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF THE CITY AND ITS INSURANCE CARRIERS AND WITH ALL APPLICABLE LAWS, CODES, RULES AND REGULATIONS WITH RESPECT TO THE PREVENTION OF LOSS OR DAMAGE TO PROPERTY AS A RESULT OF FIRE OR OTHER HAZARDS. THE CITY MAY, BUT SHALL NOT BE REQUIRED TO, MAKE PERIODIC PATROLS OF THE JOB SITE AS A PART OF ITS NORMAL SECURITY PROGRAM. IN SUCH EVENT, HOWEVER, THE CONTRACTOR SHALL NOT BE RELIEVED OF ITS AFORESAID RESPONSIBILITIES.
3. UNTIL FINAL ACCEPTANCE OF THE WORK BY THE CITY PURSUANT TO THE GENERAL CONDITIONS ARTICLE 13, SECTIONS 13.7, 13.10, 13.11 AND 13.13. (SUBSTANTIAL COMPLETION AND FINAL PAYMENT), (UNLESS AND TO THE EXTENT OTHERWISE SET FORTH IN A CERTIFICATE OF SUBSTANTIAL COMPLETION), THE CONTRACTOR SHALL HAVE FULL AND COMPLETE CHARGE AND CARE OF AND, EXCEPT AS OTHERWISE PROVIDED IN THIS SUBSECTION, SHALL BEAR ALL RISK OF LOSS OF, AND INJURY OR DAMAGE TO, THE WORK OR ANY PORTION THEREOF (SPECIFICALLY INCLUDING CITY-FURNISHED SUPPLIES, EQUIPMENT OR OTHER ITEMS TO BE UTILIZED IN CONNECTION WITH, OR INCORPORATED IN, THE WORK) FROM ANY CAUSE WHATSOEVER. THE CONTRACTOR SHALL REBUILD, REPAIR, RESTORE AND MAKE GOOD ALL LOSSES OF, AND INJURIES OR DAMAGES TO, THE WORK OR ANY PORTION THEREOF (SPECIFICALLY INCLUDING CITY-FURNISHED SUPPLIES, EQUIPMENT OR OTHER ITEMS TO BE UTILIZED IN CONNECTION WITH, OR INCORPORATED IN, THE WORK) BEFORE FINAL ACCEPTANCE OF THE WORK.
4. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE SAFE PERFORMANCE OF ALL WORK FOR WHICH IT IS CONTRACTUALLY COMMITTED, WHETHER PERFORMED BY ITSELF OR BY ITS SUBCONTRACTORS. THE CONTRACTOR MUST PROVIDE ADEQUATE PROTECTION FOR THE HEALTH AND SAFETY OF CITY EMPLOYEES, THE GENERAL PUBLIC AND ITS OWN PERSONNEL. THE CONTRACTOR MUST HAVE IN PLACE THEIR OWN **INJURY AND ILLNESS PREVENTION PROGRAM** AS REQUIRED BY LABOR CODE § 6401.7 AND TITLE 8 § 1509 AND § 3203 OF THE CALIFORNIA CODE OF REGULATIONS AND SHALL SUBMIT SAME TO THE CITY SAFETY OFFICER FOR REVIEW. CALIFORNIA LAW ALSO REQUIRES THAT THE AFOREMENTIONED PROGRAM COVER ALL EMPLOYEES AND PERSONNEL CONTROLLED DIRECTED OR SUPERVISED BY THE CONTRACTOR TO THE EXTENT THAT THEY ARE EXPOSED TO WORKSITE AND JOB ASSIGNMENT SPECIFIC HAZARDS. IN ADDITION, THE CONTRACTOR'S SUBCONTRACTORS SHALL PROVIDE INJURY AND ILLNESS PREVENTION PROGRAMS AND SUBMIT SAME TO THE CITY SAFETY OFFICER FOR REVIEW PRIOR TO COMMENCING THEIR PORTION OF THE WORK.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING ITS BEST SKILL AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, COORDINATION, SCHEDULING AND PROCEDURES, FOR ALL CLEANUP AND FOR ALL SAFETY AND WEATHER PRECAUTIONS AND PROGRAMS, IN CONNECTION WITH THE WORK.
6. THE LOCATION, PIPE DIAMETER, AND/OR ELEVATIONS OF UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE ONLY. NOTIFY UNDERGROUND SERVICES ALERT (USA) AT (800) 227-2600 IN ACCORDANCE WITH THE SPECIFICATIONS PRIOR TO ALL EXCAVATION. BE RESPONSIBLE FOR PROTECTING THE EXISTING UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS, AND TO FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THIS SHALL BE DONE PRIOR TO THE START OF CONSTRUCTION.
7. TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE.
8. PRIOR TO SUBMITTAL OF PIPE SHOP DRAWINGS VERIFY THE INVERT ELEVATION, ALIGNMENT, OUTSIDE DIAMETER, LOCATION, AND MATERIAL OF ALL EXISTING PIPELINES TO WHICH NEW PIPELINES WILL BE CONNECTED.
9. SHORE OR OTHERWISE PROTECT ALL TRENCH EXCAVATION 5 FEET OR MORE IN DEPTH IN ACCORDANCE WITH STATE AND FEDERAL OSHA REQUIREMENTS.
10. BE RESPONSIBLE FOR THE LAYOUT, LINE AND GRADE OF ALL PIPING WITHIN THE PROJECT SITE.
11. MAINTAIN RECORD DRAWINGS FOR ALL WORK THROUGHOUT THE COURSE OF CONSTRUCTION. RECORD THE LOCATION AND GRADE OF ALL UNDERGROUND IMPROVEMENTS CONSTRUCTED ON THE DRAWINGS. DELIVER THE DRAWINGS TO THE CITY PRIOR TO AND IN CONSIDERATION OF THE CITY'S ACCEPTANCE OF WORK.
12. REMOVE AND PROPERLY DISPOSE OF ALL SURPLUS EXCAVATION MATERIAL AND DEBRIS PROMPTLY FROM THE SITE AND MAINTAIN THE SITE IN A NEAT AND ORDERLY CONDITION. OBTAIN ALL NECESSARY FILL AND GRADING PERMITS.
13. ADJUST ALL GRADE RINGS AND VALVE BOXES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR DIRECTED.
14. PROVIDE TEMPORARY FENCING TO PROTECT THE PROJECT SITE. TEMPORARY FENCING SHALL BE MAINTAINED 24-HOURS A DAY SEVEN DAYS A WEEK.
15. CONSTRUCTION VEHICLES SHALL COMPLY WITH CITY VEHICLE RESTRICTIONS FOR TRAFFIC ON E. DUNNE AVENUE, SEE SPECIFICATION SECTION 01550.
16. PRIOR TO COMMENCING THE WORK, PERFORM A VIDEO SURVEY OF E. DUNNE AVENUE FROM WEST OF FLAMING OAK LANE WHERE NORTH AND SOUTH BOUND LANES DIVIDE TO NORTH OF FLAMING OAK LANE WHERE NORTH AND SOUTH BOUND LANES DIVIDE AND RECORD THE EXISTING CONDITIONS OF PAVEMENT, CURB, GUTTER, AND SIDEWALKS UTILIZING A VIDEO AND PROVIDE TO THE CITY ON A COMPACT DISC. SEE SPECIFICATION SECTION 01010.
17. MAKE ARRANGEMENTS FOR EMPLOYEE PARKING OF VEHICLES OFFSITE INCLUDING ALL SUBCONTRACTOR'S VEHICLES. PARKING OF CONTRACTOR AND SUBCONTRACTOR EMPLOYEE VEHICLES AND CONSTRUCTION VEHICLES AND TRUCKS ON RESIDENTIAL STREETS IS PROHIBITED.
18. THE CONTRACTOR SHALL LIMIT THE WHEEL LOAD OF CONSTRUCTION VEHICLE TRUCK TRAFFIC ON STREETS IN THE CITY OF MORGAN HILL TO 32,000 LB PER AXLE.
19. ALL MATERIALS IN CONTACT WITH POTABLE WATER SHALL COMPLY WITH NSF 61 REQUIREMENTS.

SHEET SIZE: 24x36

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SCALES

0 ——— 1"

0 ——— 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — RONALD LEE BARRETT — No. C45483 Exp. 12/31/24 — CIVIL — STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

p:\proj\ Revisions

WORK ACCEPTED: INSPECTOR:

BY: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN:	DESIGN:	HOR:
NEB	DLB	
CHECKED: DBH		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58679 — CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

PROJECT GENERAL NOTES AND DESIGN CRITERIA

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 02 OF 76

G-02

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

CIVIL/GENERAL SYMBOLS

GENERAL CIVIL	NEW	EXISTING
GUY WIRE		
SPOT ELEVATION	18.00	x 35.5
INTERMEDIATE CONTOUR		
INDEX CONTOUR	120	120
BURIED CABLE MARKER		
TRAFFIC BOLLARD		
SIGN		
TREE/SHRUB		
BUILDING		
PIPELINE		
CHAINLINK FENCE	x x	x x
BURIED ELECTRICAL	E E	E E
OVERHEAD POWER LINE	OH OH	OH OH
RIGHT-OF-WAY	R/W	R/W
PROPERTY LINE	P/L	P/L
EASEMENT		
FIBER OPTICS	FO FO	FO FO
STORM DRAIN	SD SD	SD SD
STORM DRAIN (FUTURE)		
WATER	W W	W W
WATER (FUTURE)		
POWER POLE		
LIGHT		(E)
FLOW LINE DIRECTION	OR	
CENTERLINE		
PROJECT BENCHMARK	BM	
EDGE OF PAVEMENT (IN PLAN)		
BLOCK WALL		
TO BE DEMOLISHED		
TREE TO BE REMOVED		X
CLEAN OUT	CO	
FIRE HYDRANT		
AIR RELEASE VALVE		
BLOW OFF VALVE		
VALVE		
CATCH BASIN		
MANHOLE		
CONCRETE		(E) CONC
ASPHALTIC CONCRETE PAVEMENT (IN PLAN)		(E) AC
ASPHALTIC CONCRETE PAVEMENT (IN SECTION)		(E) AC
AGGREGATE BASE (IN SECTION)		(E) AB
UNDISTURBED EARTH (IN SECTION)		
SLOPING GRADE (IN PLAN)	HIGH LOW	HIGH LOW

PIPING SYMBOLS

JOINTS	SINGLE LINE PLAN	DOUBLE LINE PLAN
FLANGED OR GROOVED PIPE COUPLING		
BELL AND SPIGOT OR MECHANICAL		
SCREWED OR SOCKETWELD		
FITTINGS		
SCREWED OR SLIP ON JOINTS		
WELDED		
ELBOW-REDUCING		
CROSS		
REDUCER-CONCENTRIC		
REDUCER-ECCENTRIC		
UNION		
FLEXIBLE COUPLING		
FLANGED COUPLING ADAPTER		
FLEXIBLE CONNECTOR		
STRAINER		

VALVE SYMBOLS

VALVES	SINGLE LINE PLAN	SINGLE LINE ELEVATION
GATE		
GLOBE		
PLUG		
3-WAY PLUG		
SPECIAL (SOLENOID, PRESS. RED., PRESS. REG., POWER OPERATED)		
BALL		
BACK PRESSURE CONTROL		
INSULATED PIPE		
HOSE BIBB		
NEEDLE		
FLEXIBLE HOSE		
ORIFICE		
PRESSURE SWITCH	PS	
FUNNEL DRAIN		
THERMOMETER		T
PRESSURE GAUGE W/PROTECTOR		
PRESSURE GAUGE W/GAUGE COCK		
PRESSURE GAUGE W/GAUGE COCK & PROTECTOR		
PLUG OR BLIND FLANGE		
PINCH		
RELIEF VALVE/VENT		
ANGLE		
MANUAL AIR VENT		
PIPELINE FLUSHING COCK CONNECTION		
DIAPHRAGM		
3-WAY SOLENOID	S	S
MOTORIZED OPERATED VALVE	M	M
CHECK		
BUTTERFLY		

PIPE IDENTIFICATION SCHEDULE

SYSTEM	SIZE	SERVICE	MATERIAL	NOTES
INLET	ALL	ALL	DI	1, 2
OUTLET	ALL	ALL	DI	1, 2
DISCHARGE	ALL	ALL	DI	2
IRRIGATION	ALL	ALL	PVC 40	
OVERFLOW	ALL	ALL	DI	1
DRAIN	ALL	ALL	DI	1
UNDERDRAIN	ALL	ALL	PVC40	3
STORM DRAIN	ALL	ALL	PVC	

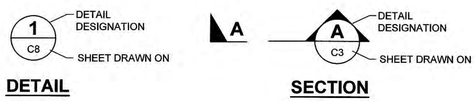
NOTES:

1. REFER TO PLAN AND LAYOUT DRAWINGS FOR TO IDENITFY SEPARATION OF TANK PIPING AND SITE WATER AND DRAIN PIPING. REFER TO SECTION 13211 FOR SPECIFICATION OF TANK PIPING.
2. FOR SERVICE (BRANCH) PIPING 2 INCH AND SMALLER, PROVIDE COPPER PIPING.
3. REFER TO PLAN AND LAYOUT DRAWINGS FOR USE OF PERFORATED AND NON-PERFORATED PIPE.

PIPE TYPE SCHEDULE

MATERIAL ABBREVIATION	MATERIAL	SERVICE	FIELD JOINTS
CU	COPPER	BURIED	COMPRESSION
		EXPOSED	SOLDERED
DI	DUCTILE IRON	BURIED	PUSH-ON, RESTRAINED JOINT
		EXPOSED	FLANGED
PVC40	PVC-SCHEDULE 40	ALL	SOLVENT WELD
PVC	PVC SDR35	ALL	PUSH-ON

REFERENCE SYMBOLS



DETAIL **SECTION**

GENERAL NOTES

NOTES:

1. CONTRACTOR SHALL PULL JOINTS NO MORE THAN 2.5° IN ORDER TO MAKE THE ALIGNMENT SHOWN. PULLED JOINTS ARE NOT SHOWN FOR SIMPLICITY.
2. PROVIDE THRUST BLOCKS IN LOCATIONS INDICATED ON THE DRAWINGS. REFER TO CITY STANDARD DETAIL DWG. NOS. W-17, AND W-18 FOR THRUST BLOCK DIMENSIONS.
3. CONTRACTOR SHALL CALL USA 811 A MINIMUM OF TWO DAYS PRIOR TO THE START OF ANY WORK.
4. NOT ALL (E) UTILITIES IN EAST DUNNE AVENUE ARE SHOWN.
5. POTHOLE (E) 16" WTR TO DETERMINE EXISTING CENTERLINE ELEVATION. MATCH NEW 16" W CENTERLINE ELEVATION TO EXISTING ELEVATIONS.
6. FIELD VERIFY LOCATION OF 16" WTR AND 10" WTR PRIOR TO CONSTRUCTION .
7. WTR PIPELINES SHALL BE DUCTILE IRON PIPE, PRESSURE CLASS 350, AWWA C151 ALL BURIED JOINTS ARE PUSH-ON AND RESTRAINED TYPE.
8. PIPES SHALL BE BURIED WITH A 3'-0" MIN COVER BASED ON FUTURE GRADE, UNLESS THE FUTURE GRADE IS HIGHER IN ELEVATION THAN THE EXISTING GRADE IN WHICH IT SHOULD BE BASED ON THE EXISTING GRADE.
9. PROVIDE 2'-0" MINIMUM OF SEPARATION FROM OD OF 10" WTR LINE TO OD OF 16" WTR LINE.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF EXISTING PAVEMENT.
11. REMOVE EXISTING THRUST BLOCK AND BLIND FLANGE FROM EXISTING 16" WTR.
12. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THE SHUT DOWN OF THE WATER LINES FOR THE PROPOSED CONNECTION. CONTRACTOR SHALL NOTIFY THE CITY AT LEAST 2 WEEKS IN ADVANCE OF THE PROPOSED SHUTDOWN TO ALLOW TIME FOR THE CITY TO COORDINATE THE SHUTDOWN SCHEDULE WITH ITS EMPLOYEES, AND AGAIN 3 DAYS IN ADVANCE OF THE SHUTDOWN. CONTRACTOR SHALL NOT OPEN OR CLOSE ANY EXISTING VALVES OR DRAIN THE LINE. CITY EMPLOYEES SHALL BE RESPONSIBLE FOR OPENING AND CLOSING ALL VALVES DURING THE SHUTDOWN AND DRAINING THE LINE. CITY TO BE RESPONSIBLE FOR NOTIFYING RESIDENTS OF WATER SHUTOFF 2 DAYS IN ADVANCE.
13. CONTRACTOR TO PROVIDE ENCLOSURES FOR RELOCATED ARVS PER CITY STANDARD DETAIL DWG NO. W-5.

SURVEY NOTES

SURVEY CONTROL DATA

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	1874395.03	6242155.29	-	FND STANDARD CITY OF MORGAN HILL STREET MONUMENT
101	1874147.05	6241871.64	-	FND STANDARD CITY OF MORGAN HILL STREET MONUMENT
1000	1874638.52	6242396.35	819.74'	SET PUNCHED MH RIM
1001	1874828.14	6242188.62	820.56'	SET PUNCHED MH RIM
1002	1874465.57	6242663.40	823.37'	SET PUNCHED MH RIM
1003	1874319.28	6242330.69	745.28'	FND NAIL & SHINER 15002
1004	1874226.99	6242293.30	729.79'	SET IRON PIPE
3000	1875242.67	6242369.87	856.60'	FND STANDARD CITY OF MORGAN HILL STREET MONUMENT
3001	1875183.86	6242350.05	859.30'	FND STANDARD CITY OF MORGAN HILL STREET MONUMENT
3002	1874798.01	6242573.43	875.94'	FND STANDARD CITY OF MORGAN HILL STREET MONUMENT
3003	1875047.16	6243012.77	888.28'	FND STANDARD CITY OF MORGAN HILL STREET MONUMENT
3004	1875163.37	6243063.70	907.40'	FND STANDARD CITY OF MORGAN HILL STREET MONUMENT
3005	1874535.92	6242894.60	837.28'	FND 3/4" IRON PIPE, RCE 6939
3006	1874102.17	6242143.38	698.84'	FND NAIL & SHINER 15009

PROJECT CONTROL

HORIZONTAL DATUM:
THE PROJECT HORIZONTAL DATUM IS BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAD83). CALIFORNIA COORDINATE SYSTEM ZONE 3, EPOCH 2010.00, U.S. SURVEY FEET.

VERTICAL DATUM:
THE PROJECT IS BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NGVD '88), U.S. SURVEY FEET.
THE ELEVATIONS OF POINTS IS BASED ON SANTA CLARA VALLEY WATER DISTRICT'S
BM529 ELEVATION (NAVD88) =699.23 FEET
DESCRIPTION: BRASS DISK ON TOP OF THE SOUTH CORNER OF 4.4X4.0 FEET CONCRETE BASE FOR IRRIGATION BOX THAT IS 2.7 FEET TALL; LOCATED IN THE CENTER PLANTER ISLAND OF EAST DUNNE AVENUE, AT 64 FEET NORTHEAST FROM INTERSECTION WITH FLAMING PAK DRIVE; DISK IS ALSO 44 FEET EAST FROM ELECTROLIER. LOCATION IS 1.2 MILES EAST FROM THE INTERSECTION OF EAST DUNNE AVE AND HILL ROAD, CITY OF MORGAN HILL.

SURVEY NOTES

1. ALL PROPERTY LINES SHOWN ARE APPROXIMATE LOCATION BASED ON RECORD INFORMATION.
2. CONTOURS SHOWN ARE DERIVED FROM SAN JOSE PHASE 3, SANTA CLARA COUNTY, CALIFORNIA LIDAR SURVEY, DOWNLOADED FROM SANTA CLARA VALLEY WATER DISTRICT WEBSITE, HTTP://ARCVIEW.VALLEYWATER.ORG/DOWNLOAD/LIDAR/INDEX.HTML, AND FIELD SURVEY PERFORMED ON MARCH 2016. CONTOURS WERE SPOT CHECKED ACROSS PROJECT SITE WITH ELEVATIONS BASED ON S.C.V.W.D. BENCHMARK #529

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:24 PM

c:\bms\ijoe-pw\d0257126\t672001-G-03.dwg

ISSUED FOR BID

ANY PRINTS NOT BEARING THIS STAMP MAY HAVE BEEN PRINTED PRIOR TO ADVERTISING AND CANNOT BE CONSIDERED AS BID DOCUMENTS. USERS OF THIS DOCUMENT IN EDITABLE ELECTRONIC FORMATS ARE CAUTIONED AGAINST USE WITHOUT FIRST DETERMINING WHETHER CHANGES MAY HAVE BEEN MADE SUBSEQUENT TO ITS PREPARATION.

SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER DONALD LEE BARNETT No. C 45483 Exp. 12/31/24 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

WORK ACCEPTED: INSPECTOR: BY: DATE:

p:\proj\

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN:	DESIGN:	HOR:
NEB	DLB	
CHECKED: DBH		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58670 CITY ENGINEER EXP: 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR
INTERM PIPELINES PROJECT - PHASE 1

GENERAL NOTES, SYMBOLS AND LEGEND

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 03 OF 76
G-03

ABBREVIATIONS

&	AND
∠	ANGLE
±	APPROXIMATELY
@	AT
℄ ℄	CENTERLINE
△	DEFLECTION
°	DEGREE
=	EQUALS
'	FOOT
>	GREATER THAN
"	INCH
Ø	PHASE
<	LESS THAN
#	NUMBER
%	PERCENT
A	AREA
AB	ANCHOR BOLT(-S)
ABAN	ABANDON (-ED)
ABS	ABSOLUTE
A.B.S.	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ACRE
A.C.	ASBESTOS CEMENT
A/C	ASPHALT CONCRETE
ACOUS	ACOUSTICAL
ACT.	ACTIVATE
ADDL, ADDIT	ADDITIONAL
ADJ	ADJUST(-ED,-MENT,-ABLE)
ADJT	ADJACENT
ADWF	AVERAGE DRY WEATHER FLOW
AF	ACRE-FEET
AFD	ADJUSTABLE FREQUENCY DRIVE
AGG	AGGREGATE
AIR-CON	AIR CONDITION (-ER,-ING)
AIRVAC	AIR AND VACUUM VALVE
AL, ALUM.	ALUMINUM
ALT	ALTERNAT(-E,-IVE)
ALTD	ALTITUDE
ANC	ANCHOR
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE
APPROX	APPROXIMAT(-E,-LY)
ARCH.	ARCHITECT (-URAL)
ARV	AIR RELEASE VALVE
ASB	ASBESTOS
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING & AIR CONDITIONING ENGINEERS
ASPH	ASPHALT
ASST	ASSISTANT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATM	ATMOSPHERE (14.7 LB/IN SQ)
AWG	AMERICAN WIRE GAUGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AVV	AIR AND VACUUM VALVE
BARM	BARMINUTOR
BC	BEGINNING OF HORIZONTAL CURVE
BCV	BALL CHECK VALVE
BD	BOARD
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BIO	BIOFILTER
BIOL	BIOLOGICAL
BITUM	BITUMINOUS
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK(-S)
BLKG	BLOCKING
BM	BEAM
B.M.	BENCH MARK
BOD 5	BIOCHEMICAL OXYGEN DEMAND (5 DAY)
BOT	BOTTOM
BRG	BEARING
BS	BLACK STEEL
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTWN	BETWEEN
BV	BALL VALVE
BVC	BEGINNING OF VERTICAL CURVE
°C	DEGREES CELSIUS (CENTIGRADE)
C	CONDUIT
CAB.	CABINET
CAV	COMBINATION AIR VALVE
CB	CATCH BASIN
CC	CENTER TO CENTER
CEM	CEMENT
CEN	CENTRAL
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CH	CHAMBER
CHAN	CHANNEL
CHEM	CHEMI (-CAL,-STRY)
CHKD	CHECKERED
CI	CAST IRON
CIP	CAST IRON PIPE
CIRC	CIRCULA(-R,-TION)
CIRCUM	CIRCUMFERENCE
CISP	CAST IRON SOIL PIPE
CKT	CIRCUIT
CL ℄	CENTERLINE
CL2	CHLORINE
CLASS.	CLASSIFICATION
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR (-ANCE)
CM 3	CUBIC CENTIMETER
CM 2	SQUARE CENTIMETER
CM	CENTIMETER
CMC	CEMENT MORTAR COATED
CML	CEMENT MORTAR LINED
CML&C	CEMENT MORTAR LINED & COATED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT(-S)
CNTR	COUNTER
CNTRSK	COUNTERSUNK
CO	CLEANOUT
CO2	CARBON DIOXIDE
C.O.D.	CHEMICAL OXYGEN DEMAND
COL	COLUMN
COMM	COMMUNICATION
COMP	COMPRESSOR
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECT (-S,-ION)
CONST	CONSTRUCT (-ION)
CONST JT,CJ	CONSTRUCTION JOINT
CONT	CONTINU (-ED,-OUS,-ATION)
CONTR	CONTRACTOR
COORD	COORDINATE
COR	CORNER
CORR	CORRUGATED
COUP.,CPLG	COUPLING
CP	CONTROL PANEL
CPVC	CHLORINATED POLYVINYL CHLORIDE
C/S, CS	CONSTANT SPEED
CT	COURT
CTR	CENTER
CTS	CATHODIC TEST STATION
CV	CHECK VALVE
CW	COLD WATER
CWT	ONE HUNDRED POUNDS
CY	CUBIC YARD
D	DRAIN
DBL	DOUBLE
DEG	DEGREE(-S)
DEMO, (D)	DEMOLISH
DET, DTL	DETAIL(-S)
DF	DOUGLAS FIR; DRINKING FOUNTAIN
DGRM	DIAGRAM
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL(-S)
DIAPH	DIAPHRAGM
DIM.	DIMENSION(-S)
D.I.P., DIP	DUCTILE IRON PIPE
DIR	DIRECTION
DISCH	DISCHARGE
DIST	DISTRIBUTION
DN	DOWN
D.O.	DISSOLVED OXYGEN
DR	DOOR
DRG	DOUBLE RUBBER GASKET JOINT
DS	DOWN SPOUT
DUP	DUPLEX
DWG(S)	DRAWING(-S)
E	EAST
EA	EACH
EC	END OF HORIZONTAL CURVE
ECC	ECCENTRIC
ECD	EPOXY COATED
EF	EACH FACE; EXHAUST FAN
EFFIC	EFFICIENCY
EFFL, EFF	EFFLUENT
EGL	ENERGY GRADE LINE
E.L.	EPOXY LINED
EL, ELEV.	ELEVATION
ELB, ELL	ELBOW
EL&C	EPOXY LINED & COATED
ELEC	ELECTRIC (-AL)
ELEM	ELEMENTARY
EMERG	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
ENTR	ENTRANCE
EP	EDGE OF PAVEMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
EQ	EQUAL (-LY)
EQUAL.	EQUALIZATION
EQUIP.	EQUIPMENT
EST	ESTIMATE (-D)
ETC	ET CETERA
EUC	EUCALYPTUS
EXC	EXCAVATE
EXH	EXHAUSTER (-S)
EXIST., (E)	EXISTING
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
EVC	END OF VERTICAL CURVE
EW	EACH WAY
°F	DEGREE FAHRENHEIT
FT	FEET, FOOT
FA	FIRE ALARM
FAI	FRESH AIR INTAKE
FB	FLAT BAR
FC	FLEXIBLE COUPLING
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FE	FIRE EXTINGUISHER
FF	FAR FACE, FINISH FLOOR
FG	FLAP GATE
FH	FIRE HYDRANT
FL	FLOW LINE
FM	FLOW METER
FOS	FACE OF STUD
FRC	FLEXIBLE RUBBER COUPLING
FRP	FIBERGLASS REINFORCED PLASTIC
FAB	FABRICATE(-D)
FAC	FACTORY
FACIL	FACILITY (-IES)
FDR	FEEDER
FIG.	FIGURE
FILT	FILTER
FIN.	FINISH(-ED)
FIN. GD	FINISH GRADE
FLASH.	FLASHING
FLEX.	FLEXIBLE
FLG	FLANGE(-D)
FLR	FLOOR
FLUOR	FLUORESCENT
FDN	FOUNDATION
FREQ	FREQUENCY
FT 3	CUBIC FEET
FT 2	SQUARE FEET
FTG	FOOTING
FURN	FURNACE
FURR	FURRING
FUT, (F)	FUTURE
FWD	FORWARD
GA	GAUGE
GAL	GALLON (-S)
GALV	GALVANIZE(-D)
GASO	GASOLINE
GC	GROOVED COUPLING
GDL	GROUND LEVEL
GEN	GENERATOR
GENL	GENERAL
GL	GLASS
GLV	GLOBE VALVE
GLL	GLASS LINED
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRAM
GRL	GUARDRAIL
GS	GALVANIZED STEEL
GV	GATE VALVE
GYP BD	GYPSUM BOARD
H	HIGH
HB	HOSEBIBB
HC	HEAT CONSERVATION
HDPE	HIGH DENSITY POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
HGR	HANGER
HGT, HT	HEIGHT
HM	HOLLOW METAL
HMWPE	HIGH MOLECULAR WEIGHT POLYETHYLENE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPT, H.P.	HIGH POINT
HR	HOUR
HRL	HANDRAIL
HTR	HEATER
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HVY	HEAVY
HW	HOT WATER
HWD, HDWD	HARDWOOD
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
HYD	HYDRAULIC
HZ	HERTZ
I & C	INSTRUMENTATION AND CONTROLS
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
I.F.	INSIDE FACE
IN 3	CUBIC INCHES
IN 2	SQUARE INCHES
IN	INCH (-ES)
INFL, INF	INFLUENT
INSTR	INSTRUMENT
INSUL	INSULAT(-E,-ION)
INT	INTERIOR
INV	INVERT
IPS	INTERNATIONAL PIPE STANDARD
IW	INDUSTRIAL WASTES
JAN	JANITOR
JB, J-BOX	JUNCTION BOX
JST	JOIST
JT	JOINT
KG	KILOGRAM; KNIFE GATE
KIP	ONE THOUSAND POUNDS
Km	KILOMETER
KV	KILOVOLTS
KVA	KILOVOLT-AMPERES
KW	KILOWATT
L	LENGTH; LITER
LAB	LABORATORY
LAM	LAMINATE
LAT	LATERAL
LAV	LAVATORY
LB	POUND(-S)
L/D	LITERS PER DAY
LDG	LANDING
LE	LIFTING EYE
LEL	LOWER EXPLOSION LIMIT
LF	LINEAR FEET
LG	LONG
LGT	LIGHT
LH	LEFT HAND
LIQ	LIQUID
LL	LIVE LOAD
LLV	LONG LEG VERTICAL
LO	LIVE OAK
LOC	LOCATION
LONG.	LONGITUDINAL
LP	LOW POINT
LPG	LIQUIFIED PETROLEUM GAS (PROPANE OR BUTANE AS NOTED)
LS	LIMIT SWITCH
LT	LEFT
LTG	LIGHTING
LWL	LOW WATER LEVEL
(M)	MODIF (-Y, -IED)
M 3	CUBIC METERS
M 2	SQUARE METERS
M	METER
MACH.	MACHINE
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MET.	METAL
MFR	MANUFACTURER
MG	MILLIGRAMS
M.G.	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MG/L	MILLIGRAMS PER LITER
MH	MANHOLE
MIL(S)	1/1000 INCH
MIN	MINIMUM; MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MILLILITER(-S)
MM	MILLIMETER(-S)
MODIF	MODIFICATION(-S)
MON	MONUMENT
MPH	MILES PER HOUR
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
MUL	MULLION
MV	MUD VALVE
N	NORTH
(N)	NEW
N/A	NOT APPLICABLE
NAT G, NG	NATURAL GAS
N.C.	NORMALLY CLOSED
NE	NORTHEAST
NEUT	NEUTRAL
NF	NEAR FACE
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO.	NUMBER
NOM	NOMINAL
NORM	NORMAL
NRS	NON-RISING STEM (VALVE)
NT	NORMALLY THROTTLED
NTS	NOT TO SCALE
NV	NEEDLE VALVE
NW	NORTHWEST
NWL	NORMAL WATER LEVEL
OA	OVERALL
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
O/C	OPEN/CLOSE SERVICE
OD	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
OF.	OVERFLOW
OFF.	OFFICE
OFS	OUTSIDE FACE OF STUD
O.H.	OVERHEAD
OL	OVERLOAD
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OS&Y	OUTSIDE SCREW & YOKE (RISING STEM-VALVE)
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
OZ	OUNCE(-S)
P	PIPE
PC	PIECE
P.C.	POINT OF HORIZONTAL CURVE
PCC	POINT OF COMPOUND CURVE
PCF	POUNDS PER CUBIC FEET
PCO	PRESSURE CLEANOUT
PDV	PLUG DRAIN VALVE
P.E.	PLAIN END
PE, POLY	POLYETHYLENE
PEN.	PENETRATION
PERF	PERFORAT(-E, -ED, -ES, -ATION)
PF	PROFILE
PG	PRESSURE GAUGE
PH	PIPE HANGER
PHMS	PAN HEAD MACHINE SCREW
P.I.	POINT OF HORIZONTAL INTERSECTION
P & ID	PROCESS (OR PIPING) & INSTRUMENTATION DIAGRAM
PIV	POST INDICATOR VALVE
P.L., P/L	PROPERTY LINE
PL, P	PLATE
PLAS	PLASTER
PLY.	PLYWOOD
PNL	PANEL
P.O.T	POINT OF TANGENCY
PP	PAGES, PERSONEL PROTECTION
P.P.	POWER POLE
PPB	PARTS PER BILLION
PPM	PARTS PER MILLION
PR	PAIR
P.R.	PULL RING
PRESS.	PRESSURE
PRFV	PRESSURE RELIEF VALVE
PRV	PRESSURE REDUCING VALVE
PRI	PRIMARY
PROJ	PROJECT(-ION)
PROP.	PROPERTY
PROT	PROTECTOR
PRS	PRESSURE SNUBBER
PRV	PRESSURE REDUCING VALVE
PS	PIPE SUPPORT
PSF	POUNDS PER SQUARE FEET
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE (PRESSURE ABOVE VACUUM)
PSIG	POUNDS PER SQUARE INCH-GAUGE (PRESSURE ABOVE ATMOSPHERE)
P.SL.	PIPE SLEEVE
P.STA.	PUMP STATION
P. SW.	PRESSURE SWITCH
PT	POINT
PV	PLUG VALVE
P.V.C.	POINT OF VERTICAL CURVE
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PWWF	PEAK WET WEATHER FLOW
PVMT	PAVEMENT
PWR	POWER
Q.	FLOW OR DISCHARGE
R	RISER
R, RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REC	RECEIVING
RECIRC	RECIRCULAT(-E, -ION)
RED.	REDUCE(-R)
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGULAT(-E, -OR, -ION, -ING)
REINF	REINFORC(-E, -ED, -ING, -MENT)
REL	RELATIVE
REQD	REQUIRED
REQT	REQUIREMENT
RES, RSVR	RESERVOIR
RESIL	RESILIENT
RET	RETAINING
REV	REVISION
RH	RIGHT HAND
RM	ROOM
RWD	REDWOOD
R/W	RIGHT-OF-WAY
RTN	RETURN
RTE	ROUTE
RT	RIGHT
RR	RAILROAD
RPS	REVOLUTIONS PER SECOND
RPM	REVOLUTIONS PER MINUTE
RND	ROUND
S	SOUTH; SLOPE
SAN	SANITARY
SARV	SEWAGE AIR RELIEF VALVE
SAVV	SEWAGE AIR/VACUUM RELIEF VALVE
SCAV	SEWAGE COMBINATION AIR VALVE
SCFM	STANDARD CUBIC FEET PER MINUTE
SCHED, SCH	SCHEDULE
SCVWD	SANTA CLARA VALLEY WATER DISTRICT
SD	STORM DRAIN
SE	SOUTHEAST
SEC	SECOND(-S, -ARTY)
SECT	SECTION(-S)
SED	SEDIMENTATION
SEW.	SEWER
SG	SLUICE GATE
SHT, SH	SHEET
SI	SIDEWALK INLET
SIG	SIGNAL
SIM	SIMILAR
SL	SLUDGE
SN	SOIL NAIL
SO 2	SULFUR DIOXIDE
SP	STATIC PRESSURE
SP. GR.	SPECIFIC GRAVITY
SPC	SPACE
SPCD	SPACED
SPCNG	SPACING
SPCS	SPACES
SPEC	SPECIFICATIONS
SQ	SQUARE
SQ FT, SF	SQUARE FEET
SQ IN	SQUARE INCHES
SRG	SINGLE RUBBER GASKET JOINT
SS	SANITARY SEWER
SS 304	STAINLESS STEEL TYPE 304
SS 316	STAINLESS STEEL TYPE 316
ST	STREET
STA	STATION
STD	STANDARD
STIFF	STIFFEN (-ER)
STL	STEEL
STM	STEAM
STN	STAINLESS
STOR	STORAGE
STRUCT	STRUCTUR(-E, -AL)
SUB	SUBNATANT
SUBM	SUBMISSION (SUBMIT)
SUP	SUPERNATANT
SUPP	SUPPORT(-S)
SURF.	SURFACE
SUSP	SUSPEND(-ED)
SV	SOLENOID VALVE
SW	SOUTHWEST; SWITCH
SWBD	SWITCHBOARD
S/W	SIDEWALK
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
T	TIMER; TIME
T/	TOP OF
TAN.	TANGENT(-IAL)
TB	THRUST BLOCK
TBM	TEMPORARY BENCH MARK
T & B	TOP & BOTTOM
TC	TOP OF CURB
TCV	TWIN ELEMENT CHECK VALVE
TDH	TOTAL DYNAMIC HEAD
TEL, TELE	TELEPHONE
TEMP	TEMPERATURE
TEMPY	TEMPORARY
TERM.	TERMINAL; TERMINATION
T & G	TONGUE & GROOVE
THK	THICK(-ENED, -ENER, -NESS)
TOC	TOP OF CONCRETE
TOD	TOTAL OXYGEN DEMAND
T.O.P.	TOP OF PAVEMENT
TOPO	TOPOGRAPHY
TOS	TOP OF STEEL; TOP OF SLAB
T.O.W.	TOP OF WALL
T-___-S	TYPE ___ SUPPORT
T-___-P	TYPE ___ PIPE
TYP	TYPICAL
TURB	TURBIDITY
TS, T'STAT	THERMOSTAT
TRTMT	TREATMENT
TRANSV	TRANSVERSE
TRANSF	TRANSFORMER
T-R	THROUGH ROOF
TR	TREAD(-S)
TP	TELEPHONE POLE
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UH	UNIT HEATER
UPR	UPPER
V	VOLT
VAC	VACUUM
VAR	VARIABLE
V.A.T.	VINYL ASBESTOS TILE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VEL	VELOCITY
VERT	VERTICAL
VERTS	VERTICAL BARS
VEST.	VESTIBULE
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
V/S, VS	VARIABLE SPEED
VT	VENT
W	WIDTH; WIDE; WEST
W/	WITH
WC	WATER CLOSET
W CL	WATER COLUMN
WD	WOOD
WH	WATER HEATER
WM	WATER METER
W/O	WITHOUT
WP	WEATHERPROOF
WS	WELDED STEEL
WST	WATERSTOP
WT	WEIGHT
WTR	WATER
WW	WATER WASTE
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
YD 3	CUBIC YARD
YD 2	SQUARE YARD
YD	YARD
YR	YEAR

SHEET SIZE: 24x36

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0 ——— 1"

0 ——— 25mm

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CITY OF MORGAN HILL

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Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR
INTERM PIPELINES PROJECT - PHASE 1

ABBREVIATIONS

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 04 OF 76

G-04

IN ACCORDANCE WITH THE STATE OF CALIFORNIA WATER RESOURCES CONTROL BOARD DIVISION OF DRINKING WATER, R-14-03 REVISION OF WATER WORKS STANDARDS, CALIFORNIA CODE OF REGULATIONS TITLE: 22, CHAPTER 16, ARTICLE 6. DISTRIBUTION RESERVOIRS, SECTION 64585. DESIGN AND CONSTRUCTION, THE FOLLOWING TABLE IS PROVIDED TO INDICATE HOW THE DISTRIBUTION RESERVOIRS REQUIREMENTS HAVE BEEN ADDRESSED IN THE DRAWINGS AND SPECIFICATIONS:

SECTION 64585	DISTRIBUTION RESERVOIR REQUIREMENTS	COMMENTS	REFERENCE DRAWING REFERENCE SPECIFICATION
(a)(1)	1. ANY RESERVOIR COATINGS OR LININGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.	RESERVOIR (WELDED STEEL TANK) INTERIOR PROTECTIVE COATINGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS IN ACCORDANCE WITH SECTION 09960 APPENDIX B. PROTECTIVE COATINGS ARE CERTIFIED AS MEETING THE SPECIFICATIONS OF NSF INTERNATIONAL/AMERICAN NATIONAL STANDARD INSTITUTE (NSF/ANSI) 61-2005 / ADDENDUM 1.0-2005 IN ACCORDANCE WITH SECTION 09960, APPENDIX B. PROTECTIVE COATINGS ARE SPECIFIED IN ACCORDANCE WITH AWWA D102-14 COATING STEEL WATER STORAGE TANKS.	SECTION 09960 APPENDIX B PARAGRAPH 2.02
(a)(2)	2. VENTS AND OTHER OPENINGS SHALL BE CONSTRUCTED AND DESIGNED TO PREVENT THE ENTRY OF RAINWATER OR RUNOFF, AND BIRDS, INSECTS, RODENTS, OR OTHER ANIMALS.	VENTS ARE CONSTRUCTED TO PREVENT THE ENTRY OF RAINWATER OR RUNOFF, BIRDS, INSECTS, RODENTS AND OTHER ANIMALS. ROOF CENTER VENT AND ROOF PERIMETER VENT LOCATIONS ARE SHOWN ON SHEETS S-03 AND ON THE TYPICAL CROSS SECTION ON SHEET S-04. ROOF PERIMETER VENTS ARE SHOWN ON DETAIL 15/S-08 AND 4/S-10 WITH NO. 24 MESH BRONZE SCREEN. ROOF CENTER VENT IS SHOWN ON DETAIL 15/S-08 WITH 24x24x0.014 WIRE 316SS INSECT SCREEN AND 3/4" X #13 FLAT EXPANDED METAL GALVANIZED BIRD SCREEN. SEE SPECIFICATION SECTION 13211 PARAGRAPH 2.04.F. FOR VENT SPECIFICATIONS.	SECTION 13211 PARAGRAPH 2.04 15/S-08 4/S-10
(a)(3)	3. AT LEAST ONE SAMPLING TAP SHALL BE AVAILABLE TO ENABLE REPRESENTATIVE SAMPLING OF THE WATER IN THE RESERVOIR THAT WILL BE ENTERING THE DISTRIBUTION SYSTEM; THE TAP SHALL BE PROTECTED AGAINST FREEZING, IF NECESSARY.	A NEW SAMPLE TAP IS INCLUDED ON THE 16" OUTLET PIPELINE OF RESERVOIR. SEE THE INLET AND OUTLET PIPING PARTIAL PLAN ON SHEET S-03 FOR LOCATION AND THE SAMPLE TAP DETAIL 25/S-09.	DETAIL 25 SHEET S-09
(a)(4)	4. A RESERVOIR SHALL NOT BE DESIGNED, CONSTRUCTED, OR USED FOR ANY ACTIVITY THAT CREATES A CONTAMINATION HAZARD.	THERE ARE NO CONTAMINATION HAZARDS ASSOCIATED WITH THE NEW RESERVOIR.	NOT APPLICABLE
(b)(2)	5. CONSTRUCTED OF AN IMPERVIOUS MATERIAL THAT PREVENTS THE MOVEMENT OF WATER INTO OR OUT OF THE RESERVOIR.	RESERVOIR IS DESIGNED AND CONSTRUCTED OF WELDED STEEL PLATES IN ACCORDANCE WITH AWWA D100-11 WELDED CARBON STEEL TANKS FOR WATER STORAGE. ALL WELDED JOINTS IN THE TANK BOTTOMS SHALL BE TESTED BY THE VACUUM METHOD AFTER ERECTION AND PRIOR TO PAINTING. ALL WELDED JOINTS IN THE TANK SIDE SHELL SHALL BE TESTED BY THE WATER METHOD AFTER ERECTION AND PRIOR TO PAINTING.	SECTION 13211 PARAGRAPH 3.03
(b)(3)(A)	6. COVERED WITH A RIGID STRUCTURAL ROOF MADE OF IMPERVIOUS MATERIAL THAT PREVENTS THE MOVEMENT OF WATER OR OTHER LIQUIDS INTO OR OUT OF THE RESERVOIR.	NEW RESERVOIR IS COVERED WITH RIGID STRUCTURAL STEEL ROOF PLATES OF 1/4" THICKNESS THAT PREVENTS THE MOVEMENT OF WATER OR OTHER LIQUIDS INTO OR OUT OF THE RESERVOIR.	SHEETS S-03 & S-04 SECTION 13211
(b)(4)	7. EQUIPPED WITH AT LEAST ONE SEPARATE INLET AND OUTLET (INTERNAL OR EXTERNAL), AND DESIGNED TO MINIMIZE SHORT-CIRCUITING AND STAGNATION OF THE WATER FLOW THROUGH THE RESERVOIR.	RESERVOIR IS EQUIPPED WITH SEPARATE 16-INCH INLET AND 16-INCH OUTLET EXTERNAL PIPELINES WITH ISOLATION BUTTERFLY VALVES. INLET AND OUTLET PIPELINES ARE ORIENTED IN ORDER TO PROMOTE CIRCULATION AND MINIMIZE SHORT-CIRCUITING.	SHEET S-03
(b)(5)	8. EQUIPPED WITH DRAINAGE FACILITIES THAT ALLOW THE TANK TO BE DRAINED AND ALL RESIDUAL SEDIMENT REMOVED, AND AN OVERFLOW DEVICE. THE RESERVOIR DRAINAGE FACILITIES AND OVERFLOW DEVICE SHALL NOT BE CONNECTED DIRECTLY TO A SEWER OR STORM DRAIN AND SHALL BE FREE OF CROSS-CONNECTIONS.	RESERVOIR IS EQUIPPED WITH SEPARATE 12-INCH DRAIN SEE DETAIL 4/S-05 WITH AIR GAP TO STORM DRAIN. RESERVOIR IS EQUIPPED WITH SEPARATE 16-INCH INTERNAL OVERFLOW WITH AIR GAP TO STORM DRAIN. OVERFLOW CONTAINS 1/4" SQUARE 304 STAINLESS STEEL MESH INSECT SCREEN AND TIDEFLEX CHECK VALVE ON OVERFLOW.	DETAIL 4/S-05 DETAIL 1/S-05
(b)(6)	9. EQUIPPED WITH CONTROLS TO MAINTAIN AND MONITOR RESERVOIR WATER LEVELS.	RESERVOIR IS EQUIPPED WITH NEW LEVEL INDICATION AND TRANSMISSION INSTRUMENTS TO MAINTAIN AND MONITOR RESERVOIR WATER LEVELS.	SHEETS E-03 & I-02 SECTION 17140
(b)(7)	10. EQUIPPED TO PREVENT ACCESS BY UNAUTHORIZED PERSONS.	RESERVOIR IS EQUIPPED WITH LOCKABLE LADDER CAGE DOOR AND LOCKABLE ROOF HATCH. THE LOCKABLE LADDER CAGE DOOR AND THE LOCKABLE ROOF HATCH EACH HAVE A LIMIT SWITCH/INTRUSION ALARM TO NOTIFY OPERATIONS PERSONNEL WHEN OPENED.	DETAILS 11/S-07 & 13/S-08 SHEETS E-03 & I-02
(b)(8)	11. DESIGNED TO ALLOW AUTHORIZED ACCESS AND ADEQUATE LIGHTING OF RESERVOIR INTERIOR FOR INSPECTIONS, CLEANING OR REPAIR.	IN ACCORDANCE WITH AWWA D100-11 RESERVOIR HAS BEEN DESIGNED WITH TWO 30-INCH DIAMETER MANWAY OPENINGS AT 1'-3" ABOVE THE BOTTOM OF THE TANK AT 180° APART AND ONE 39-INCH CLEAR SQUARE ACCESS HATCH ON THE ROOF OF THE TANK TO ALLOW AUTHORIZED ACCESS AND ADEQUATE LIGHTING OF RESERVOIR INTERIOR FOR INSPECTIONS, CLEANING OR REPAIR.	SHEETS S-03 & S-08 DETAILS 1 & 2/S-06 DETAIL 13/S-08
(b)(9)	12. EQUIPPED WITH ISOLATION VALVES, AND DESIGNED AND OPERATED TO ALLOW CONTINUED DISTRIBUTION OF WATER WHEN THE RESERVOIR IS REMOVED FROM SERVICE. THE ISOLATION VALVES SHALL BE LOCATED WITHIN 100 FEET OF THE RESERVOIR. FOR A RESERVOIR USED TO MEET THE DISINFECTANT CONTACT TIME REQUIREMENTS OF CHAPTER 17 (SURFACE WATER TREATMENT), BYPASS LINES SHALL BE BLIND-FLANGED CLOSED DURING NORMAL OPERATIONS.	AS SHOWN ON SHEETS C-08 AND S-03 NEW RESERVOIR IS EQUIPPED WITH SEPARATE ISOLATION VALVES ON THE INLET AND OUTLET PIPELINES AND ON THE INLET AND OUTLET HEADER PIPELINE. RESERVOIR IS NOT REQUIRED TO MEET THE DISINFECTANT CONTACT TIME REQUIREMENTS OF CHAPTER 17 (SURFACE WATER TREATMENT). THERE ARE NO BYPASS PIPELINES BETWEEN THE RESERVOIR INLET AND OUTLET PIPELINES.	SHEETS C-08 & S-03
(b)(10)	13. DESIGNED AND CONSTRUCTED TO PREVENT THE ENTRY OF SURFACE RUNOFF, SUBSURFACE FLOW, OR DRAINAGE INTO THE RESERVOIR.	RESERVOIR IS WELDED STEEL TANK WITH NO OPENINGS NEAR GROUND SURFACE. SURFACE RUNOFF, SUBSURFACE FLOW, OR DRAINAGE CAN NOT ENTER INTO THE RESERVOIR.	NOT APPLICABLE
(b)(11)	14. DESIGNED TO PREVENT CORROSION OF THE INTERIOR WALLS OF THE RESERVOIR.	THE INTERIOR WALLS OF RESERVOIR ARE TO RECEIVE A PROTECTIVE COATING SYSTEM TO PREVENT CORROSION IN ACCORDANCE WITH SPECIFICATION SECTION 09960 AND AWWA D102-14 COATING STEEL WATER STORAGE TANKS.	SECTION 09960 APPENDIX B PARAGRAPH 2.02
(b)(12)(A)	15. DESIGNED AND CONSTRUCTED FOR SEISMIC CATEGORY	WELDED STEEL TANK HAS BEEN DESIGNED AND WILL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 13, SEISMIC DESIGN OF WATER STORAGE TANKS, OF AWWA D100-11, AND THE SEISMIC REQUIREMENTS OF CBC 2013 AND ASCE 7-10. IN ACCORDANCE WITH AWWA D100-11, TABLE 24, THE SEISMIC USE GROUP IS III. THE RISK CATEGORY IS IV (CBC TABLE 1604.5) AND SEISMIC DESIGN CATEGORY F. SEE DRAWING SHEET S-01 AND SECTION 13211 PARAGRAPH 2.02 FOR ALL SEISMIC DESIGN REQUIREMENTS.	SHEET S-01 SECTION 13211 PARAGRAPH 2.02

SHEET SIZE: 24x36

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CITY OF MORGAN HILL

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

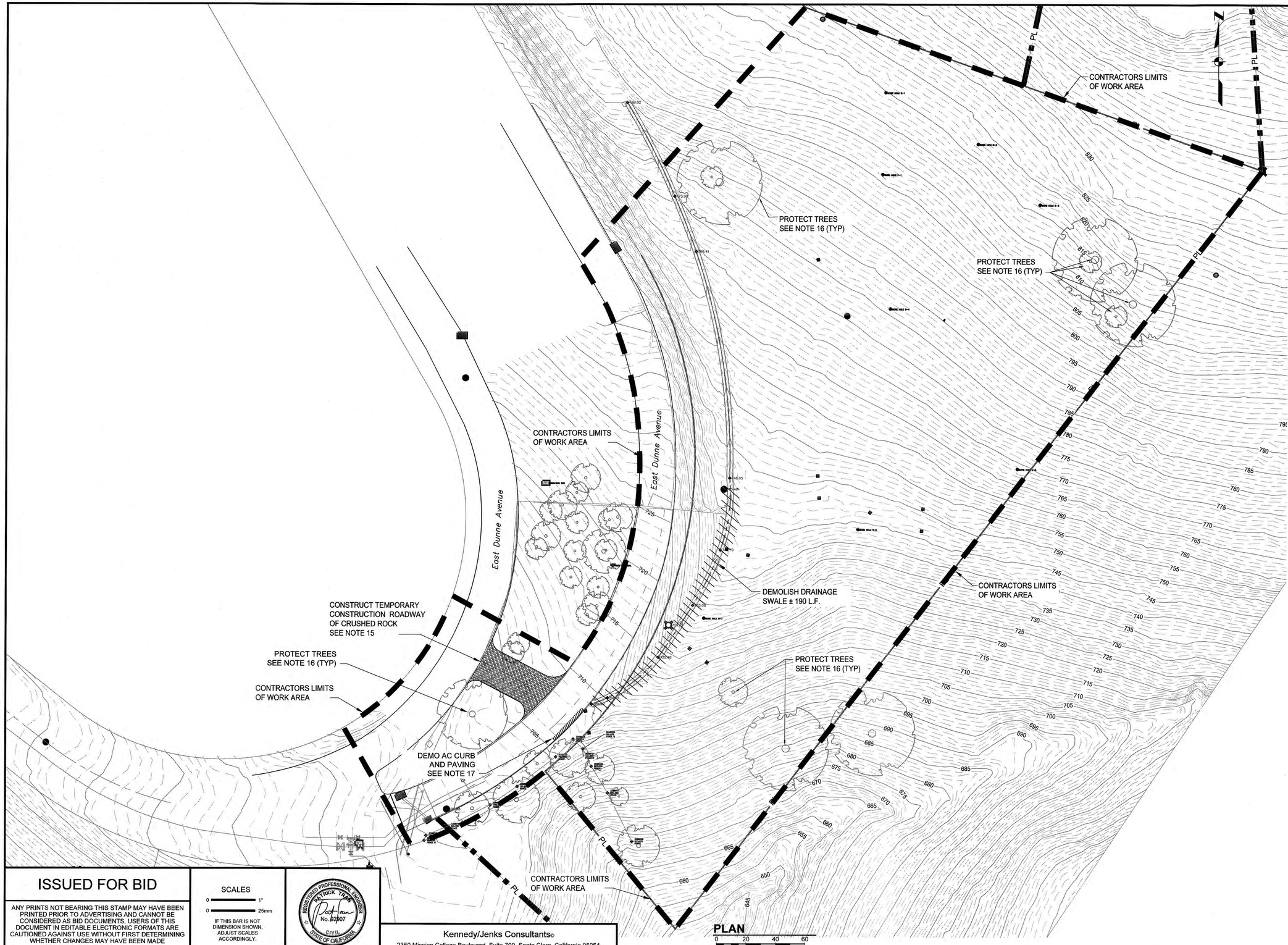
TITLE 22
DISTRIBUTION RESERVOIR REGULATIONS

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 05 OF 76

G-05



NOTES:

1. ALL PROPERTY LINES SHOWN ARE APPROXIMATE LOCATION BASED ON RECORD INFORMATION.
2. CONTOURS SHOWN ARE DERIVED FROM SAN JOSE PHASE 3, SANTA CLARA COUNTY, CALIFORNIA LIDAR SURVEY, DOWNLOADED FROM SANTA CLARA VALLEY WATER DISTRICT WEBSITE:

   HTTP://ARCVIEW.VALLEYWATER.ORG/DOWNLOAD/LIDAR/INDEX.HTML

   AND FIELD SURVEY PERFORMED ON MARCH 2016. CONTOURS WERE SPOT CHECKED ACROSS PROJECT SITE WITH ELEVATIONS BASED ON S.C.V.W.D. BENCHMARK #529.
3. SEE SHEET C-02 FOR PROJECT SURVEY CONTROL.
4. COORDINATE WITH THE CITY'S REPRESENTATIVE REQUIREMENTS FOR CONSTRUCTION STAGING AREAS INCLUDING FENCING AND GATES FOR CONSTRUCTION TRAILERS AND STORAGE AREAS, PLACEMENT OF GRAVEL AND/OR QUARRY SPALLS FOR CONSTRUCTION OF ALL WEATHER SURFACE FOR CONSTRUCTION TRAILER AND STORAGE AREAS, CONSTRUCTION OF THE ACCESS ROADS WITHIN THE CITY PROPERTY LIMITS, AND REQUIREMENTS FOR PLASTIC SCREENING FOR PROTECTION OF TREES INSIDE THE CONSTRUCTION STAGING AREAS. SEE SPECIFICATION SECTION 01140.
5. CONSTRUCT TEMPORARY GRAVEL SURFACED PARKING FOR 3 VEHICLES IN THE DESIGNATED STAGING AREA FOR CONTRACTOR AND ENGINEER'S CONSTRUCTION TRAILERS.
6. PROVIDE CONTINUOUS DUST CONTROL ONSITE INCLUDING SPRINKLERS COVERING ALL OPERATIONS AND WORKERS WITH HOSES WHEN CONSTRUCTION ACTIVITIES WHICH GENERATE SIGNIFICANT DUST ARE ONGOING INCLUDING EARTHWORK OPERATIONS INCLUDING RIPPING OF ROCK AND EXCAVATION OF ROCK AND SOIL.
7. PROVIDE TRAFFIC CONTROL MEASURES FOR CONSTRUCTION VEHICLES AND MATERIAL AND EQUIPMENT DELIVERIES TO AND FROM THE SITE. TRAFFIC CONTROL MEASURES AS DETAILED IN SECTION 01500, TRAFFIC REGULATION, ARE APPLICABLE EVEN IF THE CONTRACTOR IS NOT PERFORMING WORK IN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL PROVIDE FOR THE SAFE INGRESS AND EGRESS OF CONSTRUCTION VEHICLES FROM THE CONSTRUCTION SITE ON PUBLIC ROADWAYS IN THE CITY INCLUDING SIGNS, FLAGGERS, PAVEMENT MARKINGS, BARRICADES, LIGHTS, CONES, AND DELINEATORS. AS A MINIMUM PROVIDE SIGNS AND FLAGGERS FOR CONSTRUCTION VEHICLES ENTERING AND EXITING FROM E. DUNNE AVENUE AT THE SOUTH SIDE OF THE PROJECT SITE.
8. PROVIDE ALL DEMOLITION REQUIRED TO PERFORM THE WORK COVERED UNDER THIS CONTRACT INCLUDING, WITHOUT LIMITATION, REMOVAL OF ALL EXISTING CONSTRUCTION SHOWN TO BE REMOVED.
9. DISCONNECT AND CAP OFF UTILITIES IN ACCORDANCE WITH APPLICABLE CODES AND SAFETY REGULATIONS.
10. WHERE UTILITIES THAT ARE NOT SHOWN PASS THROUGH CONSTRUCTION THAT MUST BE REMOVED AND THOSE UTILITIES SERVE OTHER AREAS NOTIFY THE CITY BEFORE DISRUPTING SERVICE. IF REROUTING IS REQUIRED TO MAINTAIN SERVICE, THE CITY MAY ISSUE A CHANGE ORDER TO ACCOMPLISH THE REQUIRED WORK.
11. PERFORM WORK IN ACCORDANCE WITH REQUIREMENTS IN THE GENERAL CONDITIONS, SPECIAL PROVISIONS, AND DIVISION 1. PARTICULAR ATTENTION IS DIRECTED WITHOUT LIMITATION TO PARAGRAPHS TITLED: OWNER AND CONTRACTOR'S USE OF PREMISES, CLEANUP DURING CONSTRUCTION, FIRE PROTECTION DURING CONSTRUCTION, TEMPORARY DUST BARRIERS, NOISE CONTROL AND CARE OF EXISTING FACILITIES.
12. PROVIDE TEMPORARY BARRIERS TO CONTROL DUST AND NOISE. EMPLOY ALL AVAILABLE TECHNIQUES FOR CONSTRUCTION NOISE ABATEMENT. USE REMOTE, WELL-MUFFLERED AIR COMPRESSORS AND NEWEST NOISE SUPPRESSED PNEUMATIC AND ELECTRIC TOOLS.
13. REMOVED MATERIAL (OTHER THAN MATERIAL TO BE REUSED) SHALL BECOME THE PROPERTY OF THE CONTRACTOR WHO SHALL REMOVE IT FROM THE SITE AND DISPOSE OF IT IN A LEGAL MANNER.
14. THE TOPOGRAPHIC DATA ARE IN LIDAR (LIGHT DETECTION AND RANGING) FORMAT DERIVED FROM THE SAN JOSE PHASE 3 LIDAR PROJECT. LATITUDE AND LONGITUDE COORDINATES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM ZONE 3 AND THE 1983 NORTH AMERICAN DATUM (NAD83). ELEVATION REFERENCES ARE BASED ON 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88).
15. CONSTRUCT TEMPORARY CONSTRUCTION ROADWAY OF CRUSHED ROCK SUITABLE FOR THE DURATION OF CONSTRUCTION FOR CONTRACTOR VEHICLES. IDENTIFY AND PROTECT IRRIGATION FACILITIES IN (E) LANDSCAPED MEDIAN. RETURN MEDIAN AREA TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.
16. DO NOT REMOVE OR PRUNE THE VALLEY OAKS AND COAST TREES ON THE PROJECT SITE. SEE IRRIGATION AND PLANTING PLANS FOR TREE PROTECTION ZONES (TPZ).
17. DEMO APPROX 30 LF OF AC CURB. SAWCUT AND REMOVE 2' WIDTH OF AC PAVEMENT ALONG 30 LF LENGTH.

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CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

EXISTING SITE PLAN AND CONTRACTOR STORAGE AREA

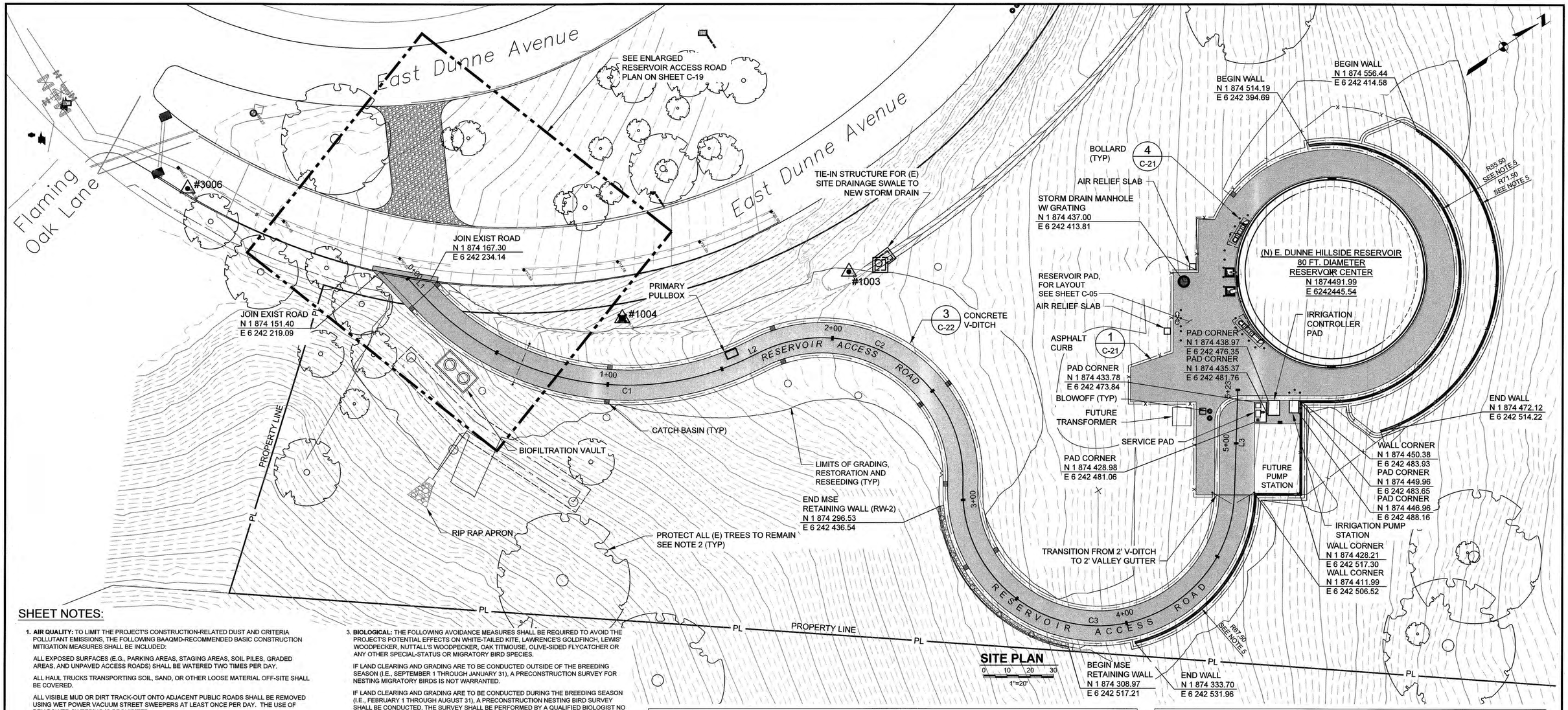
FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 06 OF 76

C-01

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG



SHEET NOTES:

1. **AIR QUALITY:** TO LIMIT THE PROJECT'S CONSTRUCTION-RELATED DUST AND CRITERIA POLLUTANT EMISSIONS, THE FOLLOWING BAAQMD-RECOMMENDED BASIC CONSTRUCTION MITIGATION MEASURES SHALL BE INCLUDED:

   ALL EXPOSED SURFACES (E.G., PARKING AREAS, STAGING AREAS, SOIL PILES, GRADED AREAS, AND UNPAVED ACCESS ROADS) SHALL BE WATERED TWO TIMES PER DAY.

   ALL HAUL TRUCKS TRANSPORTING SOIL, SAND, OR OTHER LOOSE MATERIAL OFF-SITE SHALL BE COVERED.

   ALL VISIBLE MUD OR DIRT TRACK-OUT ONTO ADJACENT PUBLIC ROADS SHALL BE REMOVED USING WET POWER VACUUM STREET SWEEPERS AT LEAST ONCE PER DAY. THE USE OF DRY POWER SWEEPING IS PROHIBITED.

   ALL VEHICLE SPEEDS ON UNPAVED ROADS SHALL BE LIMITED TO 15 MPH.

   ALL ROADWAYS, DRIVEWAYS, AND SIDEWALKS TO BE PAVED SHALL BE COMPLETED AS SOON AS POSSIBLE.

   IDLING TIMES SHALL BE MINIMIZED EITHER BY SHUTTING EQUIPMENT OFF WHEN NOT IN USE OR REDUCING THE MAXIMUM IDLING TIME TO FIVE MINUTES (AS REQUIRED BY THE CALIFORNIA AIRBORNE TOXICS CONTROL MEASURE TITLE 13, SECTION 2485 OF CALIFORNIA CODE OF REGULATIONS [CCR]). CLEAR SIGNAGE SHALL BE PROVIDED FOR CONSTRUCTION WORKERS AT ALL ACCESS POINTS.

   ALL CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED AND PROPERLY TUNED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL EQUIPMENT SHALL BE CHECKED BY A CERTIFIED MECHANIC AND DETERMINED TO BE RUNNING IN PROPER CONDITION PRIOR TO OPERATION.

   POST A PUBLICLY VISIBLE SIGN WITH THE TELEPHONE NUMBER AND PERSON TO CONTACT AT THE CITY REGARDING DUST COMPLAINTS. THIS PERSON SHALL RESPOND AND TAKE CORRECTIVE ACTION WITHIN 48 HOURS. THE BAAQMD'S PHONE NUMBER SHALL ALSO BE VISIBLE TO ENSURE COMPLIANCE WITH APPLICABLE REGULATIONS.

2. DO NOT REMOVE OR PRUNE THE VALLEY OAKS AND COAST LIVE OAK TREE ON THE PROJECT SITE. SEE IRRIGATION AND PLANTING PLANS FOR TREE PROTECTION ZONES (TPZ)

3. **BIOLOGICAL:** THE FOLLOWING AVOIDANCE MEASURES SHALL BE REQUIRED TO AVOID THE PROJECT'S POTENTIAL EFFECTS ON WHITE-TAILED KITE, LAWRENCE'S GOLDFINCH, LEWIS' WOODPECKER, NUTTALL'S WOODPECKER, OAK TITMOUSE, OLIVE-SIDED FLYCATCHER OR ANY OTHER SPECIAL-STATUS OR MIGRATORY BIRD SPECIES.

   IF LAND CLEARING AND GRADING ARE TO BE CONDUCTED OUTSIDE OF THE BREEDING SEASON (I.E., SEPTEMBER 1 THROUGH JANUARY 31), A PRECONSTRUCTION SURVEY FOR NESTING MIGRATORY BIRDS IS NOT WARRANTED.

   IF LAND CLEARING AND GRADING ARE TO BE CONDUCTED DURING THE BREEDING SEASON (I.E., FEBRUARY 1 THROUGH AUGUST 31), A PRECONSTRUCTION NESTING BIRD SURVEY SHALL BE CONDUCTED. THE SURVEY SHALL BE PERFORMED BY A QUALIFIED BIOLOGIST NO MORE THAN TWO WEEKS PRIOR TO THE INITIATION OF WORK. IF NO NESTING OR BREEDING ACTIVITY IS OBSERVED, WORK MAY PROCEED WITHOUT RESTRICTIONS. TO THE EXTENT ALLOWED BY ACCESS, ALL ACTIVE NESTS IDENTIFIED WITHIN 76 M (250 FT) FOR RAPTORS AND 15 M (50 FT) FOR PASSERINES SHALL BE MAPPED.

   FOR ANY ACTIVE NESTS FOUND NEAR THE CONSTRUCTION LIMITS (76 M [250 FT] FOR RAPTORS AND 15 M [50 FT] FOR PASSERINES) THE PROJECT BIOLOGIST SHALL MAKE A DETERMINATION AS TO WHETHER OR NOT CONSTRUCTION ACTIVITIES ARE LIKELY TO DISRUPT REPRODUCTIVE BEHAVIOR. IF IT IS DETERMINED THAT CONSTRUCTION IS UNLIKELY TO DISRUPT BREEDING BEHAVIOR, CONSTRUCTION MAY PROCEED. IF IT IS DETERMINED THAT CONSTRUCTION MAY DISRUPT BREEDING, THE NO-CONSTRUCTION BUFFER ZONE SHALL BE EXPANDED; AVOIDANCE IS THE ONLY MITIGATION AVAILABLE. THE ULTIMATE SIZE OF THE NO-CONSTRUCTION BUFFER ZONE MAY BE ADJUSTED BY THE PROJECT BIOLOGIST BASED ON THE SPECIES INVOLVED, TOPOGRAPHY, LINES OF SITE BETWEEN THE WORK AREA AND THE NEST, PHYSICAL BARRIERS, AND THE AMBIENT LEVEL OF HUMAN ACTIVITY.

   IF IT IS DETERMINED THAT CONSTRUCTION ACTIVITIES ARE LIKELY TO DISRUPT RAPTOR BREEDING, CONSTRUCTION ACTIVITIES WITHIN THE NO-CONSTRUCTION BUFFER ZONE MAY NOT PROCEED UNTIL THE PROJECT BIOLOGIST DETERMINES THAT THE NEST IS LONG LONGER OCCUPIED.

   IF MAINTENANCE OF A NO-CONSTRUCTION BUFFER ZONE IS NOT FEASIBLE, THE PROJECT BIOLOGIST SHALL MONITOR THE NEST(S) TO DOCUMENT BREEDING AND REARING BEHAVIOR OF THE ADULT BIRDS. IF IT IS DETERMINED THAT CONSTRUCTION-RELATED ACTIVITIES ARE LIKELY TO CAUSE NEST ABANDONMENT, WORK SHALL CEASE IMMEDIATELY AND THE CDFW AND/OR THE USFWS DIVISION OF MIGRATORY BIRD MANAGEMENT SHALL BE CONTACTED FOR GUIDANCE. WORK MAY NOT RESUME UNTIL AN AGREEMENT HAS BEEN REACHED WITH THE AUTHORITIES SPECIFYING THE CONDITIONS UNDER WHICH WORK MAY PROCEED.

4. FOR PAVING, SWALE COORDINATES, AND WALL DETAIL REFERENCES, SEE SHEET C-05.

5. RADIUS IS MEASURED TO CENTERLINE OF WALL.

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	START STA	START	END STA	END
C1	120.00	153.568	89.32	0+10.08	N 1874161.30, E 6242237.98	1+63.65	N 1874264.19, E 6242337.71
C2	60.65	125.395	101.87	1+67.85	N 1874268.36, E 6242338.26	2+93.24	N 1874309.62, E 6242433.97
C3	58.49	184.591	8242.70	2+93.24	N 1874309.62, E 6242433.97	4+77.84	N 1874404.54, E 6242502.34

LINE TABLE

LINE	LENGTH	START STA	START	END STA	END
L1	10.08	0+00.00	N 1874159.68, E 6242228.03	0+10.08	N 1874161.30, E 6242237.98
L2	4.20	1+63.65	N 1874264.19, E 6242337.71	1+67.85	N 1874268.36, E 6242338.26
L3	45.27	4+77.84	N 1874404.54, E 6242502.34	5+23.11	N 1874430.74, E 6242465.42

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SCALES
0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER PATRICK TRAN No. 82807 CIVIL STATE OF CALIFORNIA
04/29/24

NO.	DESCRIPTION	DATE	BY

Revisions

WORK ACCEPTED: BY: DATE:
INSPECTOR:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: PT
DESIGN: DLB
CHECKED: JAC
APPROVED: DATE: 4/30/24
SCOTT C. CREER RCE 58679 — CITY ENGINEER EXP. 06/30/2025
HOR:
VERT:
JOB NUMBER: K/J 2368021*00

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

SITE PLAN AND HORIZONTAL CONTROL

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 07 OF 76
C-02

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

SHEET SIZE: 24x36
PATRICK TRAN 4/29/2024 8:03 PM
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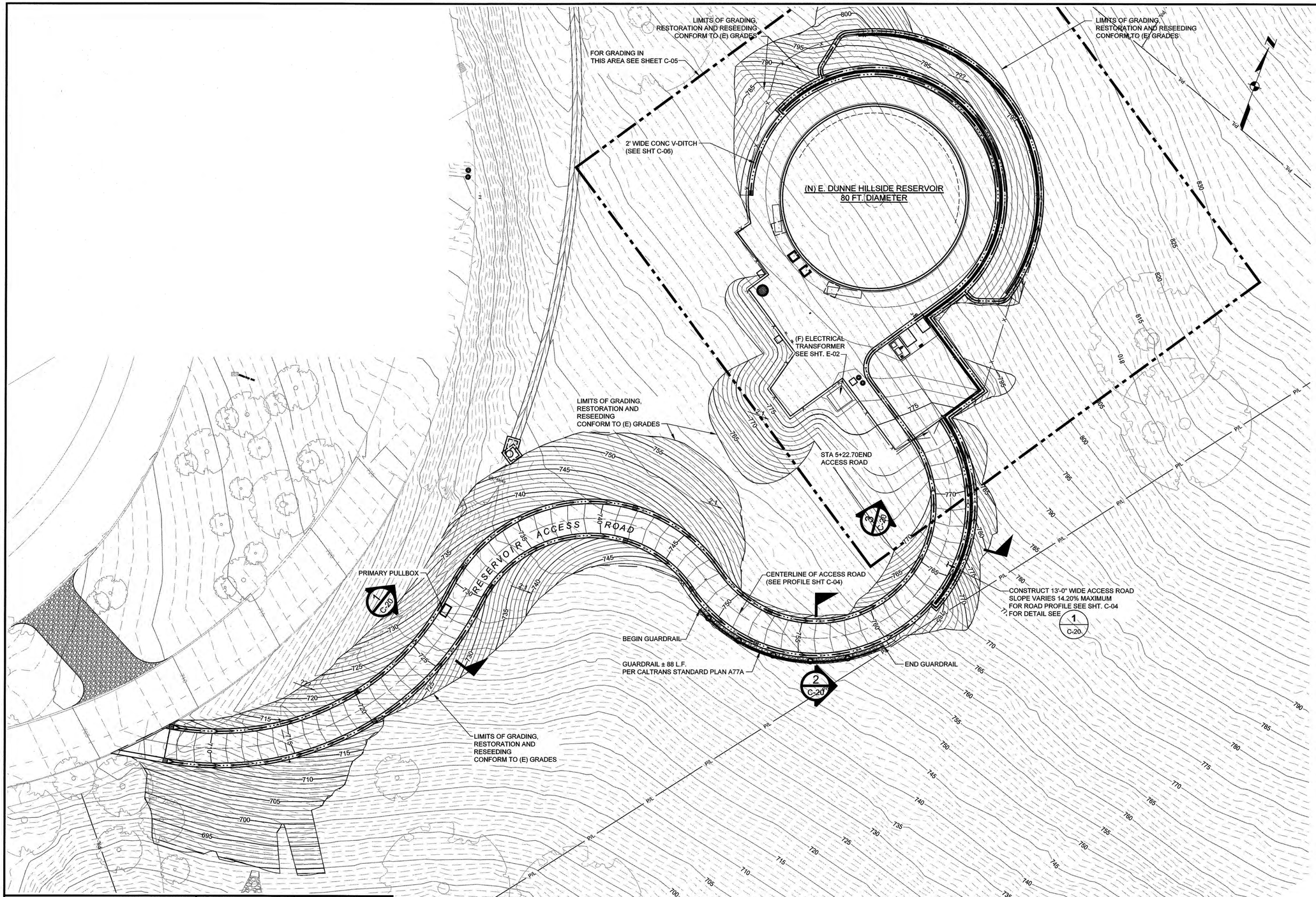

ACCESS ROAD GRADING PLAN

0 10 20 30
1"=20'

SHEET NOTES:

1. **CUT SLOPES:** PERMANENT CUT SLOPES IN COLLUVIAL SOIL SHALL BE CONSTRUCTED AT INCLINATIONS NO STEEPER THAN 2-½H:1V. FINAL CUT SLOPES IN BEDROCK SHALL BE CONSTRUCTED AT INCLINATIONS NO STEEPER THAN 2H:1V. ALL PERMANENT CUT SLOPES SHALL BE LESS THAN 10-FEET IN HEIGHT. CUTS SLOPES OVER 10-FEET HIGH SHALL BE REDUCED IN HEIGHT BY RETAINED WALLS.
2. **FILL SLOPES:** FINAL FILL SLOPES SHALL BE CONSTRUCTED AT INCLINATIONS NO STEEPER THAN 2H:1V, AND SHALL BE LIMITED TO A MAXIMUM VERTICAL FILL DEPTH OF 10-FEET. ENGINEERED FILL SHALL BE PLACED IN HORIZONTAL LIFTS EACH NOT EXCEEDING 8-INCHES IN UNCOMPACTED THICKNESS, MOISTURE CONDITIONED TO THE REQUIRED MOISTURE CONTENT, AND MECHANICALLY COMPACTED TO THE RECOMMENDATIONS IN THE SPECIFICATIONS. FOR FILL TO BE PLACED ON AN EXISTING SLOPE WITH AN INCLINATION OF 5H:1V OR STEEPER, THE FILL SHALL BE KEYED AND BENCHED INTO THE EXISTING SLOPE. TOE KEYS SHALL EXTEND A MINIMUM OF 2-FEET INTO THE BEDROCK MATERIAL AND HAVE A WIDTH OF 8-FEET OR 1½ TIMES THE WIDTH OF THE COMPACTION EQUIPMENT, WHICHEVER PROVIDES A WIDER EXCAVATION. TOE KEYS SHALL SLOPE TOWARD THEIR BACKS WITH A SLOPE OF AT LEAST 2%. BENCHES SHALL BE CREATED BY CUTTING A MINIMUM OF 6-FEET INTO THE EXISTING SLOPES AS THE NEW FILL IS BEING PLACED. VERTICAL SPACING OF BENCHES SHALL NOT BE MORE THAN ABOUT 6-FEET. THE MATERIALS EXCAVATED FROM THE BENCHES SHALL BE MIXED WITH THE SLOPE FILL AND THE FILL SHALL BE COMPACTED TO THE REQUIREMENTS IN THE SPECIFICATIONS. FILL SLOPES SHALL BE OVERBUILT AND TRIMMED' BACK TO THEIR FINAL CONFIGURATIONS.
3. **SLOPES AND PAVEMENT:** SEPARATE PAVEMENT 2-FEET HORIZONTALLY FROM THE CRESTS OF ALL CUT AND FILL SLOPES.
4. **SUBGRADE PREPARATION:** SUBGRADE PREPARATION SHALL BE PERFORMED AFTER STRIPPING AND ANY NECESSARY EXCAVATIONS HAVE BEEN PERFORMED. SUBGRADE SOIL IN AREAS TO RECEIVE ENGINEERED FILL, FOUNDATIONS, OR PAVEMENTS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 8-INCHES, MOISTURE CONDITIONED AND COMPACTED TO THE RECOMMENDATIONS PRESENTED IN SPECIFICATION SECTION 02301. PREPARED SOIL SUBGRADES SHALL BE NON-YIELDING WHEN PROOF-ROLLED BY A FULLY LOADED WATER TRUCK OR EQUIPMENT OF SIMILAR WEIGHT. SUBGRADE PREPARATION SHALL EXTEND A MINIMUM OF 5-FEET BEYOND THE OUTERMOST LIMITS OF THE PROPOSED IMPROVEMENTS. AFTER THE SUBGRADES HAVE BEEN PREPARED, THE AREAS MAY BE RAISED TO DESIGN GRADES BY PLACEMENT OF ENGINEERED FILL.
5. **ENGINEERED FILL:** ON-SITE SOILS WITH AN ORGANIC CONTENT OF LESS THAN 3% BY WEIGHT, FREE OF ANY HAZARDOUS OR DELETERIOUS MATERIALS, AND MEETING THE GRADATION REQUIREMENTS MAY BE USED AS GENERAL ENGINEERED FILL TO ACHIEVE PROJECT GRADES, EXCEPT WHEN SPECIAL MATERIALS (SUCH AS DRAINAGE MATERIAL) ARE REQUIRED. ENGINEERED FILL MATERIAL SHALL NOT CONTAIN ROCKS OR LUMPS LARGER THAN 3-INCHES IN GREATEST DIMENSION, SHALL NOT CONTAIN MORE THAN 15% OF THE MATERIAL LARGER THAN 2½ INCHES, AND SHALL CONTAIN AT LEAST 20% PASSING THE NO. 200 SIEVE. ALL IMPORT FILLS SHALL BE APPROVED BY THE ENGINEER PRIOR TO DELIVERY TO THE SITE.
6. **VARIATION OF SUBSURFACE MATERIALS:** DRILL HOLES WERE SPACED APART ACROSS THE TANK SITE THEREFORE THE INFORMATION CONTAINED IN THE BORING LOGS IS NOT REPRESENTATIVE OF THE ENTIRE SITE AND THERE IS A POTENTIAL FOR VARIATION IN THE CONSISTENCY, DENSITIES, AND STRENGTH AND HARDNESS OF MATERIALS. THERE IS ALSO A POTENTIAL FOR OVERSIZED MATERIALS, POORLY CONSOLIDATED SOILS, AND SHALLOW SLIGHTLY WEATHERED TO FRESH BEDROCK.
7. **EROSION CONTROL:** DISTURBING AREAS AROUND THE PROJECT SITE SHALL BE MINIMIZED AS MUCH AS POSSIBLE, AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE PROTECTED FROM EROSION BY HYDROSEEDING AND/OR INSTALLING EROSION CONTROL MATS. THE TOPS OF FILL OR CUT SLOPES SHALL BE GRADED IN SUCH A WAY AS TO PREVENT WATER FROM FLOWING FREELY ACROSS THE FACE OF THE SLOPES. A POSITIVE GRADIENT AWAY FROM THE TOPS OF SLOPES SHALL BE PROVIDED TO DIRECT SURFACE WATER RUNOFF AWAY FROM THE SLOPES TO SUITABLE DRAINAGE POINTS. COMPLETED SLOPES SHALL BE PROVIDED WITH EROSION CONTROL MEASURES PRIOR TO THE WINTER SEASON FOLLOWING GRADING. BECAUSE THE EXISTING BEDROCK IS RELATIVELY NUTRIENT-POOR, IT WILL BE DIFFICULT FOR VEGETATION TO BECOME PROPERLY ESTABLISHED, RESULTING IN A HIGHER POTENTIAL FOR SLOPE EROSION. REVEGETATION OF GRADED SLOPES SHALL BE AIDED BY RETAINING THE ORGANIC-RICH STRIPPINGS WITHIN THE UPPER FEW INCHES OF ON-SITE SOIL DURING THE SITE STRIPPING OPERATIONS AND SPREADING THESE MATERIALS IN A THIN LAYER (APPROXIMATELY 6-INCHES THICK) ON THE GRADED SLOPES PRIOR TO THE WINTER RAINS AND FOLLOWING ROUGH GRADING. ALL LANDSCAPED SLOPES SHALL BE MAINTAINED IN A VEGETATED STATE THROUGH PROJECT COMPLETION. NO PRESSURIZED IRRIGATION LINES SHALL BE PLACED ON OR NEAR THE TOPS OF GRADED SLOPES

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0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER PATRICK TRAN No. 82807 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

p:\proj\ Revisions

WORK ACCEPTED: INSPECTOR: BY: DATE:

Kennedy/Jenks Consultants©
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CHECKED: JAC VERT:
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City of Morgan Hill
Public Works Department
CITY OF MORGAN HILL
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

RESERVOIR SITE AND ACCESS ROAD GRADING PLAN

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 08 OF 76
C-03

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

SHEET SIZE: 24x36
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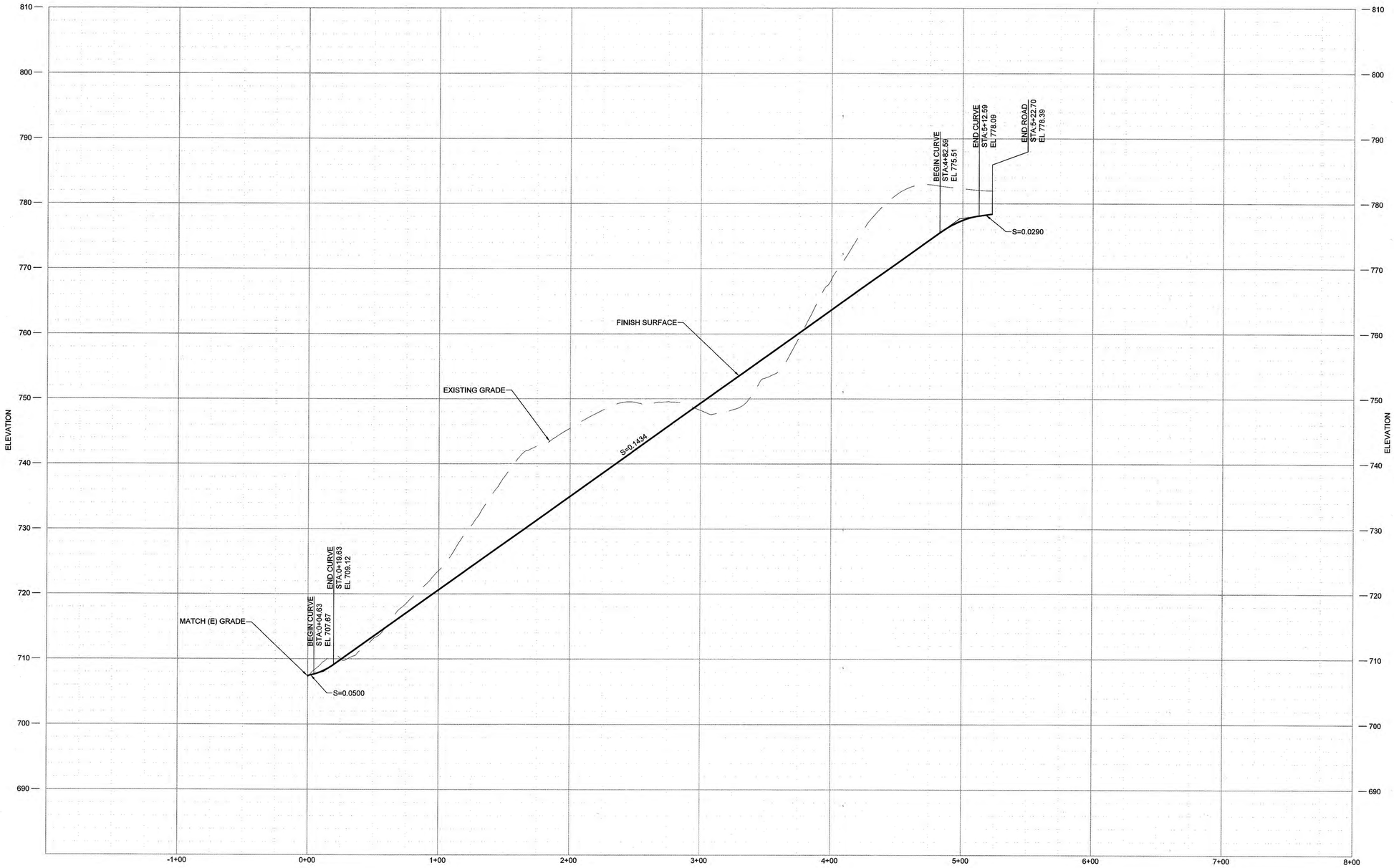

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PATRICK TRAN
No. 82807
CIVIL
STATE OF CALIFORNIA

04/19/24

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p:\proj\ Revisions

WORK ACCEPTED: INSPECTOR:

BY: DATE:

Kennedy/Jenks Consultants©
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CHECKED: JAC		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER CITY ENGINEER
RCE 58879 EXP. 06/30/2025

City of Morgan Hill
Public Works Department
CITY OF MORGAN HILL
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

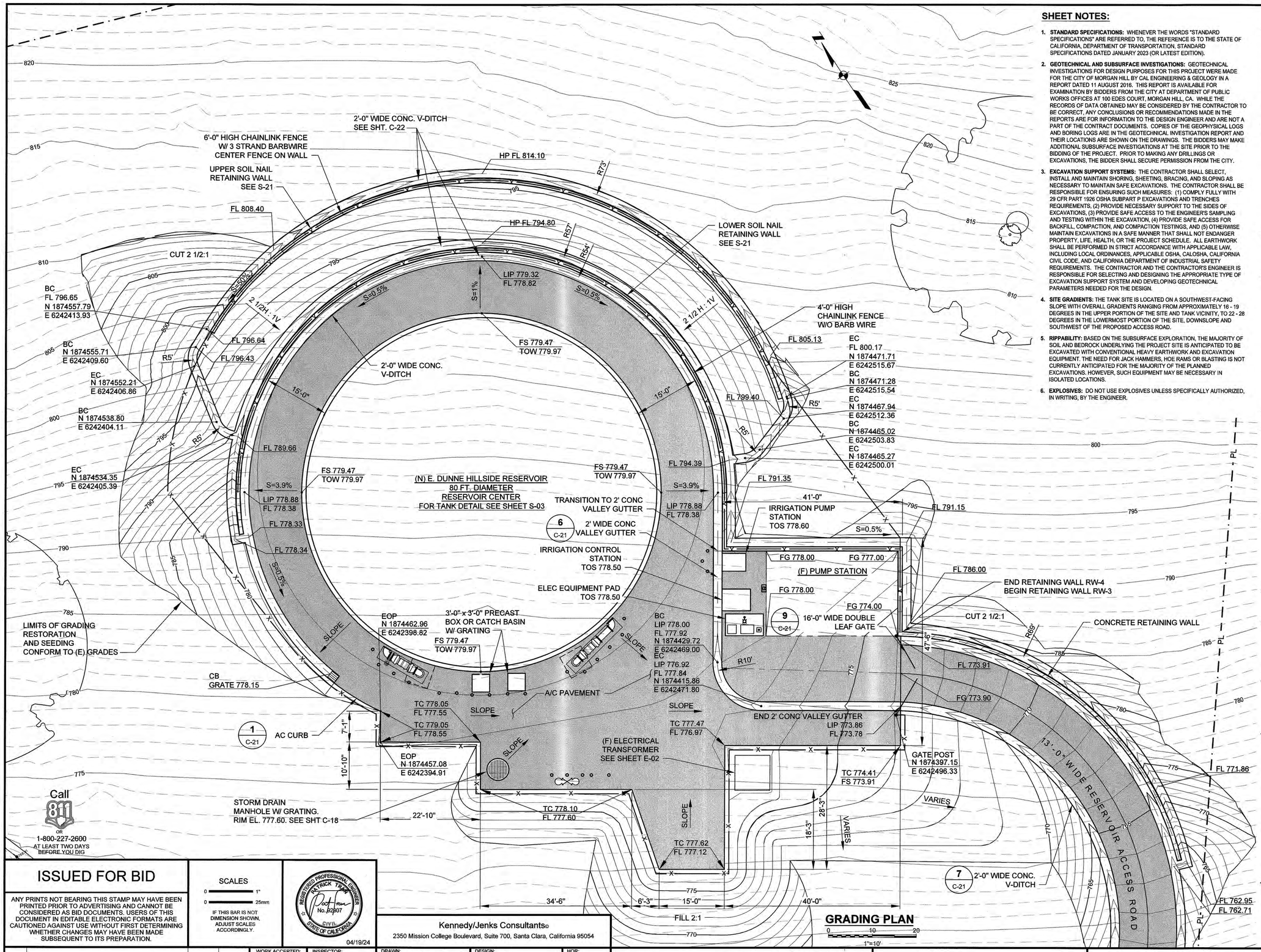
RESERVOIR ACCESS ROAD PROFILE

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 09 OF 76

C-04



GRADING PLAN

0 10 20
1"=10'

SHEET NOTES:

1. **STANDARD SPECIFICATIONS:** WHENEVER THE WORDS "STANDARD SPECIFICATIONS" ARE REFERRED TO, THE REFERENCE IS TO THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS DATED JANUARY 2023 (OR LATEST EDITION).
2. **GEOTECHNICAL AND SUBSURFACE INVESTIGATIONS:** GEOTECHNICAL INVESTIGATIONS FOR DESIGN PURPOSES FOR THIS PROJECT WERE MADE FOR THE CITY OF MORGAN HILL BY CAL ENGINEERING & GEOLOGY IN A REPORT DATED 11 AUGUST 2016. THIS REPORT IS AVAILABLE FOR EXAMINATION BY BIDDERS FROM THE CITY AT DEPARTMENT OF PUBLIC WORKS OFFICES AT 100 EDES COURT, MORGAN HILL, CA. WHILE THE RECORDS OF DATA OBTAINED MAY BE CONSIDERED BY THE CONTRACTOR TO BE CORRECT, ANY CONCLUSIONS OR RECOMMENDATIONS MADE IN THE REPORTS ARE FOR INFORMATION TO THE DESIGN ENGINEER AND ARE NOT A PART OF THE CONTRACT DOCUMENTS. COPIES OF THE GEOPHYSICAL LOGS AND BORING LOGS ARE IN THE GEOTECHNICAL INVESTIGATION REPORT AND THEIR LOCATIONS ARE SHOWN ON THE DRAWINGS. THE BIDDERS MAY MAKE ADDITIONAL SUBSURFACE INVESTIGATIONS AT THE SITE PRIOR TO THE BIDDING OF THE PROJECT. PRIOR TO MAKING ANY DRILLINGS OR EXCAVATIONS, THE BIDDER SHALL SECURE PERMISSION FROM THE CITY.
3. **EXCAVATION SUPPORT SYSTEMS:** THE CONTRACTOR SHALL SELECT, INSTALL AND MAINTAIN SHORING, SHEETING, BRACING, AND SLOPING AS NECESSARY TO MAINTAIN SAFE EXCAVATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING SUCH MEASURES: (1) COMPLY FULLY WITH 29 CFR PART 1926 OSHA SUBPART P EXCAVATIONS AND TRENCHES REQUIREMENTS, (2) PROVIDE NECESSARY SUPPORT TO THE SIDES OF EXCAVATIONS, (3) PROVIDE SAFE ACCESS TO THE ENGINEER'S SAMPLING AND TESTING WITHIN THE EXCAVATION, (4) PROVIDE SAFE ACCESS FOR BACKFILL, COMPACTION, AND COMPACTION TESTINGS, AND (5) OTHERWISE MAINTAIN EXCAVATIONS IN A SAFE MANNER THAT SHALL NOT ENDANGER PROPERTY, LIFE, HEALTH, OR THE PROJECT SCHEDULE. ALL EARTHWORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LAW, INCLUDING LOCAL ORDINANCES, APPLICABLE OSHA, CALOSHA, CALIFORNIA CIVIL CODE, AND CALIFORNIA DEPARTMENT OF INDUSTRIAL SAFETY REQUIREMENTS. THE CONTRACTOR AND THE CONTRACTOR'S ENGINEER IS RESPONSIBLE FOR SELECTING AND DESIGNING THE APPROPRIATE TYPE OF EXCAVATION SUPPORT SYSTEM AND DEVELOPING GEOTECHNICAL PARAMETERS NEEDED FOR THE DESIGN.
4. **SITE GRADIENTS:** THE TANK SITE IS LOCATED ON A SOUTHWEST-FACING SLOPE WITH OVERALL GRADIENTS RANGING FROM APPROXIMATELY 16 - 19 DEGREES IN THE UPPER PORTION OF THE SITE AND TANK VICINITY, TO 22 - 28 DEGREES IN THE LOWERMOST PORTION OF THE SITE, DOWNSLOPE AND SOUTHWEST OF THE PROPOSED ACCESS ROAD.
5. **RIPPABILITY:** BASED ON THE SUBSURFACE EXPLORATION, THE MAJORITY OF SOIL AND BEDROCK UNDERLYING THE PROJECT SITE IS ANTICIPATED TO BE EXCAVATED WITH CONVENTIONAL HEAVY EARTHWORK AND EXCAVATION EQUIPMENT. THE NEED FOR JACK HAMMERS, HOE RAMS OR BLASTING IS NOT CURRENTLY ANTICIPATED FOR THE MAJORITY OF THE PLANNED EXCAVATIONS. HOWEVER, SUCH EQUIPMENT MAY BE NECESSARY IN ISOLATED LOCATIONS.
6. **EXPLOSIVES:** DO NOT USE EXPLOSIVES UNLESS SPECIFICALLY AUTHORIZED, IN WRITING, BY THE ENGINEER.
7. **SUBSURFACE CONDITIONS:** RELATIVELY UNIFORM SOIL CONDITIONS WERE ENCOUNTERED IN THE BORINGS. THE UPPER APPROXIMATELY 1-FOOT OF SOIL HAS LOCALLY BEEN DISTURBED. ALL THE BORINGS ENCOUNTERED COLLUVIUM. THE COLLUVIUM IS CLASSIFIED AS GENERALLY LEAN CLAY TO SANDY LEAN CLAY, WITH SANDY FAT CLAY. THESE DEPOSITS ARE FIRM AND MOIST. THE TRANSITION BETWEEN COLLUVIUM AND THE UNDERLYING SEVERELY WEATHERED ROCK IS GRADUAL ALL OF THE BORINGS BOTTOMED IN SANTA CLARA FORMATION BEDROCK. THE DOMINANT ROCK TYPES ENCOUNTERED ARE SANDSTONE, CLAYEY SANDSTONE, CLAYSTONE, AND SANDY CLAYSTONE. SCATTERED CONCENTRATIONS OF GRAVEL WERE NOTED. FOR A MORE DETAILED DESCRIPTION OF THE SOILS ENCOUNTERED IN THE BORINGS, THE LOGS OF THE BORINGS AND LABORATORY TEST RESULTS ARE INCLUDED IN THE REFERENCED GEOTECHNICAL INVESTIGATION REPORT.
8. **CLEARING & STRIPPING:** PRIOR TO GRADING, AREAS THAT WILL SUPPORT FOUNDATIONS, CONCRETE SLABS-ON-GRADE, PAVEMENTS OR ENGINEERED FILL SHALL BE CLEARED OF ALL DELETERIOUS MATERIAL THAT MAY BE PRESENT AT THE SITE. THE ROOT SYSTEMS OF TREES DESIGNATED FOR REMOVAL SHALL BE COMPLETELY GRUBBED AND REMOVED. ALL DELETERIOUS MATERIAL GENERATED DURING THE CLEARING OPERATION SHALL BE REMOVED FROM THE CONSTRUCTION AREAS. AFTER CLEARING, SOIL SURFACES SHALL BE STRIPPED OF ALL VEGETATION AND ORGANIC MATERIAL. ORGANIC LADEN SOILS ARE DEFINED AS SOILS WITH MORE THAN 3 PERCENT BY WEIGHT OF ORGANIC CONTENT. THE REQUIRED STRIPPING DEPTH SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION. FOR BIDDING PURPOSES, AN AVERAGE STRIPPING DEPTH OF 3-INCHES MAY BE ASSUMED. ORGANIC LADEN TOPSOIL SHALL BE STOCKPILED FOR REUSE IN THE UPPER 12_INCHES OF LANDSCAPE AREAS OR REMOVED FROM THE CONSTRUCTION AREAS.
9. **CUT SLOPES:** PERMANENT CUT SLOPES IN COLLUVIAL SOIL SHALL BE CONSTRUCTED AT INCLINATIONS NO STEEPER THAN 2-½H:1V. FINAL CUT SLOPES IN BEDROCK SHALL BE CONSTRUCTED AT INCLINATIONS NO STEEPER THAN 2H:1V. ALL PERMANENT CUT SLOPES SHALL BE LESS THAN 10-FEET IN HEIGHT. CUTS SLOPES OVER 10-FEET HIGH SHALL BE REDUCED IN HEIGHT BY RETAINED WALLS.
10. **FILL SLOPES:** FINAL FILL SLOPES SHALL BE CONSTRUCTED AT INCLINATIONS NO STEEPER THAN 2H:1V, AND SHALL BE LIMITED TO A MAXIMUM VERTICAL FILL DEPTH OF 10-FEET. ENGINEERED FILL SHALL BE PLACED IN HORIZONTAL LIFTS EACH NOT EXCEEDING 8-INCHES IN UNCOMPACTED THICKNESS, MOISTURE CONDITIONED TO THE REQUIRED MOISTURE CONTENT, AND MECHANICALLY COMPACTED TO THE RECOMMENDATIONS IN THE SPECIFICATIONS. FOR FILL TO BE PLACED ON AN EXISTING SLOPE WITH AN INCLINATION OF 5H:1V OR STEEPER, THE FILL SHALL BE KEYED AND BENCHED INTO THE EXISTING SLOPE. TOE KEYS SHALL EXTEND A MINIMUM OF 2-FEET INTO THE BEDROCK MATERIAL AND HAVE A WIDTH OF 8-FEET OR 1½ TIMES THE WIDTH OF THE COMPACTION EQUIPMENT, WHICHEVER PROVIDES A WIDER EXCAVATION. TOE KEYS SHALL SLOPE TOWARD THEIR BACKS WITH A SLOPE OF AT LEAST 2%. BENCHES SHALL BE CREATED BY CUTTING A MINIMUM OF 6-FEET INTO THE EXISTING SLOPES AS THE NEW FILL IS BEING PLACED. VERTICAL SPACING OF BENCHES SHALL NOT BE MORE THAN ABOUT 6-FEET. THE MATERIALS EXCAVATED FROM THE BENCHES SHALL BE MIXED WITH THE SLOPE FILL AND THE FILL SHALL BE COMPACTED TO THE REQUIREMENTS IN THE SPECIFICATIONS. FILL SLOPES SHALL BE OVERBUILT AND TRIMMED` BACK TO THEIR FINAL CONFIGURATIONS.
11. **SLOPES AND PAVEMENT:** SEPARATE PAVEMENT 2-FEET HORIZONTALLY FROM THE CRESTS OF ALL CUT AND FILL SLOPES.
12. **SUBGRADE PREPARATION:** SUBGRADE PREPARATION SHALL BE PERFORMED AFTER STRIPPING AND ANY NECESSARY EXCAVATIONS HAVE BEEN PERFORMED. SUBGRADE SOIL IN AREAS TO RECEIVE ENGINEERED FILL, FOUNDATIONS, OR PAVEMENTS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 8-INCHES, MOISTURE CONDITIONED AND COMPACTED TO THE RECOMMENDATIONS PRESENTED IN SPECIFICATION SECTION 02301. PREPARED SOIL SUBGRADES SHALL BE NON-YIELDING WHEN PROOF-ROLLED BY A FULLY LOADED WATER TRUCK OR EQUIPMENT OF SIMILAR WEIGHT. SUBGRADE PREPARATION SHALL EXTEND A MINIMUM OF 5-FEET BEYOND THE OUTERMOST LIMITS OF THE PROPOSED IMPROVEMENTS. AFTER THE SUBGRADES HAVE BEEN PREPARED, THE AREAS MAY BE RAISED TO DESIGN GRADES BY PLACEMENT OF ENGINEERED FILL.
13. **ENGINEERED FILL:** ON-SITE SOILS WITH AN ORGANIC CONTENT OF LESS THAN 3% BY WEIGHT, FREE OF ANY HAZARDOUS OR DELETERIOUS MATERIALS, AND MEETING THE GRADATION REQUIREMENTS MAY BE USED AS GENERAL ENGINEERED FILL TO ACHIEVE PROJECT GRADES, EXCEPT WHEN SPECIAL MATERIALS (SUCH AS DRAINAGE MATERIAL) ARE REQUIRED. ENGINEERED FILL MATERIAL SHALL NOT CONTAIN ROCKS OR LUMPS LARGER THAN 3-INCHES IN GREATEST DIMENSION, SHALL NOT CONTAIN MORE THAN 15% OF THE MATERIAL LARGER THAN 2½ INCHES, AND SHALL CONTAIN AT LEAST 20% PASSING THE NO. 200 SIEVE. ALL IMPORT FILLS SHALL BE APPROVED BY THE ENGINEER PRIOR TO DELIVERY TO THE SITE.
14. **OVEREXCAVATION:** EXTEND THE ZONE OF OVEREXCAVATION 5-FEET BEYOND LATERALLY BEYOND THE PERIMETER OF THE TANK RINGWALL FOOTING AND BUILDING FOUNDATIONS. SEE GRADING SECTIONS AND DETAILS ON DRAWINGS FOR LIMITS OF OVEREXCAVATION.
15. **EQUIPMENT PADS:** FOR ON-SITE EXTERIOR FLATWORK, CONCRETE SLABS SHALL BE CONSTRUCTED DIRECTLY ON THE COMPACTED SOIL SUBGRADE. EXTERIOR CONCRETE SLABS-ON-GRADE SHALL BE CAST FREE FROM ADJACENT FOOTINGS OR OTHER NON-HEAVING EDGE RESTRAINTS. THIS SHALL BE ACCOMPLISHED BY USING A STRIP OF 1/2-INCH ASPHALT-IMPREGNATED FELT DIVIDER MATERIAL BETWEEN THE SLAB EDGES AND THE ADJACENT STRUCTURE. CONSTRUCTION AND/OR CONTROL JOINTS SHALL BE PROVIDED IN CONCRETE SLABS, SEE SPECIFICATIONS.
16. **VARIATION OF SUBSURFACE MATERIALS:** DRILL HOLES WERE SPACED APART ACROSS THE TANK SITE THEREFORE THE INFORMATION CONTAINED IN THE BORING LOGS IS NOT REPRESENTATIVE OF THE ENTIRE SITE AND THERE IS A POTENTIAL FOR VARIATION IN THE CONSISTENCY, DENSITIES, AND STRENGTH AND HARDNESS OF MATERIALS. THERE IS ALSO A POTENTIAL FOR OVERSIZED MATERIALS, POORLY CONSOLIDATED SOILS, AND SHALLOW SLIGHTLY WEATHERED TO FRESH BEDROCK.
17. **EROSION CONTROL:** DISTURBING AREAS AROUND THE PROJECT SITE SHALL BE MINIMIZED AS MUCH AS POSSIBLE. AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE PROTECTED FROM EROSION BY HYDROSEEDING AND/OR INSTALLING EROSION CONTROL MATS. THE TOPS OF FILL OR CUT SLOPES SHALL BE GRADED IN SUCH A WAY AS TO PREVENT WATER FROM FLOWING FREELY ACROSS THE FACE OF THE SLOPES. A POSITIVE GRADIENT AWAY FROM THE TOPS OF SLOPES SHALL BE PROVIDED TO DIRECT SURFACE WATER RUNOFF AWAY FROM THE SLOPES TO SUITABLE DRAINAGE POINTS. COMPLETED SLOPES SHALL BE PROVIDED WITH EROSION CONTROL MEASURES PRIOR TO THE WINTER SEASON FOLLOWING GRADING. BECAUSE THE EXISTING BEDROCK IS RELATIVELY NUTRIENT-POOR, IT WILL BE DIFFICULT FOR VEGETATION TO BECOME PROPERLY ESTABLISHED, RESULTING IN A HIGHER POTENTIAL FOR SLOPE EROSION. REVEGETATION OF GRADED SLOPES SHALL BE AIDED BY RETAINING THE ORGANIC-RICH STRIPPINGS WITHIN THE UPPER FEW INCHES OF ON-SITE SOIL DURING THE SITE STRIPPING OPERATIONS AND SPREADING THESE MATERIALS IN A THIN LAYER (APPROXIMATELY 6-INCHES THICK) ON THE GRADED SLOPES PRIOR TO THE WINTER RAINS AND FOLLOWING ROUGH GRADING. ALL LANDSCAPED SLOPES SHALL BE MAINTAINED IN A VEGETATED STATE THROUGH PROJECT COMPLETION. NO PRESSURIZED IRRIGATION LINES SHALL BE PLACED ON OR NEAR THE TOPS OF GRADED SLOPES.
18. **MAINTAIN DRAINAGE IN RESERVOIR AREA THROUGHOUT CONSTRUCTION PONDING WATER IS NOT ALLOWED.**

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0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER PATRICK TRAN No. 82907 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

RESERVOIR SITE
HORIZONTAL CONTROL AND GRADING PLAN

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 10 OF 76
C-05

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:27 PM
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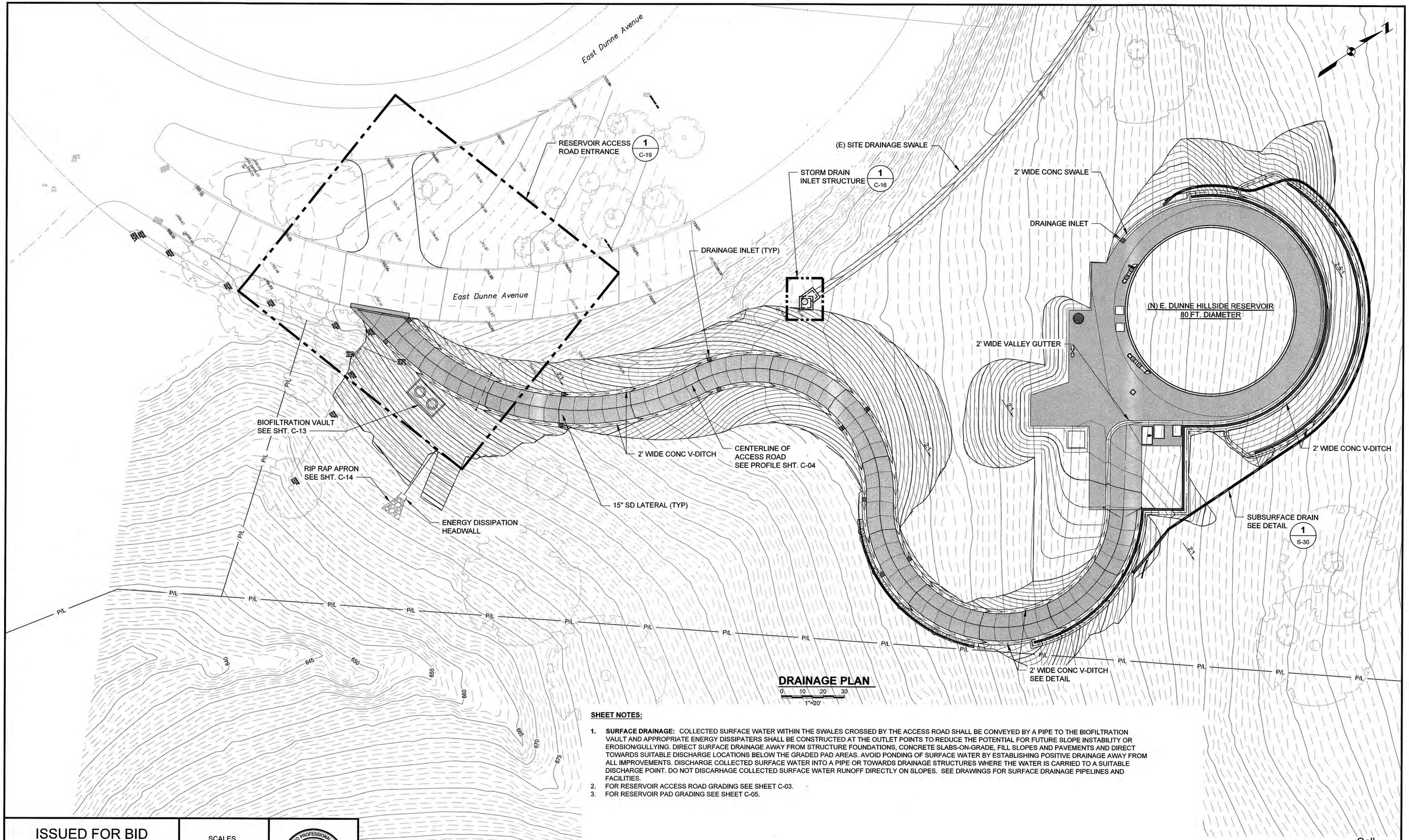

DRAINAGE PLAN

0 10 20 30

1"=20'

SHEET NOTES:

1. **SURFACE DRAINAGE:** COLLECTED SURFACE WATER WITHIN THE SWALES CROSSED BY THE ACCESS ROAD SHALL BE CONVEYED BY A PIPE TO THE BIOFILTRATION VAULT AND APPROPRIATE ENERGY DISSIPATERS SHALL BE CONSTRUCTED AT THE OUTLET POINTS TO REDUCE THE POTENTIAL FOR FUTURE SLOPE INSTABILITY OR EROSION/GULLYING. DIRECT SURFACE DRAINAGE AWAY FROM STRUCTURE FOUNDATIONS, CONCRETE SLABS-ON-GRADE, FILL SLOPES AND PAVEMENTS AND DIRECT TOWARDS SUITABLE DISCHARGE LOCATIONS BELOW THE GRADED PAD AREAS. AVOID PONDING OF SURFACE WATER BY ESTABLISHING POSITIVE DRAINAGE AWAY FROM ALL IMPROVEMENTS. DISCHARGE COLLECTED SURFACE WATER INTO A PIPE OR TOWARDS DRAINAGE STRUCTURES WHERE THE WATER IS CARRIED TO A SUITABLE DISCHARGE POINT. DO NOT DISCARHAGE COLLECTED SURFACE WATER RUNOFF DIRECTLY ON SLOPES. SEE DRAWINGS FOR SURFACE DRAINAGE PIPELINES AND FACILITIES.
2. FOR RESERVOIR ACCESS ROAD GRADING SEE SHEET C-03.
3. FOR RESERVOIR PAD GRADING SEE SHEET C-05.

SHEET SIZE: 24x36

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100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

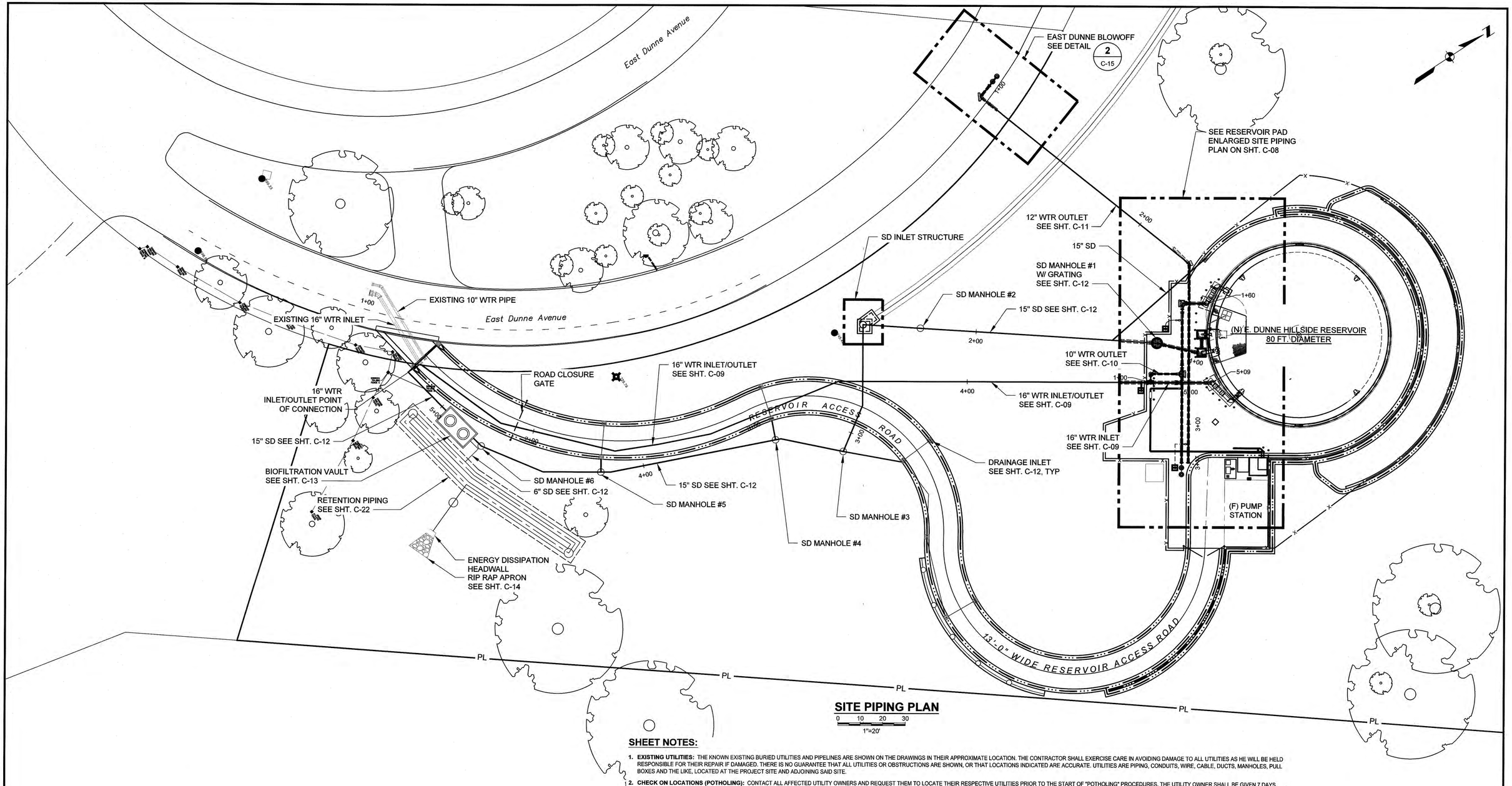
RESERVOIR SITE DRAINAGE PLAN

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 11 OF 76

C-06



SITE PIPING PLAN

0 10 20 30

1"=20'

SHEET NOTES:

1. **EXISTING UTILITIES:** THE KNOWN EXISTING BURIED UTILITIES AND PIPELINES ARE SHOWN ON THE DRAWINGS IN THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL EXERCISE CARE IN AVOIDING DAMAGE TO ALL UTILITIES AS HE WILL BE HELD RESPONSIBLE FOR THEIR REPAIR IF DAMAGED. THERE IS NO GUARANTEE THAT ALL UTILITIES OR OBSTRUCTIONS ARE SHOWN, OR THAT LOCATIONS INDICATED ARE ACCURATE. UTILITIES ARE PIPING, CONDUITS, WIRE, CABLE, DUCTS, MANHOLES, PULL BOXES AND THE LIKE, LOCATED AT THE PROJECT SITE AND ADJOINING SAID SITE.
2. **CHECK ON LOCATIONS (POTHOLING):** CONTACT ALL AFFECTED UTILITY OWNERS AND REQUEST THEM TO LOCATE THEIR RESPECTIVE UTILITIES PRIOR TO THE START OF "POTHOLING" PROCEDURES. THE UTILITY OWNER SHALL BE GIVEN 7 DAYS WRITTEN NOTICE PRIOR TO COMMENCING POTHOLING. IF A UTILITY OWNER IS NOT EQUIPPED TO LOCATE ITS UTILITY, THE CONTRACTOR SHALL LOCATE IT. CLEARLY PAINT THE LOCATION OF ALL AFFECTED UTILITY UNDERGROUND PIPES, CONDUITS AND OTHER UTILITIES ON THE PAVEMENT OR IDENTIFY THE LOCATION WITH SUITABLE MARKERS IF NOT ON PAVEMENT. IN ADDITION TO THE LOCATION OF METALLIC PIPES AND CONDUITS, NON-METALLIC PIPE, DUCTS AND CONDUITS SHALL ALSO BE SIMILARLY LOCATED USING SURFACE INDICATORS AND DETECTION TAPE IF PRESENT AND SHALL THEN BE SIMILARLY MARKED. AFTER THE UTILITY SURVEY IS COMPLETED, COMMENCE "POTHOLING" TO DETERMINE THE ACTUAL LOCATION AND ELEVATION OF ALL UTILITIES WHERE CROSSINGS, INTERFERENCES, OR CONNECTIONS TO NEW PIPELINES OR OTHER FACILITIES ARE SHOWN ON THE DRAWINGS, MARKED BY THE UTILITY COMPANIES, OR INDICATED BY SURFACE SIGNS. PRIOR TO THE PREPARATION OF PIPING SHOP DRAWINGS, OR THE EXCAVATING FOR ANY NEW PIPELINES OR STRUCTURES, THE CONTRACTOR SHALL LOCATE AND UNCOVER THESE EXISTING UTILITIES INCLUDING SERVICES AND LATERALS TO A POINT 1 FOOT BELOW THE UTILITY. SUBMIT A REPORT IDENTIFYING EACH UNDERGROUND UTILITY AND ITS DEPTH AND LOCATION. ANY VARIATION IN THE ACTUAL ELEVATIONS AND THE INDICATED ELEVATIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. EXCAVATIONS AROUND UNDERGROUND ELECTRICAL DUCTS AND CONDUITS SHALL BE PERFORMED USING EXTREME CAUTION TO PREVENT INJURY TO WORKMEN OR DAMAGE TO ELECTRICAL DUCTS OR CONDUITS. SIMILAR PRECAUTIONS SHALL BE EXERCISED AROUND GAS LINES, TELEPHONE AND TELEVISION CABLES. BACKFILL AFTER COMPLETING POTHOLING. IN EXISTING STREETS PAVE WITH 1 INCH OF COLD MIX ASPHALT CONCRETE.
3. **INTERFERENCES:** IF INTERFERENCES OCCUR AT LOCATIONS OTHER THAN SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, AND A METHOD FOR CORRECTING SAID INTERFERENCES SHALL BE SUPPLIED BY THE ENGINEER. PAYMENT FOR INTERFERENCES THAT ARE NOT SHOWN ON THE PLANS, NOR WHICH MAY BE INFERRED FROM SURFACE INDICATIONS, SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE GENERAL CONDITIONS. IF THE CONTRACTOR DOES NOT EXPOSE ALL REQUIRED UTILITIES PRIOR TO SHOP DRAWING PREPARATION, HE SHALL NOT BE ENTITLED TO ADDITIONAL COMPENSATION FOR WORK NECESSARY TO AVOID INTERFERENCES, NOR FOR REPAIR TO DAMAGED UTILITIES. ANY NECESSARY RELOCATIONS OF UTILITIES, WHETHER SHOWN ON THE DRAWINGS OR NOT, SHALL BE COORDINATED WITH THE AFFECTED UTILITY. THE CONTRACTOR SHALL PERFORM THE RELOCATION ONLY IF INSTRUCTED TO DO SO IN WRITING FROM THE UTILITY AND THE ENGINEER.
4. **SHUTDOWNS:** PLANNED UTILITY SERVICE SHUTDOWNS SHALL BE ACCOMPLISHED BETWEEN THE HOURS OF 12:00 MIDNIGHT AND 6:00 A.M.. SUCH WORK SHALL BE AT NO ADDITIONAL COST TO THE CITY. PROGRAM WORK SO THAT SERVICE WILL BE RESTORED IN THE MINIMUM POSSIBLE TIME, AND SHALL COOPERATE WITH THE UTILITY COMPANIES IN REDUCING SHUTDOWNS OF UTILITY SYSTEMS TO A MINIMUM. SEE SHEET G-02 FOR ADDITIONAL REQUIREMENTS.
5. **DISCONNECTIONS:** NO UTILITY SHALL BE DISCONNECTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE UTILITY OWNER. WHEN IT IS NECESSARY TO DISCONNECT A UTILITY, THE CONTRACTOR SHALL GIVE THE UTILITY OWNER NOT LESS THAN 72 HOURS NOTICE WHEN REQUESTING WRITTEN APPROVAL. THE CONTRACTOR SHALL PROGRAM HIS WORK SO THAT SERVICE WILL BE RESTORED IN THE MINIMUM POSSIBLE TIME. SEE SHEET G-02 FOR ADDITIONAL REQUIREMENTS.
6. **UTILITY TRENCH BACKFILL:** BEDDING MATERIAL, EXTENDING FROM THE BOTTOM OF THE TRENCH TO ABOUT 1-FOOT ABOVE THE TOP OF PIPE, SHALL CONSIST OF FREE-DRAINING SAND (LESS THAN 5% PASSING A NO. 200 SIEVE), LEAN CONCRETE OR SAND CEMENT SLURRY. SAND IF USED AS BEDDING SHALL BE COMPACTED TO NO LESS THAN 90 PERCENT RELATIVE COMPACTION. JETTING OF TRENCH BACKFILL SHALL NOT BE ALLOWED. IF SAND IS USED AS BEDDING IN UTILITY LINES LOCATED ON SLOPES, SOIL PLUGS SHALL BE PROVIDED AT 30-FEET INTERVALS TO REDUCE THE POTENTIAL FOR THE UTILITY TRENCHES TO SERVE AS A CONDUIT FOR WATER.
7. STORM DRAIN MANHOLES: TO BE CONSTRUCTED PER CITY OF MORGAN HILL PUBLIC WORKS DEPARTMENT SHEET C-18, DETAIL SD-1. STORM DRAIN MANHOLES SHALL ALSO BE IN ACCORDANCE WITH CITY OF MORGAN HILL SPECIFICATIONS FOR STORM DRAIN MANHOLES.

SHEET SIZE: 24x36

PATRICK TRAN 4/29/2024 8:05 PM

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04/29/24

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SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill
Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

RESERVOIR SITE PIPING PLAN

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 12 OF 76

C-07

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

(N) E. DUNNE HILLSIDE RESERVOIR
80 FT/ DIAMETER
RESERVOIR CENTER
N 1874491.99
E 6242445.54
FOR TANK DETAIL SEE SHEET S-03

V-DITCH

CB #1
N 1874475.46
E 6242394.14
INV. ELEV. = 768.83 15" (OUT)

STA. 2 + 28.24
45° ELL MJ
RESTRAINED W/
THRUST BLOCK
N 1874468.57
E 6242392.13

12" W
FOR CONT.
SEE SHEET
C-11

16" BFV

TYPE 10 FLANGE
SUPPORT

1 C-15

TYPE 8 SUPPORT

12'-0"x3'-0"x1'-0"
EQUIPMENT PAD S-3342

16" MOTORIZED
BUTTERFLY VALVE
(SEISMIC SHUT-OFF VALVE)

16" FLEXIBLE EXPANSION
JOINT (FLG x FLG) (TYP)

STA 1+60.27
90° VERT. ELBOW
W/ THRUST BLOCK
SEE SHT C-10

16" WTR

THRUST BLOCK SEE DETAIL W-17
ROTATE TO AVOID RINGWALL

STA 1+49.61
TEE RESTRAINED
W/ THRUST BLOCK
SEE SHEET C-10

12" FLANGED
GV, SEE
SHEET
C-10

16" x 12" FLANGED
REDUCER

AIR RELIEF VALVE
ASSEMBLY. FIELD
LOCATE WITH CITY.
INSTALL SIMILAR TO
CITY STANDARD
DETAIL DWG. NO. W-5

15" SD
FOR CONT. SEE C-12

DRAIN INLET

12 " SD

6" DRAIN
W/ AIR GAP

OVERFLOW INLET

16" OVERFLOW
W/ AIR GAP

3'-0" x 3'-0" PRECAST BOX
W/ GRATING SIMILAR TO
CITY STANDARD DWG. NO. SD-4
RIM EL. 779.47

12 " WTR

15 " SD
SEE SHT C-12

10" WTR OUTLET
SEE SHT C-10

STORM DRAIN MANHOLE
W/ GRATING SIMILAR TO
CITY STANDARD DETAIL
DWG. NO. SD-1
N 1874437.00
E 6242413.81

3 C-15

SWING CHECK VALVE
ASSEMBLY
SEE DET 3, SHT C-15

16" WTR INLET/OUTLET
SEE C-09

BOLLARDS 4'-0" O.C.
SEE DETAIL (TYP)

4 C-21

15'-0"x3'-0"x1'-0"
EQUIPMENT PAD S-3342

16" BFV

TYPE 8 SUPPORT

16" FLEXIBLE EXPANSION
JOINT (FLG x FLG) (TYP)

TYPE 10 FLANGE SUPPORT

STA.5+09.34
90° VERT. ELBOW
W/ THRUST BLOCK
SEE SHT C-09

THRUST BLOCK SEE DETAIL W-17
ROTATE TO AVOID RINGWALL

STA 1+17.90
16" x 14" TEE
W/ (2) 12" x 14" REDUCERS
AND (2) 12" FLANGED GV

2" WTR

10" x 14" REDUCER

16".WTR INLET, SEE SHEET C-09

BOLLARDS (TYP)

IRRIGATION BACKFLOW PREVENTOR.
SEE IRRIGATION DETAILS

2" IRR

AIR RELIEF VALVE
ASSEMBLY. FIELD
LOCATE WITH CITY.
INSTALL SIMILAR TO
CITY STANDARD
DETAIL DWG. NO. W-5,
SHEET C-17

TRANSITION 2'-0" x 0'-6" DITCH
TO 2'-0" x 0'-1" VALLEY GUTTER

2'-0" WIDE CONC. V-DITCH
SEE DETAIL

RETAINING WALL

IRRIGATION
PUMP STATION
(SEE LANDSCAPE
DWGS)

(F) PUMP STATION

IRRIGATION
CONTROLLER
(SEE
LANDSCAPE
DWGS)

CATHODIC
PROTECTION RECTIFIER

SERVICE PEDESTAL

PLC PANEL
(PANELBOARD)

RADIO ANTENNA POLE

FOR DETAIL SEE
SHEET E-03

2'-0" CONC. VALLEY GUTTER

STA. 3+17.23
N 1874419.33
E 6242466.25
℄ EL. 772.76

MECHANICAL CAP
FOR FUTURE CONN.
(TYP)

N 1874416.86
E 6242464.54
℄ EL. 772.76

BLOW OFF ASSEMBLY
INSTALL SIMILAR TO CITY
STANDARD DETAIL
DWG. NO. W-20

(F) TRANSFORMER

NOTES:

1. FOR THRUST BLOCK DETAILS REFER TO CITY STANDARD DETAIL DWG NOS. W-17, W-18 AND W-19. LOCATE AND SIZE THRUST BLOCKS FOR VERTICAL BENDS NOT SHOWN. ADJUST THRUST BLOCKS FOR HORIZ AND VERT BENDS TO SATISFY FIELD CONDITIONS.

PLAN
0 3 6
1/4"=1'-0"

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04/19/24

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City of Morgan Hill
Public Works Department
CITY OF MORGAN HILL
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

RESERVOIR PAD ENLARGED SITE PIPING PLAN

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 13 OF 76
C-08

SHEET SIZE: 24x36
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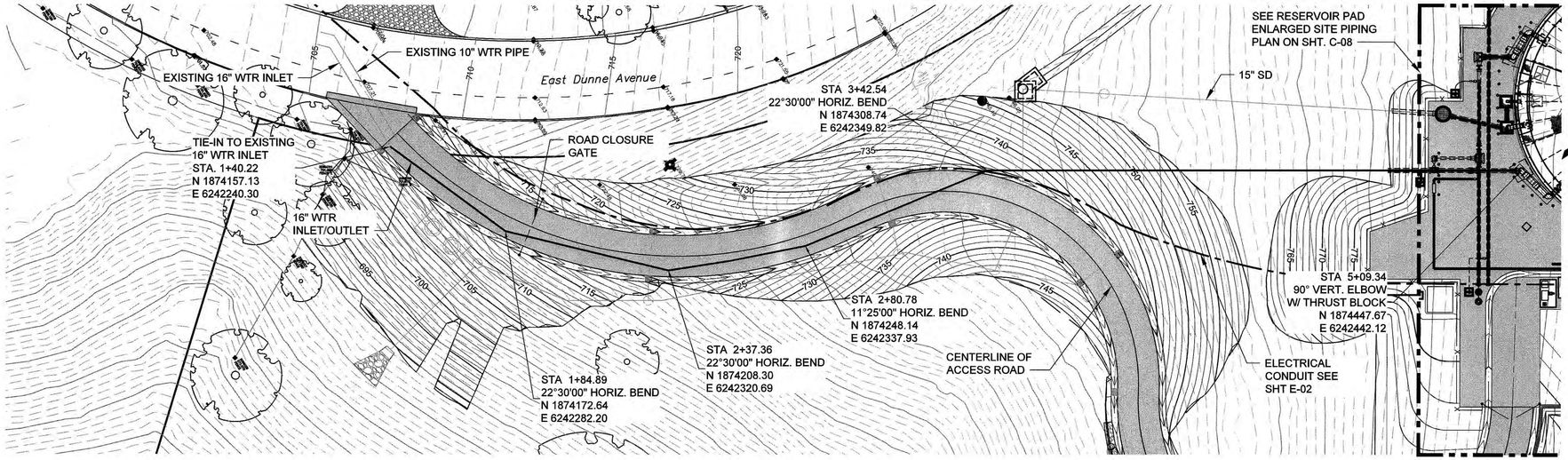
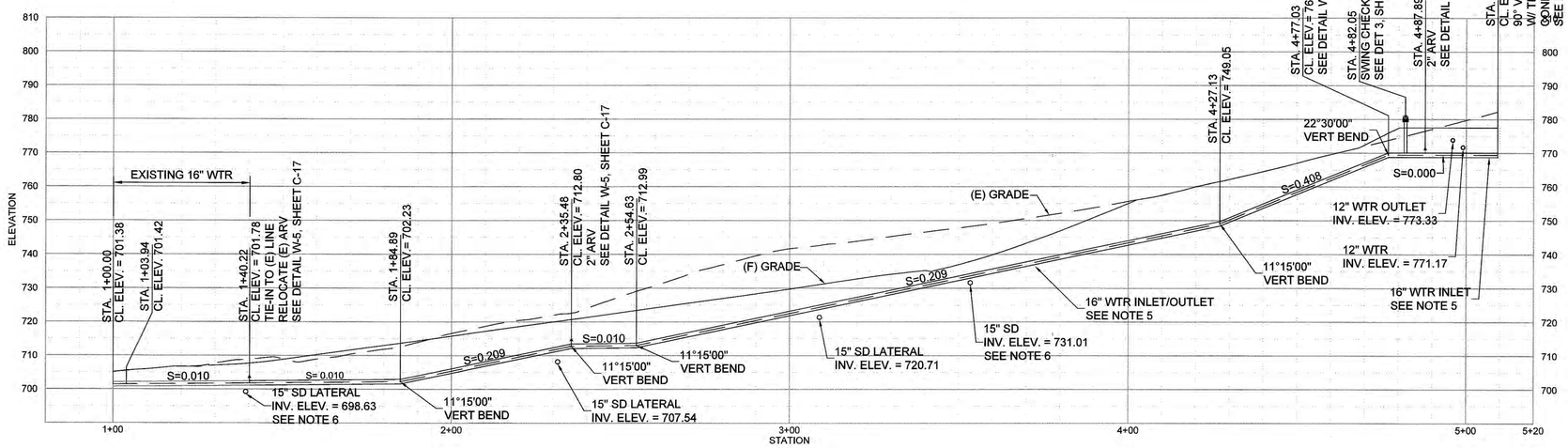


PLAN 0 10 20 30 1"=20'

SHEET NOTES:

1. CONTRACTOR SHALL PULL JOINTS NO MORE THAN 2.5° IN ORDER TO MAKE THE ALIGNMENT SHOWN. PULLED JOINTS ARE NOT SHOWN FOR SIMPLICITY.
2. PROVIDE THRUST BLOCKS IN LOCATIONS INDICATED ON THE DRAWINGS. REFER TO CITY STANDARD DETAIL DWG. NOS. W-17, W-18, AND W-19 FOR THRUST BLOCK DIMENSIONS.
3. POTHOLE (E) 16" WATER TO DETERMINE CENTERLINE ELEVATION. MATCH (N) 16" WATER CENTERLINE ELEV TO (E) ELEV.
4. NOT ALL (E) UTILITIES IN EAST DUNNE AVENUE ARE SHOWN.
5. SEE PIPE IDENTIFICATION SCHEDULE AND PIPE TYPE SCHEDULE ON SHEET G-03 AND SPECIFICATIONS FOR PIPE TYPE, MATERIAL, PRESSURE CLASS, JOINT TYPE, AND JOINT RESTRAINT. PROVIDE MIN. 3-0" COVER FROM (F) GRADE.
6. PROVIDE CONTROLLED LOW STRENGTH MATERIAL BETWEEN UTILITIES WHERE SEPARATION IS 1-FOOT OR LESS. SEE DETAIL 2, SHEET C-22.



PROFILE 0 10 20 30 1"=20'

SHEET SIZE: 24x36

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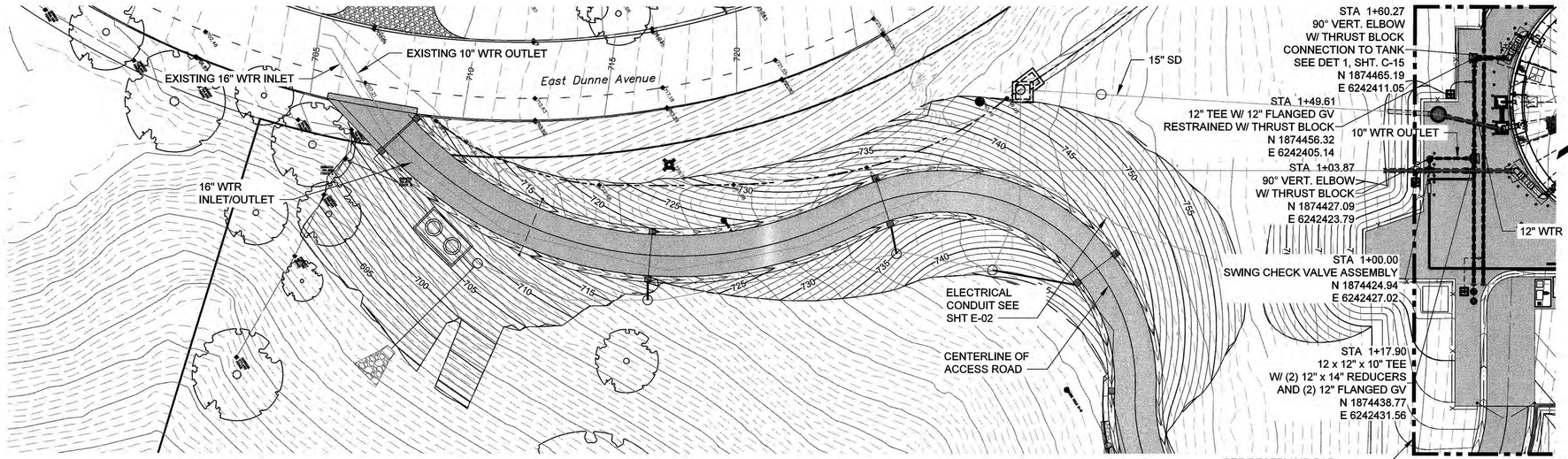
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

16" WATER (INLET/OUTLET) PIPING PLAN AND PROFILE

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 14 OF 76
C-09

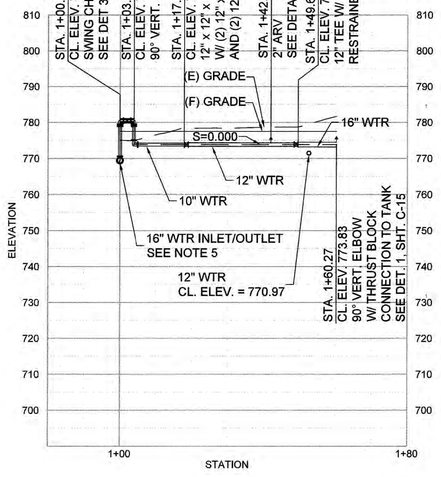
Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG



PLAN 0 10 20 30 1"=20'

SHEET NOTES:

1. CONTRACTOR SHALL PULL JOINTS NO MORE THAN 2.5° IN ORDER TO MAKE THE ALIGNMENT SHOWN. PULLED JOINTS ARE NOT SHOWN FOR SIMPLICITY.
2. PROVIDE THRUST BLOCKS IN LOCATIONS INDICATED ON THE DRAWINGS. REFER TO CITY STANDARD DETAIL DWG. NOS. W-17, W-18, AND W-19 FOR THRUST BLOCK DIMENSIONS.
3. POTHOLE (E) 10" WATER TO DETERMINE CENTERLINE ELEVATION. MATCH (N) 10" WATER CENTERLINE ELEV TO (E) ELEV.
4. NOT ALL (E) UTILITIES IN EAST DUNNE AVENUE ARE SHOWN.
5. SEE PIPE IDENTIFICATION SCHEDULE AND PIPE TYPE SCHEDULE ON SHEET G-03 AND SPECIFICATIONS FOR PIPE TYPE, MATERIAL, PRESSURE CLASS, JOINT TYPE, AND JOINT RESTRAINT. PROVIDE MIN. 3-0" COVER FROM (F) GRADE.



PROFILE 0 10 20 30 1"=20'

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:28 PM

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER JAIMEL BATTISTA No. C93869 Exp. 9/30/24 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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WORK ACCEPTED: INSPECTOR:
BY: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

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JGB	JGB	
CHECKED: JAC		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

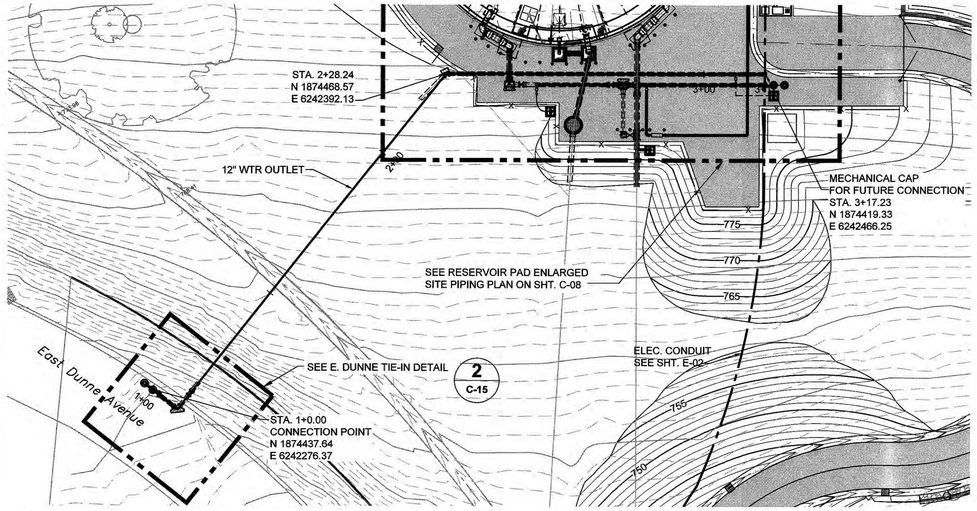
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

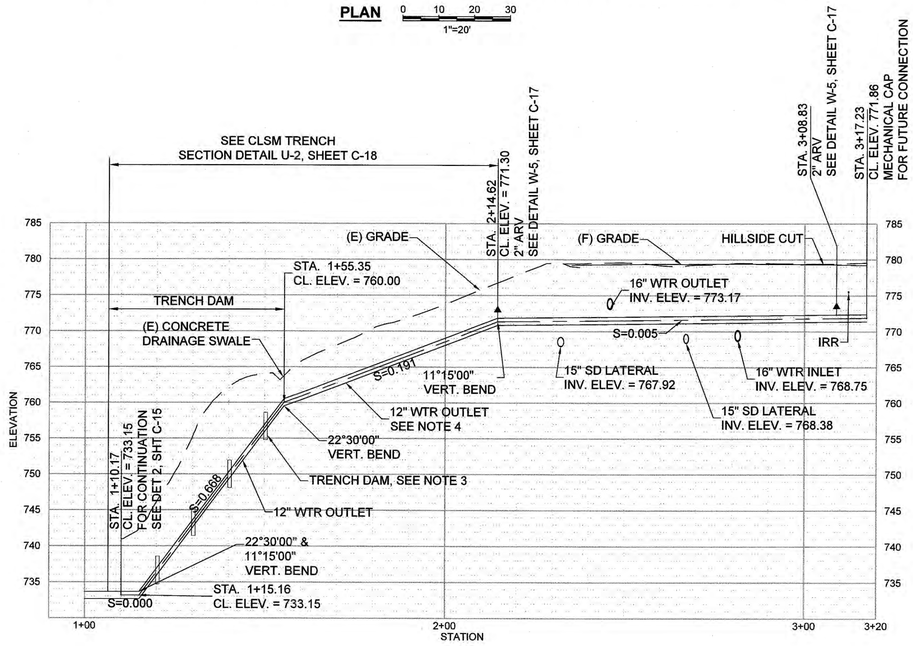
10" WATER (OUTLET) PIPING PLAN AND PROFILE

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 15 OF 76
C-10

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG



PLAN 0 10 20 30 1"=20'



PROFILE

0 10 20 30 HORIZ. 1"=20'

0 5 10 15 VERT. 1"=10'

SHEET NOTES:

1. PROVIDE THRUST BLOCKS IN LOCATIONS INDICATED ON THE DRAWINGS. REFER TO CITY STANDARD DETAIL DWG. NOS. W-17, W-18, AND W-19 FOR THRUST BLOCK DIMENSIONS.
2. NOT ALL (E) UTILITIES IN EAST DUNNE AVENUE ARE SHOWN.
3. INSTALL TRENCH DAM AT 10-FT INTERVALS. SEE DETAIL 4 ON SHEET C-22.
4. SEE PIPE IDENTIFICATION SCHEDULE AND PIPE TYPE SCHEDULE ON SHEET G-03 AND SPECIFICATIONS FOR PIPE TYPE, MATERIAL, PRESSURE CLASS, JOINT TYPE, AND JOINT RESTRAINT. PROVIDE MIN. 3-0" COVER FROM (F) GRADE.

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:29 PM

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER JOHEL BAUTISTA No. C93365 exp. 9/30/24 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

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APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 59879 — CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

12" WATER (OUTLET) PIPING PLAN AND PROFILE

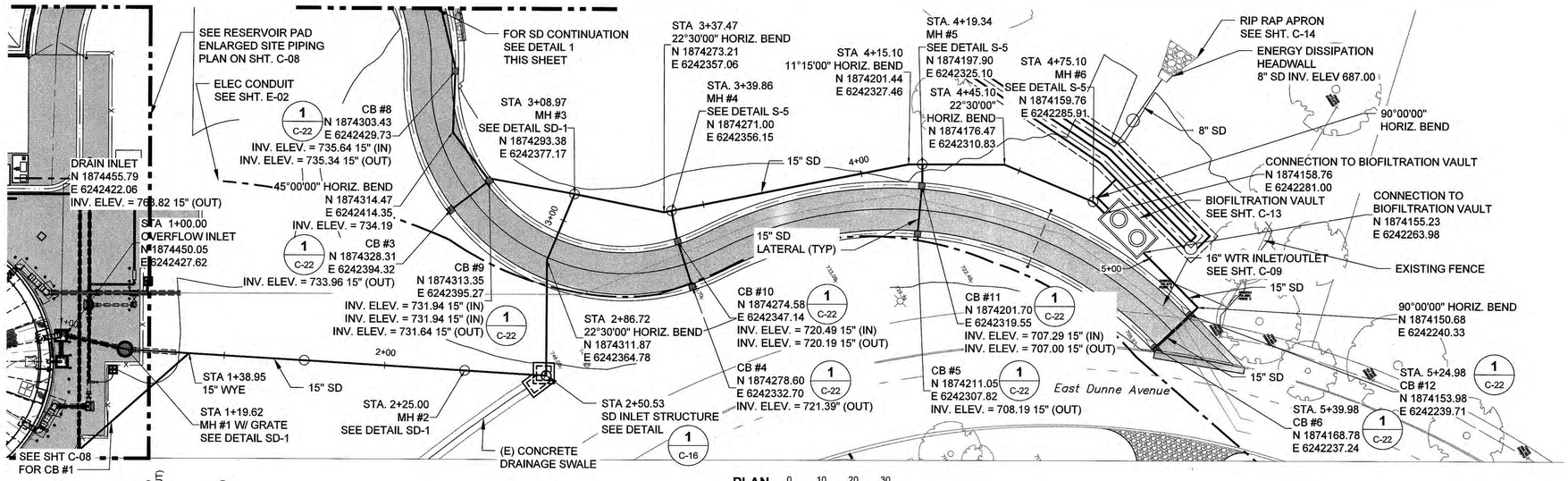
FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 16 OF 76

C-11

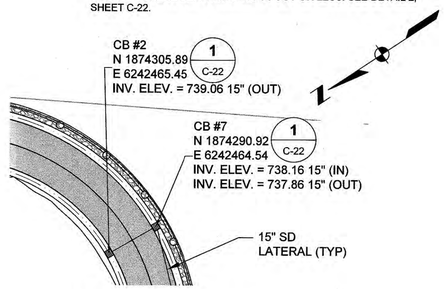
Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG



PLAN 0 10 20 30 — 1"=20'

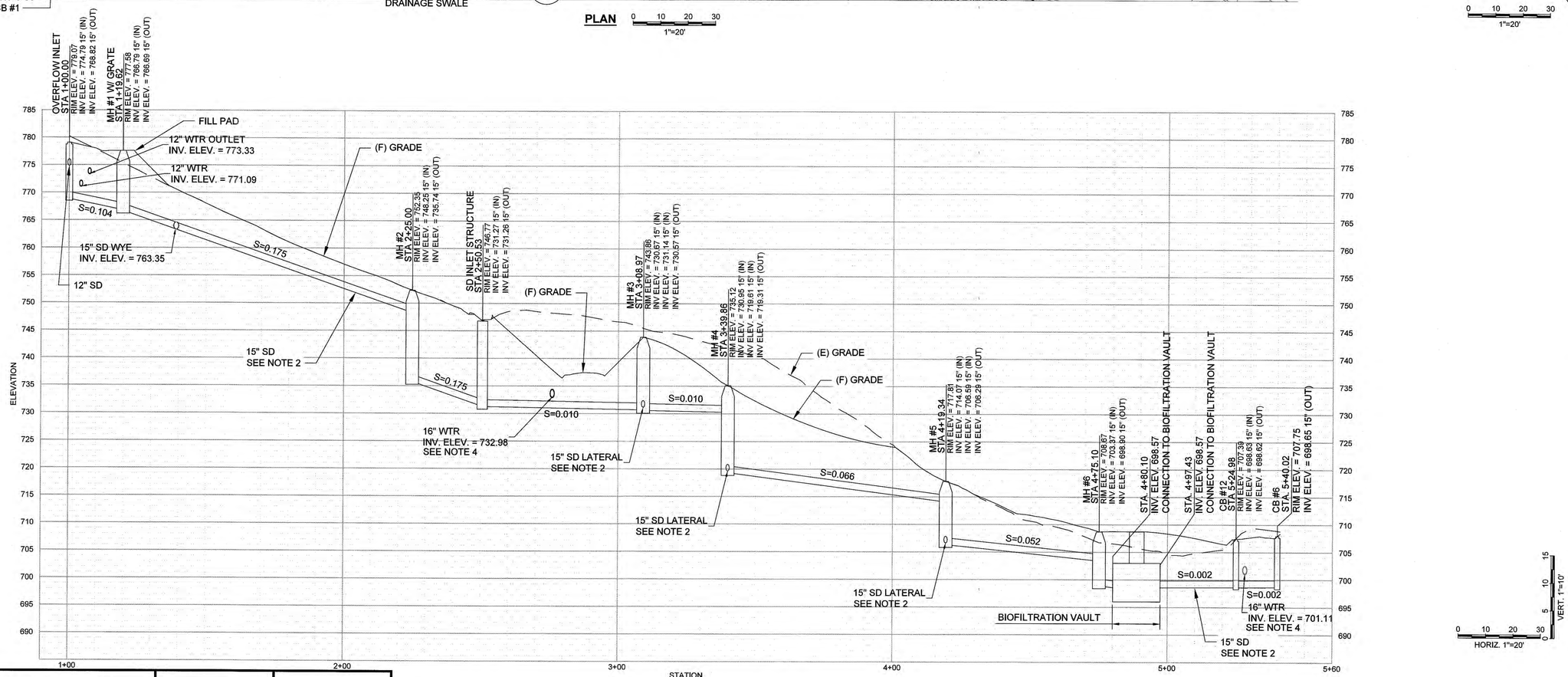
SHEET NOTES:

1. NOT ALL (E) UTILITIES IN EAST DUNNE AVENUE ARE SHOWN.
2. SEE PIPE IDENTIFICATION SCHEDULE AND PIPE TYPE SCHEDULE ON SHEET G-03 AND SPECIFICATIONS FOR PIPE TYPE, MATERIAL, PRESSURE CLASS, JOINT TYPE, AND JOINT RESTRAINT. PROVIDE MIN. 2-6" COVER FROM (F) GRADE.
3. ELEC CONDUIT SHALL BE INSTALLED MIN 1-FOOT ABOVE SD PIPING.
4. PROVIDE CONTROLLED LOW STRENGTH MATERIAL BETWEEN UTILITIES WHERE SEPARATION IS 1-FOOT OR LESS. SEE DETAIL 2, SHEET C-22.



CB #2 AND CB #7 1 / -

0 10 20 30 — 1"=20'



PROFILE

0 10 20 30 — HORIZ. 1"=20'

0 5 10 15 — VERT. 1"=10'

SHEET SIZE: 24x36

PATRICK TRAN 4/29/2024 10:08 PM

C:\bms\jce-pw\d2571191\672001-C-12.dwg

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER JAMEL BADR GHOUL No. C93805 Exp. 9/30/24 CIVIL STATE OF CALIFORNIA
04/29/24

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SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

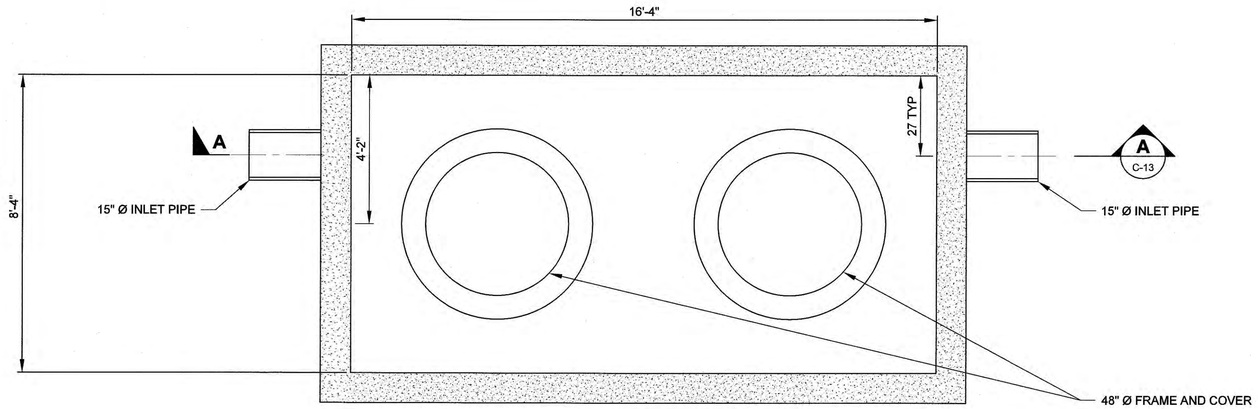
15" STORM DRAIN PIPING PLAN AND PROFILE

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 17 OF 76
C-12

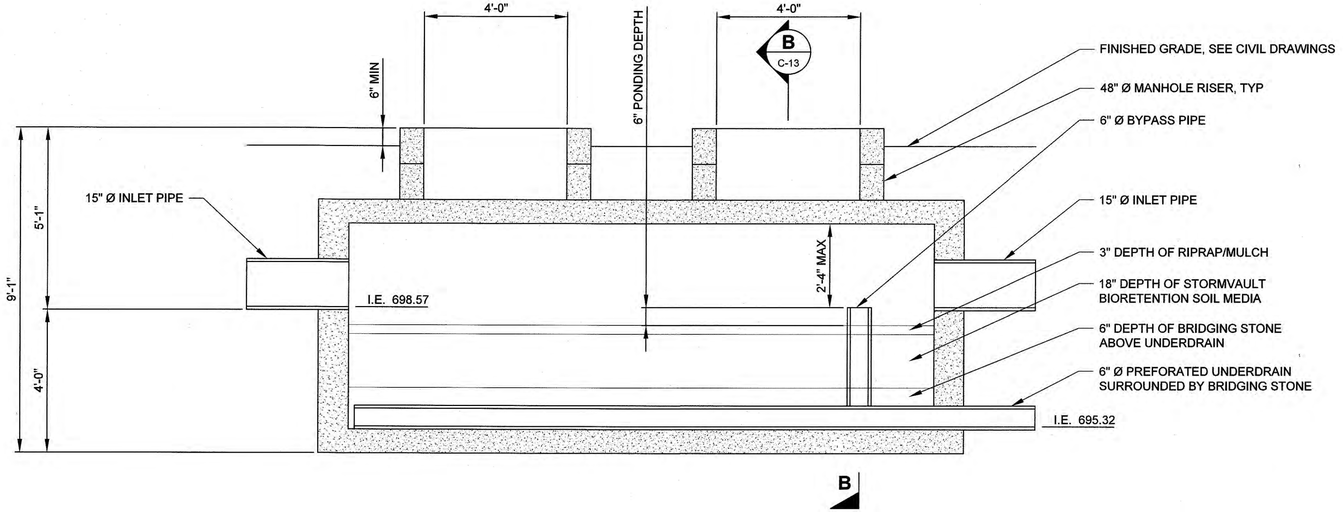
Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

NOTES:

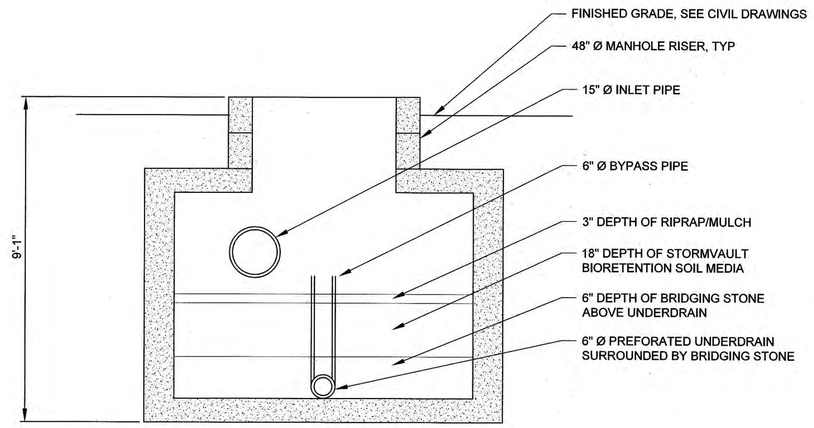
1. PROVIDE BIOFILTRATION VAULT AND SOIL MEDIA BY JENSEN PRECAST UNDERGROUND VAULT - MODEL SVBF-UV 8X16-NJCAT; OR EQUAL.
2. VERIFY ALL DIMENSIONS AND ELEVATIONS IN FIELD PRIOR TO INSTALLATION.
3. THE CONNECTION BETWEEN THE INTERNAL DRAIN PIPING OF THE VAULT SHALL BE WATERTIGHT.
4. GROUT ALL PIPE PENETRATIONS IN PRECAST CONCRETE OPENINGS IN FIELD AS NECESSARY.
5. BRIDGING STONE SHALL BE 3/8" WASHED PEA GRAVEL OR 1/2" CLEAN ROUND ROCK.



BIORETENTION VAULT DETAIL 1 / C-06



SECTION A / C-13



SECTION B / C-13

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:30 PM

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SCALES

0 1"
0 25mm

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REGISTERED PROFESSIONAL ENGINEER — PATRICK TRAN — No. 82907 — CIVIL — STATE OF CALIFORNIA

04/19/24

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SCOTT C. CREER RCE 59879 — CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

BIOFILTRATION VAULT DETAIL

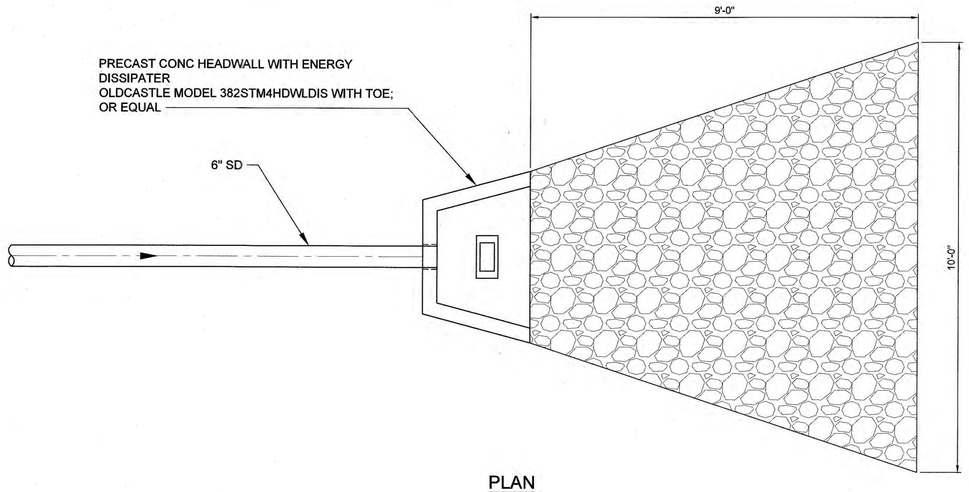
Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

FILE NUMBER:

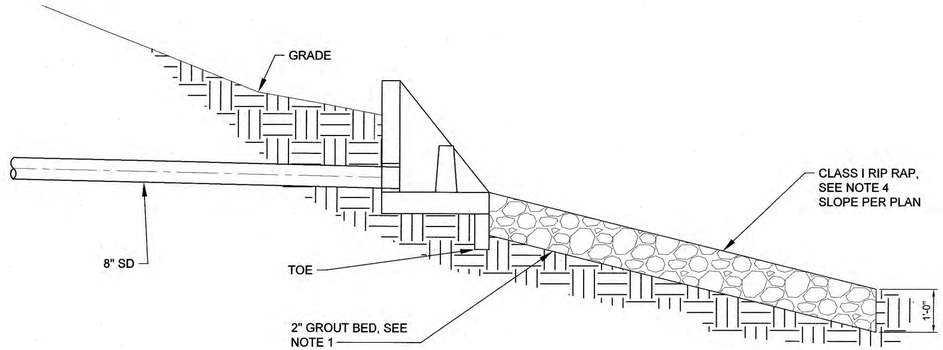
PRINT DATE: APRIL 2024

SHEET: 18 OF 76

C-13



PLAN



SECTION

NOTES

1. THERE SHALL BE A GROUT BED OF AT LEAST 2 INCHES BENEATH THE FIRST LAYER OF ROCK. ALL THE VOIDS BETWEEN THE ROCKS SHALL BE FILLED WITH GROUT. MAXIMUM SPACING BETWEEN THE ROCKS SHALL BE 2 INCHES.
2. SURFACE ROCKS SHALL BE EMBEDDED FROM 1/3 TO 1/2 OF THEIR MAXIMUM DIMENSION.
3. SEE SPECIFICATION SECTION 02301 FOR SUBGRADE PREP AND RIPRAP.
4. ROCK GRADATION, ROCK QUALITY AND PLACEMENT SHALL BE PER SSPWC SECTION 200-1.6.
5. TYPICAL DEPTH OF RIPRAP ALONG SLOPE SHALL BE A MINIMUM OF 18" BELOW FINISH GRADE. TYPICAL DEPTH OF RIPRAP ALONG POND 8 BOTTOM SHALL BE A MINIMUM OF 36" BELOW FINISH GRADE.

SHEET SIZE: 24x36

4/29/2024 8:07 PM

PATRICK TRAN

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER PATRICK TRAN No. 82007 CIVIL STATE OF CALIFORNIA

04/29/24

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Revisions

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APPROVED:	DATE: 4/30/24	JOB NUMBER: KJ 2368021*00

SCOTT C. CREER RCE 59879 — CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

RIP RAP APRON DETAILS

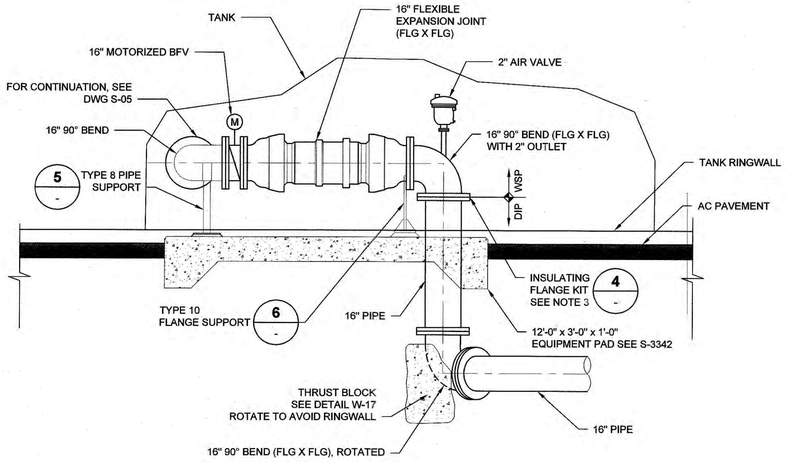
FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 19 OF 76

C-14

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

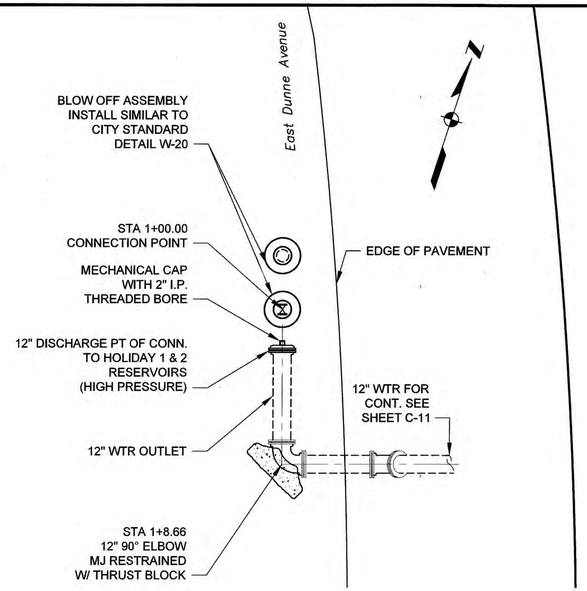


NOTES:

1. SEE SPEC SECTION 15050 FOR PIPE AND FITTING MATERIALS. COAT ONLY PIPES TO MATCH TANK COLOR.
2. MIRROR THIS FOR 16" INLET. PROVIDE EQUIPMENT PAD FOR 16" INLET WITH DIMENSION AS SHOWN ON DWG C-08. PROVIDE FLANGED SPOOL AS SHOWN ON DWG C-08.
3. FLANGE/INSULATING KIT SHALL BE INSTALLED A MIN 6 INCHES ABOVE PAD ELEVATION.
4. DO NOT PRESSURE/LEAK TEST PIPELINE ACROSS FLEXIBLE EXPANSION JOINT ASSEMBLIES. EITHER REMOVE AND BLIND FLANGE OR PROVIDE THRUST RESTRAINT ACROSS FLEXIBLE EXPANSION JOINT ASSEMBLIES. FACTORY PRESET FLEXIBLE EXPANSION JOINT TO RESERVE 50% OF MOVEMENT FOR EXPANSION AND 50% FOR CONTRACTION.

INLET/OUTLET PIPING CONNECTION TO TANK (1 / C-08)

SCALE: NONE



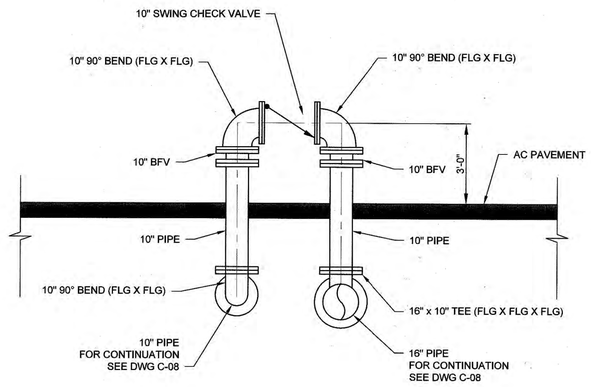
NOTES:

1. FOR THRUST BLOCK DETAILS REFER TO CITY STANDARD DETAIL DWG NOS. W-17, W-18 AND W-19.
2. SEE PIPE IDENTIFICATION SCHEDULE AND PIPE TYPE SCHEDULE ON SHEET G-03 AND SPECIFICATIONS FOR PIPE TYPE, MATERIAL, PRESSURE CLASS, JOINT TYPE, AND JOINT RESTRAINT. PROVIDE MIN. 3-0" COVER FROM (F) GRADE.

EAST DUNNE BLOWOFF (2 / C-07)

0 4 8

1" = 4'

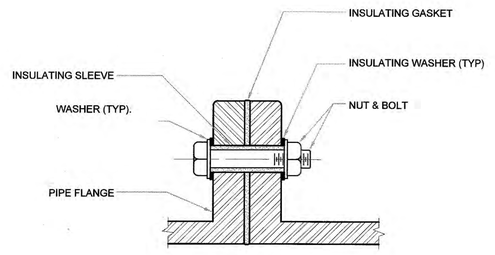


NOTES:

1. BOLLARDS NOT SHOWN FOR CLARITY.

SWING CHECK VALVE ASSEMBLY (3 / C-08)

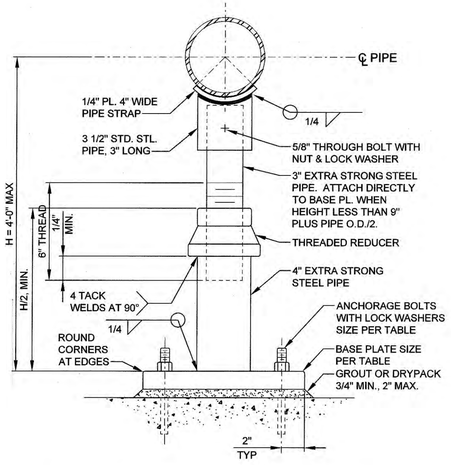
SCALE: NONE



NOTES: 1. PIPE COATING NOT SHOWN.,

INSULATING FLANGE (4 / -)

SCALE: NONE



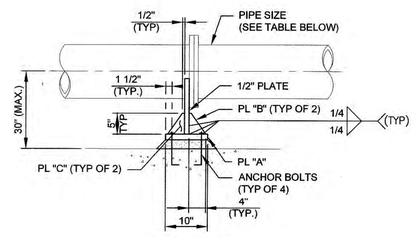
LOCATION	H (MAX.)	MEMBER	
		BASE PLATE	ANCHOR BOLTS
FLOOR	3'-0"	3/8 X 9 X 9	4-5/8"

NOTES:

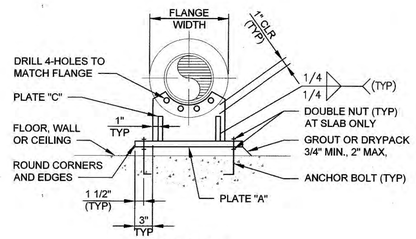
1. ALL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION.
2. AS AN ALTERNATE, IF ADJUSTMENT IS NOT NECESSARY, DELETE PIPE AND REDUCER AND WELD 3" STEEL PIPE DIRECTLY TO BOTTOM PIPE STRAP.
3. SUPPORT SPACING SHALL BE PER 15060 BUT SHALL NOT EXCEED 8-0" OC
4. AT THE CONTRACTOR'S OPTION POST INSTALLED ANCHORS MAY BE PLACED AT EACH OF FOUR CORNERS OF BASEPLATE. ANCHORS SHALL BE ASTM A193, GRADE B7 SIZE AND EMBED PER CONTRACTOR'S FAVORABLY REVIEWED DESIGN, ANCHORED WITH HILTI RE-500V3 EPOXY OR APPROVED EQUAL.

TYPE 8 SUPPORT (T8S) (5 / -)

SCALE: NONE



SIDE VIEW



END VIEW

SUPPORT (T10S)				ANCHOR BOLT	REMARKS
PIPE SIZE	MEMBERS				
	PL. "A"	PL. "B"	PL. "C"		
≤ 12"	1/2"	-	-	3/4"	PL. "B" & "C" NOT REQ'D.
>12" ≤ 16"	1/2"	3/8"	-	3/4"	PL. "C" NOT REQ'D.
>16" ≤ 24"	3/4"	3/8"	3/8"	7/8"	-
>24" ≤ 30"	7/8"	3/8"	3/8"	7/8"	-

TYPE 10 SUPPORT (T10S) (6 / -)

SCALE: NONE

SHEET SIZE: 24x36

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SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER JOMEL BAUTISTA No. C93855 Exp. 9/30/24 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

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WORK ACCEPTED: INSPECTOR:

BY: DATE:

Kennedy/Jenks Consultants©

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SCOTT C. CREER RCE 58879 — CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

RESERVOIR WATER TIE-IN DETAILS

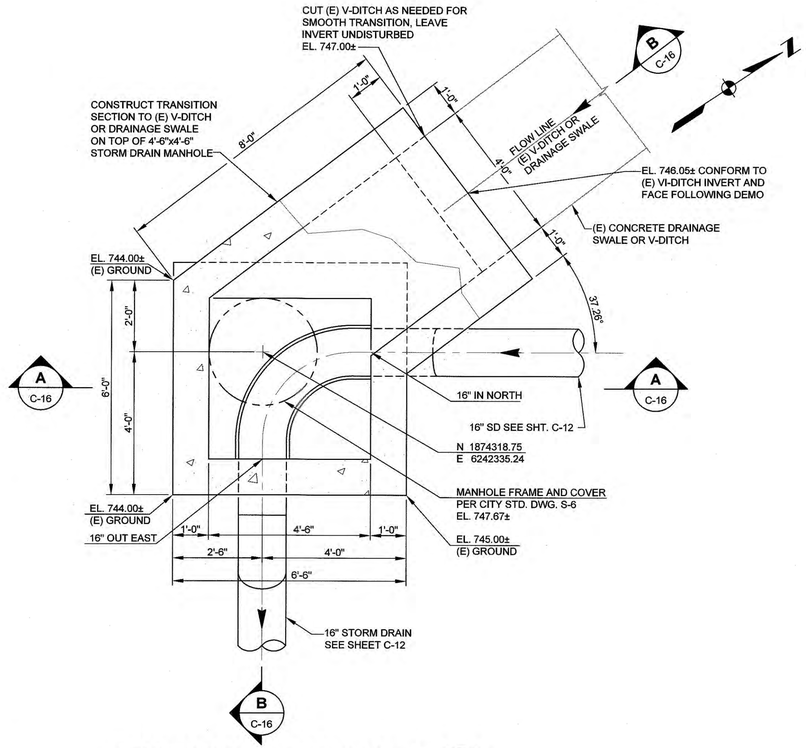
FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 20 OF 76

C-15

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

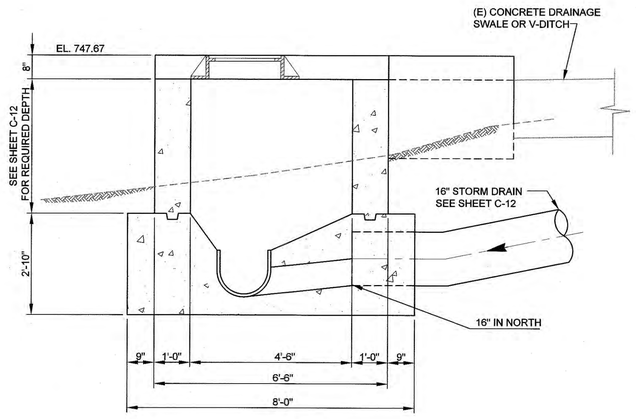


STORM DRAIN INLET STRUCTURE (1)

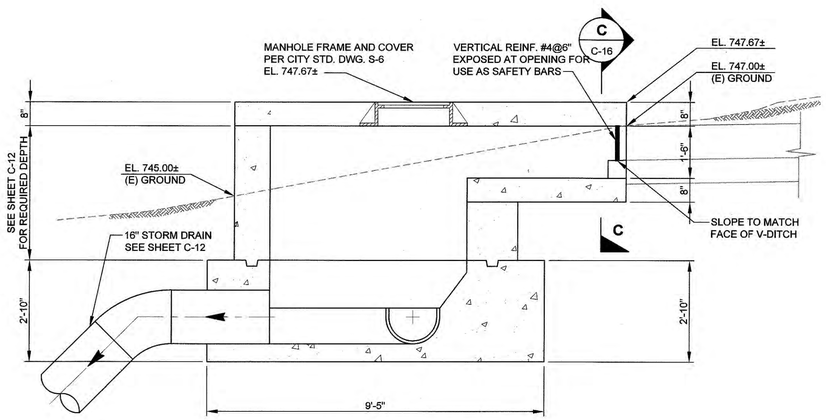
0 1 2 3

1/2"=1'-0"

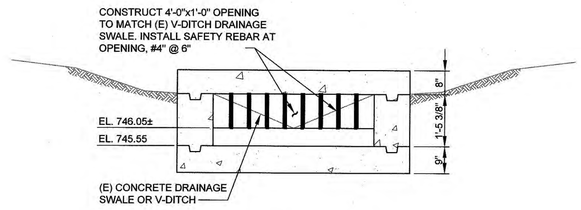
C-12 C-07



SECTION A C-16



SECTION B C-16



SECTION C (C-16)

0 1 2 3

1/2"=1'-0"

NOTES:

1. COAT INSIDE OF STRUCTURE WITH MORTAR.
2. INVERT OF PIPE SHALL BE 2" ABOVE BOTTOM OF INLET TO ACT AS A SEDIMENT COLLECTION BASIN.
3. ALL REINF. IS #5@12" EACH WAY EACH FACE ON CENTER UNLESS OTHERWISE NOTED.

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:30 PM

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SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER JOMEL BAUTISTA No. C93805 Exp. 9/30/24 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

WORK ACCEPTED: INSPECTOR:

BY: DATE:

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Kennedy/Jenks Consultants©

2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: JGB	DESIGN: DLB	HOR:
CHECKED: JAC		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: KJ 2368021*00

SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

STORM DRAIN INLET STRUCTURE PLAN AND SECTIONS

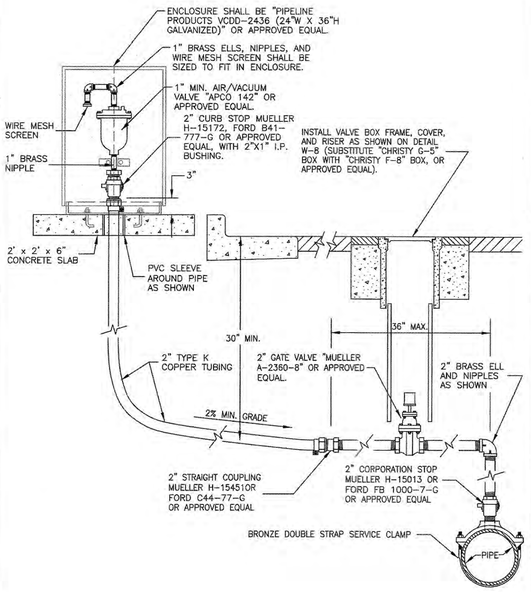
FILE NUMBER:

PRINT DATE: APRIL 2024

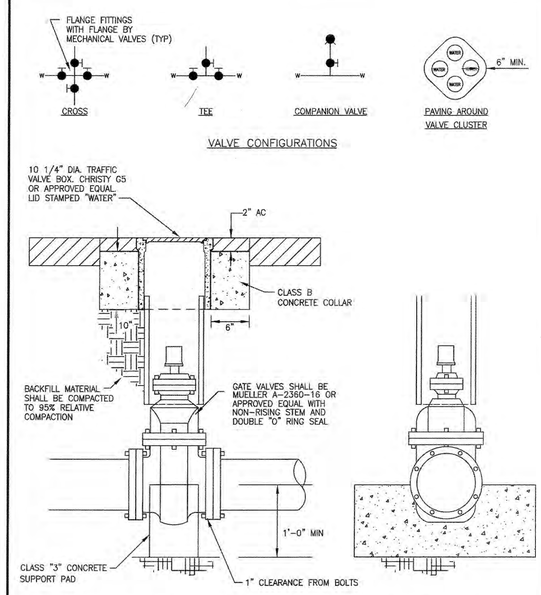
SHEET: 21 OF 76

C-16

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

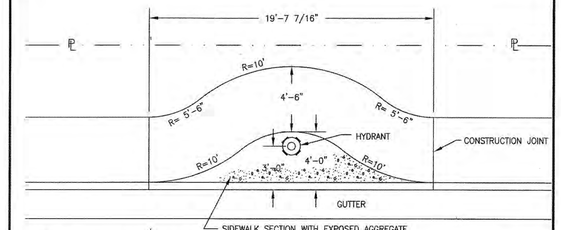


City of Morgan Hill Public Works Department			AIR RELIEF VALVE ASSEMBLY	DRAWING NO.
CITY ENGINEER	DATE 4/1/96	REVISED 3/15/07		W-5



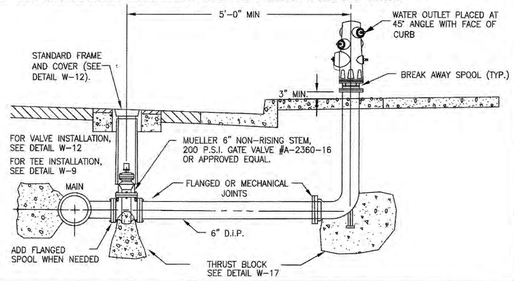
VALVES LARGER THAN 12" REQUIRE SPECIAL DETAILS AND SHALL BE APPROVED BY THE CITY ENGINEER.

City of Morgan Hill Public Works Department			TYPICAL VALVE INSTALLATION	DRAWING NO.
CITY ENGINEER	DATE 4/1/96	REVISED 3/15/07		W-12

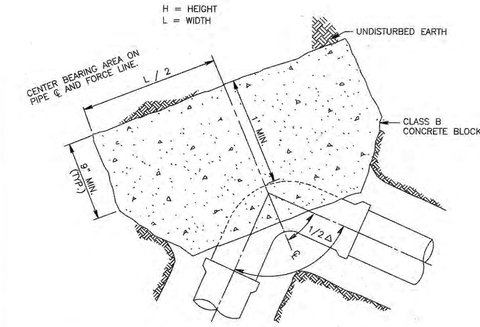


NOTES:

1. FOR COMMERCIAL / INDUSRTIAL APLLICATIONS ONLY, PAINT CURB RED 15' ON BOTH SIDES OF HYDRANT.
2. PLACE BLUE PAVEMENT MARKER IN STREET DIRECTLY ACROSS FROM HYDRANT, SEE DETAIL W-16.
3. HYDRANTS: RESIDENTIAL CLOW VALVE CO. #950 WITH 1-2 1/2" AND 1-4 1/2" OUTLET OR APPROVED EQUAL. PAINTED WITH FINISH YELLOW.
   INDUSTRIAL CLOW VALVE CO. #960 WITH 2-2 1/2" AND 1-4 1/2" OUTLET OR APPROVED EQUAL. PAINTED WITH FINISH YELLOW.
4. CENTER OF HYDRANT TO FACE OF CURB SHALL BE 3' FOR ATTACHED SIDEWALKS WITH MEANDER AND DETACHED SIDEWALK CONFIGURATIONS (ATTCHED SIDEWALK WITH MEANDER SHOWN). FOR ATTACHED SIDEWALK WITHOUT SIDEWALK MEANDER SEE DETAIL W-14.
5. JOINT TRENCHES LOCATED BEHIND SIDEWALK SHALL FOLLOW MEANDER AROUND FIRE HYDRANT.



City of Morgan Hill Public Works Department			HYDRANT INSTALLATION AND LOCATION (with SIDEWALK MEANDER)	DRAWING NO.
CITY ENGINEER	DATE 4/1/96	REVISED 3/15/07		W-13

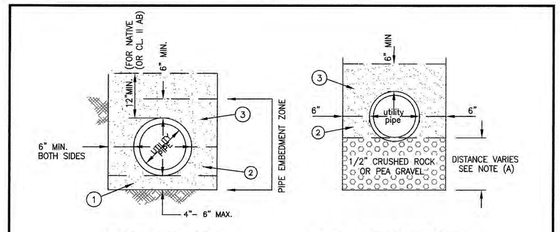


NOTES:

1. CONCRETE SHALL BE KEPT CLEAR OF FLANGES, NUTS, AND BOLTS.
2. CENTER OF H COINCIDES WITH CENTERLINE OF PIPE.
3. "MEGA-LUG" (OR APPROVED EQUAL) TYPE GLANDS AND FASTENERS MAY BE USED BUT SHALL NOT BE USED AS A REPLACEMENT FOR THE USE OF THRUST BLOCKS.

PIPE SIZE	DIMENSIONS – L x H (200 PSI TEST)			
	11 1/4°	22 1/2°	45°	90°
4"-6"	1'0" x 1'0"	1'5" x 1'5"	1'9" x 1'9"	2'3" x 2'3"
8"	1'0" x 1'0"	1'5" x 1'5"	2'0" x 2'0"	2'10" x 2'10"
10"	1'5" x 1'5"	2'0" x 2'0"	2'8" x 2'8"	3'5" x 3'5"
12"	1'9" x 1'9"	2'3" x 2'3"	3'0" x 3'0"	4'2" x 4'2"
14"	1'9" x 1'9"	2'8" x 2'8"	3'6" x 3'6"	4'10" x 4'10"
16"	2'0" x 2'0"	2'10" x 2'10"	4'0" x 4'0"	5'5" x 5'5"
18"	3'0" x 3'0"	4'0" x 4'0"	5'0" x 5'0"	6'6" x 6'6"

City of Morgan Hill Public Works Department			ELBOW THRUST BLOCK HORIZONTAL AND DOWNWARD THRUSTS	DRAWING NO.
CITY ENGINEER	DATE 4/1/96	REVISED		W-17



NOTES:

(A) DISTANCE WILL VARY BASED UPON FIELD CONDITIONS, AND SOILS REPORT RECOMMENDATIONS.

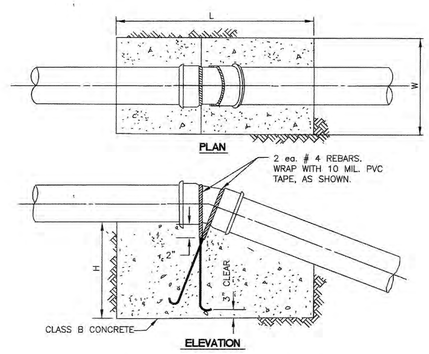
(B) PIPE EMBEDMENT SHALL CONFORM TO THE PRACTICE RECOMMENDED FOR CLASS III MATERIAL (SAND) IN ASTM D 2321 "UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS".

(1) SAND BEDDING, HAND PLACED AND COMPACTED TO MIN. 90% RELATIVE COMPACTION, 4" MIN. TO 6" MAX.

(2) HAUNCHING; HAND PLACED AND COMPACTED TO MIN. 90% RELATIVE COMPACTION TO SPRING LINE OF PIPE.

(3) INITIAL BACKFILL, INSTALL AND COMPACT TO A MINIMUM OF 6" ABOVE PIPE CROWN (12" MIN. FOR NATIVE).

City of Morgan Hill Public Works Department			TRENCH BEDDING	DRAWING NO.
CITY ENGINEER	DATE 4/1/96	REVISED		U-1



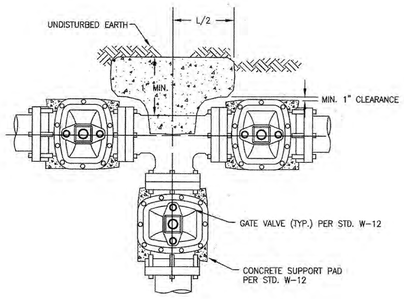
NOTES:

1. CONCRETE SHALL BE KEPT CLEAR OF FLANGES, NUTS & BOLTS.
2. "MEGA-LUG" (OR APPROVED EQUAL) TYPE GLANDS AND FASTENERS MAY BE USED BUT SHALL NOT BE USED AS A REPLACEMENT FOR THE USE OF THRUST BLOCKS.

DIMENSIONS (150 PSI TEST)

PIPE SIZE	11 1/4° BEND			22 1/2° BEND			45° BEND		
	L	W	H	L	W	H	L	W	H
6"	2'0"	2'0"	1'0"	2'0"	2'0"	2'0"	2'0"	2'0"	2'0"
8"	2'0"	2'0"	1'0"	2'0"	3'0"	2'0"	2'0"	4'0"	2'0"
10"	2'0"	3'0"	2'0"	2'0"	4'0"	2'0"	2'0"	4'0"	3'0"
12"	2'0"	3'0"	2'0"	2'0"	6'0"	2'0"	2'0"	6'6"	3'0"
14"	3'0"	3'0"	3'0"	3'0"	6'0"	3'0"	3'0"	5'0"	5'0"

City of Morgan Hill Public Works Department			ELBOW THRUST BLOCK UPWARD THRUST	DRAWING NO.
CITY ENGINEER	DATE 4/1/96	REVISED		W-18



NOTES:

1. CONCRETE SHALL BE KEPT CLEAR OF FLANGES, NUTS, AND BOLTS.
2. "MEGA-LUG" (OR APPROVED EQUAL) TYPE GLANDS AND FASTENERS MAY BE USED BUT SHALL NOT BE USED AS A REPLACEMENT FOR THE USE OF THRUST BLOCKS.

BLOCKING FOR PIPE TEES		
PIPE SIZE	BEARING (SQ. FT.)	L X H
6"	3	1'-9"X1'-9"
8"	5	2'-3"X2'-3"
10"	9	3'-0"X3'-0"
12"	12	3'-5"X3'-5"
10"	16	4'-0"X4'-0"
12"	21	4'-7"X4'-7"

City of Morgan Hill Public Works Department			TEE THRUST BLOCK	DRAWING NO.
CITY ENGINEER	DATE 4/1/96	REVISED		W-19

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SCALES

0 ——— 1"

0 ——— 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER DANIEL BAUTISTA No. C93808 Exp. 9/30/24 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

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Revisions

WORK ACCEPTED: BY: INSPECTOR: DATE:

Kennedy/Jenks Consultants

2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

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CHECKED: JAC		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill

CITY OF MORGAN HILL

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

WATER DETAILS

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 22 OF 76

C-17

SHEET SIZE: 24x36

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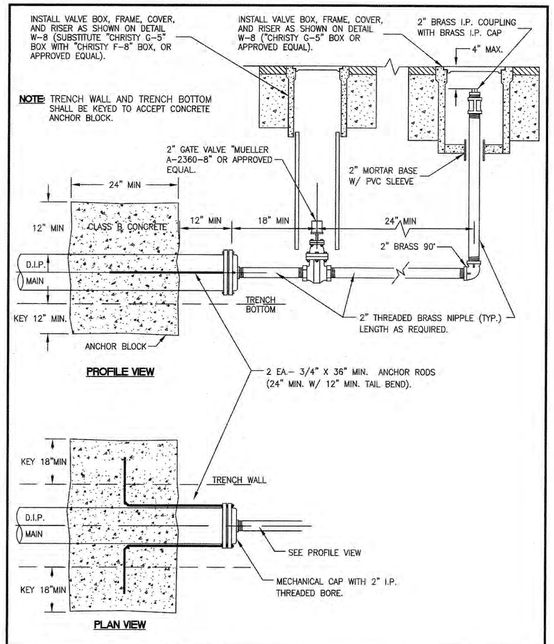
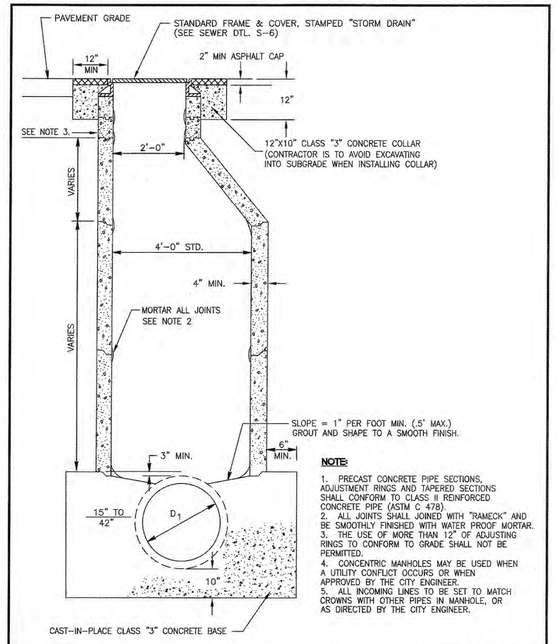


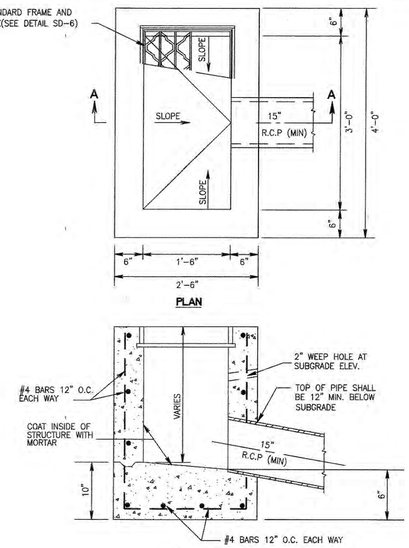
City of Morgan Hill Public Works Department			BLOW OFF	DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	3/15/07 REVISED		W-20



NOTE:

1. PRECAST CONCRETE PIPE SECTIONS, ADJUSTMENT RINGS AND TAPERED SECTIONS SHALL CONFORM TO CLASS II REINFORCED CONCRETE PIPE (ASTM C 478).
2. ALL JOINTS SHALL JOINED WITH "RAMECK" AND BE SMOOTHLY FINISHED WITH WATER PROOF MORTAR.
3. THE USE OF MORE THAN 12" OF ADJUSTING RINGS TO CONFORM TO GRADE SHALL NOT BE PERMITTED.
4. CONCENTRIC MANHOLES MAY BE USED WHEN A UTILITY CONFLICT OCCURS OR WHEN APPROVED BY THE CITY ENGINEER.
5. ALL INCOMING LINES TO BE SET TO MATCH CROWNS WITH OTHER PIPES IN MANHOLE, OR AS DIRECTED BY THE CITY ENGINEER.

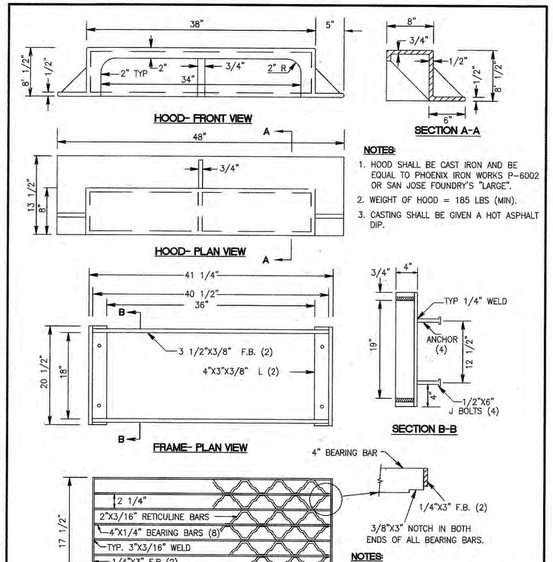
City of Morgan Hill Public Works Department			STORM DRAIN MANHOLE PIPE SIZES 15" TO 42"	DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	3/15/07 REVISED		SD-1



NOTES:

1. LARGER SIZE INLETS MAY BE REQUIRED AS INDIVIDUAL PROJECT DESIGN DICTATES.
2. DIMENSIONS SHALL BE SAME AS CURB INLET (SD-5), IF DROP INLET IS TO BE USED AS A FUTURE CURB INLET.

City of Morgan Hill Public Works Department			DROP INLET	DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	8/6/98 REVISED		SD-4



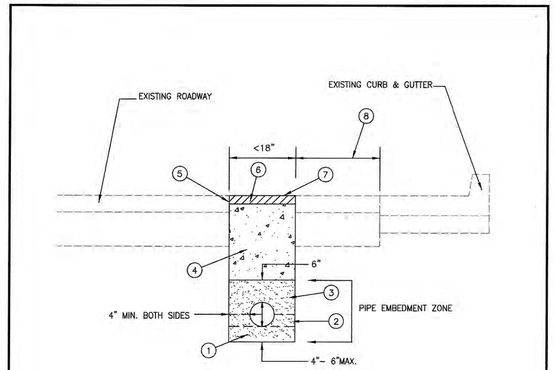
NOTES:

1. HOOD SHALL BE CAST IRON AND BE EQUAL TO PHOENIX IRON WORKS P-6002 OR SAN JOSE FOUNDRY'S "LARGE".
2. WEIGHT OF HOOD = 185 LBS (MIN).
3. CASTING SHALL BE GIVEN A HOT ASPHALT DIP.

NOTES:

1. FRAME AND GRATE SHALL BE EQUAL TO PHOENIX IRON WORKS P-6301 OR METALFAB M-1001.
2. MATERIAL TO BE HOT DIP GALVANIZED AFTER FABRICATION.

City of Morgan Hill Public Works Department			HOOD, FRAME, AND GRATE	DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	REVISED		SD-6

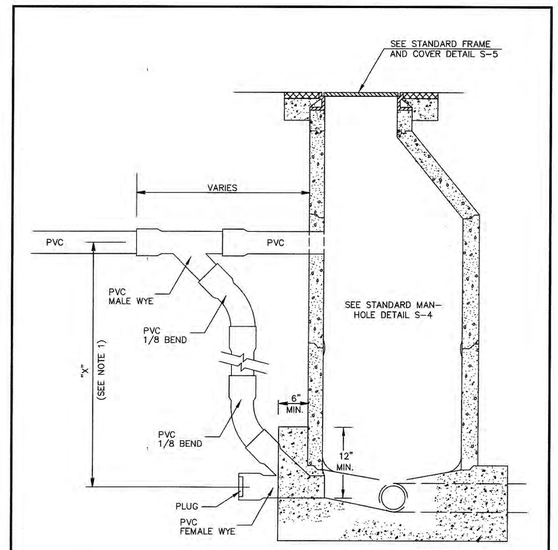


NOTES:

A. PIPE EMBEDMENT SHALL CONFORM TO THE PRACTICE RECOMMENDED FOR CLASS III MATERIAL (SAND) IN ASTM D 2321 "UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS".

1. SAND BEDDING, HAND PLACED AND COMPACTED TO 90% RELATIVE COMPACTION, 4" MIN. TO 6" MAX.
2. HAUNCHING, HAND PLACED AND COMPACTED TO 90% RELATIVE COMPACTION TO SPRING LINE OF PIPE.
3. INITIAL BACKFILL, INSTALL AND COMPACT TO A MINIMUM OF 6" ABOVE PIPE CROWN.
4. 1.5 SACK CEMENT SLURRY BACK FILL. CEMENT SLURRY BACKFILL TO BE CURED PER MANUFACTURERS REQUIREMENTS PRIOR TO PAVING.
5. SAW CUT EXISTING PAVEMENT, ALL VERTICAL EDGES SHALL BE TACKED PRIOR TO PAVING.
6. 1 1/2" AC (1/2" TYPE B).
7. SURFACE SHALL BE FOG SEALED AFTER PAVING. EXISTING ROADWAY SURFACE SHALL BE REPLACED IN KIND (OIL & SCREENED, SLURRY SEAL, ETC.)
8. IF DISTANCE IS LESS THAN 3 FEET, PAVEMENT RESTORATION SHALL EXTEND TO LIP OF GUTTER.

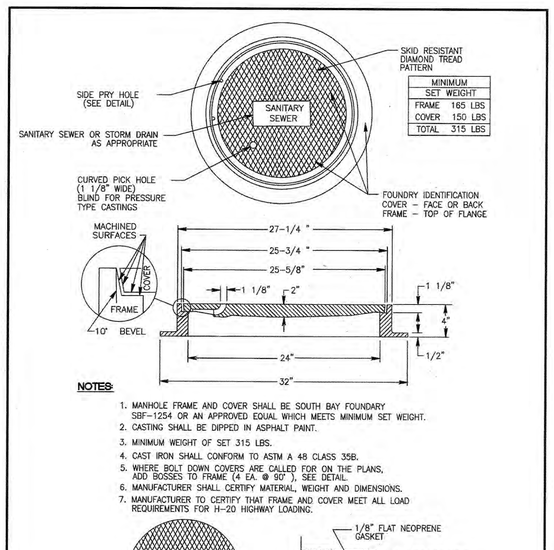
City of Morgan Hill Public Works Department			TRENCH RESTORATION/BACKFILL FOR TRENCH WIDTHS LESS THAN 18"	DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	3/15/07 REVISED		U-2



NOTES:

1. THIS DETAIL SHALL BE USED WHEN DISTANCE "X" IS GREATER THAN 2'-0" FROM INVERT OUT.
2. "OUTSIDE" DROP MANHOLE SHOWN. "INSIDE" MANHOLES MAY ONLY BE USED WITH WRITTEN PERMISSION OF THE CITY ENGINEER.
3. ALL PIPING SHALL BE SDR 26 PVC OR ABS.
4. CONNECTION TO PRE-CAST SECTION OF MANHOLE SHALL BE SEALED WITH "RAMNECK" TYPE GASKET MATERIAL AND SHALL BE MORTARED AS DESCRIBED IN NOTE 3 OF DETAIL S-4.

City of Morgan Hill Public Works Department			DROP MANHOLE	DRAWING NO.
Jim Ashcraft CITY ENGINEER	3/15/07 DATE	REVISED		S-5



NOTES:

1. MANHOLE FRAME AND COVER SHALL BE SOUTH BAY FOUNDARY SBF-1254 OR AN APPROVED EQUAL WHICH MEETS MINIMUM SET WEIGHT.
2. CASTING SHALL BE DIPPED IN ASPHALT PAINT.
3. MINIMUM WEIGHT OF SET 315 LBS.
4. CAST IRON SHALL CONFORM TO ASTM A 48 CLASS 35B.
5. WHERE BOLT DOWN COVERS ARE CALLED FOR ON THE PLANS, ADD BOSSES TO FRAME (4 EA. @ 90°), SEE DETAIL.
6. MANUFACTURER SHALL CERTIFY MATERIAL, WEIGHT AND DIMENSIONS.
7. MANUFACTURER TO CERTIFY THAT FRAME AND COVER MEET ALL LOAD REQUIREMENTS FOR H-20 HIGHWAY LOADING.

City of Morgan Hill Public Works Department			STANDARD MANHOLE FRAME & COVER	DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	3/15/07 REVISED		S-6

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SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER JOHEL BAUTISTA No. C93805 Exp. 9/30/24 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

WORK ACCEPTED: BY: DATE:

INSPECTOR: DATE:

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JGB	JGB	
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JAC		
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	4/30/24	K/J 2368021*00

SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
CITY OF MORGAN HILL
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

WATER AND STORM DRAIN DETAILS

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 23 OF 76

C-18

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:31 PM

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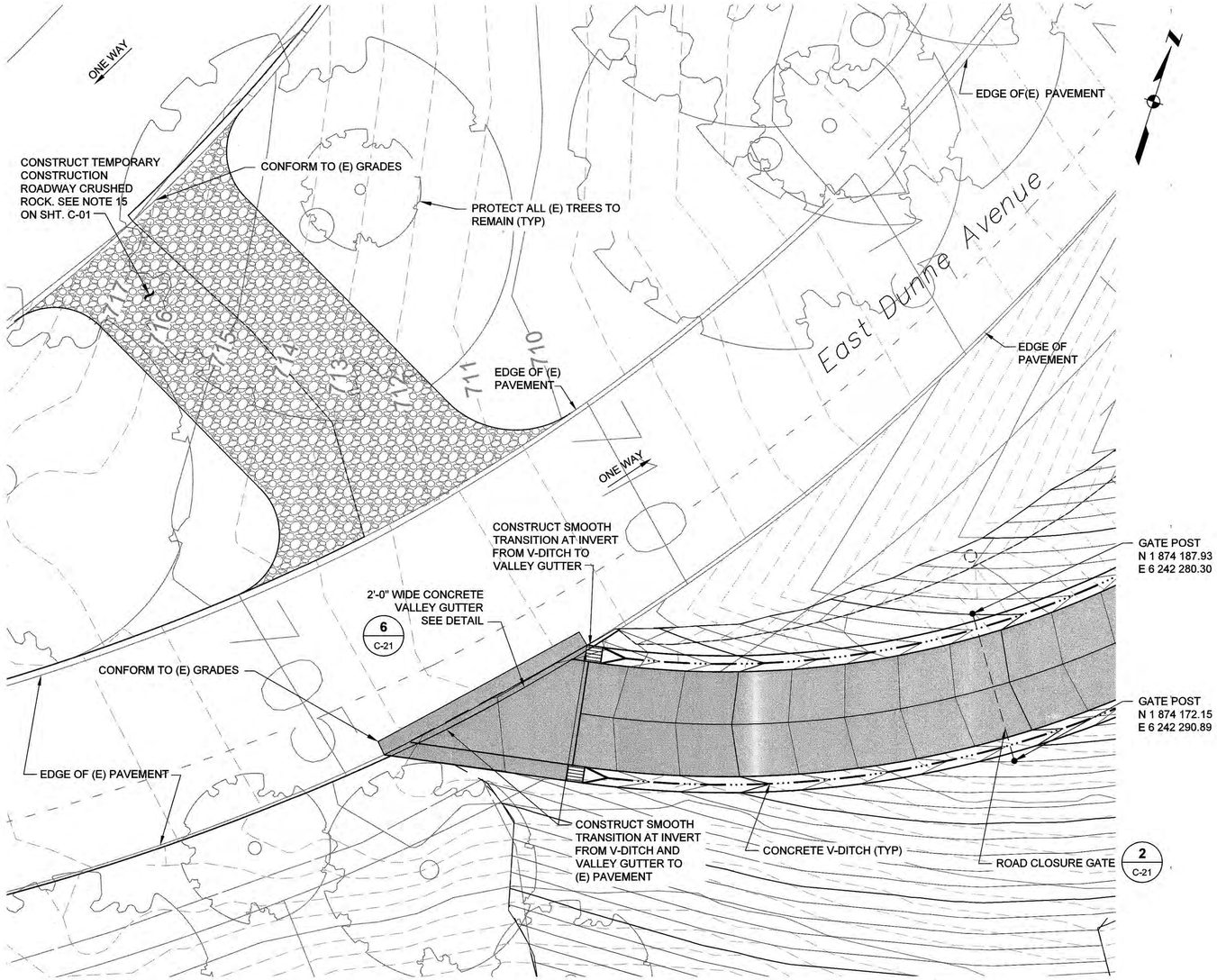

RESERVOIR ACCESS ROAD ENTRANCE DETAIL 1

0 5 10

1/8"=1'-0"

C-02 C-03

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:31 PM

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SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER PATRICK TRAN No. 82907 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

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WORK ACCEPTED: INSPECTOR:

BY: DATE:

Kennedy/Jenks Consultants©

2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: PT DESIGN: PT HOR:

CHECKED: JAC VERT:

APPROVED: DATE: 4/30/24 JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 69879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

RESERVOIR ACCESS ROAD DETAIL

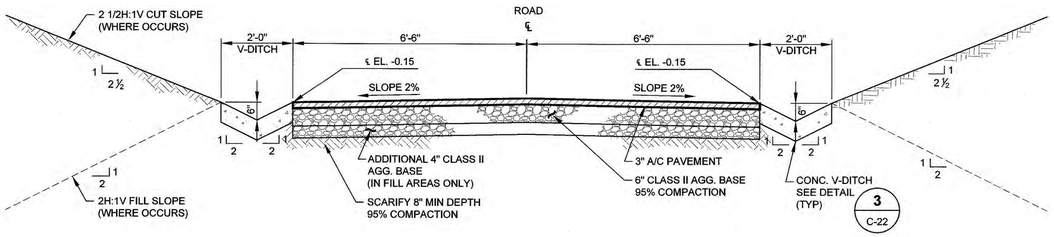
FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 24 OF 76

C-19

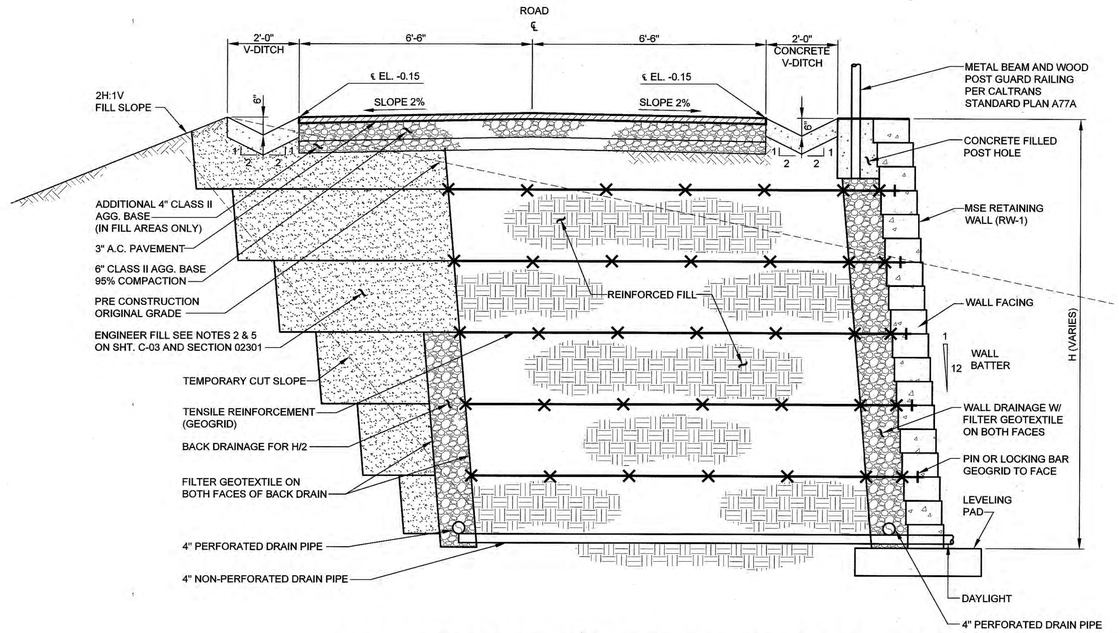
Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG



TYPICAL PAVED ACCESS ROAD SECTION (1 / C-03)

0 1 2 3

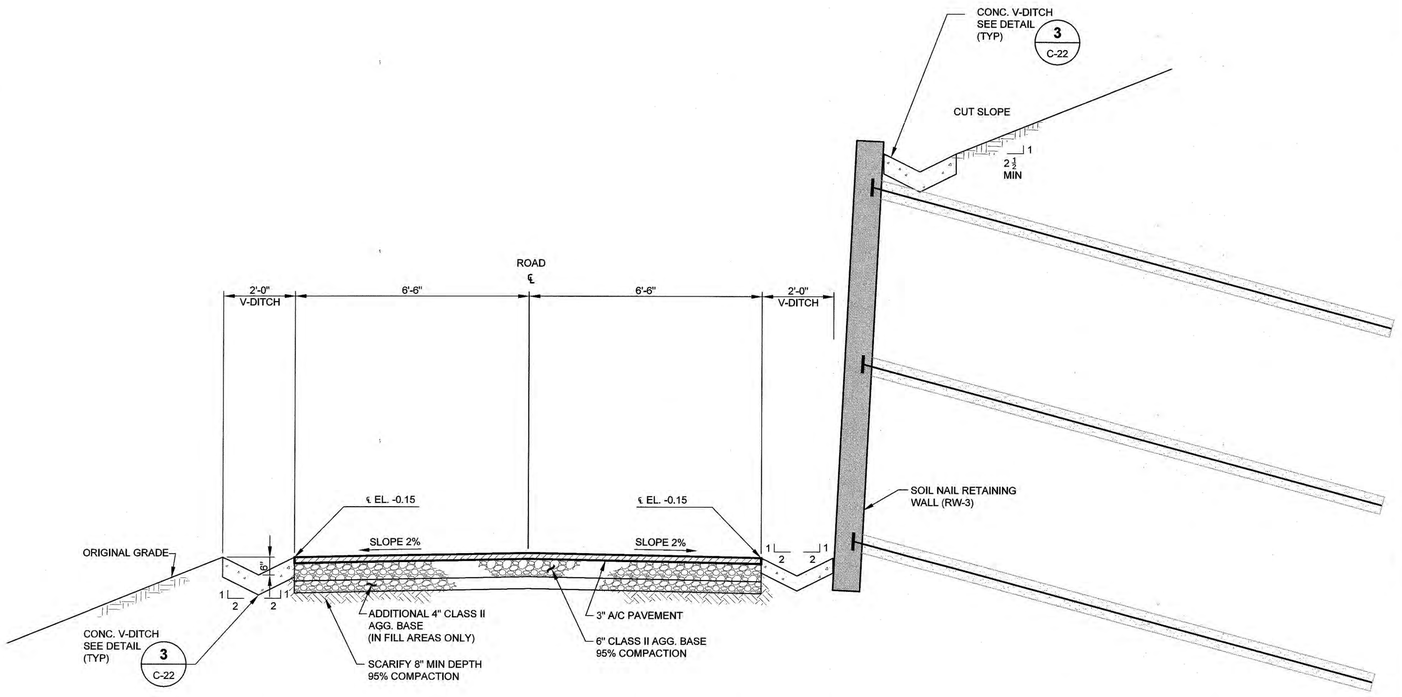
1/2"=1'-0"



PAVED ACCESS ROAD SECTION - STA. 3+01.70 TO 3+76.70 (2 / C-03)

0 1 2 3

1/2"=1'-0"



PAVED ACCESS ROAD SECTION - STA. STA 4+01.70 TO 4+77.90 (3 / C-03)

0 1 2 3

1/2"=1'-0"

SHEET NOTES:

1. SEE SHEET C-22 FOR V-DITCH CONSTRUCTION DETAILS.

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SCALES

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0 25mm

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REGISTERED PROFESSIONAL ENGINEER
RONALD LEE BARRETT
No. C45493
Exp. 12/31/24
CIVIL
STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

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BY: DATE:

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Kennedy/Jenks Consultants

2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

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JAC		
APPROVED:	DATE:	JOB NUMBER:
	4/30/24	KJ 2368021*00

SCOTT C. CREER, RCE 59879 — CITY ENGINEER, EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

RESERVOIR ACCESS ROAD SECTIONS

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 25 OF 76

C-20

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:31 PM

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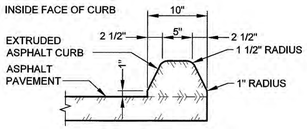
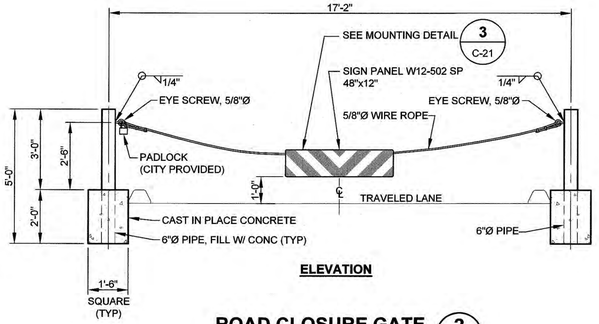


EXTRUDED ASPHALT CONCRETE CURB 1 C-05

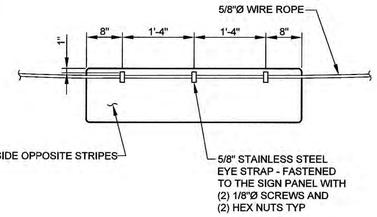
0 1 1"=1'-0"



ELEVATION

ROAD CLOSURE GATE 2 C-19

0 2 4 3/8"=1'-0"

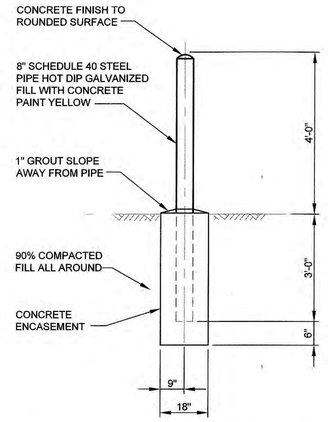


SIGN PANEL MOUNTING DETAIL 3 C-21

0 1 2 3/4"=1'-0"

NOTES:

1. USE PIPE THAT MEETS REQUIREMENTS OF ASTM A53 GRADE B.
2. PIPE SIZES SHOWN ARE FOR STANDARD WEIGHT BLACK IRON PIPE (SCH 40)
3. PAINT POST SAFETY YELLOW COLOR.
4. PLACE CONCRETE IN ACCORDANCE WITH SECTION 03300.
5. FILL OVER EXCAVATED POST HOLES WITH CONCRETE.
6. HARDWARE SHALL BE STAINLESS STEEL OR GALVANIZED IN ACCORDANCE WITH AASHTO M232.
7. SEE DWG C-19 FOR COORDINATES AT CENTER OF POST.

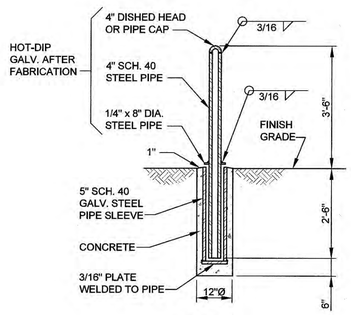


TYPICAL BOLLARD DETAIL 4 C-08

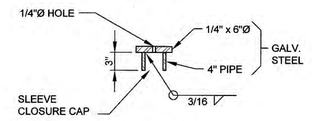
SCALE: NONE

NOTE:

1. STEEL PIPE SHALL BE SEAMLESS, CONFORMING TO TO ASTM A53, GRADE A.
2. HOT DIP GALVANIZED PIPE IN ACCORDANCE WITH ASTM A525, G-90 COMMERCIAL
3. BOLLARDS SHALL BE LOCATED A MIN. OF 4.5' AND MAX. OF 5.5' FROM IDENTIFIED FACILITY.



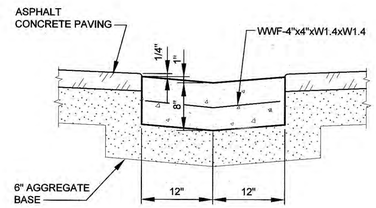
SECTION



CAP DETAIL

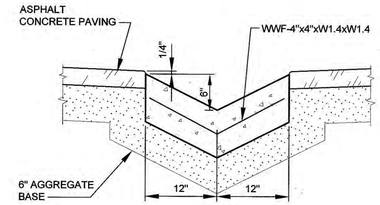
REMOVABLE BOLLARD DETAIL 5 C-08

SCALE: NONE



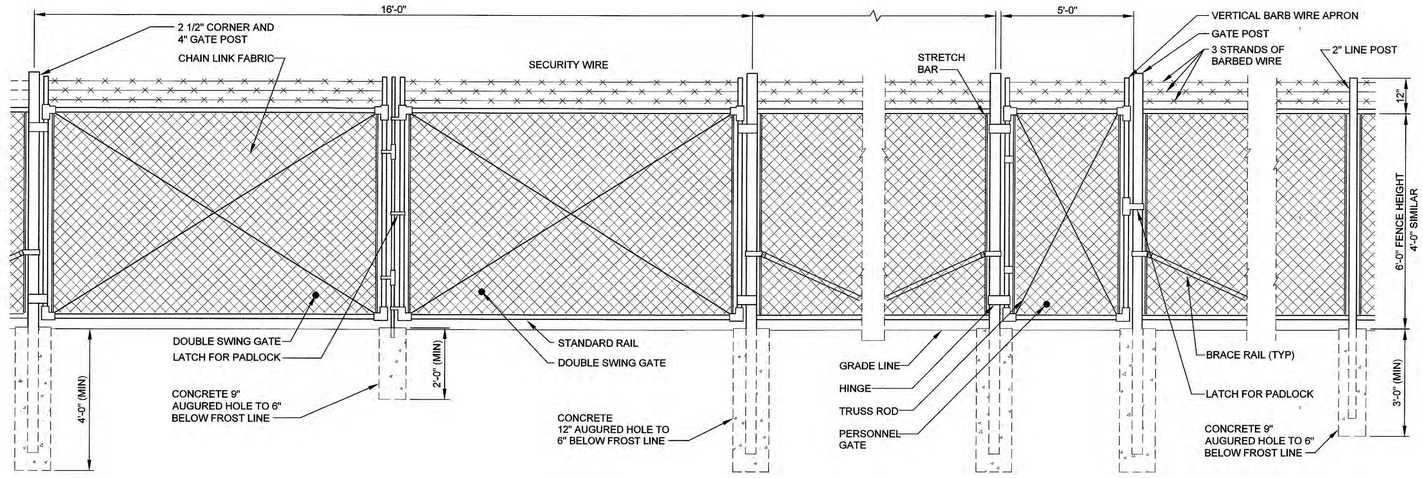
2-FOOT CONCRETE VALLEY GUTTER DETAIL 6 C-05

SCALE: NONE



2-FOOT CONCRETE V-DITCH 7 C-5

SCALE: NONE

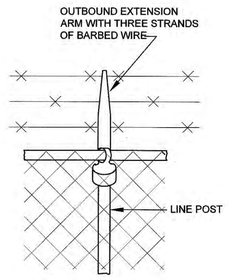


NOTES:

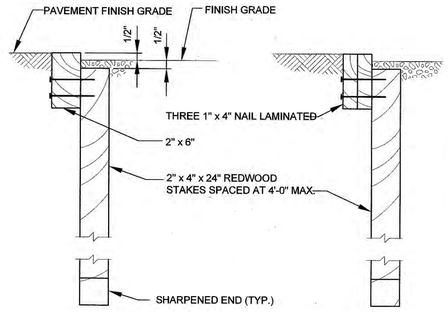
1. ALL FENCE MATERIAL SHALL BE GALVANIZED. FABRIC SHALL BE PVC COATED OVER GALVANIZED WIRE.
2. INSTALL CORNER POST WHERE DEFLECTION ANGLE IS 30 DEGREES OR MORE.
3. BRACE SYMMETRICAL ABOUT CORNER POSTS.
4. PROVIDE ADDITIONAL GATE POSTS AS REQUIRED BY MANUFACTURER.
5. ELECTRICALLY GROUND THE FENCE PER THE ELECTRICAL DRAWINGS.
6. SLOPE CONCRETE SURFACE TO DRAIN WATER AWAY FROM POST. SEE SPECIFICATION SECTION 02820.

CHAIN LINK FENCE AND GATE DETAIL 9 C-02 C-05

SCALE: NONE



LINE POST



STRAIGHT SECTION **CURVED SECTION**

NOTES:

1. STAKES & HEADER BOARDS CONSTRUCTION HEART REDWOOD FASTENED WITH 10D GALV. NAILS.
2. PROVIDE HEADER BOARD ON ALL EXPOSED ASPHALT PAVEMENT EDGES.

HEADER BOARD DETAIL 8 C-05

SCALE: NONE

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:31 PM

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SCALES
0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER PATRICK TRAN No. 82907 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

WORK ACCEPTED: INSPECTOR:
BY: DATE:
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Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

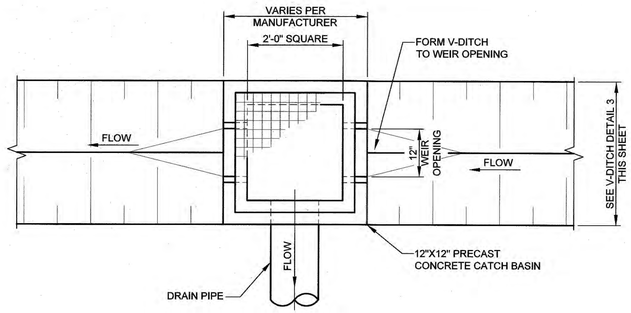
DRAWN: JGB DESIGN: DLB HOR:
CHECKED: JAC VERT:
APPROVED: DATE: 4/30/24 JOB NUMBER: K/J 2368021*00
SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

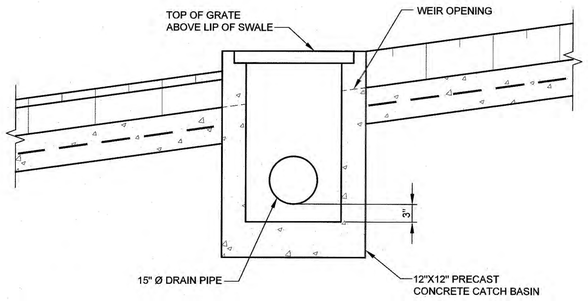
EAST DUNNE HILLSIDE WATER RESERVOIR

FENCING AND PAVING DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 26 OF 76
C-21

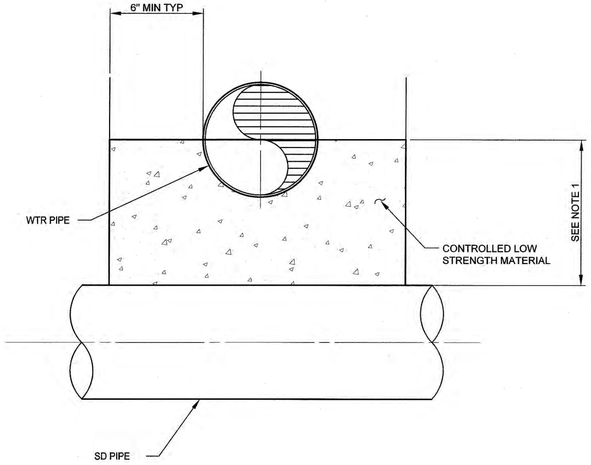


PLAN

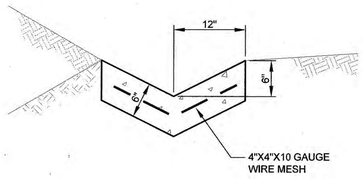


SECTION VIEW

DRAINAGE INLET DETAIL 1 / C-06
SCALE: NONE

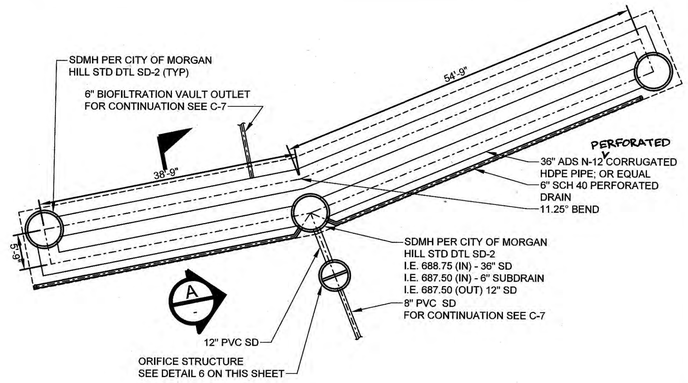


1. PROVIDE CONTROLLED LOW STRENGTH MATERIAL WHERE SEPARATION IS 1-FOOT OR LESS.



SECTION VIEW

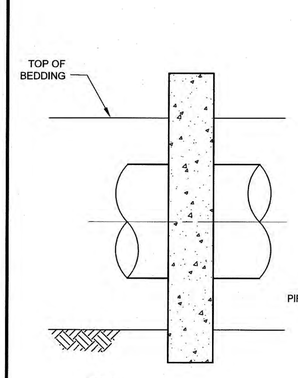
CONCRETE V-DITCH DETAIL 3 / C-06
SCALE: NONE

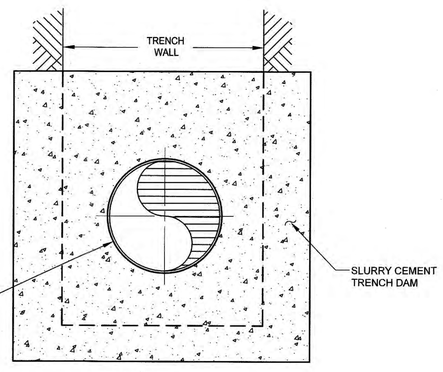


NOTES:

1. MATERIAL SHALL BE PLACED IN 8"-10" LIFTS. MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR-TAMPER, VIBRATORY ROD, OR BY OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR OR UNDER FOOT. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF THE ANY PIPE IN THE SYSTEM AT ALL TIMES DURING THE BACKFILL PROCESS.

RETENTION PIPE 5 / C-7
SCALE: NONE

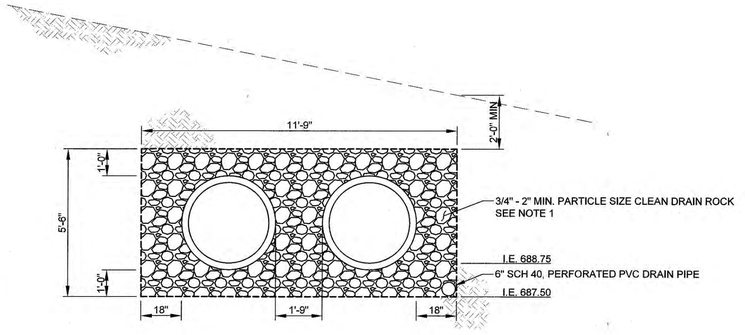




NOTES:

1. PROVIDE TRENCH DAMS AS SHOWN ON DRAWING PROFILES.
2. TRENCH DAMS SHALL BE KEYED INTO UNDISTURBED SOIL 12" MIN. BEYOND TRENCH WALLS & 6" BELOW TRENCH BOTTOM.

TRENCH DAM 4 / C-11
SCALE: NONE



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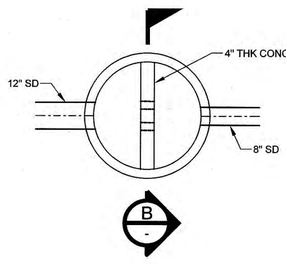
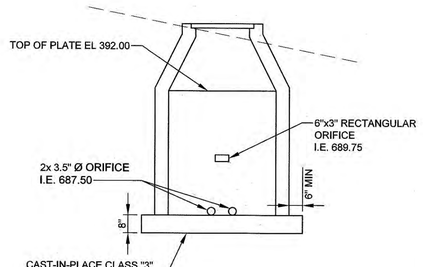
RETENTION PIPE SECTION A / -
SCALE: NONE



PLAN



SECTION B

NOTES:

1. CAST 4" THK CONC ORIFICE PLATE INTO MANHOLE PER CITY OF MORGAN HILL STD DTL SD-1.
2. FLOOR OF ORIFICE STRUCTURE MANHOLE SHALL BE LEVEL WITH NO CHANNELS.

ORIFICE STRUCTURE 6 / -
SCALE: NONE

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REGISTERED PROFESSIONAL ENGINEER — JOMEL BAUTISTA — No. C93866 — Exp. 9/30/24 — CIVIL — STATE OF CALIFORNIA
04/29/24

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2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

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SCOTT C. CREER RCE 58679 — CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

DRAINAGE DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 27 OF 76
C-22

SHEET SIZE: 24x36
PATRICK TRAN 4/29/2024 10:24 PM
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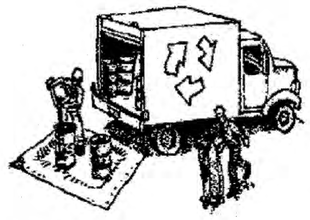
Construction Best Management Practices (BMPs)

Construction projects are required to implement the latest stormwater best management practices (BMP), as they apply to your project, all year long.

Water Pollution Prevention Program
Clean Water. Healthy Community.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control

Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving

- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

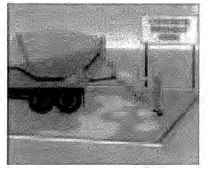
Paving/Asphalt Work

- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

Concrete, Grout & Mortar Application

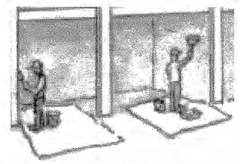


- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping

- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

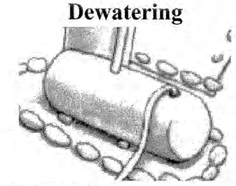
Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering



- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

SHEET SIZE: 24x36
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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — DONALD LEE BASKINS — No. C45493 Exp. 12/31/24 — CIVIL — STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

p:\proj\ Revisions

WORK ACCEPTED: INSPECTOR:
BY: DATE:

Kennedy/Jenks Consultants
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: JGB	DESIGN: JGB	HOR:
CHECKED: JAC		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58879 — CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
CITY OF MORGAN HILL
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

CONSTRUCTION BMPS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 28 OF 76
C-23

WATER EFFICIENT LANDSCAPE (MWELO) WORKSHEET - NON-RESIDENTIAL

Project Information

Date	16-Dec-2016
Project Applicant	RHAA Landscape Architecture and Planning
Project Address	East Dunne Ave. Morgan Hill, CA
Total Landscape Area	2,813 sq ft
Project Type	Public
Water Supply Type	Potable
Project Contact Project Applicant	(415) 383-7900
Project Contact Project Owner	City of Morgan Hill

"I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package"

Barbara Lundburg CA LA # 1591

Name of City Morgan Hill

Reference Evapotranspiration (Eto) = **49.5** inches/year

Hydrozone (a)			Plant Description	Plant Factor (PF) (g)	Irr Method (b)	Irrigation Efficiency IE (c)	ETAF (PF/IE) (f)	Landscape Area (sq ft)	ETAF x Area	Estimated Total Water Use (ETWU) (e)
REGULAR LANDSCAPE AREAS										
Shrubs	1		Low	0.3	Drip	0.81	0.37	219	81	2,489
Shrubs	2		Low	0.3	Drip	0.81	0.37	206	76	2,342
Trees	3		Low	0.3	Drip	0.81	0.37	144	53	1,637
Shrubs	4		Low	0.3	Drip	0.81	0.37	175	65	1,989
Shrubs	5		Low	0.3	Drip	0.81	0.37	331	123	3,762
Shrubs	6		Low	0.3	Drip	0.81	0.37	213	79	2,421
Trees	7		Low	0.3	Drip	0.81	0.37	99	37	1,125
Shrubs	8		Low	0.3	Drip	0.81	0.37	156	58	1,773
Shrubs	9		Low	0.3	Drip	0.81	0.37	138	51	1,569
Shrubs	10		Low	0.3	Drip	0.81	0.37	238	88	2,705
Shrubs	11		Low	0.3	Drip	0.81	0.37	250	93	2,842
Trees	12		Low	0.3	Drip	0.81	0.37	306	113	3,478
Shrubs	13		Low	0.3	Drip	0.81	0.37	338	125	3,842
Trees	14		Low	0.3	Drip	0.81	0.37	171	63	1,944
							TOTALS	2,813 (A)	1,042 (B)	

SPECIAL LANDSCAPE AREAS (SLA)				
Recreation Areas		1	0	0
Edible Plants		1	0	0
Recycled Water		1	0	0
	TOTALS	0 (C)	0 (D)	

ETWU Total	31,974
Maximum Allowed Water Allowance (MAWA) (e)	38,849

(a) ***Hydrozone #/Planting Description***
E g
1.) front law n
2.) low w ater use plantings
3.) medium w ater use planting

(b) ***Irrigation Method***
overhead spray
or drip

(c) ***Irrigation Efficiency***
0.75 for spray head
0.81 for drip

(d) ***ETWU* (Annual Gallons Required) =** *Eto x 0.62 x ETAF x Area*
w here 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

(e) ***MAWA (Annual Gallons Allowed) =*** *(Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]*
w here 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet,

(f) ***ETAF Evapotranspiration Ajustment Factor***
Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

ETAF Calculations

Regular Landscape Areas		
Total ETAF x Area	1,042	(B)
Total Area	2,813	(A)
Average ETAF	0.37	(B/A)

All Landscape Areas		
Total ETAF x Area	1,042	(B + D)
Total Area	2,813	(A + C)
Sitewide ETAF	0.37	(B + D) / (A + C)

(g) ***Plant Factor***

Very Low Water Use	0.1
Low Water Use	0.1 - 0.3
Moderate Water Use	0.4 - 0.6
High Water Use	0.7 - 1.0

IRRIGATION LEGEND

		COMMENTS
■	IRRIGATION PUMP	RAINBIRD PUMP SPEC #:CVM102518501A PUMP PLATFORM:M1L003N0L0000230F3
◢	BACKFLOW PREVENTOR	FEBCO 825 Y OR APPROVED EQUAL
MV	MASTER VALVE	CAST IRON BODY, DIAPHRAGM TYPE VALVE, WITH FILTER
FS	FLOW SENSOR	RAIN BIRD, OR APPROVED EQUAL, PER MANUFACTURER'S RECOMMENDATIONS
A	CONTROLLER	RAIN BIRD ESP-LXME-ET, 12-48 STATIONS OR APPROVED EQUAL
◕	REMOTE CONTROL VALVE	CAST IRON BODY, DIAPHRAGM TYPE VALVE,
Ⓣ	TREE BUBBLER	RAINBIRD RWS-M-B-C-1402, OR APPROVED EQUAL, 2 PER TREE, 0.5 GPM
●	SHRUB BUBBLER	RAINBRID 1402, OR APPROVED EQUAL, 1 PER SHRUB, 0.5 GPM
⋈	GATE VALVE	LINE SIZE
– – – –	MAINLINE PIPE	2-1/2" SCHEDULE 40 PVC
– – – –	RESERVOIR CONNECTION	SEE CIVIL DRAWINGS
———	LATERAL LINE PIPE	SCHEDULE 40 PVC
– – – – ⬡	SLEEVE AND SIZE	SCHEDULE 40 PVC
POC	POINT OF CONNECTION	12" PIPELINE WITH 10 PSI PRESSURE

CONTROLLER / STATION NUMBER
GALLON PER MINUTE OF ZONE
VALVE SIZE
TREE VALVE

PIPE SIZING CHART

SIZE	GPM
1"	9-12
1 1/4"	13-21
1 1/2"	22-30
2"	31-49
2 1/2"	50-70

IRRIGATION NOTES

1. REFER TO PLANS, DETAILS AND SPECIFICATIONS FOR IRRIGATION SYSTEM COMPONENTS, INSTALLATION, MAINTENANCE, SCHEDULING, AND REPORTING REQUIREMENTS.
2. COMPLY WITH CITY OF MORGAN HILL PROCEDURES & REQUIREMENTS, ALL CITY REQUIREMENTS, AND THE STATE WATER EFFICIENT LANDSCAPE ORDINANCE. ORDINANCE CRITERIA HAS BEEN APPLIED ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN.
3. THESE IRRIGATION DRAWINGS ARE DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE INSTALLED. ALL PIPING, VALVES, AND OTHER IRRIGATION COMPONENTS ARE TO BE INSTALLED WITHIN PLANTING AREAS TO THE GREATEST EXTENT POSSIBLE. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, CONDUIT, AND OTHER ITEMS WHICH MAY BE REQUIRED.
4. INVESTIGATE THE EXISTING AND PROPOSED FINISHED CONDITION OF THE WORK. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY CONFLICTS AND/OR DISCREPANCIES BETWEEN EXISTING AND PROPOSED CONDITIONS WHICH WILL AFFECT THE WORK, BEFORE PROCEEDING WITH THE WORK. IN THE EVENT THESE NOTIFICATIONS ARE NOT PERFORMED, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR REQUIRED REVISIONS.
5. COORDINATE ALL WORK WITH OTHER TRADES, INCLUDING THE INSTALLATION OF ALL PIPE, CONDUIT AND SLEEVES THROUGH OR UNDER WALLS, ROADWAYS, PAVING AND STRUCTURES.
6. PRIOR TO TRENCHING AND DIGGING, CONTACT USA (800-227-2600) TO LOCATE ALL UNDERGROUND UTILITIES. BE RESPONSIBLE FOR MINOR CHANGES IN THE IRRIGATION LAYOUT DUE TO OBSTRUCTIONS NOT SHOWN ON THE IRRIGATION DRAWINGS SUCH AS UNDERGROUND UTILITIES, VAULTS, ETC. AVOID CONFLICTS WITH UNDERGROUND UTILITIES, NEW PLANTING, SITE OR ARCHITECTURAL ELEMENTS, AND EXISTING TREES; ANY DAMAGE TO THESE CAUSED BY THE INSTALLATION OF THE IRRIGATION SYSTEM SHALL BE REPAIRED AND/OR REPLACED AT NO EXPENSE TO THE OWNER.
7. DO NOT TRENCH OR INSTALL IRRIGATION PIPING OR EQUIPMENT IN LIME-TREATED SOIL.
8. VERIFY FLOW RATE AND PRESSURE AT THE POINT OF CONNECTION PRIOR TO THE INSTALLATION OF THE IRRIGATION SYSTEM AND NOTIFY THE OWNER'S REPRESENTATIVE OF TEST RESULTS BEFORE CONSTRUCTION BEGINS. NOTIFY LANDSCAPE ARCHITECT IF PRESSURE IS GREATER OR LESS THAN THE STATIC PRESSURE STATED ON THE PLANS TO DETERMINE PUMP SETTINGS.
9. INSTALL ALL IRRIGATION EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
10. INSTALL ONE SPARE COMMON AND CONTROL WIRE FROM EACH CONTROLLER IN A CONTINUOUS LOOP THROUGH EACH VALVE BOX FOR FUTURE USE.
11. WHERE PIPE SIZES HAVE BEEN OMITTED OR THERE IS A CONFLICT, REFER TO THE LATERAL PIPE SIZING CHART FOR SIZES. AS CHANGES IN LAYOUT OCCUR DURING STAKING AND CONSTRUCTION, PIPE SIZES MAY NEED TO BE ADJUSTED ACCORDINGLY. ALL LATERAL END RUNS SHALL BE 1" SIZE UNLESS OTHERWISE NOTED.
12. THE REMOTE CONTROL VALVES SPECIFIED ON THE DRAWINGS ARE PRESSURE REDUCING TYPES. SET THE DISCHARGE PRESSURE AS RECOMMENDED BY MANUFACTURER.
13. CONTRACTOR TO ASSUME (4) ADDITIONAL CONTROL VALVES TO BE INSTALLED AS NEEDED.
14. LARGE AREAS OF ORNAMENTAL GRASSES ARE TO BE IRRIGATED BY A DEDICATED CONTROL VALVE.
15. MINIMUM OPERATING PRESSURE OF THIS SYSTEM IS 30 PSI.
16. WHERE IRRIGATION PIPES ARE ADJACENT TO SITE FENCE AND PAVEMENT BOUNDARIES LOCATE PIPELINES OUTSIDE FENCE LINE
17. COORDINATE (N) IRRIGATION PUMP STATION, PEDESTAL MOUNTED CONTROLLER, IRRIGATION BACKFLOW, MASTER VALVE AND FLOW SENSOR WITH ELECTRICAL AND CATHODIC PROTECTION EQUIPMENT AND PANELS LOCATED IN THIS AREA. SEE ELECTRICAL DRAWINGS.

ISSUED FOR BID

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

LICENSED LANDSCAPE ARCHITECT — Barbara Lundburg — Signature 04/19/2024 — Renewal Date 12/12/2023 — 1591 — STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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WORK ACCEPTED: INSPECTOR: BY: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

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APPROVED: DATE: 4/30/24		JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58879 — CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

IRRIGATION NOTES

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 29 OF 76
L-01

SHEET SIZE: 24x36
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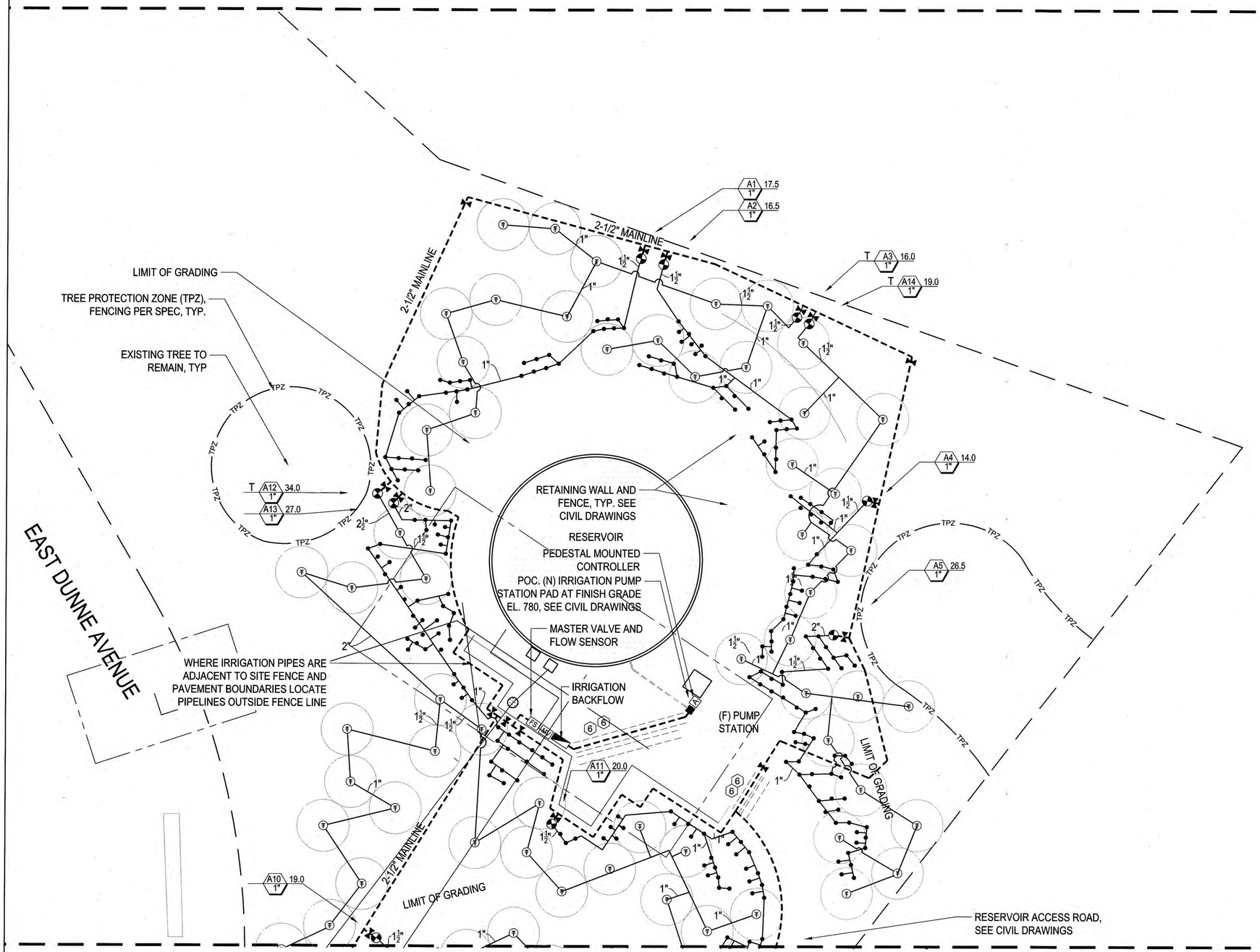

MATCHLINE - SEE SHEET L-03

IRRIGATION LEGEND

■	IRRIGATION PUMP	RAINBIRD PUMP SPEC #:CVM102518501A PUMP PLATFORM:M1L003N0L0000230F3
◢	BACKFLOW PREVENTOR	FEBCO 825 Y OR APPROVED EQUAL
MV	MASTER VALVE	CAST IRON BODY, DIAPHRAGM TYPE VALVE, WITH FILTER
FS	FLOW SENSOR	RAIN BIRD, OR APPROVED EQUAL, PER MANUFACTURER'S RECOMMENDATIONS
A	CONTROLLER	RAIN BIRD ESP-LXME-ET, 12-48 STATIONS OR APPROVED EQUAL
◕	REMOTE CONTROL VALVE	CAST IRON BODY, DIAPHRAGM TYPE VALVE,
T	TREE BUBBLER	RAINBIRD RWS-M-B-C-1402, OR APPROVED EQUAL, 2 PER TREE, 0.5 GPM
•	SHRUB BUBBLER	RAINBRID 1402, OR APPROVED EQUAL, 1 PER SHRUB, 0.5 GPM
⋈	GATE VALVE	LINE SIZE
– – –	MAINLINE PIPE	2-1/2" SCHEDULE 40 PVC
– – –	RESERVOIR CONNECTION	SEE CIVIL DRAWINGS
———	LATERAL LINE PIPE	SCHEDULE 40 PVC
– – – ⬡	SLEEVE AND SIZE	SCHEDULE 40 PVC
POC	POINT OF CONNECTION	12" PIPELINE WITH 10 PSI PRESSURE
T A1 0.0 1"	CONTROLLER / STATION NUMBER GALLON PER MINUTE OF ZONE VALVE SIZE TREE VALVE	

COMMENTS

PIPE SIZING CHART

SIZE	GPM
1"	9-12
1 1/4"	13-21
1 1/2"	22-30
2"	31-49
2 1/2"	50-70

N

0 10' 20' 40'

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LICENSED LANDSCAPE ARCHITECT Barbara Landsburg Lieb Signature 04/19/2024 Renewal Date 12/12/2025 Date STATE OF CALIFORNIA

04/19/24

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Revisions

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City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

IRRIGATION PLAN - I

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 30 OF 76

L-02

SHEET SIZE: 24x36

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MATCHLINE - SEE SHEET L-02

EAST DUNNE AVENUE

EAST DUNNE AVENUE

RESERVOIR ACCESS ROAD, SEE CIVIL DRAWINGS

LIMIT OF GRADING

LIMIT OF GRADING

2-1/2" MAINLINE

A6 17.0 1"

T A7 11.0 1"

A8 12.5 1"

A9 11.0 1"

TPZ

TREE PROTECTION ZONE (TPZ), FENCING PER SPEC, TYP.

EXISTING TREE TO REMAIN, TYP

EXISTING TREE TO REMAIN, TYP

IRRIGATION LEGEND

■	IRRIGATION PUMP	RAINBIRD PUMP SPEC #:CVM102518501A PUMP PLATFORM:M1L003N0L0000230F3
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POC	POINT OF CONNECTION	12" PIPELINE WITH 10 PSI PRESSURE

T A1 0.0 1"

CONTROLLER / STATION NUMBER
GALLON PER MINUTE OF ZONE
VALVE SIZE
TREE VALVE

COMMENTS

PIPE SIZING CHART

SIZE	GPM
1"	9-12
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2 1/2"	50-70

N

0 10' 20' 40'

SCALES

0 1"

0 25mm

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LICENSED LANDSCAPE ARCHITECT Barbara Lindburg Lipsey Signature 04/19/2024 Renewal Date 12/13/2023 Date STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

WORK ACCEPTED: INSPECTOR:

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SCOTT C. CREER RCE 59879 CITY ENGINEER EXP: 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

IRRIGATION PLAN - II

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 31 OF 76

L-03

SHEET SIZE: 24x36

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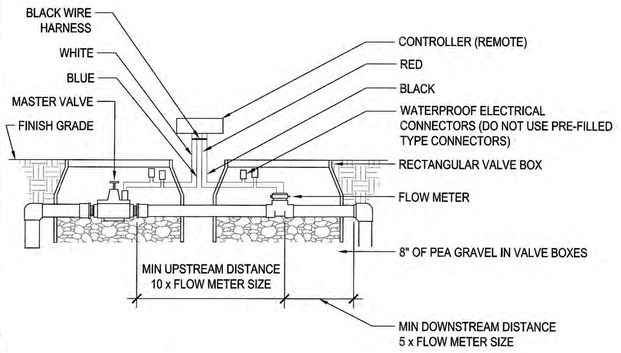


3 MASTER VALVE AND FLOW METER

SCALE: 3/4" = 1'-0"

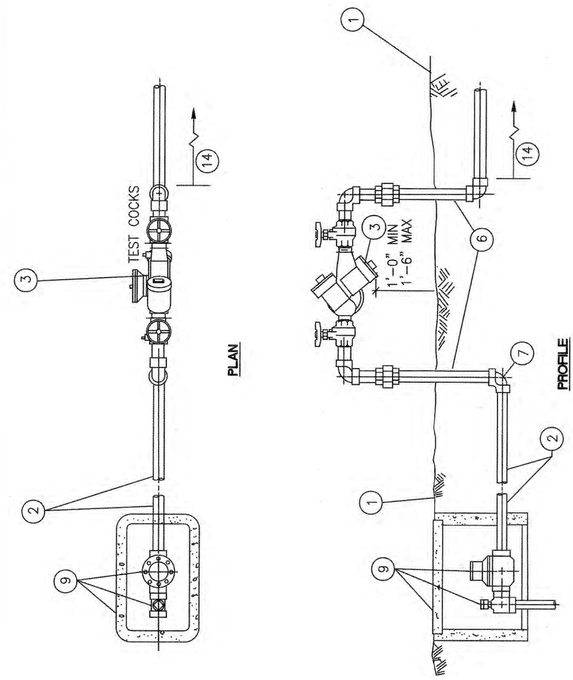
LEGEND

1. FINISHED GRADE.
2. SERVICE SIZE GALVANIZED STEEL PIPE FROM WATER METER.
3. REDUCED PRESSURE BACKFLOW PREVENTER FEBCO 825Y (OR APPROVED EQUAL) FOR SIZES 1" TO 2" AND FEBCO 825 YD (OR APPROVED EQUAL) FOR SIZES 2 1/2" TO 4".
4. ADJUSTABLE PIPE SADDLE SUPPORT, GALVANIZED STEEL, SUITABLE FOR SUPPORTING GENERAL PIPNG 4" AND LARGER, FROM FLOOR (12" MIN. AND 18" MAX. DISTANCE FROM BOTTOM OF DEVICE TO FLOOR).
5. 6" CONCRETE ENCLOSURE PAD, SIZE AS SHOWN ON THE PLAN.
6. SERVICE SIZE GALVANIZED STEEL PIPE RISER WITH A MINIMUM OF TWO (2) UNIONS FOR THREADED CONNECTIONS.
7. 90° ELBOW, FLANGED OR THREADED.
8. CONCRETE THRUST BLOCK (SEE DETAIL W-17 FOR MINIMUM THRUST BLOCK DIMENSIONS.)
9. WATER SERVICE BY OTHERS PER DTL. W-1
10. DOUBLE DETECTOR CHECK VALVE ASSEMBLY TO BE FEBCO 806 YD OR APPROVED EQUAL
11. VALVES TO BE MUELLER O.S & Y.A-2473-6 OR APPROVED EQUAL, CHAINED AND LOCKED WITH "KNOX BOX" TYPE LOCK, AND TAMPER SWITCH.
12. ALL PIPE SHALL BE DUCTILE IRON PIPE (D.I.P), AND ALL FITTINGS SHALL BE FLANGED.
13. FIRE DEPARTMENT CONNECTION, F.D.C., SHALL BE 4" RISER X 2.5" X 2.5" SIAMESE CONNECTIONS AND STRAIGHT WAY CHECK VALVE, ("KWIK-CHECK" OR APPROVED EQUAL), WITH METAL CAPS. WHEN THE F.D.C. SERVES ON-SITE FIRE HYDRANTS, THE ASSEMBLY SHALL BE 6" MINIMUM (RISER) x 2.5" x 2.5" x 2.5" x 2.5" (CONNECTIONS). LOCATION OF F.D.C. RISER TO BE NO MORE THAN 40' FROM THE NEAREST FIRE HYDRANT. CONTRACTOR MAY BE REQUIRED TO INSTALL A NEW HYDRANT IF THE ABOVE ABOVE REQUIREMENT CANNOT BE MET. LOCATION OF BYPASS CONNECTION SHALL BE MADE BEHIND THE THE DEVICE (DOWN-STREAM SIDE).
14. TYPE OF PIPE FROM THIS POINT INWARD, PER APPROVED PLAN.

NOTES:

1. GATE VALVES AND TEST COCKS ARE REQUIRED.
2. WATER SUPPLY- NO CONNECTIONS OR TEES WILL BE ALLOWED BETWEEN THE WATER METER AND BACKFLOW UNIT.
3. PROTECTION FROM FREEZE DAMAGE MAY BE REQUIRED IN EXPOSED AREAS.
4. DEVICE MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE.
5. WRAP BURIED GALVANIZED PIPE WITH 10 MIL PVC TAPE.
6. ASSEMBLY MUST BE TESTED BY A TESTER APPROVED BY THE CITY OF MORGAN HILL. THE CITY APPROVED TESTER LIST CAN BE OBTAINED BY CALLING 408-776-7333.
7. ASSEMBLY MUST BE LOCATED ABOVE GROUND AND DIRECTLY BEHIND WATER METER AS SHOWN ON DTL W-6 ,W-7 AND W-8.
8. ADDITIONAL INFORMATION MAY BE OBTAINED FROM M.H. ORDINANCE 647 NEW SERIES, ADOPTED OCT, 1993
9. ALL DEVICES MUST BE APPROVED BY THE "FOUNDATION FOR CROSS CONNECTION AND HYDRAULIC RESEARCH".

City of Morgan Hill Public Works Department			DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	3/15/07 REVISED	W-10
BACKFLOW PREVENTION LEGEND & NOTES			



FOR NOTES AND LEGEND, SEE DETAIL W-10

(FOR SIZES 1 " TO 2" BACKFLOW UNITS SHALL BE FEBCO 825 Y OR APPROVED EQUAL)

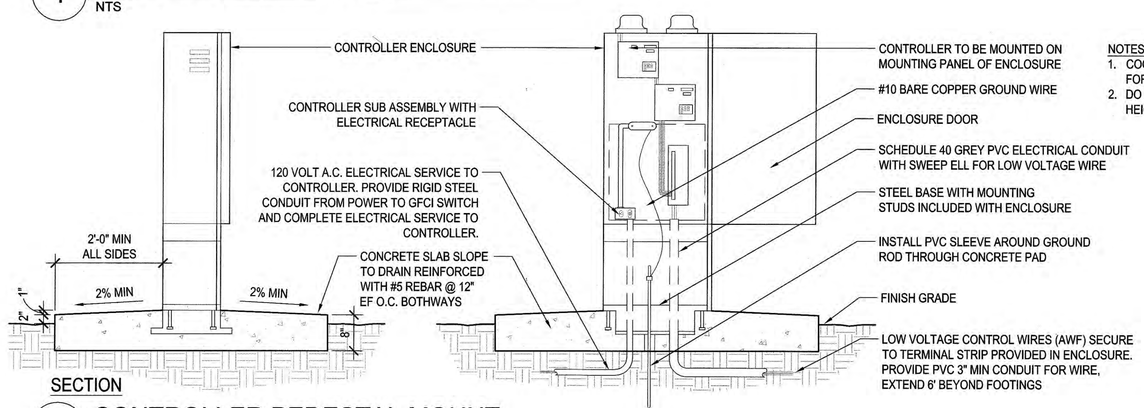
NOTE

1. PIPING BETWEEN BACKFLOW DEVICE AND METER SHALL BE EXPOSED FOR INSPECTION BY THE UTILITY SYSTEMS MANAGER.

City of Morgan Hill Public Works Department			DRAWING NO.
Jim Ashcraft CITY ENGINEER	4/1/96 DATE	3/15/07 REVISED	W-6
REDUCED PRESSURE BACKFLOW PREVENTER (SIZES 1" TO 2")			

1 BACKFLOW PREVENTER

NTS



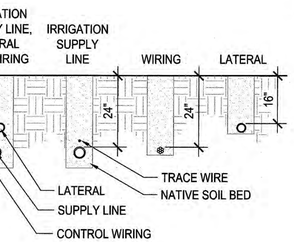
SECTION

NOTES:

1. COORDINATE WITH ELECTRICAL FOR CONDUIT AND GROUNDING.
2. DO NOT EXCEED 54-INCH MAX HEIGHT FOR CONTROLS.

2 CONTROLLER PEDESTAL MOUNT

SCALE: 3/4" = 1'-0"



NOTES:

1. LAY IRRIGATION SUPPLY LINE ON NATIVE SOIL BED UNLESS SAND BED IS SPECIFIED.
2. BUNDLE AND TAPE WIRE EVERY TEN FEET.
3. PROVIDE 36" COVER OVER ALL PIPE AND PIPE SLEEVES UNDER ROADWAYS, PARKING LOTS, ENTRANCES TO PARKING LOTS AND FIRE ACCESS LANES PER NFPA 24, SECTION 10.44.
4. PROVIDE SEPARATE SLEEVES FOR ALL WIRES CROSSING UNDER ROADWAYS, PARKING LOTS AND FIRE ACCESS LANES PER NFPA 24, SECTION 10.44.

4 IRRIGATION TRENCHING

SCALE: 1/2" = 1'-0"

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED LANDSCAPE ARCHITECT Brian Lundburg Hardgrove Signature 04/19/2024 Renewal Date 12/12/2023 Date STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

WORK ACCEPTED: INSPECTOR:
BY: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN:	DESIGN:	HOR:
RHAA - MD/CA/NG	RHAA - MD/CA/NG	
CHECKED: MD/BL		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
CITY OF MORGAN HILL
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

IRRIGATION DETAILS - I

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 32 OF 76
L-04

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:33 PM
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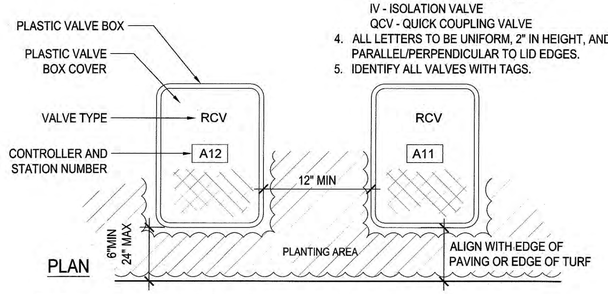
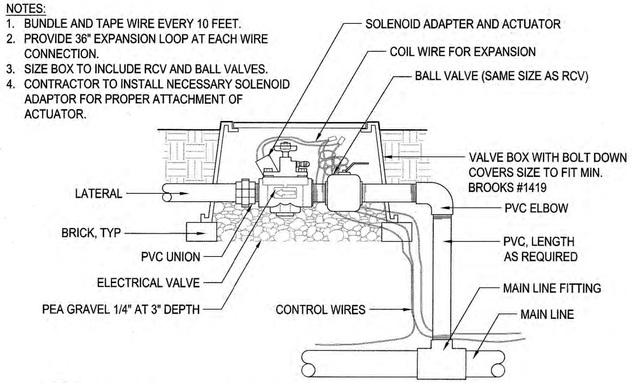
NOTES:
1. IDENTIFY CONTROLLER AND STATION NUMBER.
2. IDENTIFY VALVE TYPE.
3. VALVE TYPE ABBREVIATIONS:
   GV - GATE VALVE
   RCV - REMOTE CONTROL VALVE
   IV - ISOLATION VALVE
   QCV - QUICK COUPLING VALVE
4. ALL LETTERS TO BE UNIFORM, 2" IN HEIGHT, AND PARALLEL/PERPENDICULAR TO LID EDGES.
5. IDENTIFY ALL VALVES WITH TAGS.

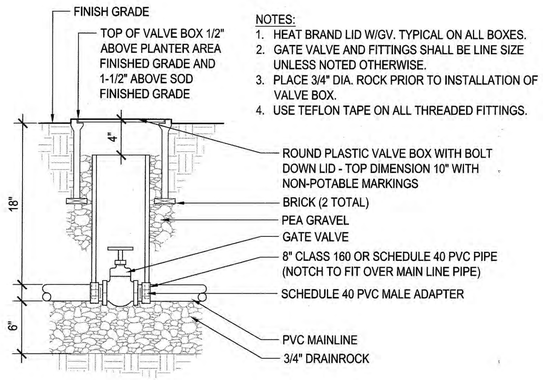


3 VALVE BOXES
SCALE: 1-1/2" = 1'-0"

NOTES:
1. BUNDLE AND TAPE WIRE EVERY 10 FEET.
2. PROVIDE 36" EXPANSION LOOP AT EACH WIRE CONNECTION.
3. SIZE BOX TO INCLUDE RCV AND BALL VALVES.
4. CONTRACTOR TO INSTALL NECESSARY SOLENOID ADAPTOR FOR PROPER ATTACHMENT OF ACTUATOR.



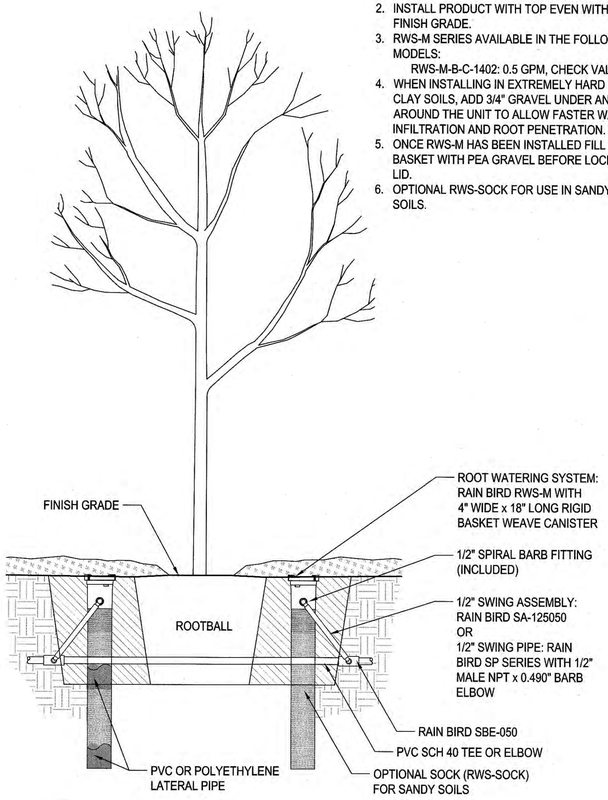
4 REMOTE CONTROL VALVE
SCALE: 3" = 1'-0"



NOTES:
1. HEAT BRAND LID W/GV. TYPICAL ON ALL BOXES.
2. GATE VALVE AND FITTINGS SHALL BE LINE SIZE UNLESS NOTED OTHERWISE.
3. PLACE 3/4" DIA. ROCK PRIOR TO INSTALLATION OF VALVE BOX.
4. USE TEFLON TAPE ON ALL THREADED FITTINGS.

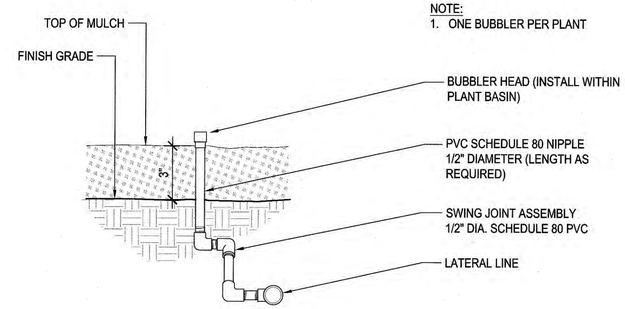
5 ISOLATION GATE VALVE
SCALE: 1-1/2" = 1'-0"

NOTES:
1. POSITION EVENLY SPACED AROUND PLANT.
2. INSTALL PRODUCT WITH TOP EVEN WITH FINISH GRADE.
3. RWS-M SERIES AVAILABLE IN THE FOLLOWING MODELS:
   RWS-M-B-C-1402: 0.5 GPM, CHECK VALVE
4. WHEN INSTALLING IN EXTREMELY HARD OR CLAY SOILS, ADD 3/4" GRAVEL UNDER AND AROUND THE UNIT TO ALLOW FASTER WATER INFILTRATION AND ROOT PENETRATION.
5. ONCE RWS-M HAS BEEN INSTALLED FILL THE BASKET WITH PEA GRAVEL BEFORE LOCKING LID.
6. OPTIONAL RWS-SOCK FOR USE IN SANDY SOILS.



1 ROOT WATER SYSTEM
SCALE: 3/4" = 1'-0"

NOTE:
1. ONE BUBBLER PER PLANT



2 SHRUB BUBBLER
SCALE: 3" = 1'-0"

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:33 PM
c:\bms\kjce-pw\d0257132\L-05 Irrigation Details.dwg

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SCALES
0 1"
0 25mm
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LICENSED LANDSCAPE ARCHITECT — Barbara D. Lundburg — License No. 5854 — Expiration Date 04/19/2024 — Renewal Date 12/15/2023 — Date — STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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WORK ACCEPTED: INSPECTOR: BY: DATE:

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DRAWN:	DESIGN:	HOR:
RHAA - MD/CA/NG	RHAA - MD/CA/NG	
CHECKED: MD/BL		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CRIER RCE 58879 — CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

IRRIGATION DETAILS - II

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 33 OF 76
L-05

RAIN BIRD

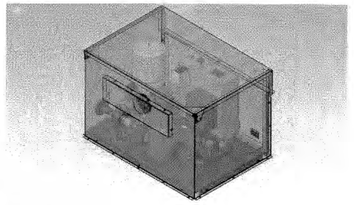
Pump Tech Spec

Vertical Multistage - 1 Pump - LP Series

Low Profile Pump Station

1 to 7.5 HP; Up to 90 gpm (5.7 lps, 20.4 m³/h)

Rain Bird's LP Series Vertical Multistage pump stations are designed for small to midsize boost, flooded suction and suction lift applications such as city parks and buildings, sports fields, commercial buildings, small home owner's associations and large residential sites. Its low profile design, durable vertical multistage pump configuration, choice of options and weather-resistant aluminum enclosure make it an ideal choice for Turf Irrigation applications with flows up to 60 gpm (5.7 lps, 20.4 m³/h).



At-A-Glance Description

- **Cost effective** – Standardized VFD driven pump system in enclosure delivers high performance with minimum investment.
- **Low Profile** – Compact aluminum enclosure with powder coated skid and piping.
- **Energy efficient** - Variable Frequency Drive (VFD) maintains constant pressure at varying flow demand.
- **Reliability** – Simple, standard design, easy installation and maintenance.

Standard Features

- **Plumbing Configurations**
  - Integrated pump bypass
  - Inlet and Discharge Piping on the same side of the enclosure (as shown)
- **Mechanical Features**
  - Inlet Butterfly Isolation Valve
  - Discharge Butterfly Isolation Valve
  - Silent Check Valve
- **Enclosures / External Connections**
  - Marine Grade Aluminum Enclosure
  - Polyester Powder-Coated Steel Deck and Piping
  - Thermostat and Fan on Mechanical Enclosure
- **Pump Control**
  - Pump Start Relay
  - VFD - Variable Frequency Drive for Control of Pressure
- **Display**
  - Monochrome Touch Screen Display

Optional Features

- **Enclosures**
  - Marine Grade Aluminum Enclosure with Environmental Package for sound dampening
  - Less Enclosure (pump and deck only)
- **Pump Control**
  - Constant Speed Motor

Accessories

- **Intake Filters**
  - HDPE Suction Intake Piping
  - Foot Valve
  - Intake Screen
- **External Connections**
  - Zee Pipes
- **Low Flow**
  - Bladder Tank

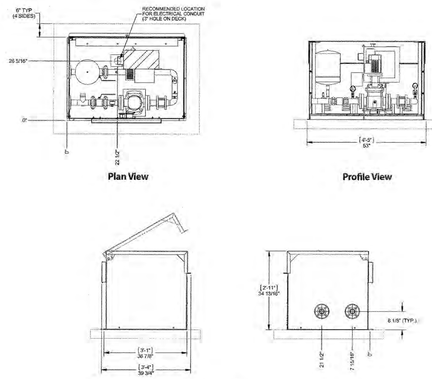
Vertical Multistage - 1 Pump - Aluminum Enclosure

Motor Size	1 HP	1.5 HP	2 HP	5 HP	7.5 HP
Pump Type	Vertical Multistage				
Power Requirement	480/60/3 V/HZ/PH				
	208-230/60/3 V/HZ/PH				
	208-230/60/1 V/HZ/PH				
Inlet Pressure Requirement	Suction Lift or Boost Applications				
Outlet Pressure	Up to 50 psi (3.5 bar) [1]				
Outlet Flow	Up to 90 gpm (5.7 lps, 20.4 m³/h) [1]				
Concrete Slab Dimensions (min)	65" x 49" (165 cm x 125 cm)				
Platform Skid Dimensions (min)	53" x 39 3/4" (135 cm x 101 cm)				
Inlet / Discharge Size	2" flange filtting standard - 3" and 4" adapters availabe				
Cabinet Height (from slab)	35" (89 cm) or 47" (107 cm)				

(1) Refer to pump performance curves, provided upon request from pumps@rainbird.com

RAIN BIRD

Details



Rain Bird Corporation - Pumps Division
6991 E. Southpoint Road
Tucson, AZ 85756
Applications Group: (520) 806-5620
Fax: (520) 741-6191
E-mail: pumps@rainbird.com

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www.rainbird.com

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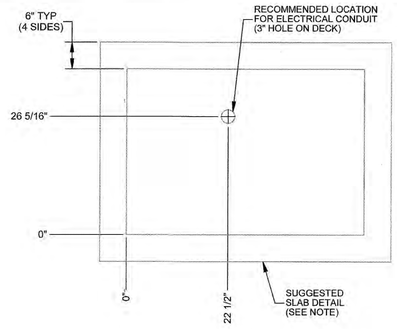
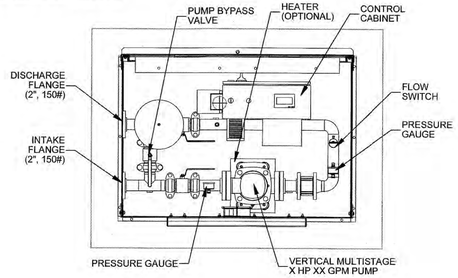
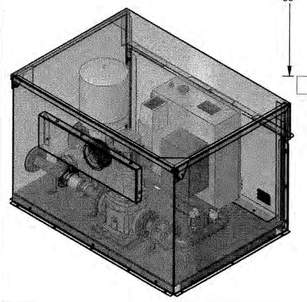
p/n SMEPPTSVMS1 AL Rev A

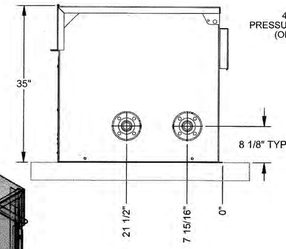
STANDARD CONFIGURATION

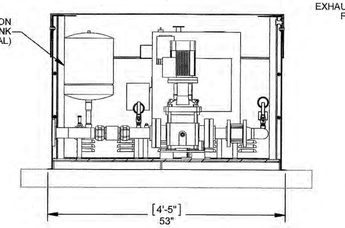


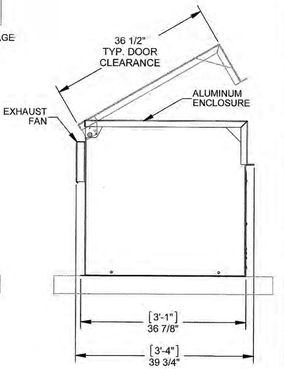


Available Voltages	
60Hz 1ø	**60Hz 3ø**
208-230 VAC	208-230 VAC
	460 VAC
FLOW RANGE UPTO 54 PSI	
20-60 GPM	
HP Available	
1, 1.5, 2	









NOTES:
1. DIMENSIONS ARE FOR REFERENCE ONLY. SUBSEQUENT APPROVAL DRAWING WILL INCLUDE FINAL DIMENSIONS.
2. DIMENSIONS SHOWN ARE MINIMUM RECOMMENDED CLEARANCES FROM PUMP STATION TO SLAB EDGE.
3. SLAB DETAIL IS PROVIDED FOR ILLUSTRATION ONLY. THE ARCHITECT OR PROJECT ENGINEER SHOULD BE CONSULTED FOR CONSTRUCTION DETAIL.
4. SLAB AND PUMP HOUSE MUST BE BUILT IN ACCORDANCE WITH LOCAL BUILDING CODES.
5. STATION WEIGHS ~ 900 LBS

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL PROPRIETARY DESIGN INFORMATION OF RAIN BIRD CORPORATION. ALL RIGHTS IN THIS DRAWING ARE RESERVED BY RAIN BIRD CORPORATION. THE SAME ARE LICENSED EXCLUSIVELY TO THE SUBMITTED ON BEHALF. FOR CONSTRUCTION. ACCEPTANCE OF THIS DRAWING NOT TO SUPPLY OR CONSTRUCT ANY SOFTWARE IN PURCHASE IS TO ANY USE OR DISCLOSURE OF ANY OF THE INFORMATION CONTAINED HEREIN EXCEPT UPON WRITTEN CONSENT TO THE EXTENT ALL PATENT RIGHTS HEREIN ARE EXPRESSLY RESERVED.

UNLESS OTHERWISE SPECIFIED	DRAWN	DATE
	KN	5/22/14
MACHINING TOLERANCE	ENG APPR.	DATE
	MFG APPR.	
DECIMAL X ± 1/8"	DO NOT SCALE DRAWING	
.XX ± .06		
.XXX ± .030		
ANGULAR ± 2°		
DECIMAL X ± 1/8"	SUBMITTED	
TOLERANCE .XX ± .06	Submittals 2011	
	SHEET SIZE(S) PER ANSI	

RAIN BIRD

SYSTEMS MFG. DIV.
TUCSON, ARIZONA

PROJ. MGR.	STANDARD CONFIGURATION
PROJ. NO.	STANDARD CONFIGURATION
TITLE:	VM 1 PUMP ALUMINUM ENCLOSURE
DRAWING NUMBER:	STDCONFIG - A
PART NO.	REV.
SHEET 1 OF 1	

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:33 PM

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Rain Bird Corporation
Office: (520) 806-5620
FAX: (520) 741-6191
Email: pumps@rainbird.com

PUMP STATION QUOTE **L Series: Vertical Multistage** **Quote #: VM102518 501A**

Project Information			
Job Name:	**East Dunne Reservoir**	Date:	**10/25/2018**
Job Country:	**US**		
Job State/Province:	**CA / California**		
Job City:	**Santa Clara**		
Rain Bird Rep.:	**John Ossa/ Mike T**		
Quote Requested By:			

Station Details			
Pump Platform:	**M1L003N0L0000230F3**	Power Requirement:	**230/1/60**
Dyn. Inlet Pressure (PSI	**15**	Pump Scenario:	**Flooded Suction**
Lift Height (ft.):	**NA**	Max Flow Rate (GPM)	**35**
Boost Pressure (PSI):	**60**	Min Flow Rate (GPM)	**11**
Discharge Pressure:	**75**	Full Load Amps:	**29**

Site Conditions			
Water Source:	**Municipal**	Site Elevation:	**0-3300**
Water Type:	**Fresh**	Intake Pipe Dia.:	**2 in.**
Wet Well Diameter:	**N/A**	Discharge Pipe Dia.:	**2 in.**
Wet Well Depth:	**N/A**	Slab Dimensions:	**Recommended: 65" x 49"**

ISSUED FOR BID

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

Barbara D. Lundburg License No. 5151 Licensed Landscape Architect Signature 04/19/2024 Renewal Date 11/12/2025 Date STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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WORK ACCEPTED: INSPECTOR:
BY: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

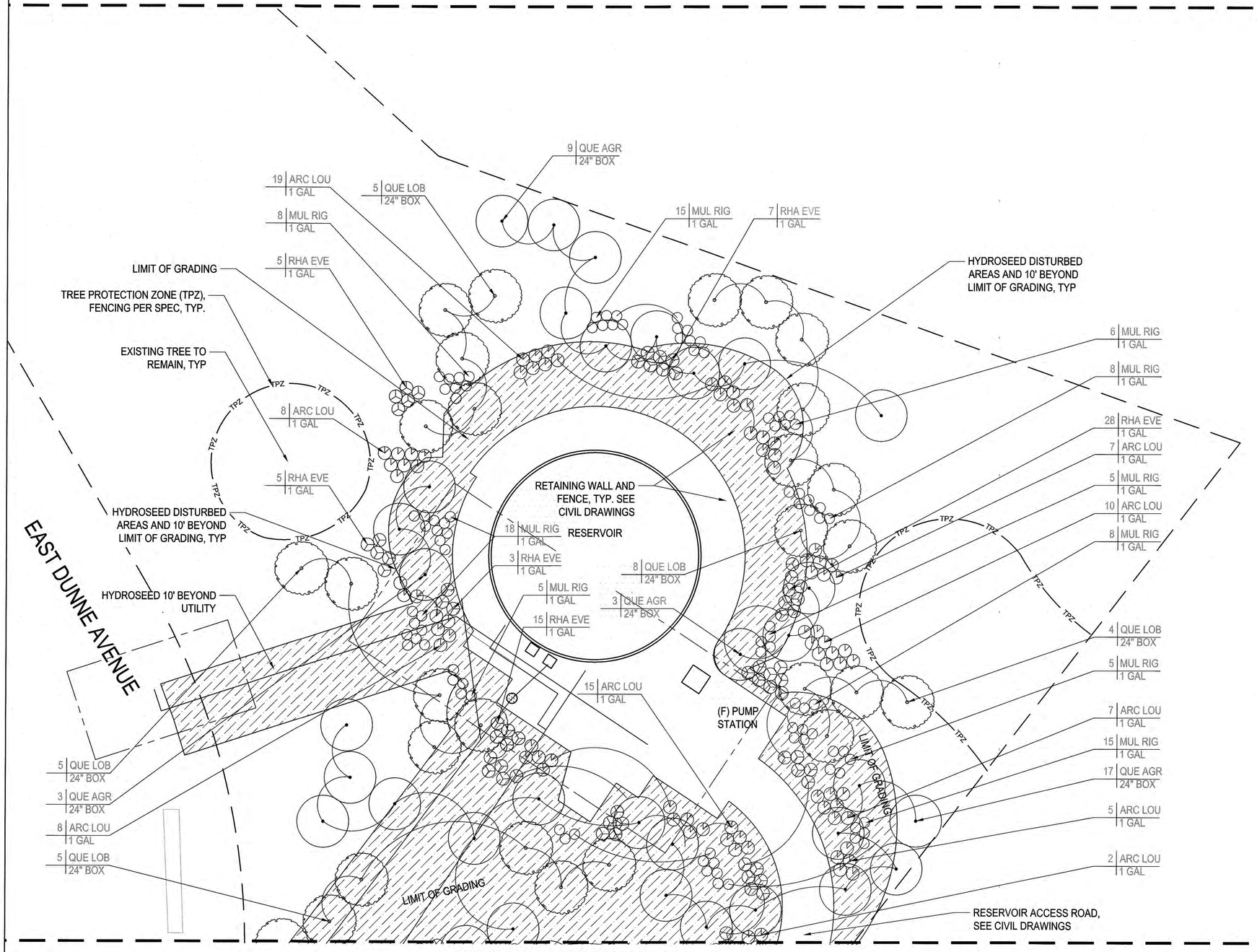
DRAWN: DESIGN: HOR:
CHECKED: VERT:
APPROVED: DATE: 4/30/24 JOB NUMBER: K/J 2368021*00
SCOTT C. CREER RCE 68679 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

IRRIGATION DETAILS - III

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 34 OF 76
L-06



MATCHLINE - SEE SHEET L-08

PLANT LIST

TREES — ZONE 7

SYMB	QTY	ABBR.	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	WATER USE
	39	QUE AGR	Quecus agrifolia	COAST LIVE OAK	24" BOX	AS SHOWN	L
	41	QUE LOB	Quercus lobata	VALLEY OAK	24" BOX	AS SHOWN	L

SHRUBS

SYMB.	QTY	ABBR.	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	WATER USE
	116	ARC LOU	Arctostaphylos bakeri 'Louis Edmunds'	LOUIS EDMUNDS MANZANITA	1 GAL	60" O.C.	L
	142	MUL RIG	Muhlenbergia rigens	DEER GRASS	1 GAL	48" O.C.	L
	104	RHA EVE	Rhamnus californica 'Eve Case'	CALIFORNIA COFFEEBERRY	1 GAL	60" O.C.	L

HYDROSEED

SYMB.	QTY	ABBR.	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	WATER USE
	44,372 SF		SEE SPECS				VL

WATER USE LEGEND:
L - LOW WATER USE
VL - VERY LOW WATER USE

PLANTING NOTES

1. REFER TO SPECIFICATIONS FOR SOIL PREPARATION, PLANTING, AND MAINTENANCE PERIOD REQUIREMENTS.
2. CONTRACTOR TO REFER TO PLANT LIST FOR PLANT SIZE AND SPACING. USE TRIANGULAR SPACING UNLESS OTHERWISE NOTED.
3. PLANT QUANTITIES ARE PROVIDED FOR CONTRACTOR'S CONVENIENCE ONLY. CONTRACTOR TO VERIFY ALL PLANT QUANTITIES SHOWN IN PLANTING PLANS.
4. CONTRACTOR TO SUBMIT PLANT SAMPLES FOR APPROVAL BY LANDSCAPE ARCHITECT, SEE SPECS.
5. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES, STRUCTURES, AND IRRIGATION LINES BEFORE DIGGING.
6. SPACE SHRUBS 48" AWAY FROM TREES.
7. SEE DETAIL 1 / L-11 FOR FOLIAGE PROTECTOR (DEER).
8. SEE DETAIL 2 / L-11 FOR ROOT PROTECTION (RODENT).
9. ALL DISTURBED AREAS TO BE HYDROSEEDED.
10. EROSION CONTROL NETTING ON SLOPES 3:1 AND GREATER.
11. ALL TREES AND SHRUBS TO HAVE CRUSHED ROCK MULCH EXCEPT MUHLENBERGIA.

N
0 10' 20' 40'

ISSUED FOR BID

ANY PRINTS NOT BEARING THIS STAMP MAY HAVE BEEN PRINTED PRIOR TO ADVERTISING AND CANNOT BE CONSIDERED AS BID DOCUMENTS. USERS OF THIS DOCUMENT IN EDITABLE ELECTRONIC FORMATS ARE CAUTIONED AGAINST USE WITHOUT FIRST DETERMINING WHETHER CHANGES MAY HAVE BEEN MADE SUBSEQUENT TO ITS PREPARATION.

SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED LANDSCAPE ARCHITECT — Barbara Lundburg Lic. 6521 — Signature 04/19/2024 — Renewal Date 12/12/2023 — Date — STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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Revisions

WORK ACCEPTED: INSPECTOR:
BY: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: DESIGN: HOR:
CHECKED: VERT:
APPROVED: DATE: 4/30/24 JOB NUMBER: K/J 2368021*00
SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

PLANTING PLAN - I

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 35 OF 76
L-07

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:33 PM
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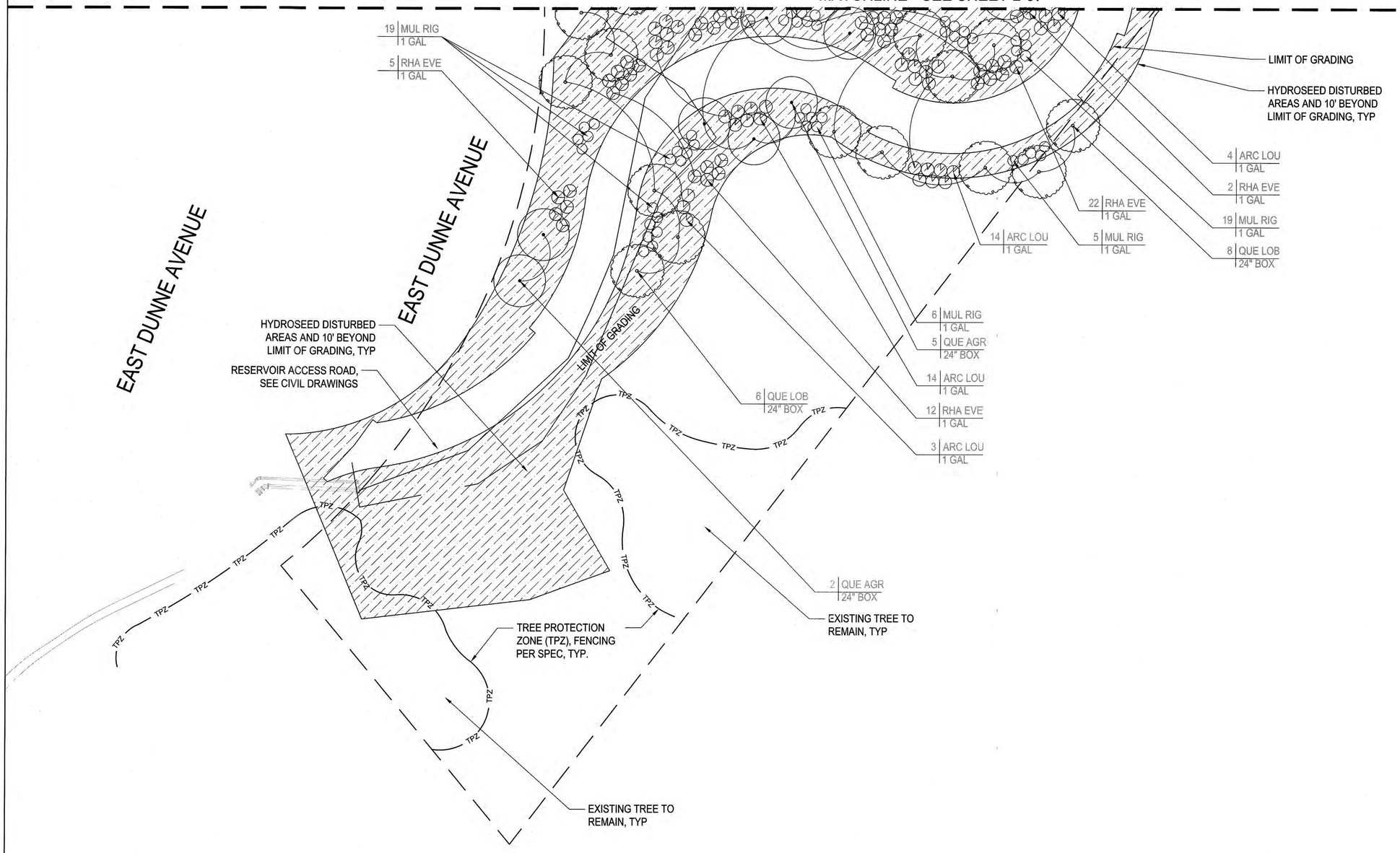
MATCHLINE - SEE SHEET L-07



SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:33 PM

c:\bma\kjce-pw\d0257132\L-08 Planting Plan.dwg

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0 1"

0 25mm

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REGISTERED LANDSCAPE ARCHITECT Barbara D. Lundburg Lic. No. 5854 Signature 04/19/2024 Renewal Date 12/17/2023 Date STATE OF CALIFORNIA

04/19/24

N

0 10' 20' 40'

NO.	DESCRIPTION	DATE	BY

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SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

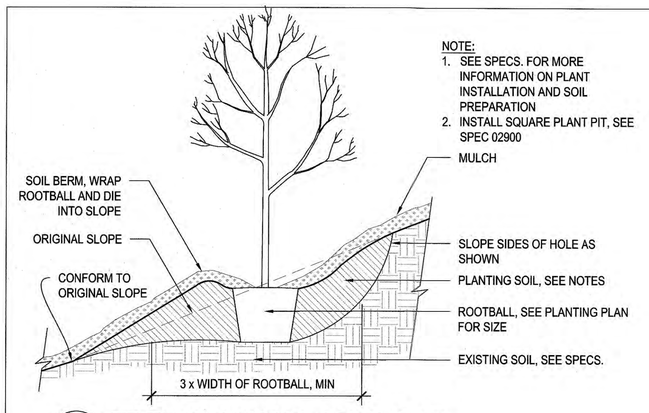
PLANTING PLAN - II

FILE NUMBER:

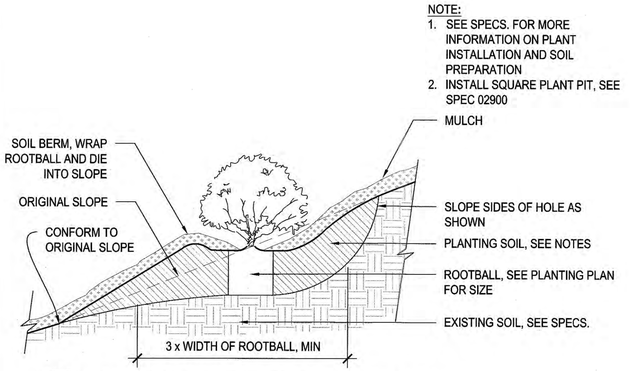
PRINT DATE: APRIL 2024

SHEET: 36 OF 76

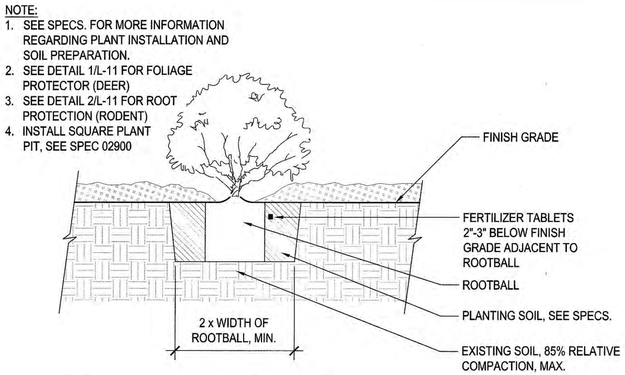
L-08



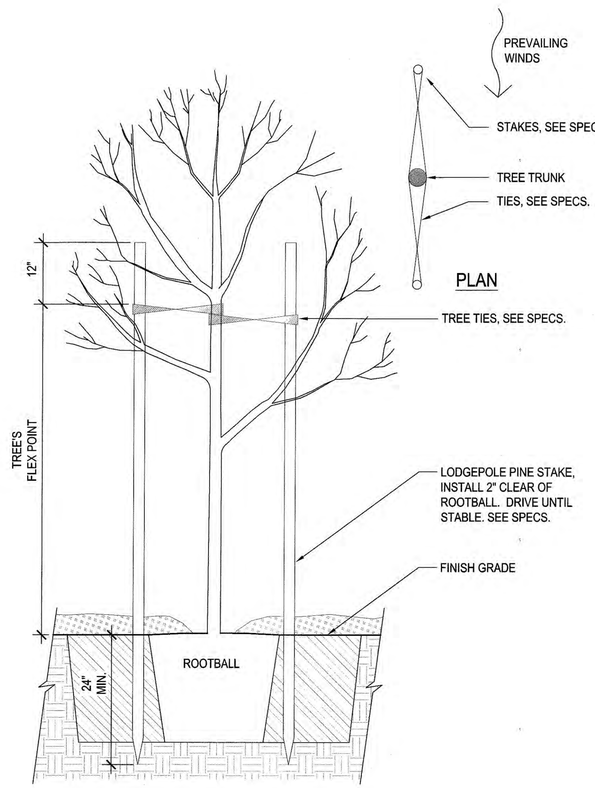
5 TREE PLANTING ON SLOPE
NTS



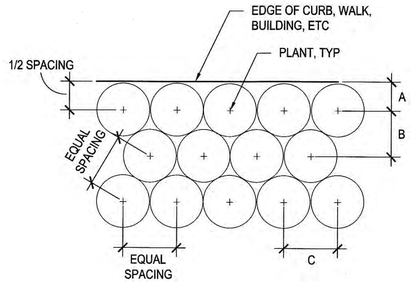
6 SHRUB PLANTING ON SLOPE
NTS



3 SHRUB PLANTING
SCALE: 1" = 1'-0"



4 TREE STAKING
SCALE: 3/4" = 1'-0"

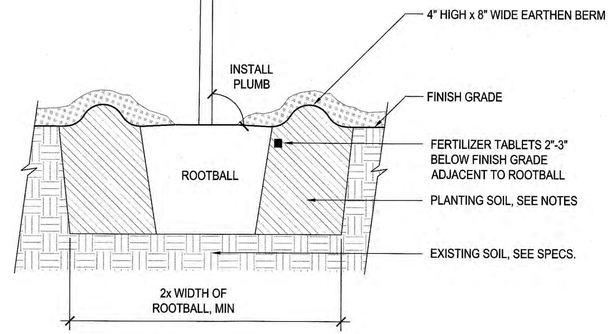


NOTES:
1. SEE PLANTING PLAN FOR SPACING BY PLANT SPECIES.
2. INSTALL TRIANGULATED PLANT LAYOUT, UNLESS OTHERWISE SHOWN ON PLANS.

PLANT SPACING	A	B	C
12"	6"	10"	12"
1'-6"	9"	1'-4"	1'-6"
2'-0"	12"	1'-9"	2'-0"
2'-6"	1'-3"	2'-2"	2'-6"
3'-0"	1'-6"	2'-7"	3'-0"
3'-6"	1'-9"	3'-0"	3'-6"
4'-0"	2'-0"	3'-6"	4'-0"
4'-6"	2'-3"	3'-11"	4'-6"
5'-0"	2'-6"	4'-4"	5'-0"

1 PLANTING LAYOUT
NTS

NOTES:
1. EXCAVATE SQUARE TREE PITS. SCARIFY SIDES AND BOTTOM.
2. FOOT TAMP PLANTING SOIL IN 6" LIFTS TO STABILIZE TREE.
3. SEE SPECS FOR MORE INFORMATION REGARDING PLANT INSTALLATION AND SOIL PREPARATION.
4. SEE DETAIL 1/L-11 FOR FOLIAGE PROTECTOR (DEER)
5. SEE DETAIL 2/L-11 FOR ROOT PROTECTION (RODENT)
6. INSTALL SQUARE PLANT PIT, SEE SPEC 02900



2 TREE PLANTING WITH BERM
NTS

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0 1"
0 25mm
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LICENSED LANDSCAPE ARCHITECT — Barbara Lynn Lindburg — Signature 04/19/2024 — Renewal Date 12/13/2025 — Date — STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 56879 — CITY ENGINEER EXP: 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

PLANTING DETAILS - I

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 37 OF 76
L-09

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:34 PM
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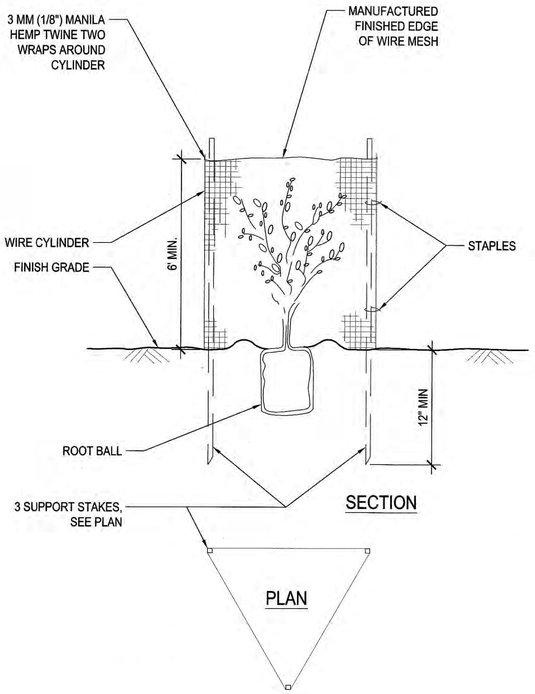
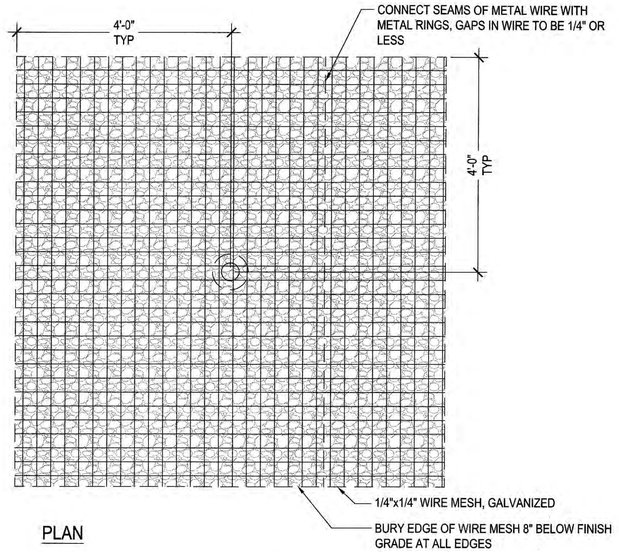
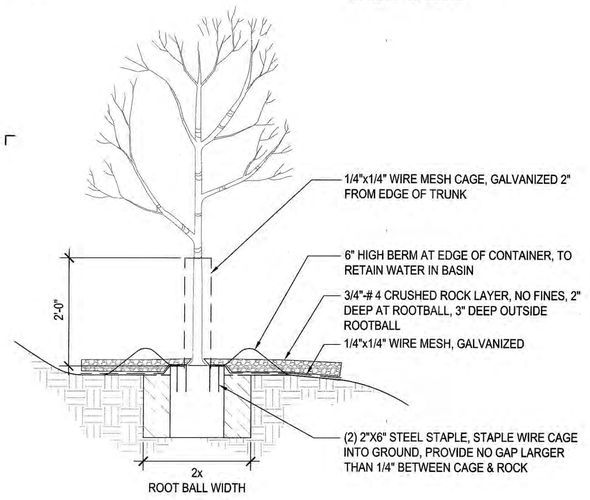


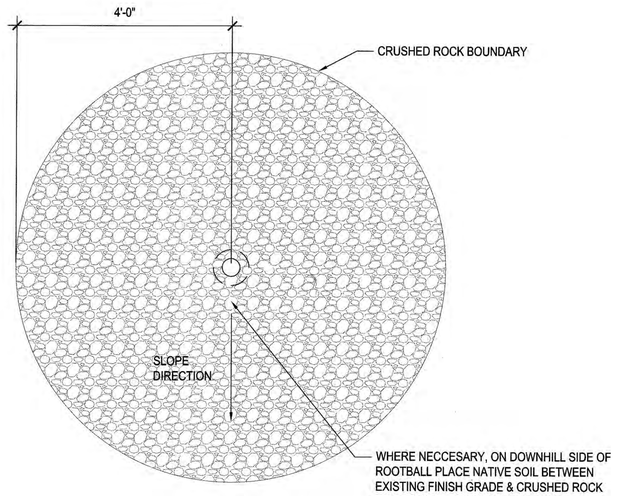
2 FOLIAGE PROTECTOR

SCALE: NTS

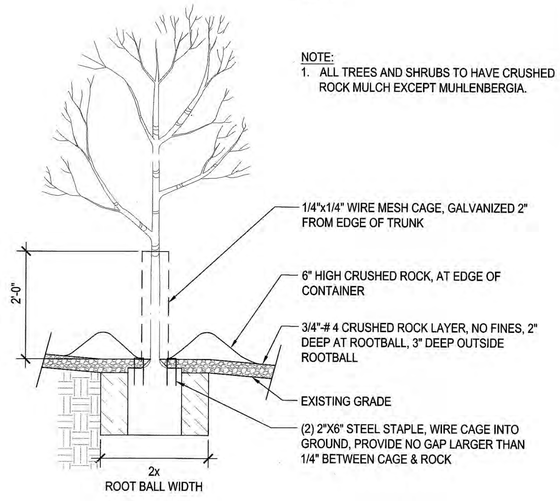




SECTION: STEEP SLOPE



NOTE:
1. ALL TREES AND SHRUBS TO HAVE CRUSHED ROCK MULCH EXCEPT MUHLENBERGIA.



SECTION: GENTLE TO MODERATE SLOPE

1 ROOT PROTECTION

SCALE: 3/4" = 1'-0"

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LICENSED LANDSCAPE ARCHITECT Barbara Lynburg Lichty No. 5581 Signature 04/19/2024 Renewal Date 12/31/2025 Date STATE OF CALIFORNIA
04/19/24

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SCOTT C. CREER RCE 58679 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

PLANTING DETAILS - II

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 38 OF 76
L-10

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:34 PM
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GENERAL STRUCTURAL NOTES

GENERAL

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE 2022 CALIFORNIA BUILDING CODE AND THE REFERENCED BUILDING CODE STANDARDS.
2. THESE NOTES AS WELL AS THE TYPICAL DETAILS APPLY TO ALL PARTS OF THE PROJECT, UNLESS NOTED OTHERWISE.
3. SHOP DRAWINGS FOR THIS CONTRACT SHALL BE COORDINATED WITH FAVORABLY REVIEWED EQUIPMENT MANUFACTURER'S DRAWINGS.
4. DIMENSIONS NOTED WITH AN ASTERISK, " * ", ARE TO BE COORDINATED WITH FAVORABLY REVIEWED SUBMITTAL BY THE EQUIPMENT MANUFACTURER.
5. DETAILS CALLED OUT WITH S-XXXX SHALL REFER TO THE TYPICAL DETAIL FOR WHICH THEY ARE SO NAMED.
6. ALL STRUCTURES HAVE BEEN DESIGNED FOR THE COMPLETE CONDITION CONSIDERING OPERATIONAL, HYDROSTATIC, AND BACKFILL LOADS ONLY. THE STRUCTURES HAVE NOT BEEN DESIGNED TO RESIST OPERATIONAL, HYDROSTATIC, AND BACKFILL LOADS WHILE PARTIALLY CONSTRUCTED. LOADING OF ANY STRUCTURE WHILE PARTIALLY CONSTRUCTED IS PROHIBITED.

PERMITS AND INSPECTIONS

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED BY THE LOCAL BUILDING INSPECTOR AND AS DESCRIBED IN THE SPECIFICATIONS.
2. THE CONTRACTOR SHALL SELECT, INSTALL AND MAINTAIN SHORING, SHEETING, BRACING AND SLOPING AS NECESSARY TO MAINTAIN SAFE EXCAVATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING FULL COMPLIANCE WITH 29 CFR PART 1926 OSHA SUBPART P EXCAVATIONS AND TRENCHES REQUIREMENTS. ALL EARTHWORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LAW, INCLUDING LOCAL ORDINANCES, CALOSHA, CALIFORNIA CIVIL CODE AND CALIFORNIA DEPARTMENT OF INDUSTRIAL SAFETY REQUIREMENTS, AND APPLICABLE OSHA REQUIREMENTS.

SOIL AND FOUNDATIONS

1. GEOTECHNICAL INVESTIGATIONS FOR DESIGN PURPOSES FOR THIS PROJECT WERE MADE CITY OF MORGAN HILL BY CAL ENGINEERING & GEOLOGY IN REPORTS DATED, 11 AUGUST 2016 AND 12 JANUARY 2024 IN ACCORDANCE WITH THE CBC CHAPTER 18 THE SOILS IN THE JACKSON OAKS AREA ARE GENERALLY CLASSIFIED AS COLLOVIUM OVERLYING SEVERELY WEATHERED ROCK.
2. THE DESIGN BEARING CAPACITY OF THE SOILS IS 6,000 PSF FOR FOOTINGS. FOR WATER TANK AND 3,500 PSF FOR CANTILEVER RETAINING WALL FOUNDATIONS BEARING CAPACITY OF SOILS ARE FOR DEAD AND LIVE LOADS FOR FOUNDATIONS. BEARING VALUES MAY BE INCREASED BY ONE-THIRD WHEN TRANSIENT LOADS SUCH AS WIND OR SEISMIC LOADS ARE INCLUDED.
3. SOILS SHALL BE EXCAVATED TO THE ELEVATIONS INDICATED ON THE DRAWINGS FOR FOUNDATIONS. THE SUBGRADE SHALL BE PREPARED AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS AND APPROVED BY THE GEOTECHNICAL ENGINEER. EXCAVATED MATERIAL SHALL BE REPLACED WITH STRUCTURAL FILL AS SHOWN ON THE DRAWINGS. FOUNDATIONS SHALL BE CONSTRUCTED AGAINST UNDISTURBED NATIVE COMPETENT MATERIAL OR COMPACTED STRUCTURAL FILL.

CONCRETE:

1. CEMENT SHALL BE ASTM C150 TYPE II/V FOR ALL STRUCTURES. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (PSI) AS NOTED IN THE TABLE BELOW AND AS FURTHER DEFINED IN THE SPECIFICATIONS:

CONCRETE STRENGTH (PSI)		
TYPE	STRENGTH	LOCATION
A	4,000	PUMP STATION SLABS, SITE SLABS, RETAINING WALLS, AND TANK RINGWALL FOUNDATION
B	2,500	MISCELLANEOUS STRUCTURES AND SITEWORK
C	125 (MAX)	CLSM/CDF - SEE SPECIFICATION SECTION 02065
D	4,500	RETAINING WALLS

2. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-19 INCLUDING BAR BENDS AND HOOKS, UNLESS DETAILED OTHERWISE.
3. SUBMIT POUR SEQUANCE DRAWINGS SHOWING THE LOCATION OF CONSTRUCTION JOINTS, WATERSTOPS AND OTHER TYPES OF JOINTS FOR FAVORABLE REVIEW BY THE ENGINEER BEFORE START OF WORK ON FORMS, REINFORCING STEEL OR PLACING CONCRETE. ANY ADDITIONAL VERTICAL OR HORIZONTAL CONSTRUCTION JOINTS SHALL HAVE A STANDARD KEYWAY AND SHALL BE FAVORABLY REVIEWED BY THE ENGINEER.
4. CONSTRUCTION JOINTS SHALL BE ROUGHENED TO 1/4-INCH AMPLITUDE.
5. OPENINGS, PIPE SLEEVES, CONDUITS, INSERTS AND OTHER EMBEDDED ITEMS SHALL BE IN PLACE BEFORE CONCRETE IS PLACED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE CIVIL, ELECTRICAL, LANDSCAPING, INSTRUMENTATION AND OTHER PLANS FOR ITEMS REQUIRING SLEEVES AND EMBEDMENTS IN CONCRETE WHICH ARE NOT INDICATED OR SHOWN ON STRUCTURAL DRAWINGS. NO PIPES OR SLEEVES SHALL PASS THROUGH STRUCTURAL MEMBERS (UNLESS SHOWN IN STRUCTURAL DRAWINGS). COORDINATE WITH EQUIPMENT MANUFACTURERS DRAWINGS FOR ANCHORING DEVICES.
6. UNLESS OTHERWISE NOTED, ALL EXPOSED EDGES AND CORNERS SHALL BE CHAMFERED 3/4-INCH. INTERIOR FLOOR SLABS AND EXTERIOR SIDEWALKS SHALL HAVE TOOLED 3/8-INCH RADIUS CONSTRUCTION JOINT.
7. CONCRETE ENCASE ALL PIPES AND CONDUITS UNDER CONCRETE SLABS AND FOOTINGS.

REINFORCING STEEL

1. REINFORCING BARS SHALL BE ASTM A615-GRADE 60.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM 1064.
3. ARRANGEMENT AND DETAILING OF REINFORCING STEEL, INCLUDING BAR SUPPORTS AND SPACERS, SHALL BE IN ACCORDANCE WITH THE LATEST ACI 315 DETAILING MANUAL.
4. REINFORCING SHALL LAP IN ACCORDANCE WITH THE CONCRETE REINFORCEMENT SPLICE TABLE, UNLESS OTHERWISE SHOWN. WHEN BARS OF DIFFERENT SIZE LAP TO EACH OTHER, SPLICE LENGTH FOR THE SMALLER BAR CAN BE USED. DOWELS SHALL HAVE THE SAME SIZE AND SPACING AS THAT OF THE REINFORCING STEEL THEY ARE SPLICED AND SHALL HAVE A MINIMUM LAP AS NOTED ABOVE. BAR SPLICES SHALL BE STAGGERED.
5. HOOK REINFORCING BARS INTERRUPTED BY OPENINGS.
6. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED, UNLESS APPROVAL IN WRITING IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.
7. DIMENSIONS TO REINFORCING ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE BAR COVER IS CLEAR DISTANCE BETWEEN THE BAR AND THE CONCRETE SURFACE. UNLESS NOTED OR SHOWN OTHERWISE BAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND BASE SLABS:	
FORMED SURFACES	2-INCH
TOP SURFACES EXPOSED TO EARTH, WATER, OR WEATHER	2-INCH
BOTTOMS AND SIDES IN CONTACT WITH EARTH	3-INCH
WALLS:	2-INCH

STRUCTURAL STEEL:

1. UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SHALL CONFORM TO ASTM A36. W- AND WT- SHAPES SHALL CONFORM TO ASTM A992. PLATES CONNECTING TO W- AND WT- SHAPES SHALL CONFORM TO ASTM A572 GRADE 50. HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 OR A501 GRADE B OR C. STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B SCHEDULE 40.
2. CONNECTIONS AND BOLTS SHALL CONFORM TO THE AISC ALLOWABLE STRESS DESIGN SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM F3125, GRADE A325 OR GRADE A490 BOLTS. CONNECTIONS SHALL USE ASTM F3125, GRADE A325-X TYPE 3 BOLTS UNLESS NOTED OTHERWISE. PROVIDE WASHERS AT ALL CONNECTIONS WITH OVERSIZE OR SHORT SLOTTED HOLES.
3. WELD ELECTRODES SHALL CONFORM TO AWS A5.1 OR A5.5 E70XX ELECTRODES. WELDING SHALL BE DONE BY CERTIFIED WELDERS. WELDING SHALL USE ONLY APPROVED ELECTRODES. WELDING SHALL CONFORM TO THE PROVISIONS OF THE LATEST STRUCTURAL WELDING CODE (AWS D1.1).
4. UNLESS NOTED OTHERWISE, STRUCTURAL STEEL COMPONENTS AND CONNECTIONS SHALL BE PAINTED OR PROTECTIVE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
5. ASTM STEEL DESIGNATION AND GRADE FOR THE STRUCTURAL SHELL, ROOF AND FLOOR OF THE TANK SHALL BE IN ACCORDANCE WITH AWWA D100. FABRICATOR MAY SELECT FROM THE FOLLOWING GRADES: ASTM A36, A131, GRADES A AND B, A283, GRADES A, B, C, AND D, OR A573, GRADE 58 FOR SHELL, ROOF AND FLOOR PLATES

SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48-HOURS BEFORE PLACEMENT OF REINFORCING STEEL AND CONCRETE SO THAT THE SUBGRADE OF EXCAVATIONS MAY BE INSPECTED BY THE GEOTECHNICAL ENGINEER.
2. THE GEOTECHNICAL ENGINEER SHALL VERIFY BACKFILL MATERIAL AND BACKFILLING PROCEDURES.
3. STRUCTURAL OBSERVATION SHALL BE PROVIDED BY THE DESIGN ENGINEER(S) OF RECORD OR THEIR AUTHORIZED REPRESENTATIVES IN ACCORDANCE WITH CBC 2022, SECTION 1710. STRUCTURAL OBSERVATION SHALL CONSIST OF SITE VISITS AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO OBSERVE CONSTRUCTION IN PROGRESS AND REVIEW OF TESTING AND INSPECTION REPORTS FOR GENERAL COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS RELATING TO THE STRUCTURAL WORK AND THE NONSTRUCTURAL COMPONENTS AND EQUIPMENT ANCHORAGE.
4. SPECIAL INSPECTION IN ACCORDANCE WITH CBC 2022, SECTION 1704, SHALL BE REQUIRED AS INDICATED IN THE SPECIAL INSPECTION AND TESTING SCHEDULES ON SHEET S-02.
5. CONTRACTOR IS RESPONSIBLE FOR THE QUALITY CONTROL INSPECTION OF PERIODIC AND CONTINUOUS SPECIALTY INSPECTIONS, PER THE CALIFORNIA BUILDING CODE (CBC), PRIOR TO REQUESTING AN ENGINEER INSPECTION FOR THIRD PARTY SPECIALTY INSPECTION. CONTRACTOR IS STILL RESPONSIBLE FOR THE QA/QC OF ANY CONSTRUCTION ACTIVITIES RELATED TO THE SPECIALTY INSPECTION REGARDLESS IF ENGINEER INSPECTS IT OR BUILDING OFFICIAL INSPECTS IT.

PIPE AND EQUIPMENT SUPPORTS:

1. WITH THE EXCEPTION OF THOSE SUPPORTS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS, PIPE AND EQUIPMENT SUPPORT DESIGN, SIZE, SPACING, LOCATION & FOUNDATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR'S REGISTERED DESIGN PROFESSIONAL AS DEFERRED SUBMITTALS AND REQUIRE SUBMITTAL AND APPROVAL BY THE ENGINEER IN RESPONSIBLE CHARGE AND THE BUILDING OFFICIAL PRIOR TO INSTALLATION.

DEFERRED SUBMITTALS

IN ACCORDANCE WITH THE 2022 CBC, SECTION 107.3.4.1 SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE AUTHORITY HAVING JURISDICTION WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL OR AUTHORITY HAVING JURISDICTION.

PRIOR TO ORDERING OR FABRICATION OF ANY MATERIALS, AND PRIOR TO THE INSTALLATION OF THE INDICATED STRUCTURAL ELEMENTS, EQUIPMENT DISTRIBUTIONS SYSTEM, OR COMPONENT AND IT'S ANCHORAGE. THE CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS, SUPPORTING INFORMATION, AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY THE ENGINEER. ALL DEFERRED SUBMITTALS AND CALCULATIONS SHALL BE IN ACCORDANCE WITH THE 2022 CALIFORNIA BUILDING CODE, INCLUDING THE DESIGN CRITERIA AND SPECIFICATIONS WITHIN THESE CONSTRUCTION DOCUMENTS. ALL DEFERRED SUBMITTAL CALCULATIONS AND DRAWINGS SHALL BE SEALED AND SIGNED BY A REGISTERED PROFESSIONAL CIVIL ENGINEER OR STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA. THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET THE PROJECT REQUIREMENTS:

DEFERRED SUBMITTAL ITEMS
CONCRETE MIX DESIGN (S)
SOIL NAIL WALLS
MECHANICALLY STABILIZED EARTH (MSE) WALL
ANCHORAGE FOR ELECTRICAL AND MECHANICAL EQUIPMENT (ENCLOSURES, PUMPS, ETC)
PRECAST CONCRETE TRENCHES, MANHOLES, DROP INLETS, AND VAULTS
PIPE SUPPORTS AND ANCHORAGE
WELDED STEEL TANK (AWWA D100) INCLUDING ANCHORAGE AND TANK APPURTENANCES

LOADING CRITERIA

1. GENERAL: MINIMUM LOADING REQUIREMENTS PER CHAPTER 16 OF THE 2022 CALIFORNIA BUILDING CODE.
2. DEAD LOADS: AS CALCULATED
3. LIVE LOADS:

HANDRAILS, GUARDRAILS AND GRAB BARS	50 PLF AT TOP RAIL, 200 LBS POINT
SIDEWALKS & VEHICULAR DRIVEWAYS	250 PSF UNIFORM, 8,000 LBS POINT
UNRESTRICTED VEHICULAR ACCESS	AASHTO HL-93
CONCRETE VAULTS AND COVERS	AASHTO HL-93, ASTM C1802, LOAD LEVEL 7

4. SNOW LOAD:

IMPORTANCE FACTOR, I_S	1.20
BASIC GROUND SNOW LOAD, Pg	NA
SNOW EXPOSURE COEFFICIENT, Ce	NA
THERMAL FACTOR, Ct	NA

4. WIND LOAD:

ULTIMATE DESIGN WIND SPEED, V_{ULT}	103 MPH
ALLOWABLE DESIGN WIND SPEED, V_{ASD}	85 MPH
RISK CATEGORY	IV
WIND EXPOSURE	C

5. SEISMIC LOAD:

RISK CATEGORY	IV
SEISMIC IMPORTANCE FACTOR, I_E	1.50
SITE CLASS	C
SHORT-PERIOD SITE COEFFICIENT, Fa	1.2
LONG-PERIOD SITE COEFFICIENT, Fv	1.4
MAPPED MCE SPECTRAL RESPONSE ACCELERATION, 0.2 SEC, S_S	2.042
MAPPED MCE SPECTRAL RESPONSE ACCELERATION, 1.0 SEC, S_1	0.756
MODIFIED MCE SPECTRAL RESPONSE ACCELERATION, 0.2 SEC, S_{MS}	2.451
MODIFIED MCE SPECTRAL RESPONSE ACCELERATION, 1.0 SEC, S_{M1}	1.058
DESIGN SPECTRAL RESPONSE ACCELERATION, 0.2 SEC, S_{DS}	1.634
DESIGN SPECTRAL RESPONSE ACCELERATION, 1.0 SEC, S_{D1}	0.705
SEISMIC DESIGN CATEGORY	F
TRANSITION FOR LONG PERIOD GROUND MOTION, T_L	12 SEC
PEAK GROUND ACCELERATION, PGA	0.73g

TANK-SPECIFIC LOADING AND DESIGN CRITERIA:

1. GENERAL: AWWA D100-21, SEE ABOVE FOR PROJECT GENERAL LOADING REQUIREMENTS AND THE FOLLOWING FOR LOADS APPLICABLE TO THE TANK.
2. LIVE LOADS:

ROOF LIVE, WITHIN GUARDRAILS	50 PSF
ROOF LIVE, OUTSIDE GUARDRAILS	15 PSF
FIXED LADDERS	300 LBS POINT
FALL ARREST AND LIFELINE ANCHORAGE	3,100 LBS (ASD)
LANDINGS	150 PSF (UNIFORM), 1,000 LBS (CONCENTRATED)

3. SEISMIC LOADS:

SEISMIC RISK CATEGORY	IV
NON-BUILDING STRUCTURE TYPE FLAT-BOTTOM GROUND SUPPORTED STEEL TANK	
EQUIVALENT LATERAL FORCE ANALYSIS PROCEDURE	
DESIGN BASE SHEAR	V = 1,896 KIPS
SEISMIC RESPONSE COEFFICIENT	Cs = 0.584
RESPONSE MODIFICATION COEFFICIENT	Ri = 3.00
RESPONSE MODIFICATION COEFFICIENT	Rc = 1.50

4. WIND LOAD:

WIND DRAG COEFFICIENT, C_F	0.63
INTERNAL PRESSURE COEFFICIENT, C_{Pi}	+/-0.18
DESIGN WIND PRESSURES (TANK)	22.79 PSF (ROOF) 18.90 PSF (WALL)

5. DESIGN METAL TEMPERATURE (DMT): 30°F + 15°F = 45°F
6. THE DESIGN EARTHQUAKE GROUND MOTION IS BASED ON A MAXIMUM CONSIDERED EARTHQUAKE GROUND MOTION, DEFINED AS A MOTION CAUSED BY AN EVENT WITH A 2 PERCENT PROBABILITY OF EXCEEDENCE WITHIN A 50-YEAR PERIOD (RECURRENCE INTERVAL OF APPROXIMATELY 2,500 YEARS).
7. WHEN INFORMATION HAS BEEN PROVIDED FOR DETERMINATION OF THE DESIGN EARTHQUAKE GROUND MOTION USING EITHER THE GENERAL PROCEDURE OF AWWA D100 OR THE SITE-SPECIFIC PROCEDURE, BOTH METHODS SHALL BE EVALUATED AND THE DESIGN EARTHQUAKE GROUND MOTION UTILIZED AS CALCULATED BY THE SITE-SPECIFIC PROCEDURE SHALL NOT BE LESS THAN 80 PERCENT OF THE ACCELERATION BY THE GENERAL PROCEDURE.
8. THE DESIGN SEISMIC FORCES WHICH ARE REDUCED BY A FACTOR OF 0.7 IN AWWA D100 EQUATIONS SHALL BE USED WITH THE ALLOWABLE STRESS DESIGN METHOD.
9. APPLY HORIZONTAL AND VERTICAL DESIGN ACCELERATIONS SIMULTANEOUSLY.
10. HOOP STRESS COMBINATION: ROOT MEAN SQUARE METHOD.
11. PRESSURE STABILITY: CHECK WITH TANKS FULL AND EMPTY FOR WIND AND SEISMIC.
12. SLIDING CHECK: CHECK TANKS UTILIZING A COEFFICIENT OF FRICTION OF 0.40.
13. COLUMNS SHALL BE DESIGNED CONSIDERING THE EFFECT OF THE HORIZONTAL DYNAMIC FORCES.
14. TANK ANCHOR SYSTEM: RESIST TENSION FROM SEISMIC OVERTURNING MOMENT (AWWA D100 EQUATION 13-19), WITHOUT ANY REDUCTION FOR VERTICAL LOADS.
15. DESIGN ANCHORAGE INCLUDING ANCHOR BOLTS, ANCHOR STRAPS, AND ANCHOR CHAIRS FOR WIND AND SEISMIC LOADS IN ACCORDANCE WITH AWWA D100, SECTION 3.8.
16. ANCHOR ATTACHMENTS SHALL BE DESIGNED SUCH THAT THE ANCHOR YIELDS BEFORE THE ANCHOR CHAIR, IF USED, AND ANCHOR ATTACHMENT FAIL. SUBMIT CALCULATIONS FOR BOTH THE AS-BUILT CONDITION AND THE CORRODED CONDITION OF THE ANCHOR, ANCHOR CHAIR, ATTACHMENT, AND TANK SHELL.
17. CALCULATIONS SHALL BE SUBMITTED TO DEMONSTRATE THAT THE TANK SHELL HAS BEEN DESIGNED TO RESIST THE FULL TENSILE CAPACITY OF THE ANCHOR BOLTS FROM THE ANCHOR BOLT CHAIR AT THE ECCENTRICITY OF THE CHAIR. REINFORCE SHELL AS REQUIRED TO AVOID LOCALLY OVERSTRESSING AS A RESULT OF ANCHOR BOLT CHAIR UPLIFT LOAD. DESIGN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AISC ASD AND AWWA D100.
18. ALLOWABLE SOIL BEARING PRESSURES:

DEAD AND LIVE OR OPERATING LOADS:	6,000 PSF
DEAD, LIVE, OPERATING LOADS PLUS SEISMIC OR WIND LOADS	8,000 PSF

19. CONSTRUCTION LOADS: DISTRIBUTE ROOF CONCENTRATED LOADS SO THE SPECIFIED UNIFORM LIVE LOAD IS NOT EXCEEDED. PROVIDE ROOF SHORING WHERE NECESSARY.
20. ANCHOR BOLT QUANTITY AND SIZE HAVE BEEN PROVIDED TO RESIST TENSILE LOADING IN THE ANCHOR BOLTS. ANCHOR CHAIRS SHALL HAVE SHEAR PLATES AT THE BOTTOM OF THE CHAIR TO RESIST ANCHOR BOLT SHEAR. OTHERWISE INCREASE THE NUMBER AND/OR SIZE OF ANCHOR BOLTS TO RESIST THE COMBINED EFFECTS OF TENSILE AND SHEAR LOADING.
21. MINIMUM STEEL PLATE THICKNESS SHOWN ON THE DRAWINGS IS BASED ON THE USE OF STEEL MEETING THE SPECIFICATION ASTM A36 WITH A MAXIMUM ALLOWABLE TENSILE STRESS OF 19,330 PSI. IF AN ALTERNATE STEEL SATISFYING THE REQUIREMENTS OF AWWA D100, SECTION 2.2 OR SECTION 14.2 IS PROPOSED, MINIMUM PLATE THICKNESS MAY BE INCREASED OR REDUCED PROVIDED SUFFICIENT THICKNESS IS PROVIDED IN ACCORDANCE WITH AWWA D100 FOR ALL LOADING CONDITIONS AND UNIT STRESSES.

STRUCTURAL ABBREVIATIONS

&	AND	JT	JOINT
@	AT		
#	NUMBER	KIP	1,000 POUNDS
Ø	DIAMETER	KSI	KIPS PER SQUARE INCH
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIAL	L,∠	ANGLE
		LB(S)	POUNDS
AB	AGGREGATE BASE, ANCHOR BOLT	LB/SF	POUND(S) PER SQUARE FOOT
ACI	AMERICAN CONCRETE INSTITUTE	LL	LIVE LOAD
		LLH	LONG LEG HORIZONTAL
ADDIT	ADDITIONAL	LLV	LONG LEG VERTICAL
ADJ	ADJACENT	LLBB	LONG LEG BACK-TO-BACK
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LONGIT	LONGITUDINAL
		LOL	LAY OUT LINE
AISI	AMERICAN IRON AND STEEL INSTITUTE	LT	LIGHT
		LW	LIGHT WEIGHT
AITC	AMERICAN INSTITUTE OF TIMBER CONSTRUCTION	MATL	MATERIAL
ALUM	ALUMINUM	MAX	MAXIMUM
ALT	ALTERNATE	MB	MACHINE BOLT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MC	MOISTURE CONTENT
		MC	MISCELLANEOUS CHANNEL
APA	AMERICAN PLYWOOD ASSOCIATION	MECH	MECHANICAL
API	AMERICAN PETROLEUM INSTITUTE	MIN	MINIMUM
APROX	APPROXIMATE	MISC	MISCELLANEOUS
ARCH	ARCHITECTURAL		
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	(N)	NEW
		NDT	NON-DESTRUCTIVE TEST(ING)
AWS	AMERICAN WELDING SOCIETY	NIC	NOT IN CONTACT
AWWA	AMERICAN WATER WORKS ASSOCIATION	NO.	NUMBER
		NOM	NOMINAL
		NS	NEAR SIDE
B/	BOTTOM OF	NSG	NON-SHRINK GROUT
BB(S)	BEARING BAR(S)	NTS	NOT TO SCALE
BLKG	BLOCKING		
BLDG	BUILDING	OC	ON CENTERS
BM	BEAM	OD	OUTSIDE DIAMETER
BM-1	BEAM MEMBER 1	OH	OPPOSITE HAND, OVERHEAD
BN	BOUNDARY NAILING	OPNG(S)	OPENING(S)
BOT	BOTTOM	OPP	OPPOSITE
BP	BASE PLATE	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
BS	BOTH SIDES		
BTWN	BETWEEN		
		PAF	POWDER ACTUATED FASTENER
C	CHANNEL	PER	PERIODIC
CALC'S	CALCULATIONS	PL	PLATE
CC,C/C	CENTER-TO-CENTER	PLF	POUND PER LINEAL FOOT
CBC	CALIFORNIA BUILDING CODE	PP	PARTIAL PENETRATION
CDF	CONTROLLED DENSITY FILL	PSF	POUND PER SQUARE FOOT
CJ	CONSTRUCTION JOINT	PSI	POUND PER SQUARE INCH
CJP	COMPLETE JOINT PENETRATION	PT(S)	POINT(S)
℄	CENTERLINE	PT	PRESSURE TREATED
CLR	CLEAR		
CLSM	CONTROLLED LOW STRENGTH MATERIAL	R, RAD	RADIUS
		RECT	RECTANGLE, RECTANGULAR
CNJ	CONTROL JOINT	REINF	REINFORCING, -MENT
COL	COLUMN	RET	RETAIN
CONC	CONCRETE	REQ'D	REQUIRED
CONN	CONNECTION	RW	RIGHT OF WAY
CONST	CONSTRUCTION		
CONT	CONTINUOUS	SCH	SCHEDULE
		SCJ	SHRINKAGE CONTROL JOINT
DBL	DOUBLE	SF	SQUARE FOOT
DIA	DIAMETER	SHT	SHEET
DIM	DIMENSION	SIM	SIMILAR
DL	DEAD LOAD	SLBB	SHORT LEGS BACK-TO-BACK
DN	DOWN	SLH	SHORT LEG HORIZONTAL
DWG(S)	DRAWINGS	SLV	SHORT LEG VERTICAL
		SMS	SHEET METAL SCREW
(E)	EXISTING	SN	SOIL NAIL
EA	EACH	SPEC(S)	SPECIFICATION(S)
EF	EACH FACE	SQ	SQUARE
EL	ELEVATION	SS	STAINLESS STEEL
ELEC	ELECTRICAL	SSD	SATURATED SURFACE DRY
EMBED	EMBEDMENT	STAG	STAGGER
EN	EDGE NAILING	STD	STANDARD
EQ	EQUAL	STIFF	STIFFENER
EQUIP	EQUIPMENT	STL	STEEL
ES	EACH SIDE	STRUC	STRUCTURE
EW	EACH WAY	SUSP	SUSPENDED
EXP	EXPANSION	SYM	SYMMETRICAL
EXT	EXTERIOR		
		T/	TOP OF
(F)	FUTURE	T&B	TOP AND BOTTOM
FD	FLOOR DRAIN	TS	STRUCTURAL TUBING
FF	FINISH FLOOR	TYP	TYPICAL
FIN	FINISH		
FLR	FLOOR	UON	UNLESS OTHERWISE NOTED
FN	FIELD NAILING	UT	ULTRASONIC TESTING
FNDN	FOUNDATION		
FRP	FIBERGLASS REINFORCED PLASTIC	VERT	VERTICAL
		VIF	VERIFY IN FIELD
FS	FAR SIDE		
FT	FOOT/FEET	W/	WITH
FTG	FOOTING	W/O	WITHOUT
		W, WF	WIDE FLANGE
GA	GAGE/GAUGE	WP	WORK POINT
GALV	GALVANIZED	WT	WEIGHT, STRUCTURAL TEE
GLB	GLULAM BEAM		WALL THICKNESS
		WWF	WELDED WIRE FABRIC
HDG	HOT DIP GALVANIZE(D)		
HORIZ	HORIZONTAL	YD	YARD
HSS	HOLLOW STRUCTURAL SECTION		
HT	HEIGHT		
HWL	HIGH WATER LEVEL		
IBC	INTERNATIONAL BUILDING CODE		
ICC	INTERNATIONAL CODE COUNCIL		
IN	INCH		
INT	INTERIOR		

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:34 PM

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ISSUED FOR BID

ANY PRINTS NOT BEARING THIS STAMP MAY HAVE BEEN PRINTED PRIOR TO ADVERTISING AND CANNOT BE CONSIDERED AS BID DOCUMENTS. USERS OF THIS DOCUMENT IN EDITABLE ELECTRONIC FORMATS ARE CAUTIONED AGAINST USE WITHOUT FIRST DETERMINING WHETHER CHANGES MAY HAVE BEEN MADE SUBSEQUENT TO ITS PREPARATION.

SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — DONALD LEE BASHAM — No. C45183 — Exp. 6/30/24 — CIVIL — STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

WORK ACCEPTED: INSPECTOR:
BY: DATE:

p:\proj\

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: NEB DESIGN: DLB HOR:
CHECKED: PIB VERT:
APPROVED: DATE: 4/30/24 JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 56879 — CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

STRUCTURAL GENERAL NOTES

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 39 OF 76
S-01

SPECIAL INSPECTIONS

1. **GENERAL:** IN ACCORDANCE WITH CHAPTER 17 OF THE 2022 CALIFORNIA BUILDING CODE AND THE CONTRACT DOCUMENTS DURING CONSTRUCTION ON THE TYPES OF WORK SPECIFIED AND IDENTIFY THE APPROVED AGENCIES TO THE OWNER. STRUCTURAL TESTS AND SPECIAL INSPECTIONS SHALL GOVERN THE QUALITY, WORKMANSHIP AND REQUIREMENTS FOR MATERIALS COVERED. MATERIALS OF CONSTRUCTION AND TESTS SHALL CONFORM TO THE APPLICABLE STANDARDS LISTED IN THE REFERENCED BUILDING CODE AND THE CONTRACT DOCUMENTS
2. **APPROVED AGENCIES:** AN ESTABLISHED AND RECOGNIZED AGENCY THAT IS REGULARLY ENGAGED IN CONDUCTING TESTS OR FURNISHING INSPECTION SERVICES, WHERE SUCH AGENCY HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED AGENCY MEETING THE REQUIREMENTS OF ASTM E329 (MATERIALS). THE APPROVED AGENCY SHALL FURNISH TO THE OWNER A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION. WELDING INSPECTORS SHALL BE QUALIFIED PER SECTION 6.1.4.1 (1) OF AWS D1.1, WHERE THE TERMS APPROVED AGENCY ARE NOTED THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT MAY ACT AS THE APPROVED AGENCY AS DIRECTED BY THE AUTHORITY HAVE JURISDICTION. IF THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE NOT AVAILABLE, THE APPROVED AGENCY SHALL BE APPROVED BY THE LOCAL BUILDING OFFICIAL.
3. **ACCESS:** FOR SPECIAL INSPECTION AND STRUCTURAL OBSERVATION MAINTAIN ACCESS AND EXPOSURE TO WORK FOR WHICH SPECIAL INSPECTION AND TESTING OR STRUCTURAL OBSERVATION IS REQUIRED UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTIONS OR TESTS
4. **REPORTING REQUIREMENTS:** APPROVED AGENCIES SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE APPROVED AGENCY SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE AUTHORITY HAVING JURISDICTION AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE AUTHORITY HAVING JURISDICTION AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR THE OWNER'S AUTHORIZED AGENT TO THE AUTHORITY HAVING JURISDICTION.
5. **SPECIAL INSPECTION OF FABRICATED ITEMS:** WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATORS SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION. PERFORMING SPECIAL INSPECTIONS IS NOT REQUIRED, WHERE FABRICATOR HAS BEEN APPROVED AS AN APPROVED FABRICATOR, PER SECTION 1704.2.5.1, AND THE APPROPRIATE SUBMITTALS INCLUDING WRITTEN FABRICATION PROCEDURES AND QUALITY CONTROL MANUALS HAVE BEEN COMPLETED. SUBMIT CERTIFICATE OF COMPLIANCE AT COMPLETION OF FABRICATION.
6. **STATEMENT OF SPECIAL INSPECTION:** THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE HAS PREPARED THIS DRAWING WITH THE SPECIAL INSPECTION AND TESTING TABLES TO SERVE AS THE STATEMENT OF SPECIAL INSPECTIONS.
7. **CONTRACTOR RESPONSIBILITY:** CORRECT DISCREPANCIES IDENTIFIED IN THE SPECIAL INSPECTION WHERE WORK WAS NOT COMPLETED IN CONFORMANCE WITH CONTRACT DOCUMENTS.
8. **STRUCTURAL OBSERVATIONS:** STRUCTURAL OBSERVATIONS SHALL BE PROVIDED FOR SEISMIC RESISTANCE. MAINTAIN ACCESS AND EXPOSURE TO WORK FOR STRUCTURAL OBSERVATIONS. STRUCTURAL OBSERVATIONS SHALL BE PROVIDED AT THE FOLLOWING EXTENT AND FREQUENCY:
   a. UPON COMPLETION OF SOIL NAIL WALL INSTALLATION.
   b. PRIOR TO PLACEMENT OF CONCRETE AT TANK RINGWALL.
   c. AT COMPLETION OF TANK WELDING.
   d. DURING CONSTRUCTION OF MSE WALL.
9. **STRUCTURAL STEEL:** SPECIAL INSPECTION FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AISC 360 AND THE BELOW TABLES.
10. **STRUCTURAL STEEL SPECIAL INSPECTION FOR SEISMIC RESISTANCE:** SPECIAL INSPECTION FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341 AND THE BELOW TABLES.
11. **CONCRETE CONSTRUCTION:** SPECIAL INSPECTIONS AND VERIFICATIONS FOR CONCRETE E CONSTRUCTION SHALL BE AS REQUIRED BY THE BELOW TABLE. SPECIAL INSPECTION IS NOT REQUIRED FOR CONCRETE PATIOS, DRIVEWAYS AND SIDEWALKS, ON GRADE.
12. **SOILS:** SPECIAL INSPECTIONS FOR EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE AS REQUIRED BY THE BELOW TABLES.
13. **MECHANICAL AND ELECTRICAL COMPONENTS INSPECTION FOR SEISMIC RESISTANCE:** PERIODIC SPECIAL INSPECTION IS REQUIRED DURING THE INSTALLATION AND ANCHORAGE OF THE FOLLOWING SYSTEMS:
   i. ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS.
   j. ELECTRICAL EQUIPMENT IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY E OR F.
   k. VIBRATION ISOLATION SYSTEMS.

SPECIAL INSPECTION AND TESTING TABLES

1. INSPECTION TYPES:

CONTINUOUS: THE FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED

PERIODIC: THE PART-TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK.

CONCRETE TESTING (REFERENCE CBC 1705.3)

TYPE	STANDARD	FREQUENCY
1. CONCRETE STRENGTH - SIX (6) 6" Ø CYLINDERS, TEST 2 CYLINDERS AT 7 DAYS, TEST 2 CYLINDERS AT 28 DAYS, HOLD 2 CYLINDERS IN RESERVE.	ASTM C39 ASTM C31, C172	EACH MIX PLACED, EACH DAY PLACED, PER 100 CY
2. CONCRETE SLUMP	ASTM C143	PER 50 CY AND PER STRENGTH SAMPLE
3. CONCRETE AIR CONTENT	ASTM C231 OR ASTM C173	PER STRENGTH SAMPLE
4. CONCRETE TEMPERATURE	ASTM C1064	PER STRENGTH SAMPLE
5. CONCRETE SHRINKAGE	ASTM C157 AS MODIFIED	PER 200 CY
6. CONCRETE UNIT WEIGHT	ASTM C138	PER STRENGTH SAMPLE
7. SHOTCRETE STRENGTH	ASTM C42 ASTM C1140	PER 50 CY NOR LESS THAN EACH 5000 SF OF WALL PLACED EACH SHIFT
8. SHOTCRETE TEST PANEL	ACI 506.2 ASTM C1140	PANELS SHALL BE PROVIDED FOR EACH NOZZLEMAN, MIX DESIGN, AND SHOT ANGLE USED

NOTES:

1. SEE SPECIFICATION SECTION 03300.
2. FABRICATE CONCRETE CYLINDERS AND CONCRETE SPECIMENS AT TIME FRESH CONCRETE IS PLACED.
3. FABRICATE SHOTCRETE SPECIMENS FROM THE IN-PLACE OR FROM TEST PANELS.

SOILS (REFERENCE CBC 1705.6)

REQUIRED SPECIAL INSPECTIONS AND TESTS

SPECIAL INSPECTION REQUIRED	TYPE	CONTINUOUS	PERIODIC
YES	1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	--	X
YES	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	--	X
YES	3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	--	X
YES	4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	--
YES	5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	--	X

NOTES:

1. DURING FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL VERIFY THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH SPECIFICATION SECTION 02301.
2. SPECIAL INSPECTIONS AND TESTS PERFORMED BY SPECIAL INSPECTOR OR GEOTECHNICAL ENGINEER.

CONCRETE (REFERENCE CBC 1705.3 AND ACI 318 SECTION 26.13)

REQUIRED SPECIAL INSPECTIONS AND TESTS

SPECIAL INSPECTION REQUIRED	TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD	CBC REF
YES	1. INSPECT REINFORCEMENT, INCLUDING PRE-STRESSING TENDONS, AND VERIFY PLACEMENT.	--	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1 - 26.6.3	1908.4
YES	2. REINFORCING BAR WELDING:				
YES	a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706.	--	X	AWS D1.4, ACI 318 26.6.4	--
YES	b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16".	--	X		
YES	c. INSPECT ALL OTHER WELDS.	X	--		
YES	3. INSPECT ANCHORS CAST IN CONCRETE.	--	X	ACI 318 17.8.2	--
YES	4 INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. SEE NOTES 2-5.				
YES	a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	--	ACI 318 17.8.2.4	--
YES	b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	--	X	ACI 318 17.8.2	
YES	5. VERIFY USE OF REQUIRED DESIGN MIX.	--	X	ACI 318 Ch. 19, 26.4.3, 26.4.4	1904.1 1904.2 1908.2 1908.3
YES	6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	--	ASTM C31, ASTM C172, ACI 318 26.5, 26.12	1908.10
YES	7. INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	--	ACI 318 26.5	1908.6, 1908.7, 1908.8
YES	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	--	X	ACI 318 26.5.3 - 26.5.5	1908.9
NO	9. INSPECT PRE-STRESSED CONCRETE FOR:				
NO	a. APPLICATION OF PRE-STRESSING FORCES.	X	--	ACI 318 26.10	--
NO	b. GROUTING OF BONDED PRE-STRESSING TENDONS.	X	--		
YES	10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	--	X	ACI 318 26.9	--
YES	11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	--	X	ACI 318 26.11.2	--
YES	12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	--	X	ACI 318 26.11.1.2(b)	--
YES	13. EMBEDDED ITEMS (CONDUITS, PIPES, SLEEVES, ETC.) IN CONCRETE. REVIEW FOR CONFORMANCE WITH STRUCTURAL DRAWINGS FOR SIZE, SPACING, LOCATION, EDGE DISTANCE AND TRIM REINFORCING.	--	X		--

NOTES:

1. WHERE APPLICABLE SEE CBC SECTION 1705.13.
2. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318.
3. SPECIAL INSPECTION OF POST INSTALLED ANCHORS SHALL BE IN STRICT CONFORMANCE WITH THE ICC REPORT AND MANUFACTURER'S INSTALLATION REQUIREMENTS. ANCHOR INSTALLERS SHALL BE QUALIFIED AS REQUIRED BY JURISDICTION REQUIREMENTS.
4. INSPECTION REPORTS SHALL IDENTIFY NAMES OF INSTALLERS.
5. SPECIAL INSPECTOR SHALL PROVIDE DOCUMENTATION AT THE END OF ANCHOR INSTALLATIONS STATING THAT THE ANCHORS WERE INSPECTED PER APPROVED ANCHOR EVALUATION REPORT.

REQUIRED VERIFICATION AND INSPECTION TASKS PRIOR, DURING, AND AFTER WELDING OF TANK

SPECIAL INSPECTION REQUIRED	VERIFICATION AND INSPECTION	QC	QA	REFERENCED STANDARD	AWWA D100 REFERENCE
YES	1. WORK, WHETHER PERFORMED IN THE SHOP OR FIELD, SHALL BE INSPECTED IN ACCORDANCE WITH THE STANDARD.	p	p	AWWA D100	11.1
YES	2. A CERTIFIED COPY OF A WRITTEN REPORT CONFIRMING THAT THE WORK WAS INSPECTED SHALL BE PROVIDED. THE REPORT SHALL INCLUDE THE ITEMS LISTED IN SECTION 11.2.	p	p	AWWA D100	11.2
YES	3. ALL WELDERS OR WELDING OPERATORS SHALL HAVE CURRENT QUALIFICATION RECORDS, OR THEY SHALL BE TESTED BEFORE ANY WELDING IS PERFORMED.	p	p	AWWA D100	11.3 & 8.2
YES	4. INSPECT COMPLETE JOINT PENETRATION WELDED-SHELL BUTT JOINTS IN CONTACT WITH WATER BY THE RADIOGRAPHIC METHOD. PRIMARY STRESS JOINTS THAT CANNOT BE RADIOGRAPHED MAY BE INSPECTED BY AIR CARBON ARC GOUGING.	p	p	AWWA D100	11.6 & 11.8
YES	5. INSPECTION BY RADIOGRAPHIC METHODS IS NOT REQUIRED FOR BUTT JOINTS FOR WHICH PARTIAL PENETRATION WELDS ARE ALLOWED AND THE FOLLOWING JOINTS:	p	p	AWWA D100	8.10 & 8.4.2
	WELDS IN ROOF PLATES NOT SUBJECT TO THE WEIGHT OR PRESSURE OF THE TANK CONTENTS.				
	WELDS IN FLAT TANK BOTTOMS RESTING DIRECTLY ON GRADE OR FOUNDATION OTHER THAN ANNULAR PLATES.				14.3.2.9
	WELDS JOINING FLAT TANK BOTTOMS TO THE FIRST RINGS OF THE TANK SHELL.				
	SPLICE WELDS IN THE TOP ANGLE AND WELDS CONNECTING THE TOP ANGLE TO THE SHELL OR ROOF.				
	WELDS CONNECTING MANHOLES TO THE TANK.				
	WELDS CONNECTING APPURTENANCES TO THE TANK.				
	ANY OTHER FILLET WELDS NOT PREVIOUSLY INCLUDED.				
YES	6. ALL WELDS, SHALL BE VISUALLY INSPECTED BY AN INDIVIDUAL WHO BY TRAINING OR EXPERIENCE, OR BOTH, IN METALS FABRICATION, INSPECTION, AND TESTING, IS COMPETENT TO PERFORM THE VISUAL INSPECTION. ANY OF THE WELD DEFECTS IDENTIFIED IN SECTION 11.4.2 BY VISUAL INSPECTION SHALL BE CAUSE FOR REJECTION, AND THE DEFICIENT WELD SHALL BE REPAIRED OR REPLACED	p	p	AWWA D100	11.4.2 & 11.4.4.2
YES	7. A VISUAL INSPECTION OF CYLINDRICAL SHELLS, SUPPLEMENTED BY MEASUREMENTS, SHALL BE USED TO VERIFY COMPLIANCE WITH THE ERECTION TOLERANCES.	p	p	AWWA D100	10.6.5 & TABLE 21
YES	8. INSPECTION SHALL BE PERFORMED AS THE WORK PROGRESSES AND SHALL BE MADE AS SOON AS POSSIBLE AFTER ALL THE JOINTS ACCESSIBLE FROM ONE SCAFFOLD POSITION HAVE BEEN WELDED.	p	p	AWWA D100	11.5 & 11.6
YES	9. TANK SHELL JOINTS OF THE SAME TYPE AND THICKNESS, BASED ON THE THICKNESS OF THE THINNER PLATE AT THE JOINT, WHICH ARE SUBJECT TO PRIMARY STRESS DUE TO WEIGHT OR PRESSURE OF TANK CONTENTS, SHALL HAVE ONE RADIOGRAPH TAKEN IN THE FIRST 10 FT OF COMPLETED JOINT WELDED BY EACH WELDER OR WELDING OPERATOR. THEREAFTER, WITHOUT REGARD TO THE NUMBER OF WELDERS OR WELDING OPERATORS WORKING THEREON, ONE ADDITIONAL RADIOGRAPH SHALL BE TAKEN IN EACH ADDITIONAL 100 FT AND ANY REMAINING MAJOR FRACTION THEREOF. THE RADIOGRAPH LOCATIONS SELECTED FOR SEAMS SUBJECT TO PRIMARY STRESS SHALL INCLUDE 5 PERCENT OF ALL JUNCTURES OF JOINTS THAT INCLUDE AT LEAST ONE SEAM SUBJECT TO PRIMARY STRESS, WITH A MINIMUM OF TWO SUCH JUNCTURES PER TANK.	p	p	AWWA D100	11.5 & 11.6
YES	10. TANK SHELL JOINTS OF THE SAME TYPE AND THICKNESS, WHICH ARE SUBJECT TO SECONDARY STRESS, SHALL HAVE ONE RADIOGRAPH TAKEN IN THE FIRST 10 FT OF COMPLETED JOINT, ONE ADDITIONAL RADIOGRAPH SHALL BE TAKEN IN EACH ADDITIONAL 200 FT AND ANY REMAINING MAJOR FRACTION THEREOF.	p	p	AWWA D100	11.5 & 11.6
YES	11. THE INSPECTION OF WELDED-SHELL BUTT JOINTS FOR WHICH COMPLETE JOINT PENETRATION IS SPECIFIED SHALL BE MADE BY X-RAY OR GAMMA-RAY METHODS IN ACCORDANCE WITH SECTION 11.6.	p	p	AWWA D100	11.6
YES	12. IN THOSE AREAS WHERE RADIOGRAPHIC INSPECTION IS NOT FEASIBLE, AN INSPECTION OF WELDS BY AN EXPERIENCED INSPECTOR MAY BE MADE BY AIR CARBON ARC GOUGING IN ACCORDANCE WITH SECTION 11.8.	p	p	AWWA D100	11..8
YES	13. DEFECTIVE WELDS SHALL BE REMOVED BY GRINDING, CHIPPING WITH A ROUND-NOSED TOOL, OR BY AIR ARC OR OXYGEN GOUGING, FROM ONE OR BOTH SIDES OF THE JOINT, AND THEN REWELDED IN COMPLIANCE WITH APPROVED PROCEDURES. REMOVAL OF DEFECTIVE WELDS IS REQUIRED ONLY TO THE EXTENT NECESSARY TO REMOVE THE DEFECTS PRESENT. REPAIRS SHALL BE REINSPECTED BY THE ORIGINAL TEST PROCEDURE.	p	p	AWWA D100	11.9

O – OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

P – PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.

1. THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.

SHEET SIZE: 24x36

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SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — DONALD LEE BARRETT — NO. C45483 Exp. 12/31/24 — CIVIL — STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

p:\proj\

WORK ACCEPTED: INSPECTOR:

BY: DATE:

Kennedy/Jenks Consultants©

2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN:	DESIGN:	HOR:
NEB	DLB	
CHECKED:		VERT:
PIB		
APPROVED:	DATE:	JOB NUMBER:
	4/19/2024	K/J 2368021*00

SCOTT C. CREER RCE 58879 — CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

STRUCTURAL SPECIAL INSPECTION AND TESTING

FILE NUMBER:

PRINT DATE: APRIL 2024

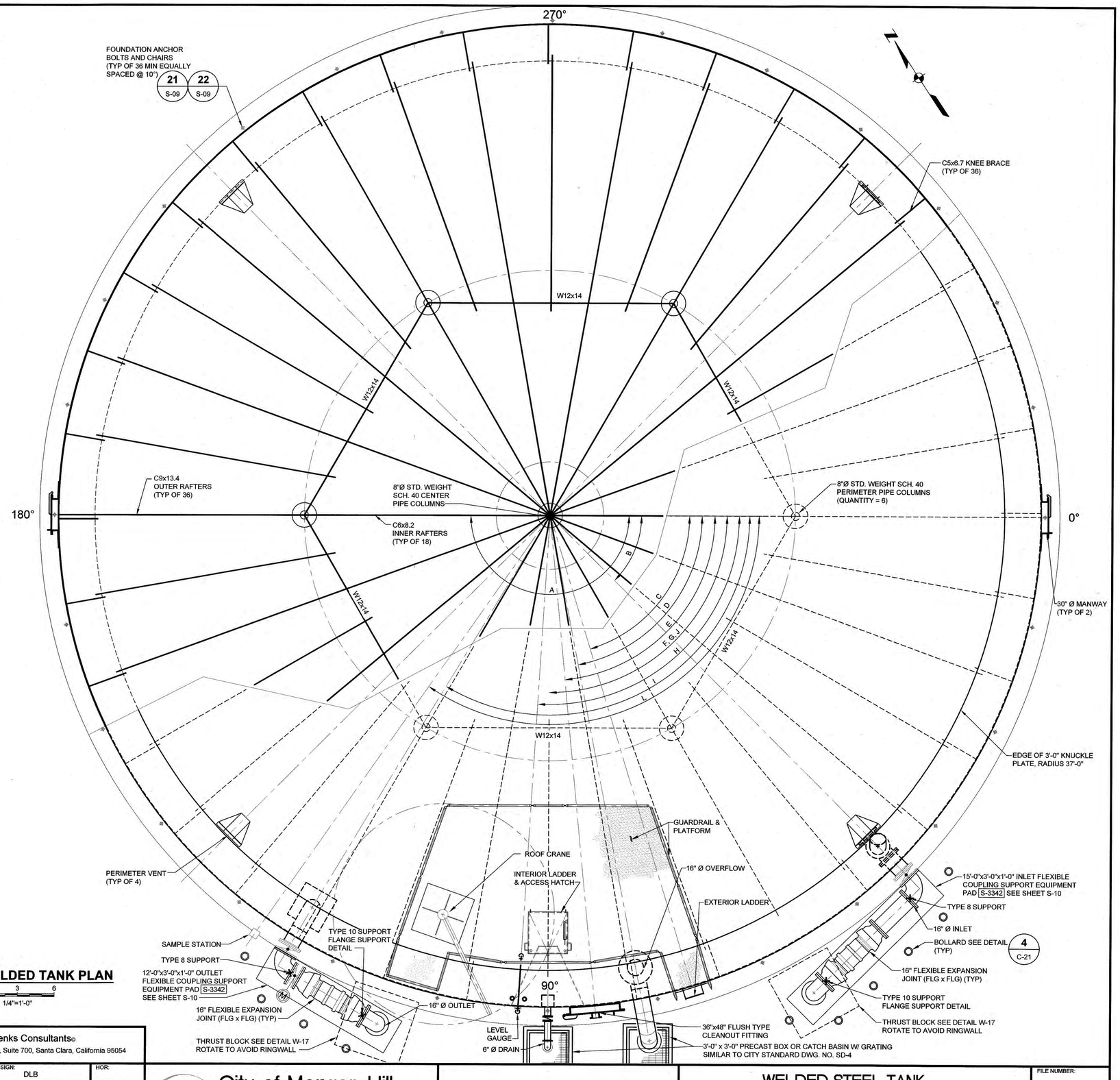
SHEET: 40 OF 76

S-02

TAG	DESCRIPTION	ANGLE	RADIUS	DETAIL
A	30" MANWAY (2)	0° 00' 00" 180° 00' 00"	40'-0"	1/S-06
B	16" INLET	45° 00' 00"	40'-0"	2/S-05
C	EXTERIOR LADDER	72° 58' 00"	40'-0"	7/S-07
D	16" OVERFLOW	79° 00' 00"	40'-0"	1/S-05
E	FLUSH TYPE CLEANOUT	84° 30' 00"	40'-0"	2/S-06
F	INTERIOR LADDER	90° 00' 00"	40'-0"	9/S-07
G	6" DRAIN	90° 00' 00"	40'-0"	4/S-05
H	LEVEL GAUGE	93° 30' 00"	40'-0"	24/S-09
I	16" OUTLET	121° 00' 00"	40'-0"	3/S-05
J	39" ROOF HATCH	90° 00' 00"	34'-0"	13/S-08
K	PERIMETER VENTS (4)	45° 00' 00" 135° 00' 00" 225° 00' 00" 315° 00' 00"	35'-0"	4/S-10
L	SAMPLE STATION	125° 00' 00"	40'-0"	25/S-09

NOTES:

1. SEE SPECIFICATION SECTION 02301 FOR EARTHWORK REQUIREMENTS.
2. SEE SPECIFICATION SECTION 13211 FOR WELDED STEEL TANK.
   NOTIFY THE OWNER'S REPRESENTATIVE WHEN OVEREXCAVATIONS FOR THE TANK SUBGRADE AND RINGWALL FOOTING ARE COMPLETED FOR INSPECTION BY THE GEOTECHNICAL CONSULTANT BEFORE PRECEEDING WITH SELECT FILL PLACEMENT.
3. IN ACCORDANCE WITH THE 2022 CBC, SECTION 106.3.4.2, "DEFERRED SUBMITTALS" THE WELDED STEEL TANK AND ALL TANK ACCESSORIES ARE CONSIDERED A "DEFERRED SUBMITTAL" AND SHOP DRAWINGS AND CALCULATIONS FOR THE TANK AND ACCESSORIES SHALL BE SIGNED AND SEALED BY A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN CALIFORNIA, AND SUBMITTED TO THE ENGINEER OF RECORD (EOR), KENNEDY/JENKS CONSULTANTS, WHO SHALL REVIEW THEM. FABRICATION OR CONSTRUCTION OF THE DEFERRED SUBMITTAL ITEMS SHALL NOT BEGIN UNTIL THE LOCAL BUILDING OFFICIAL HAS FAVORABLY REVIEWED THE DOCUMENTS.
4. SUBMIT CALCULATIONS THAT THE TANK SHELL HAS BEEN DESIGNED TO RESIST A MINIMUM AXIAL THRUST LOAD FROM THE KNEE BRACE. REINFORCE SHELL AS REQUIRED TO AVOID LOCALLY OVERSTRESSING THE SHELL AS A RESULT OF KNEE BRACE THRUST.
5. ALL MATERIALS IN CONTACT WITH POTABLE WATER SHALL COMPLY WITH NSF 61 REQUIREMENTS.
6. SEE DETAIL 2 ON SHEET S-06 FOR LAYOUT AND DIMENSIONS OF RECESS IN FOUNDATION RINGWALL. CONTINUE ALL HORIZONTAL REINFORCING BARS THROUGH FOOTING AND ADJUST TIES TO ACCOMMODATE NOTCH.
7. THE ROOF FRAMING (PURLINS, INNER AND OUTER RAFTERS, BEAMS, KNEE BRACES) AND CENTER AND PERIMETER COLUMNS HAVE BEEN PRELIMINARY SIZED IN ORDER TO DEVELOP ROOF LOADS. FINAL SIZES FOR BID, FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONTRACTORS DEFERRED SUBMITTAL STRUCTURAL CALCULATIONS.



WELDED TANK PLAN

0 3 6

1/4"=1'-0"

SHEET SIZE: 24x36

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SCALES

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REGISTERED PROFESSIONAL ENGINEER RONALD LEE BARRETT No. C-18483 Exp. 12/31/24 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

p:\proj\ Revisions

WORK ACCEPTED: INSPECTOR:

BY: DATE:

Kennedy/Jenks Consultants©

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DRAWN: NEB DESIGN: DLB HOR:

CHECKED: PIB VERT:

APPROVED: DATE: 4/30/24 JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58079 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

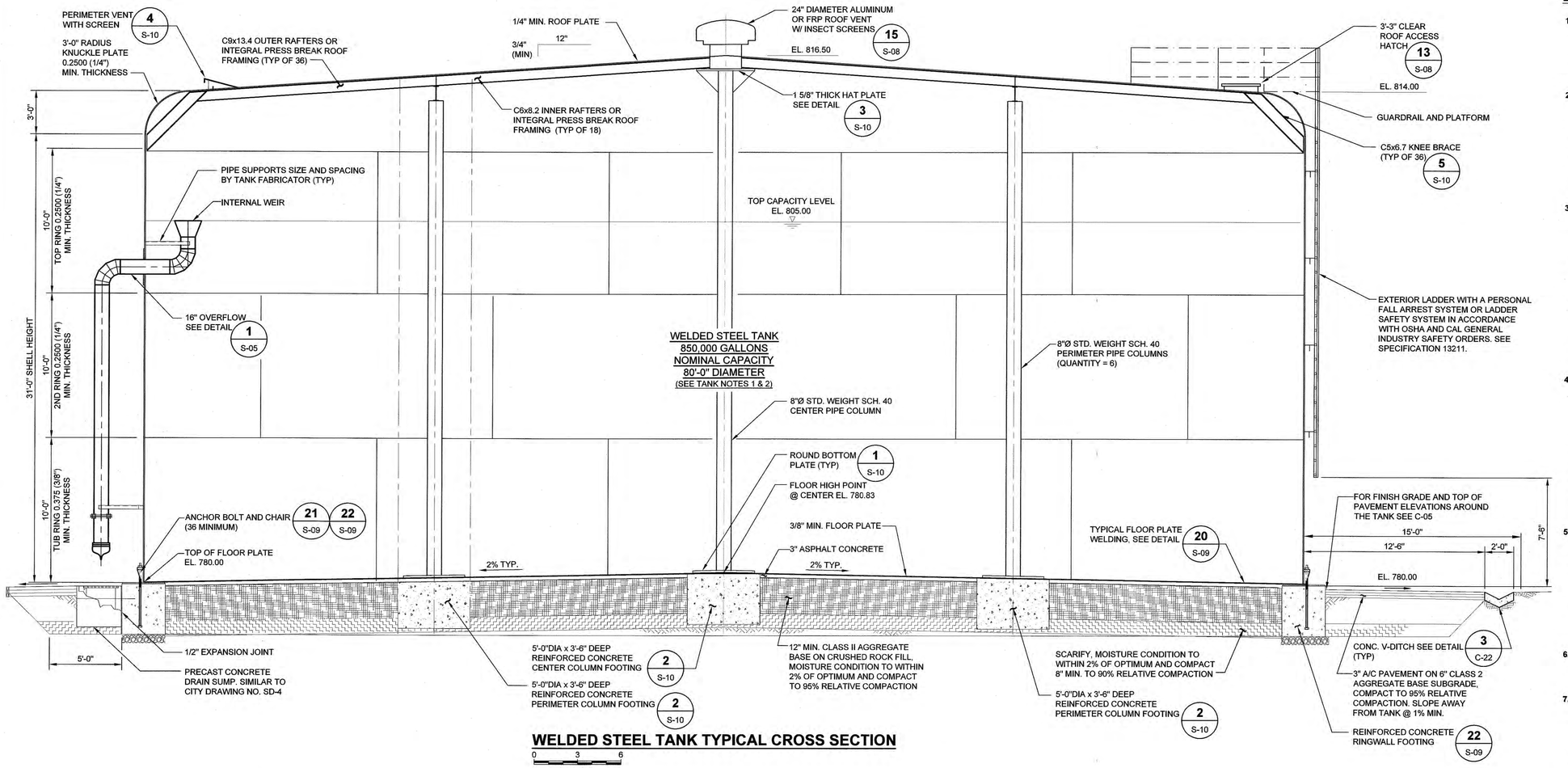
WELDED STEEL TANK ORIENTATION PLAN

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 41 OF 76

S-03



WELDED STEEL TANK TYPICAL CROSS SECTION

0 3 6

1/4"=1'-0"

EARTHWORK NOTES:

1. GEOTECHNICAL INVESTIGATIONS FOR DESIGN PURPOSES FOR THIS PROJECT WERE MADE FOR THE CITY OF MORGAN HILL BY CAL ENGINEERING & GEOLOGY IN REPORTS DATED 11 AUGUST 2016 AND 12 JANUARY 2024. WHILE THE RECORDS OF DATA OBTAINED MAY BE CONSIDERED BY THE CONTRACTOR TO BE CORRECT, ANY CONCLUSIONS OR RECOMMENDATIONS MADE IN THE REPORTS ARE FOR INFORMATION TO THE DESIGN ENGINEER AND ARE NOT A PART OF THE CONTRACT DOCUMENTS.
2. **GROUNDWATER:** GROUNDWATER WAS NOT FOUND IN ANY OF THE BORINGS. SOIL AND BEDROCK COLORS OBSERVED IN SAMPLES INDICATE CONSISTENTLY OXIDIZED CONDITIONS, WHICH SUGGESTS THAT THE WATER TABLE DOES NOT TEND TO FLUCTUATE THROUGH THE INTERVALS DRILLED. PERCHED AND SHALLOW GROUND WATER WILL NOT LIKELY BE ENCOUNTERED IN THE EXCAVATIONS. THEREFORE,THE NEED FOR TEMPORARY DEWATERING SYSTEMS, SUCH AS SLOPING EXCAVATIONS TO A SUMP PUMP LOCATION, TRENCHING FROM THE BASE OF EXCAVATIONS TO DISCHARGE WATER BY GRAVITY FLOW, OR OTHER MEANS ARE NOT ANTICIPATED. IF THE NEED ARISES, DESIGN OF CONSTRUCTION DEWATERING SHALL BE DETERMINED BY THE CONTRACTOR.
3. **SUBSURFACE MATERIALS:** BORING HOLES WERE SPACED APART ACROSS THE TANK SITE THEREFORE THE INFORMATION CONTAINED IN THE BORING LOGS IS NOT REPRESENTATIVE OF THE ENTIRE SITE AND THERE IS A POTENTIAL FOR VARIATION IN THE CONSISTENCY, DENSITIES, AND STRENGTH AND HARDNESS OF MATERIALS. RELATIVELY UNIFORM SOIL CONDITIONS WERE ENCOUNTERED IN THE BORINGS. THE UPPER APPROXIMATELY 1-FOOT OF SOIL HAS LOCALLY BEEN DISTURBED. ALL THE BORINGS ENCOUNTERED COLLUVIUM. THE COLLUVIUM IS CLASSIFIED AS GENERALLY LEAN CLAY TO SANDY LEAN CLAY, WITH SANDY FAT CLAY. THESE DEPOSITS ARE FIRM AND MOIST. THE TRANSITION BETWEEN COLLUVIUM AND THE UNDERLYING SEVERELY WEATHERED ROCK IS GRADUAL.ALL OF THE BORINGS BOTTOMED IN SANTA CLARA FORMATION BEDROCK. THE DOMINANT ROCK TYPES ENCOUNTERED ARE SANDSTONE, CLAYEY SANDSTONE, CLAYSTONE, AND SANDY CLAYSTONE. SCATTERED CONCENTRATIONS OF GRAVEL WERE NOTED. FOR A MORE DETAILED DESCRIPTION OF THE SOILS ENCOUNTERED IN THE BORINGS, THE LOGS OF THE BORINGS AND LABORATORY TEST RESULTS ARE INCLUDED IN THE REFERENCED GEOTECHNICAL INVESTIGATION REPORT.
4. **CLEARING & STRIPPING:** PRIOR TO GRADING, AREAS THAT WILL SUPPORT FOUNDATIONS, CONCRETE SLABS-ON-GRADE, PAVEMENTS OR ENGINEERED FILL SHALL BE CLEARED OF ALL DELETERIOUS MATERIAL THAT MAY BE PRESENT AT THE SITE. THE ROOT SYSTEMS OF TREES DESIGNATED FOR REMOVAL SHALL BE COMPLETELY GRUBBED AND REMOVED. ALL DELETERIOUS MATERIAL GENERATED DURING THE CLEARING OPERATION SHALL BE REMOVED FROM THE CONSTRUCTION AREAS. AFTER CLEARING, SOIL SURFACES SHALL BE STRIPPED OF ALL VEGETATION AND ORGANIC MATERIAL. ORGANIC LADEN SOILS ARE DEFINED AS SOILS WITH MORE THAN 3 PERCENT BY WEIGHT OF ORGANIC CONTENT. THE REQUIRED STRIPPING DEPTH SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION. FOR BIDDING PURPOSES, AN AVERAGE STRIPPING DEPTH OF 3-INCHES MAY BE ASSUMED. ORGANIC LADEN TOPSOIL SHALL BE STOCKPILED FOR REUSE IN THE UPPER 12-INCHES OF LANDSCAPE AREAS OR REMOVED FROM THE CONSTRUCTION AREAS.
5. **SUBGRADE PREPARATION:** SUBGRADE PREPARATION SHALL BE PERFORMED AFTER STRIPPING AND ANY NECESSARY EXCAVATIONS HAVE BEEN PERFORMED. SUBGRADE SOIL IN AREAS TO RECEIVE ENGINEERED FILL, FOUNDATIONS, OR PAVEMENTS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 8-INCHES, MOISTURE CONDITIONED AND COMPACTED TO THE RECOMMENDATIONS PRESENTED IN SPECIFICATION SECTION 02301, PREPARED SOIL SUBGRADES SHALL BE NON-YIELDING WHEN PROOF-ROLLED BY A FULLY LOADED WATER TRUCK OR EQUIPMENT OF SIMILAR WEIGHT. SUBGRADE PREPARATION SHALL EXTEND A MINIMUM OF 5-FEET BEYOND THE OUTERMOST LIMITS OF THE PROPOSED IMPROVEMENTS. AFTER THE SUBGRADES HAVE BEEN PREPARED, THE AREAS MAY BE RAISED TO DESIGN GRADES BY PLACEMENT OF ENGINEERED FILL.
6. **OVEREXCAVATION:** EXTEND THE ZONE OF OVEREXCAVATION 5-FEET BEYOND LATERALLY BEYOND THE PERIMETER OF THE TANK RINGWALL FOOTING AND BUILDING FOUNDATIONS. SEE GRADING SECTIONS AND DETAILS ON DRAWINGS FOR LIMITS OF OVEREXCAVATION.
7. **TANK RINGWALL FOUNDATION:** TANK SHALL BE SUPPORTED BY A REINFORCED CONCRETE RING FOUNDATION BEARING IN COMPETENT BEDROCK. THE RINGWALL FOUNDATION SHALL BE EMBEDDED AT LEAST 24-INCHES INTO COMPETENT BEDROCK, AS VERIFIED IN THE FIELD BY ENGINEER. CONCRETE SHALL BE PLACED ONLY IN EXCAVATIONS THAT ARE CLEAN AND FREE OF LOOSE SOIL AND DEBRIS. ALL FOUNDATION EXCAVATIONS SHALL BE OBSERVED BY ENGINEER TO VERIFY THAT ADEQUATE FOUNDATION BEARING SOILS HAVE BEEN REACHED.
8. **BACKFILL BENEATH THE TANK:** SELECT FILL, SOIL CEMENT, OR SAND-CEMENT SLURRY SHALL BE USED AS BACKFILL IN ANY OVEREXCAVATION BENEATH THE TANK OR BUILDING STRUCTURE. SEE THE SPECIFICATIONS FOR FILL MATERIAL REQUIREMENTS. FILL MATERIALS BENEATH THE TANK AND BUILDING STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY PER ASTM D1557.
9. NOTIFY THE OWNER'S REPRESENTATIVE WHEN ASPHALT CONCRETE OPERATIONS ARE SCHEDULED AND FINAL PLACEMENT OF FILL IS READY FOR INSPECTION.
10. CONSTRUCT A 3 INCH THICK ASPHALT CONCRETE BASE OVERLYING CALTRANS CLASS II AGGREGATE BASE MATERIAL.
11. COMPACT AGGREGATE BASE TO AT LEAST 95% RELATIVE COMPACTION.
12. NOTIFY THE OWNER'S REPRESENTATIVE WHEN RINGWALL EXCAVATION FOR THE TANK IS COMPLETE AND READY FOR INSPECTION.
13. DO NOT PLACE BACKFILL AGAINST CONCRETE RINGWALL UNTIL AT LEAST 28 DAYS AFTER CONCRETE PLACEMENT OR UNTIL CONCRETE COMPRESSIVE STRENGTH OF AT LEAST 4,000 PSI. NOTIFY ENGINEER WHEN FILL OPERATIONS ARE SCHEDULED AND SUBGRADE IS READY FOR INSPECTION.

WELDED STEEL TANK DESIGN AND CONSTRUCTION NOTES:

1. WELDED STEEL TANK MATERIALS, DESIGN, FABRICATION AND ERECTION SHALL COMPLY WITH AWWA D100, 2021.
2. SEE SPECIFICATION SECTION 13211 FOR WELDED STEEL TANK.
3. INLET, OUTLET AND DRAIN PIPING IS NOT SHOWN FOR CLARITY.
4. THE MINIMUM SHELL PLATE THICKNESS SHOWN ON THIS DRAWING IS BASED ON THE USE OF STEEL MEETING THE SPECIFICATION ASTM A36 WITH A MINIMUM TENSILE STRENGTH OF 19,330 PSI PER AWWA D100 ALLOWABLE STRESSES. IF AN ALTERNATE STEEL SATISFYING THE REQUIREMENTS OF AWWA D100, SECTION 2.2 OR SECTION 14.2 IS PROPOSED, MINIMUM PLATE THICKNESS MAY BE INCREASED OR REDUCED PROVIDED SUFFICIENT THICKNESS IS PROVIDED IN ACCORDANCE WITH AWWA D100 FOR ALL LOADING CONDITIONS AND UNIT STRESSES.
5. CONTRACTOR SHALL PROVIDE DESIGN FOR BEAMS, GIRDERS, COLUMNS, CONNECTIONS AND BRACING OF BEAMS. THE ROOF FRAMING (PURLINS, INNER AND OUTER RAFTERS, BEAMS, KNEE BRACES) AND CENTER AND PERIMETER COLUMNS HAVE BEEN PRELIMINARY SIZED IN ORDER TO DEVELOP ROOF LOADS. FINAL SIZES FOR BID, FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONTRACTORS DEFERRED SUBMITTAL STRUCTURAL CALCULATIONS.
6. THE CROSS SECTION OF THE TANK IS REPRESENTATIONAL AND DOES NOT REFLECT THE RELATIONSHIP BETWEEN THE OVERFLOW PIPING AND THE EXTERIOR LADDER. SEE THE TANK PLAN FOR ORIENTATION OF PIPING AND APPURTENANCES.
7. TYPICAL ROOF FRAMING CONSISTING OF MINIMUM C6x8.2 AND C9x13.4 ROOF RAFTERS AND C5x6.7 KNEE BRACES SHOWN. PROVIDE ADDITIONAL FRAMING FOR 50 PSF LIVE LOAD INSIDE GUARDRAILS AND PLATFORM AREA.
8. PERFORM INTERIOR AND EXTERIOR CLEANING, PREPARATION AND PAINTING IN ACCORDANCE WITH AWWA D102, SECTION 09960, AND ALSO:
   - PROVIDE 100% LAP SEAL WELDS ON THE UNDERSIDE (INTERIOR OF RESERVOIR) ROOF. PROVIDE CONTINUOUS FILLET WELDS BETWEEN PURLINS AND THE UNDERSIDE OF ROOF PLATES.
   - PROVIDE CONTINUOUS FILLET WELDS ALL AROUND LAPPED SURFACES AT ALL PURLIN AND RAFTER CONNECTIONS AND BEAM SUPPORTS.
   - PAINT CONTACT SURFACES BETWEEN ROOF PLATES AND RAFTERS.
   - PAINT TOP SURFACES OF ALL PURLINS, RAFTERS, BEAMS AND ALL OTHER ROOF STRUCTURAL MEMBERS PRIOR TO ROOF PLATE INSTALLATION.
   - PAINT LOWER SIDE OF ROOF PLATES PRIOR TO INSTALLATION.
   - SEALANT MATERIAL, POLYURETHANE SEALANT; PRC PERMAPAD RC-270, VULKEM 921, OR EQUAL-APPLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL SEALANT MATERIAL SHALL COMPLY WITH NSF 61 REQUIREMENTS.
   - PAINT THE UNDERSIDE OF THE FLOOR PLATES PRIOR TO LAYING DOWN ON ASPHALT CONCRETE MATERIAL.
   - AT COLUMNS, PAINT THE TOP SIDE OF FLOOR PLATES AND THE UNDERSIDE OF COLUMN BASE PLATES PRIOR TO COLUMN ERECTION.
9. PROVIDE A FIRST ANNIVERSARY INSPECTION OF THE TANK PAINTING INCLUDING TESTING AND ANY REQUIRED REPAIR WORK, AT NO ADDITIONAL COST TO THE OWNER.
10. IF SOFT, SATURATED, OR UNSTABLE SOILS ARE ENCOUNTERED DURING SUBGRADE PREPARATION, THESE MATERIALS SHALL BE OVER-EXCAVATED TO THEIR FULL DEPTH AND REPLACED WITH ENGINEERED FILL.
11. ALL MATERIALS IN CONTACT WITH POTABLE WATER SHALL COMPLY WITH NSF 61 REQUIREMENTS.

ISSUED FOR BID

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SCALES

0 1"

0 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER RONALD LEE BARTLETT No. C45483 Exp. 12/31/24 CIVIL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

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WORK ACCEPTED: INSPECTOR:

BY: DATE:

Kennedy/Jenks Consultants©

2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

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CHECKED: PIB		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

WELDED STEEL TANK TYPICAL CROSS SECTION

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 42 OF 76

S-04

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:34 PM

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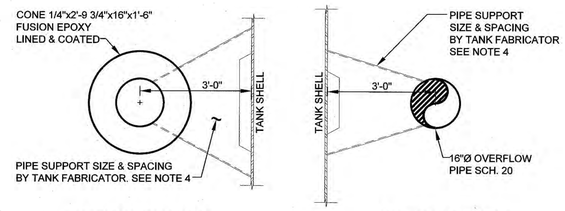
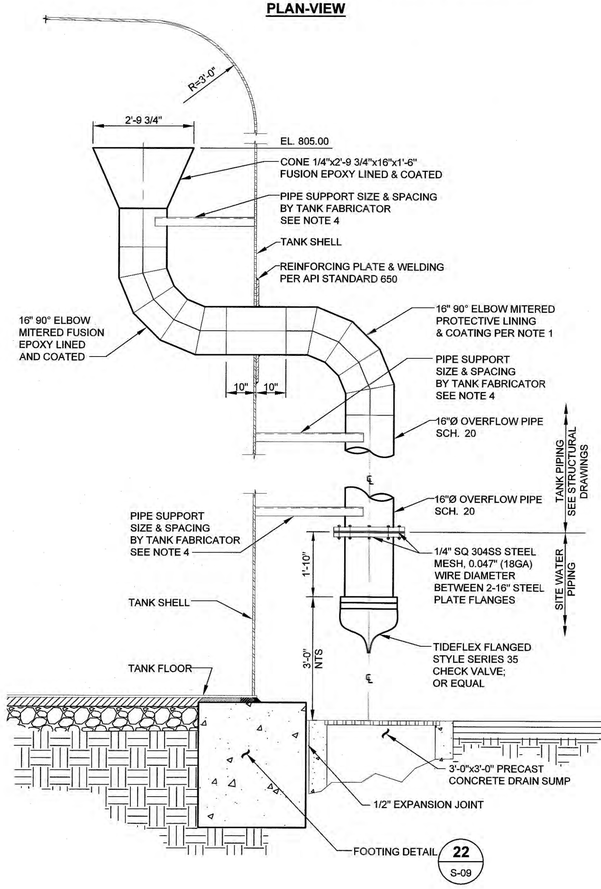


INTERIOR SUPPORT **EXTERIOR SUPPORT**

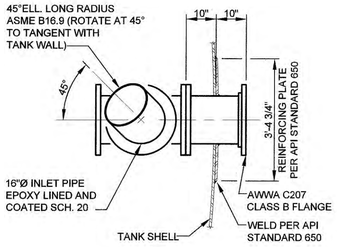
PLAN-VIEW



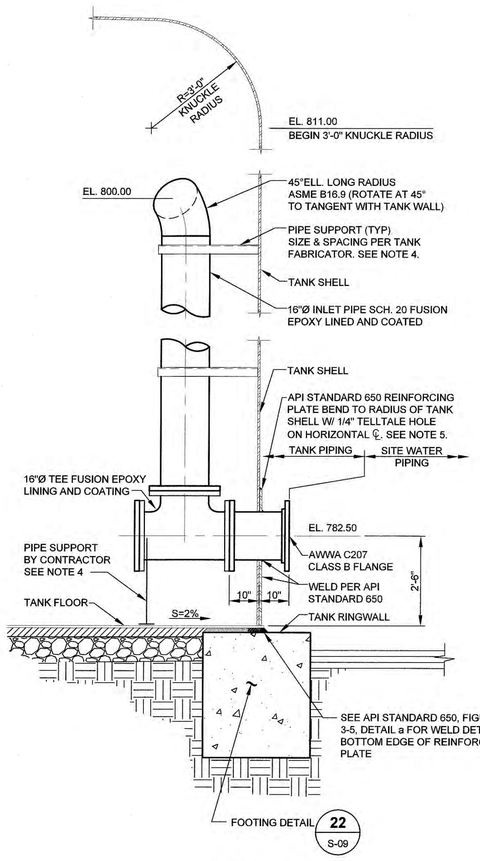
ELEVATION

16" OVERFLOW - DETAIL 1 S-03

0 1 2 3
1/2"=1'-0"



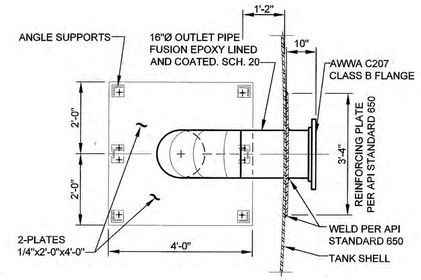
PLAN-VIEW



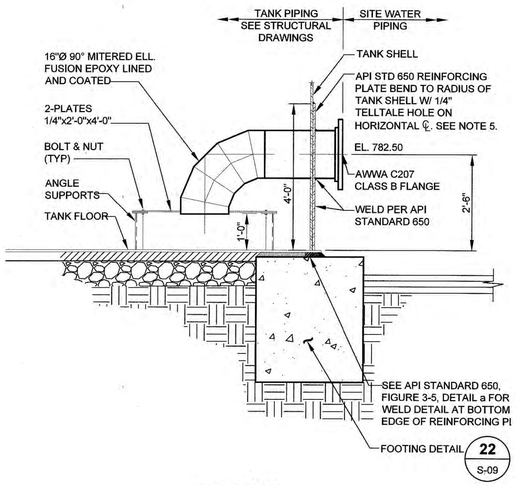
ELEVATION

16" INLET - DETAIL 2 S-03

0 1 2 3
1/2"=1'-0"



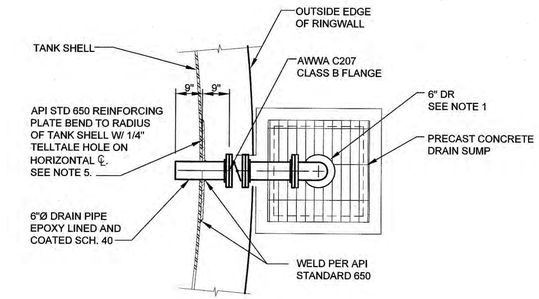
PLAN-VIEW



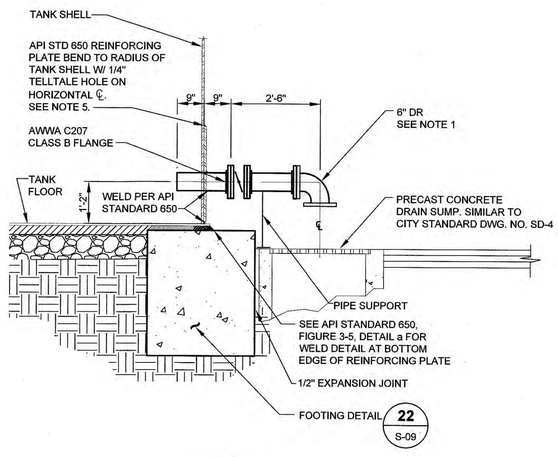
ELEVATION

16" OUTLET W/ VORTEX PLATE - DETAIL 3 S-03

0 1 2 3
1/2"=1'-0"



PLAN-VIEW



ELEVATION

6" DRAIN - DETAIL 4 S-03

0 1 2 3
1/2"=1'-0"

NOTES:

1. FUSION BONDED EPOXY, AWWA C213, LINING AND COATING ON PIPING INSIDE TANK. FUSION BONDED EPOXY OR CEMENT MORTAR LINING, SPECIFICATION SECTION 09960 AND AWWA C205, ON PIPING OUTSIDE TANK.
2. ADDITIONAL EXPOSED AND BURIED PIPING NOT SHOWN. CONTRACTOR SHALL PROVIDE TEMPORARY BLIND FLANGES ON ALL PIPING CONNECTIONS UNTIL EXTERIOR PIPING CONNECTIONS ARE MADE.
3. PROVIDE INSULATING FLANGE JOINT KITS WITH GASKETS AND PHENOLIC SLEEVES FOR INLET AND OUTLET CONNECTIONS.
4. MINIMUM PLATE AND ANGLE THICKNESS IS 1/2". PIPE SUPPORTS AND THEIR CONNECTIONS TO THE TANK SHELL ARE TO BE DESIGNED BY THE CONTRACTOR'S ENGINEER AS A DEFERRED SUBMITTAL. SUBMIT CALCULATIONS DEMONSTRATING THAT THE TANK SHELL HAS BEEN DESIGNED TO RESIST THE EFFECTS OF CONCENTRATED LOADS OR MOMENTS RESULTING FROM PIPE SUPPORTS OR OTHER ATTACHMENTS.
5. WIDTH OF REINFORCING PLATE SHALL NOT BE REDUCED FROM CENTER OF NOZZLE TO BOTTOM OF TANK.
6. ALL PIPING PENETRATIONS SHALL HAVE A WALL THICKNESS (SCHEDULE) OF THE THICKNESS OF THE PLATE BEING PENETRATED, OR GREATER.

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SCALES
0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER
RONALD LEE BARRETT
No. C34483
Exp. 12/31/24
CIVIL
STATE OF CALIFORNIA
04/19/24

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SCOTT C. CREER RCE 58679 — CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

WELDED STEEL TANK
PIPE CONNECTION DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 43 OF 76
S-05

SHEET SIZE: 24x36
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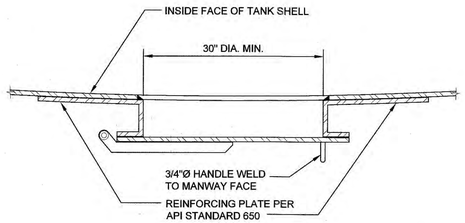
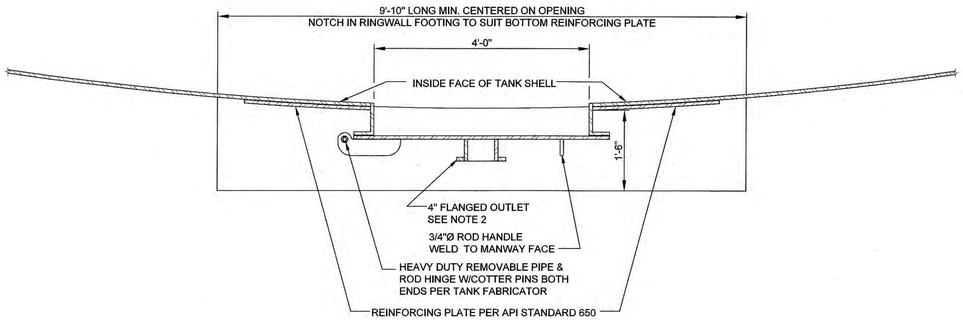


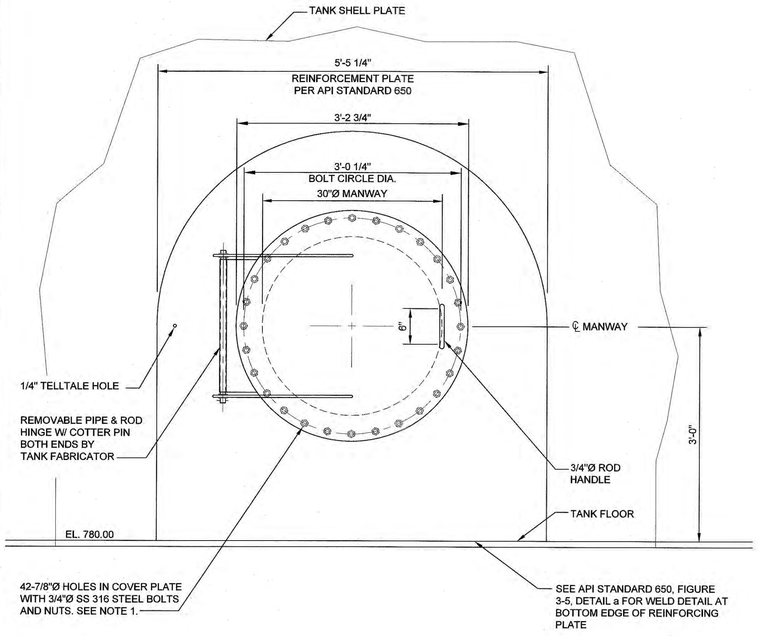
PLAN-VIEW



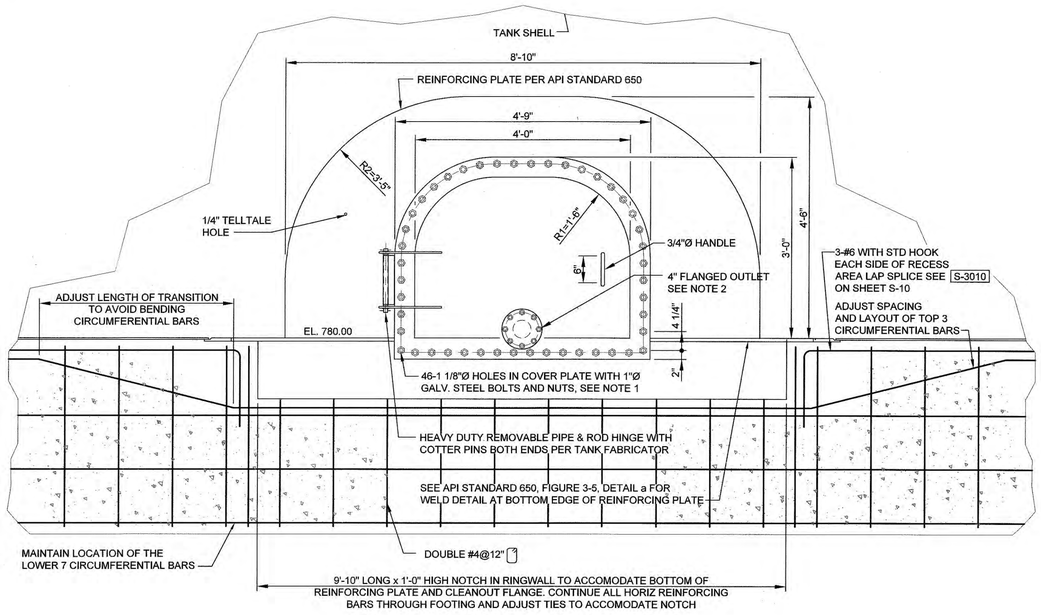
PLAN-VIEW

NOTES:

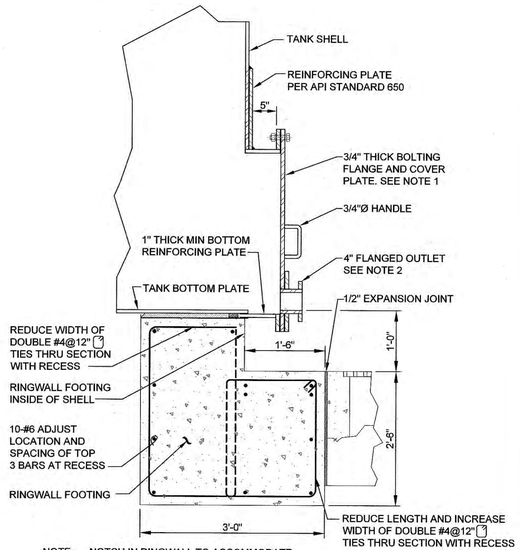
1. PROVIDE 30" SHELL MANWAYS AND FLUSH TYPE CLEANOUT FITTING WITH 1/8" THICK FIBER SHEET OR RUBBER GASKETS.
2. PROVIDE BLIND FLANGE AND GASKET FOR 4" FLANGED OUTLET.
3. ALL PIPING PENETRATIONS SHALL HAVE A WALL THICKNESS (SCHEDULE) AS THICK AS OR GREATER THAN THE PLATE BEING PENETRATED.
4. SHELL MANWAYS AND FLUSH TYPE CLEANOUT TO BE DESIGNED, DETAILED, FABRICATED, AND INSTALLED BY TANK MANUFACTURER.
5. 118" LONG X 12" HIGH NOTCH IN RINGWALL TO ACCOMMODATE BOTTOM OF REINFORCING PLATE AND CLEANOUT FLANGE. CONTINUE ALL HORIZ REINFORCING BARS TROUGH FOOTING AND ADJUST TIES TO ACCOMMODATE NOTCH



FRONT VIEW



FRONT VIEW



NOTE: NOTCH IN RINGWALL TO ACCOMMODATE BOTTOM OF REINFORCING PLATE AND CLEANOUT FLANGE. CONTINUE ALL HORIZ BARS THROUGH FOOTING AND ADJUST TIES.

SIDE VIEW

30" SHELL MANWAY - DETAIL 1 (S-03)

0 1

1"=1'-0"

36"x48" FLUSH TYPE CLEANOUT FITTING - DETAIL 2 (S-03)

0 1 2

3/4"=1'-0"

SHEET SIZE: 24x36

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER — DONALD LEE BASKETT — No. C45483 Exp. 12/31/24 CIVIL — STATE OF CALIFORNIA

04/19/24

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SCOTT C. CREER RCE 58079 — CITY ENGINEER EXP: 06/30/2025

CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

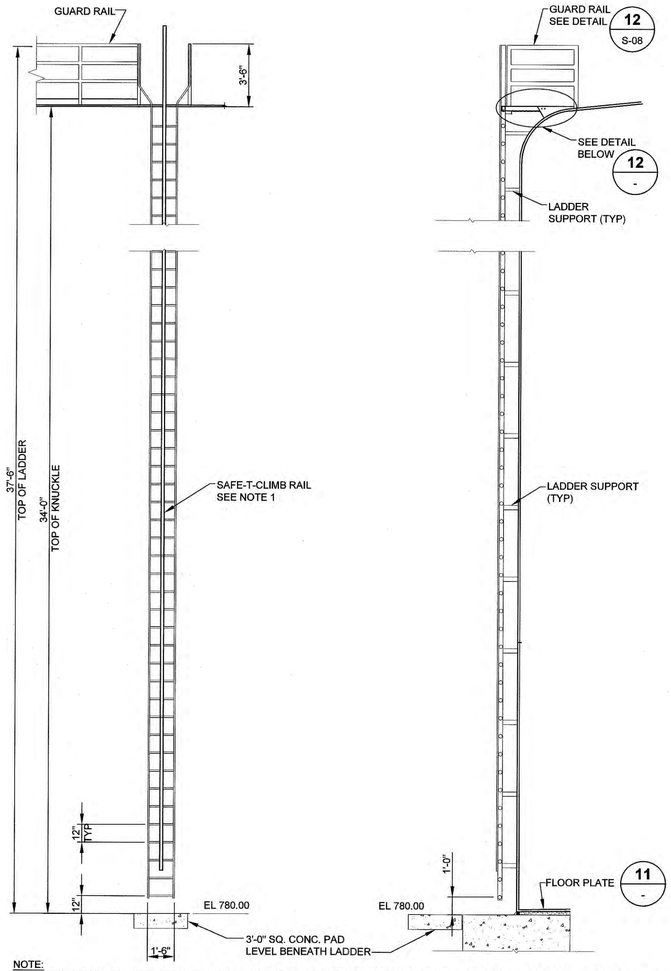
WELDED STEEL TANK SHELL MANWAY AND PIPE CONNECTION DETAILS

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 44 OF 76

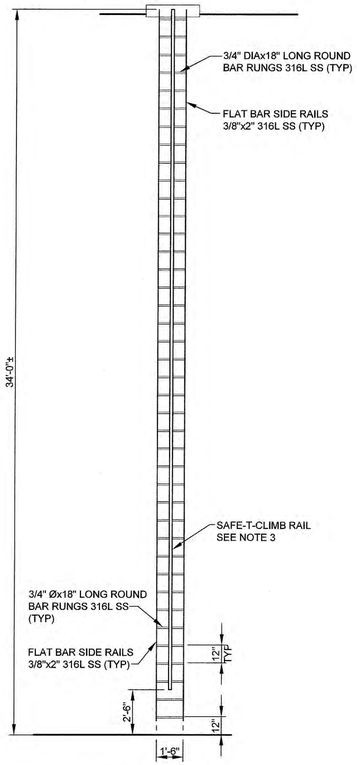
S-06

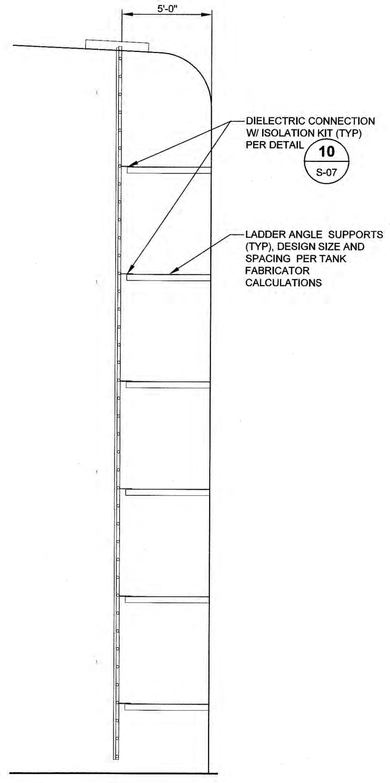


NOTE:
1. LADDER SHALL BE PROVIDED WITH A PERSONAL FALL ARREST SYSTEM OR LADDER SAFETY SYSTEM IN ACCORDANCE WITH OSHA AND CAL GENERAL INDUSTRY SAFETY ORDERS. SEE SPECIFICATIONS 13211. ALL MATERIALS 316 STAINLESS STEEL.

FRONT VIEW **SIDE VIEW**

EXTERIOR LADDER DETAIL 7
0 3 6
1/4"=1'-0"
S-08 S-03

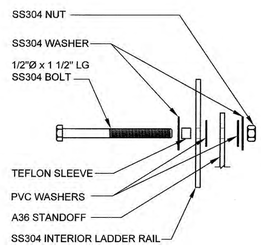




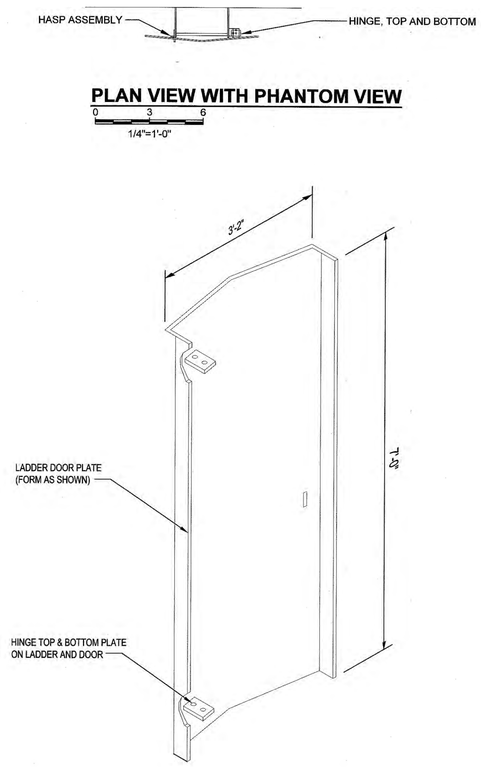
FRONT VIEW **RIGHT SIDE VIEW**

NOTES:
1. COAT INTERIOR LADDERS AFTER ASSEMBLY.
2. SEE SPECIFICATION SECTION 13211 FOR RETRACTABLE LADDER EXTENSION.
3. LADDER SHALL BE PROVIDED WITH A PERSONAL FALL ARREST SYSTEM OR LADDER SAFETY SYSTEM IN ACCORDANCE WITH OSHA AND CAL GENERAL INDUSTRY SAFETY ORDERS. SEE SPECIFICATIONS 13211. ALL MATERIALS 316 STAINLESS STEEL.
4. 316L MATERIALS FOR ALL INTERIOR LADDERS AFTER ASSEMBLY

INTERIOR LADDER DETAIL 9
0 3 6
1/4"=1'-0"
S-08 S-03

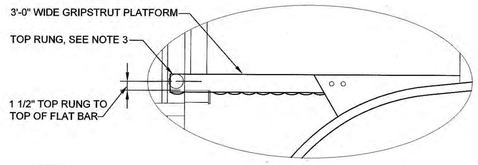


LADDER BOLTING DETAIL 10
0 1 2 3
1/2"=1'-0"
S-07



PLAN VIEW WITH PHANTOM VIEW
0 3 6
1/4"=1'-0"

LADDER DOOR PLATE DETAIL 11
0 1 2
3/4"=1'-0"
S-07



NOTES:
1. HOT DIP GALVANIZE EXTERIOR LADDER ASSEMBLIES AFTER ASSEMBLY. COAT GALVANIZED LADDER AND CAGE ASSEMBLIES SAME AS TANK EXTERIOR.
2. PROVIDE TWO BELTS AND TWO SLEEVES FOR SAFE-T-CLIMB RAIL.
3. TOP RUNG OF OUTSIDE LADDER TO BE FLUSH WITH THE TOP OF THE TANK.
4. LANDING LIVE LOAD: 150 PSF (UNIFORM), 1,000 LBS (CONCENTRATED).

EXTERIOR LADDER DETAIL 12
0 1 2 3
1/2"=1'-0"
S-07

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:35 PM

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DONALD LEE BARRETT
No. C45483
Exp. 12/31/24
CIVIL
STATE OF CALIFORNIA
04/19/24

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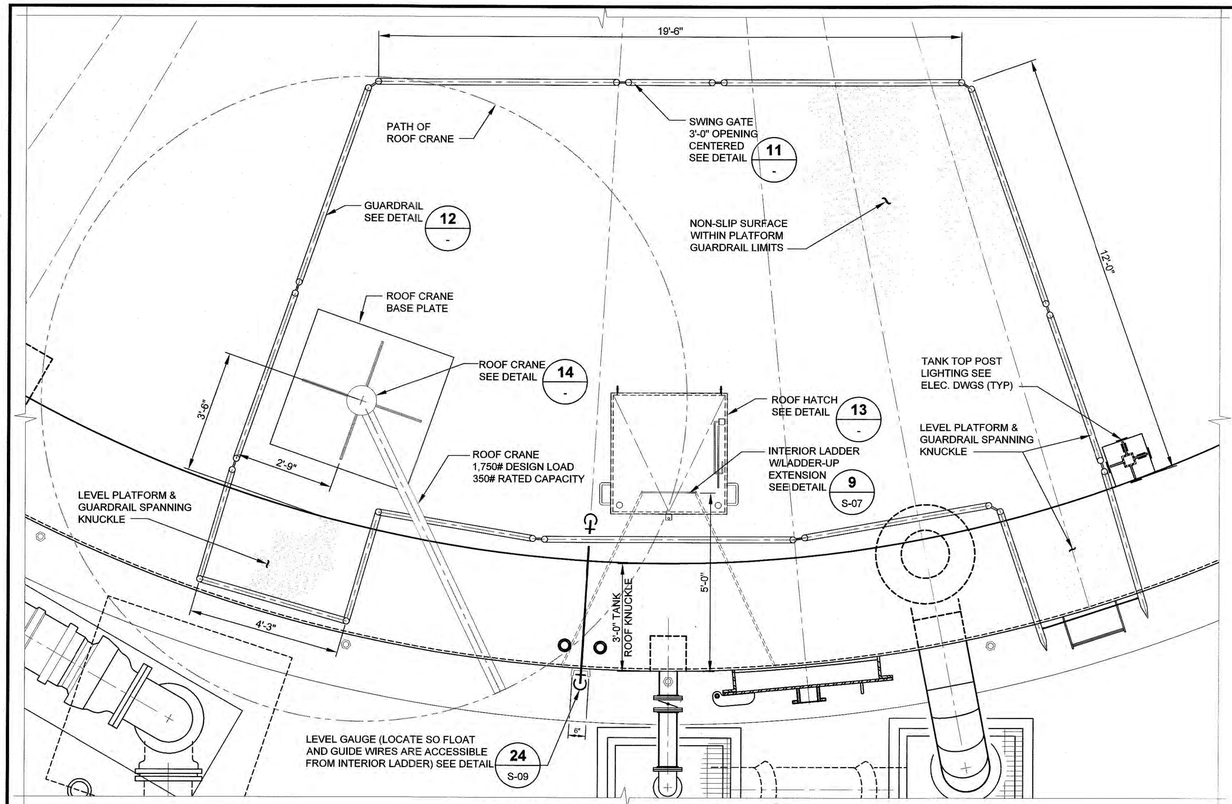
SCOTT C. CREER RCE 56879	4/24/24 CITY ENGINEER EXP. 06/30/2025	K/J 2368021*00

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

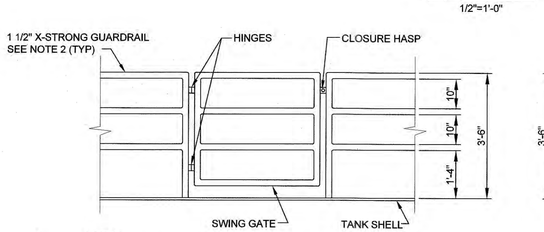
WELDED STEEL TANK EXTERIOR AND INTERIOR LADDER SECTIONS AND DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 45 OF 76
S-07



ACCESS PLATFORM DETAIL 10

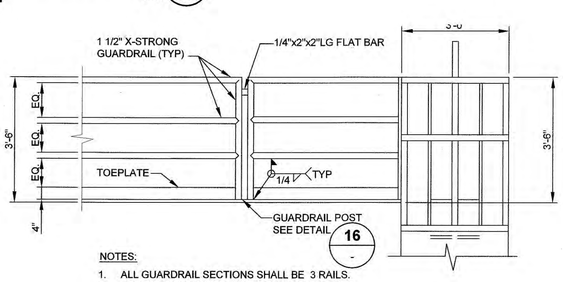
0 1 2 3 — 1/2"=1'-0" — S-04 S-03



NOTES:
1. HOT DIP GALVANIZE GUARDRAIL AND GATE ASSEMBLIES PRIOR TO INSTALLATION.
2. INDIVIDUAL GUARDRAIL SECTIONS SHALL BE NO LONGER THAN 8'-0".

GUARDRAIL SWING GATE DETAIL 11

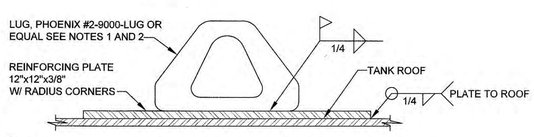
0 1 2 3 — 1/2"=1'-0" — S-08



NOTES:
1. ALL GUARDRAIL SECTIONS SHALL BE 3 RAILS.
2. HOT DIP GALVANIZED GUARDRAIL ASSEMBLIES.
3. TOE BOARD REQUIRED ON FRONT GUARDRAIL ONLY.
4. INDIVIDUAL GUARDRAIL SECTIONS SHALL BE NO LONGER THAN 8'-0".

GUARDRAIL DETAIL 12

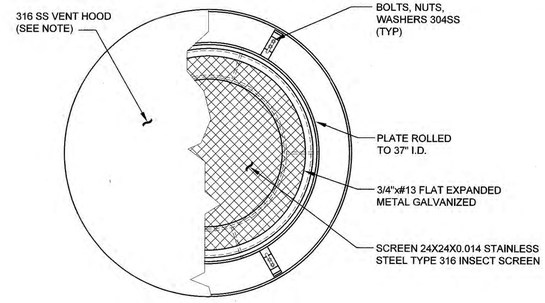
0 1 2 3 — 1/2"=1'-0" — S-08



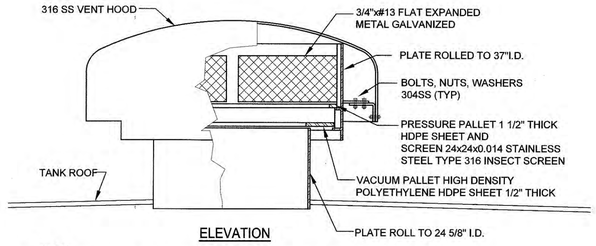
NOTES:
1. MOUNT 4 LANYARD CLIPS, AT 90-DEGREE APART. OUTSIDE THE CENTER VENT HOOD RADIUS.
2. MOUNT 1 LANYARD CLIP NEAR THE LIQUID LEVEL INDICATOR GAUGE.
3. WHETHER A LUG OR LASHING RING IS UTILIZED FOR LANDYARD CLIP PROVIDE A DESIGN CAPABLE OF RESISTING A 3,100 LBS (ASD) FALL ARREST LOADING.

LANYARD CLIP DETAIL 17

0 1 2 3 — 1/2"=1'-0" — S-03



PLAN

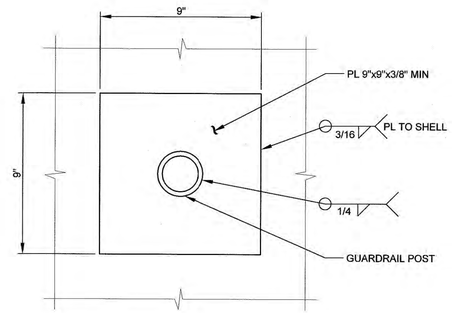


ELEVATION

NOTE:
1. PROVIDE VENT DESIGNED WITH A REMOVABLE HOOD IN ORDER TO ACCEPT A HIGH VOLUME AIR VENTILATOR WHICH RESTS ON THE OPEN TOP OF THE VENT.
2. VENT AND ATTACHMENT TO BE DESIGNED, DETAILED, FURNISHED, AND INSTALLED BY THE TANK MANUFACTURER AS PART OF THE DEFERRED SUBMITTAL.

PRESSURE/VACUUM MUSHROOM VENT - DETAIL 15

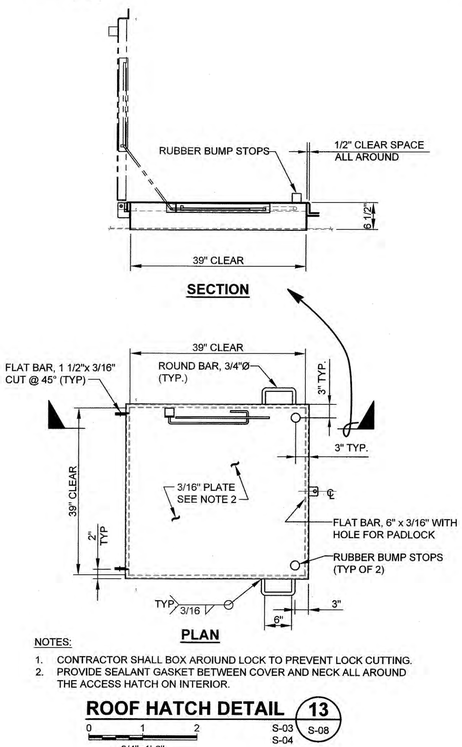
0 1 — 1"=1'-0" — S-04 S-03



PLAN

GUARDRAIL POST DETAIL 16

0 1/2 — 3"=1'-0" — S-08



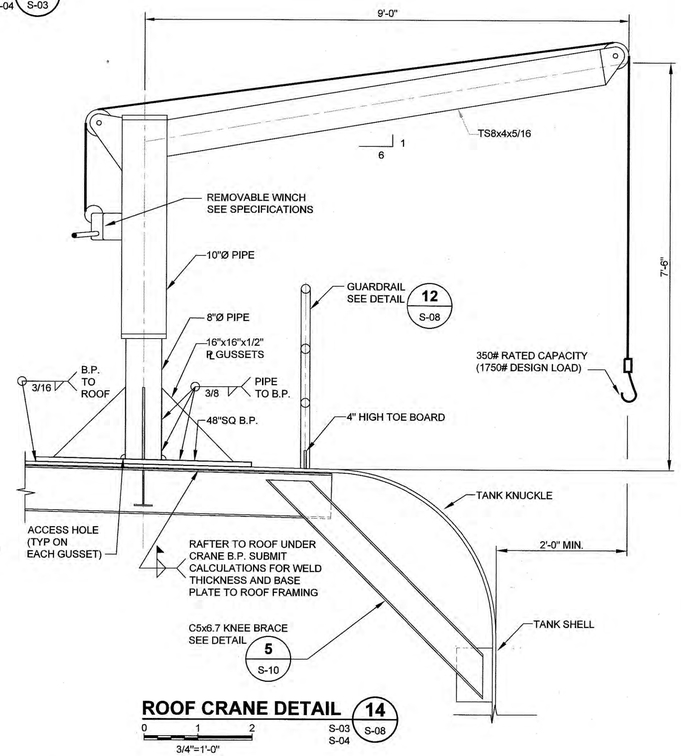
SECTION

PLAN

NOTES:
1. CONTRACTOR SHALL BOX AROIUND LOCK TO PREVENT LOCK CUTTING.
2. PROVIDE SEALANT GASKET BETWEEN COVER AND NECK ALL AROUND THE ACCESS HATCH ON INTERIOR.

ROOF HATCH DETAIL 13

0 1 2 — 3/4"=1'-0" — S-03 S-04



ROOF CRANE DETAIL 14

0 1 2 — 3/4"=1'-0" — S-03 S-04 S-08

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SCALES
0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER DONALD LEE BARR No. C45483 Exp. 12/31/24 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

WORK ACCEPTED: INSPECTOR:
BY: DATE:

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2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: NEB	DESIGN: DLB	HOR:
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APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58079 — CITY ENGINEER EXP: 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

WELDED STEEL TANK ROOF ACCESS PLATFORM HATCH AND VENT DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 46 OF 76
S-08

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:35 PM
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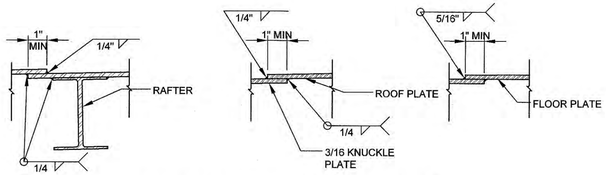
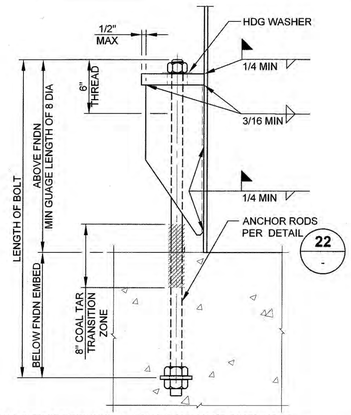


TYPICAL WELDING DETAILS 20 S-04

0 1
1 1/2"=1'-0"

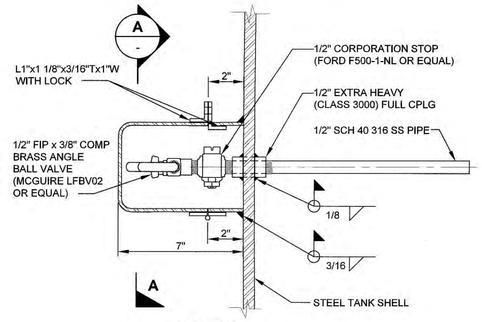


NOTE:

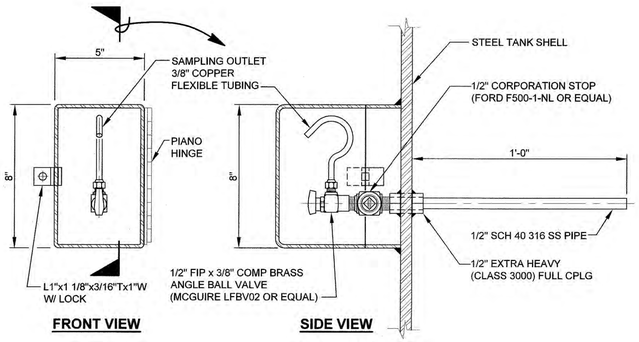
1. CONTRACTOR SHALL SUBMIT DESIGN OF ANCHOR BOLT CHAIR DIMENSIONS AND PLATE THICKNESS. SUBMIT CALCULATIONS FOR TOP PLATE, CHAIR HEIGHT, VERTICAL SIDE PLATES, AND WELD SIZE AND LENGTH. SUBMIT CALCULATIONS THAT THE TANK SHELL HAS BEEN DESIGNED TO RESIST THE FULL TENSILE CAPACITY OF THE ANCHOR BOLTS FROM THE ANCHOR BOLT CHAIR AT THE ECCENTRICITY OF THE CHAIR.
2. REINFORCE SHELL AS REQUIRED TO AVOID LOCALLY OVERSTRESSING AS A RESULT OF ANCHOR BOLT CHAIR UPLIFT LOAD.
3. MINIMUM CHAIR HEIGHT IS 12 INCHES.
4. MINIMUM SIDE PLATE THICKNESS IS 1/2" INCHES.
5. SEAL WELD TOP AND VERTICAL SIDE PLATES TO SHELL AND FLOOR PLATE.
6. ANCHOR BOLT QUANTITY AND SIZE HAVE BEEN PROVIDED TO RESIST TENSILE LOADING IN THE ANCHOR BOLTS. DESIGN AND PROVIDE SHEAR PLATES AT THE BOTTOM OF THE CHAIR TO RESIST ANCHOR BOLT SHEAR. OTHERWISE INCREASE THE NUMBER AND/OR SIZE OF NCHOR BOLTS TO RESIST THE COMBINED EFFECTS OF TENSILE AND SHEAR LOADING

ANCHOR BOLT CHAIR DETAIL 21 S-04

0 1
1 1/2"=1'-0"



PLAN VIEW



FRONT VIEW SIDE VIEW

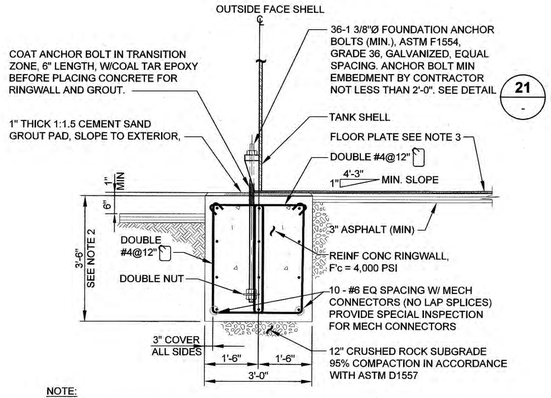
SECTION A -

NOTES:

1. ALL MATERIALS SHALL BE STAINLESS STEEL EXCEPT AS NOTED.COAT W/4 MILS ZINC RICH PRIMER AND 2 FINISH COATS PER SPECIFICATIONS.
2. PLACE CENTER OF CABINET 3'-6" ABOVE FINISHED GRADE.

SAMPLE STATION DETAIL 25 S-04 S-03

0 1/2
3"=1'-0"

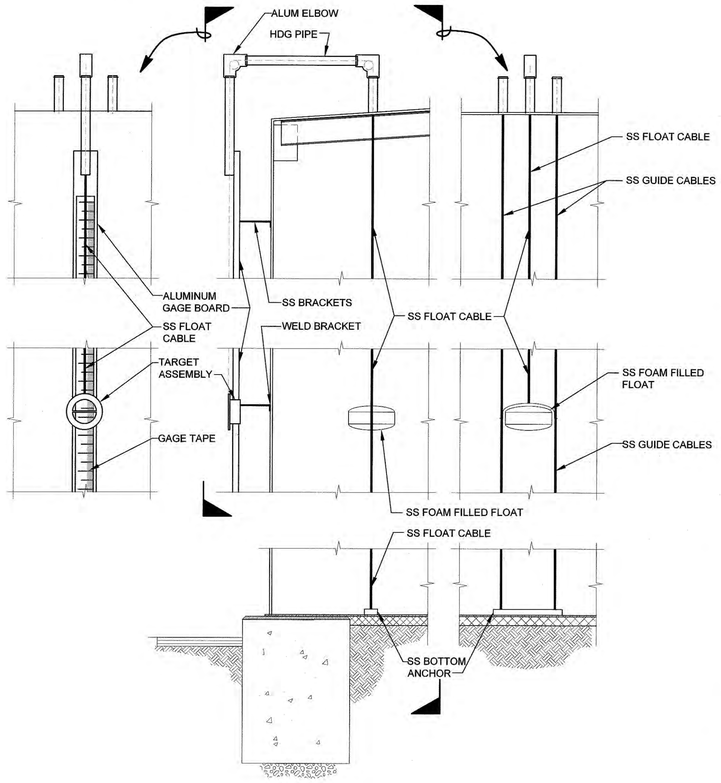


NOTE:

1. TOP OF CONCRETE RING WALL SHALL BE LEVEL WITHIN +1/8-INCH IN ANY 30 FEET OF CIRCUMFERENCE AND WITHIN +1/4-INCH IN TOTAL CIRCUMFERENCE MEASURED FROM THE AVERAGE ELEVATION AFTER INSTALLATION OF TOPPING GROUT.
2. RING FOOTING SHALL BE EMBEDDED AT LEAST 36 INCHES INTO COMPETENT SUBGRADE.
3. COAT UNDERSIDE OF TANK BOTTOM PLATE WITH AROMATIC URETHANE ZINC-RICH PRIMER.

TANK RINGWALL AND ANCHORAGE DETAIL 22 S-04

0 1 2 3
1/2"=1'-0"



LEVEL INDICATOR DETAIL 24 S-08 S-03

0 1 2 3
1/2"=1'-0"

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:35 PM

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0 25mm
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REGISTERED PROFESSIONAL ENGINEER
DONALD LEE BARRETT
No. C 45483
Exp. 12/31/24
CIVIL
STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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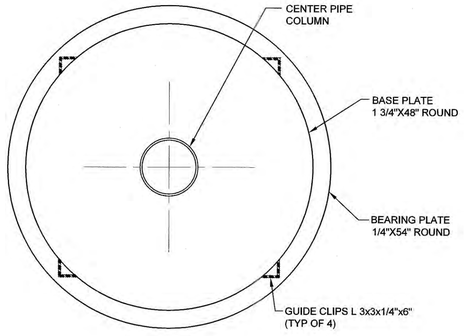
CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

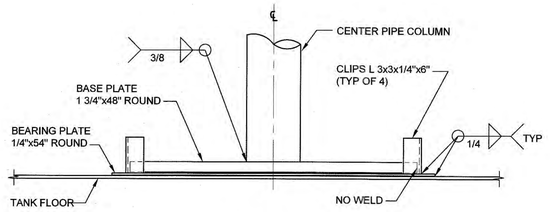
EAST DUNNE HILLSIDE
WATER RESERVOIR

WELDED STEEL TANK RINGWALL FOUNDATION AND MISCELLANEOUS DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 47 OF 76
S-09



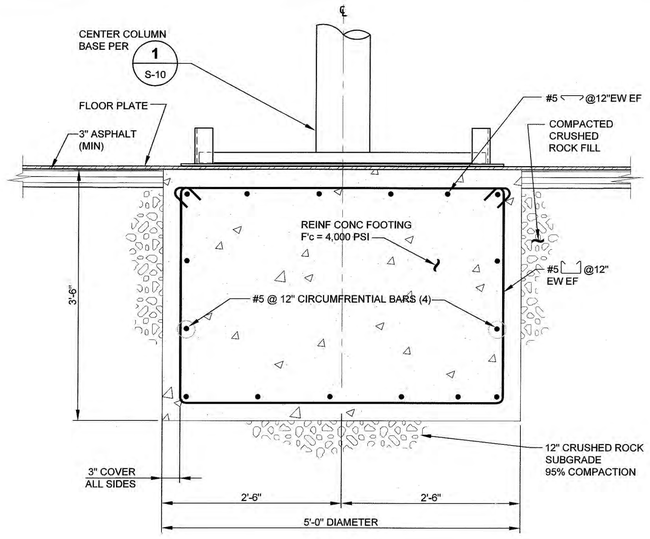
PLAN-VIEW



ELEVATION

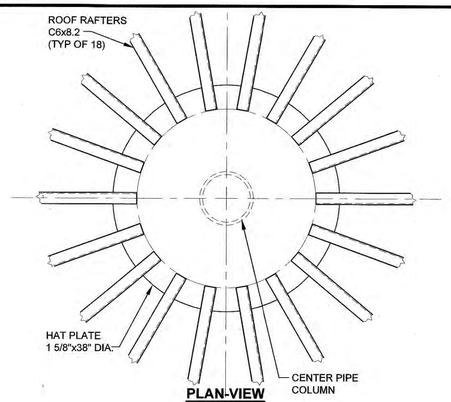
CENTER POLE & GIRDER SUPPORT BOTTOM PLATE CONNECTION DETAIL 1 / S-04

0 1 1"=1'-0"

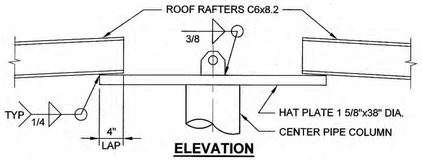


COLUMN FOOTING 2 / S-04

0 1 1"=1'-0"



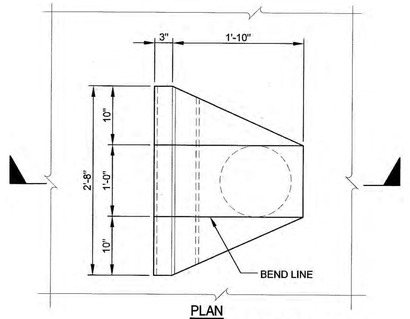
PLAN-VIEW



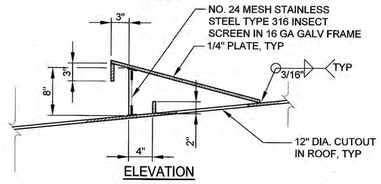
ELEVATION

HAT PLATE DETAIL 3 / S-04

0 1 1"=1'-0"



PLAN



ELEVATION

ROOF PERIMETER VENT - DETAIL 4 / S-04 S-03

0 1 1"=1'-0"

LAP SPLICE LENGTH FOR REINFORCING BARS IN WALLS, SLABS & FTNGS (INCHES)

CONCRETE COMPRESSIVE STRENGTH, f'c ≥ 3,000 PSI						
BAR SIZE	COVER=1.00 IN.		COVER=1.50 IN.		COVER=2.00 IN.	
IMPERIAL [SOFT METRIC]	TOP [4]	OTHER	TOP [4]	OTHER	TOP [4]	OTHER
#3 [#10]	17	13	17	13	17	13
#4 [#13]	23	17	23	17	23	17
#5 [#16]	33	26	28	22	28	22
#6 [#19]	46	35	34	26	34	26
#7 [#22]	74	57	55	43	49	38
#8 [#25]	93	72	70	54	56	43
#9 [#29]	113	87	86	66	69	53
#10 [#32]	137	106	105	81	85	66
#11 [#36]	162	125	125	97	102	79

NOTES:
1. THE SPLICE LENGTH SCHEDULE IS SPECIFIC TO TENSION DEVELOPMENT AND TENSION LAP SPLICE LENGTHS FOR WALLS, SLABS, AND FOOTINGS IN ACCORDANCE WITH ACI 318-19, CHAPTER 25, ACI 350-06 CHAPTER 12, FOR THE CRITERIA IN THIS DETAIL.
2. LAP SPLICE LENGTHS ARE CLASS B LAPS, IN INCHES, FOR GRADE 60 REINFORCEMENT IN NORMAL WEIGHT CONCRETE WITH f'c GREATER THAN OR EQUAL TO 3,000 PSI.
3. CENTER-TO-CENTER SPACING OF REINFORCEMENT SHALL BE GREATER THAN TWICE THE CONCRETE COVER PLUS ONE BAR DIAMETER.
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW BARS.
5. FOR BARS OF DIFFERENT SIZES, THE LAP SPLICE LENGTHS OF THE SMALLER BAR SHALL BE USED.
6. STAGGER LAPS A DISTANCE OF ONE-HALF THE SPLICE LENGTH, UON.
7. DO NOT LOCATE LAP SPLICE IN CONSTRUCTION JOINTS (CJ), EXPANSION JOINTS (EJ), OR CONTRACTION JOINTS (CNJ). LOCATE THE START OF LAPS AT LEAST 2" PAST JOINTS UON, TYP.

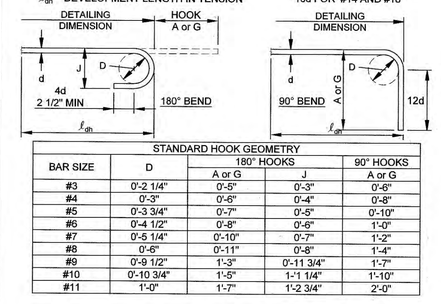
REINFORCING LAP SPLICE SCHEDULE S-3010

FOR CAST-IN-PLACE CONCRETE

SCALE: NTS
REV 00

D = FINISHED INSIDE BEND DIAMETER (INCLUDES SPRINGBACK)
d = BAR DIAMETER
ℓ_{dh} = DEVELOPMENT LENGTH IN TENSION

ACI 318-19 MIN BEND DIAMETER:
6d FOR #3 THROUGH #8
8d FOR #9, #10 & #11
10d FOR #14 AND #18

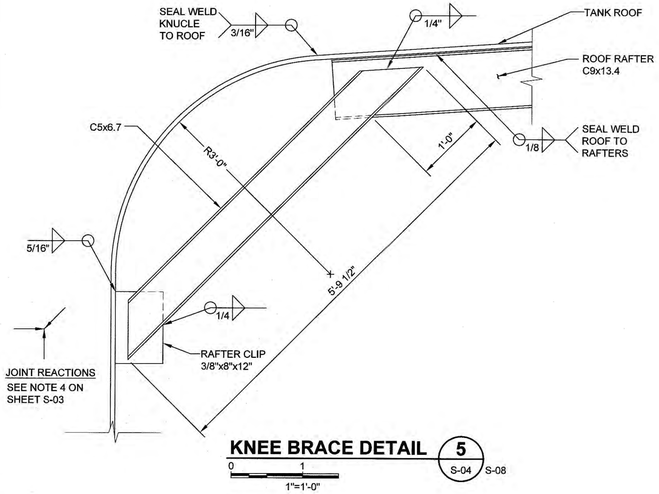


STANDARD HOOK GEOMETRY				
BAR SIZE	D	180° HOOKS		90° HOOKS
		A or G	J	A or G
#3	0'-2 1/4"	0'-5"	0'-3"	0'-6"
#4	0'-3"	0'-6"	0'-4"	0'-8"
#5	0'-3 3/4"	0'-7"	0'-5"	0'-10"
#6	0'-4 1/2"	0'-8"	0'-6"	1'-0"
#7	0'-5 1/4"	0'-10"	0'-7"	1'-2"
#8	0'-6"	0'-11"	0'-8"	1'-4"
#9	0'-9 1/2"	1'-3"	0'-11 3/4"	1'-7"
#10	0'-10 3/4"	1'-5"	1'-1 1/4"	1'-10"
#11	1'-0"	1'-7"	1'-2 3/4"	2'-0"

STANDARD HOOKS S-3020

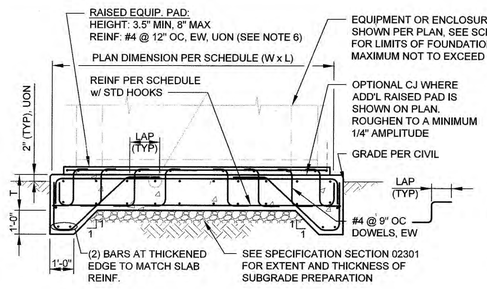
DEVELOPMENT OF DEFORMED BARS IN TENSION

SCALE: NTS
REV 00



KNEE BRACE DETAIL 5 / S-04 S-08

0 1 1"=1'-0"



SECTION VIEW

CONCRETE PAD SCHEDULE (NOTE 1)							
EQUIPMENT TYPE	EQUIPMENT DIMENSIONS	MAX OPERATING WEIGHT	FOUNDATION TYPE	LENGTH (L)	WIDTH (W)	THICKNESS (T)	REINFORCEMENT
SERVICE PEDESTAL & PLC PANEL	6'-0x2'-0"x1'-0"	400 LBS	SLAB, NO THICKENED EDGE	8'-8"	5'-0"	1'-0"	#5@12" OC, EW, T&B
INLET FLEXIBLE COUPLING SUPPORT	-	6,000 LBS	SLAB, NO THICKENED EDGE	15'-0"	3'-0"	1'-0"	#5@12" OC, EW, T&B
OUTLET FLEXIBLE COUPLING SUPPORT	-	5,400 LBS	SLAB, NO THICKENED EDGE	12'-0"	3'-0"	1'-0"	#5@12" OC, EW, T&B
IRRIGATION PUMP STATION	3'-0"T x 4'-5" x 3'-1"	1200 LBS	SLAB, NO THICKENED EDGE	5'-5"	4'-1"	1'-0"	#5@12" OC, EW, T&B
IRRIGATION CONTROL PANEL	6'-0"T x 1'-0" x 1'-6"	1200 LBS	SLAB, NO THICKENED EDGE	5'-0"	6'-6"	1'-0"	#5@12" OC, EW, T&B

NOTES:
1. THE FOUNDATIONS IDENTIFIED IN THIS SCHEDULE HAVE BEEN DESIGNED FOR THE OPERATING WEIGHT AND CONSTRAINTS IN THE TABLE. CONTACT THE ENGINEER OF RECORD FOR ANY DISCREPANCIES DURING THE EQUIPMENT SUBMITTALS. CHANGES OR MODIFICATIONS TO THE FOUNDATIONS MAY BE REQUIRED BASED ON THE SUBMITTAL CALCULATIONS. UNLESS OTHERWISE SHOWN, ALL FOUNDATION SHALL BE MAT FOUNDATIONS.
2. COORDINATE ALL DIMENSIONS WITH FAVORABLY REVIEWED EQUIPMENT ANCHORAGE AND INSTALLATION SHOP DRAWINGS.
3. EQUIPMENT BASE PLATE SHALL BE UNDERLAIN BY A MINIMUM 1/4" NON-SHRINK GROUT, 1" MAXIMUM NON-SHRINK GROUT.
4. THE FINAL ANCHORAGE DESIGN SHALL BE DETERMINED AS A DEFERRED SUBMITTAL. THE CONTRACTOR SHALL COORDINATE ANY SUPPLEMENTARY REINFORCEMENT OR ANCHORAGE REINFORCEMENT REQUIRED FOR ANCHORAGE WITH THE ANCHORAGE SUBMITTAL PRIOR TO CONSTRUCTION OF THE FOUNDATIONS.
5. TRANSFORMER FOUNDATION EQUIPMENT SIZE, WEIGHT, AND FOUNDATION DIMENSIONS ARE SUBJECT TO CHANGE BASED ON PG&E REQUIREMENTS. COORDINATE THE FINAL TRANSFORMER EQUIPMENT SIZE, WEIGHT, AND FOUNDATION SIZE PRIOR TO ORDERING ANY MATERIALS, EXCAVATION, AND SUBGRADE PREPARATION FOR THE TRANSFORMER FOUNDATION. COORDINATE WITH PG&E, A PRECAST FOUNDATION SYSTEM MAY BE REQUIRED.
6. RAISED EQUIPMENT PAD MAY BE REQUIRED PER THE EQUIPMENT MANUFACTURER OR PER ELECTRICAL DRAWINGS. COORDINATE IF RAISED EQUIPMENT PAD IS REQUIRED FOR ELECTRICAL EQUIPMENT. RAISED EQUIPMENT PAD IS NOT REQUIRED FOR NON-ELECTRICAL EQUIPMENT, UNLESS SPECIFIED OTHERWISE.

EQUIPMENT FOUNDATION SCHEDULE S-3342

TYPICAL FOR EXTERIOR EQUIPMENT

SCALE: NTS
REV 00

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SCALES
0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER — DONALD LEE BARRETT — No. C45483 — Exp. 12/31/24 — CIVIL — STATE OF CALIFORNIA

04/19/24

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BY: DATE:

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	4/30/24	K/J 2368021*00

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CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

WELDED STEEL TANK TYPICAL DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 48 OF 76
S-10

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:35 PM
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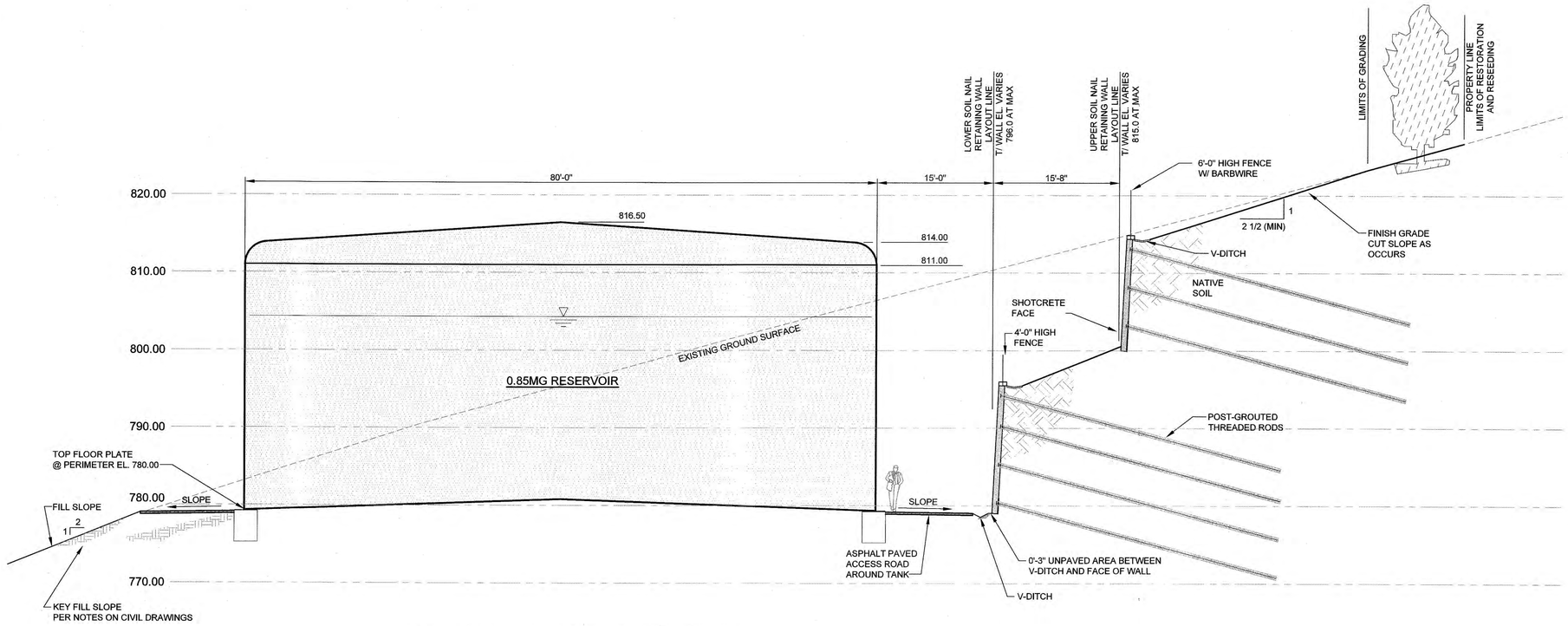

RESERVOIR SITE AND RETAINING WALL

0 5 10
1/8"=1'-0"

(SECTION LOOKING WEST)

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:36 PM

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER
JADE DARIN SATTIEWHITE
No. C75450
Exp. 3/31/26
CIVIL
STATE OF CALIFORNIA

04/19/24

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CITY OF MORGAN HILL

City of Morgan Hill
Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

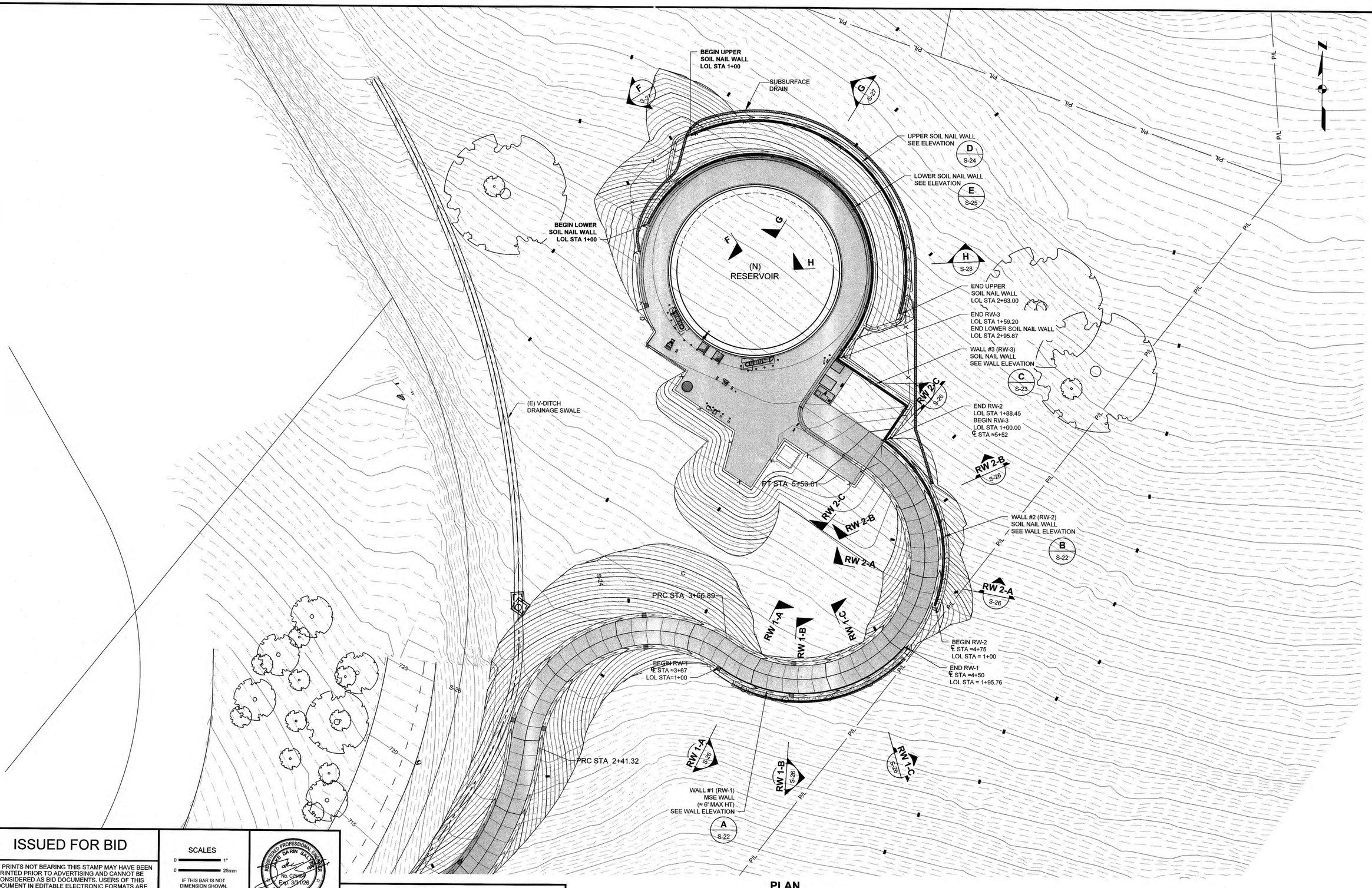
RESERVOIR SITE AND RETAINING WALL SECTION

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 49 OF 76

S-11



PLAN
SCALE: 1" = 20'

0 10 20 30
1"=20'

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:36 PM

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0 25mm
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REGISTERED PROFESSIONAL ENGINEER — JOE DARIN SAYLER — No. C75409 Exp. 3/31/26 — CIVIL — STATE OF CALIFORNIA
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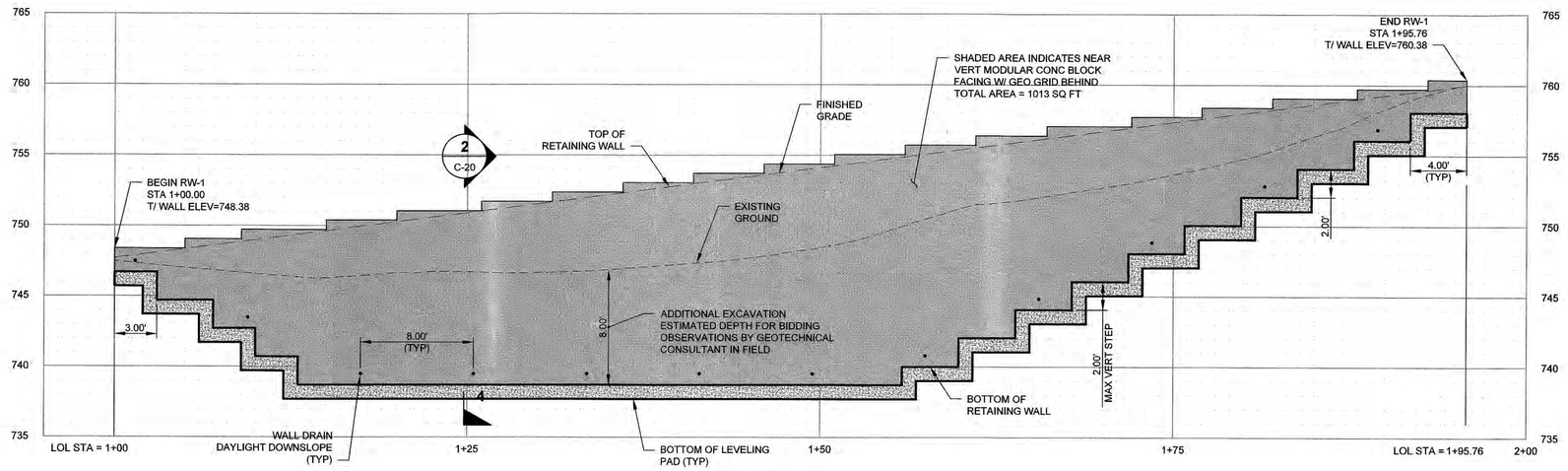
SCOTT C. CREER RCE 68879 — CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

SITE RETAINING WALL KEY PLAN

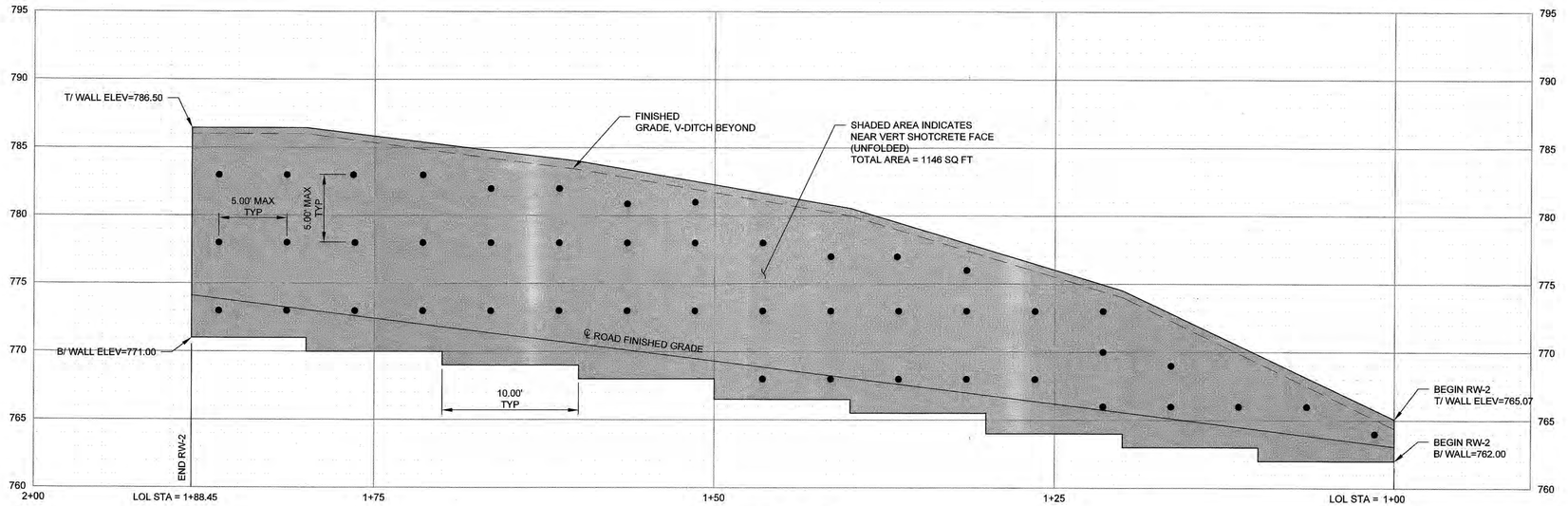
FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 50 OF 76
S-21



MSE WALL
LOOKING TOWARD ROAD

FLATTENED WALL ELEVATION (RW-1) (A / S-21)

SCALE: 1" = 5'



SOIL NAIL WALL
VIEWED FROM ROAD℄

FLATTENED WALL ELEVATION (RW-2) (B / S-21)

SCALE: 1" = 5'

NOTES:

1. PROVIDE ¾" DEEP, VERTICAL, V-NOTCH CONTROL JOINT IN FACE WALL AT 15-FT HORIZONTAL SPACING.

SHEET SIZE: 24x36
4/19/2024 2:36 PM
PATRICK TRAN
c:\bms\kjce-pw\d0257141\I1672001-S-22.dwg

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER
JAMES DARIN SAUNDERS
No. C35457
Exp. 3/31/26
CIVIL
STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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SCOTT C. CREER RCE 58870 CITY ENGINEER EXP. 06/30/2025

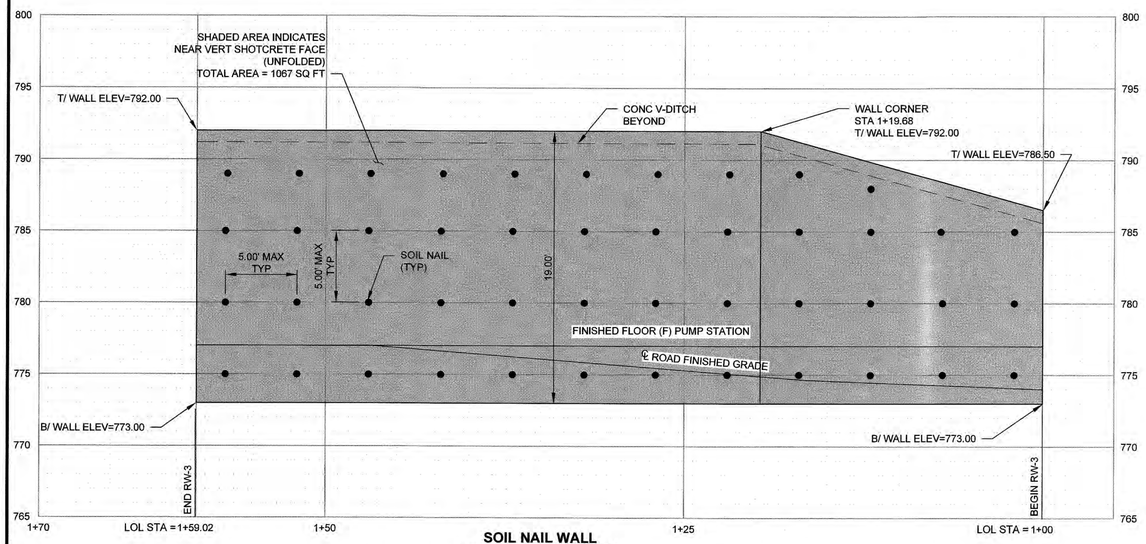
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

ROADWAY RETAINING WALLS
FLATTENED WALL ELEVATIONS - I

0 5 10
1"=5'

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 51 OF 76
S-22



SOIL NAIL WALL
VIEWED FROM ROAD℄

FLATTENED WALL ELEVATION (RW-3) C S-21

SCALE: 1" = 5'

NOTES:

1. PROVIDE ¾" DEEP, VERTICAL, V-NOTCH CONTROL JOINT IN FACE WALL AT 15-FT HORIZONTAL SPACING.
2. AT CONTRACTOR'S OPTION, RW-3 MAY BE CONSTRUCTED AS EITHER SOIL NAIL WALL OR AS SOLDIER PILE WALL AS DETAILED ON DRAWING S-32.

SHEET SIZE: 24x36 PATRICK TRAN 4/19/2024 2:36 PM c:\bms\kjce-pw\d0257141\1672001-S-23.dwg

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — JOE DARIN SALTER — No. C75469 Exp. 3/31/26 — CIVIL — STATE OF CALIFORNIA
04/19/24

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SCOTT C. CREER RCE 58879 — CITY ENGINEER EXP. 06/30/2025

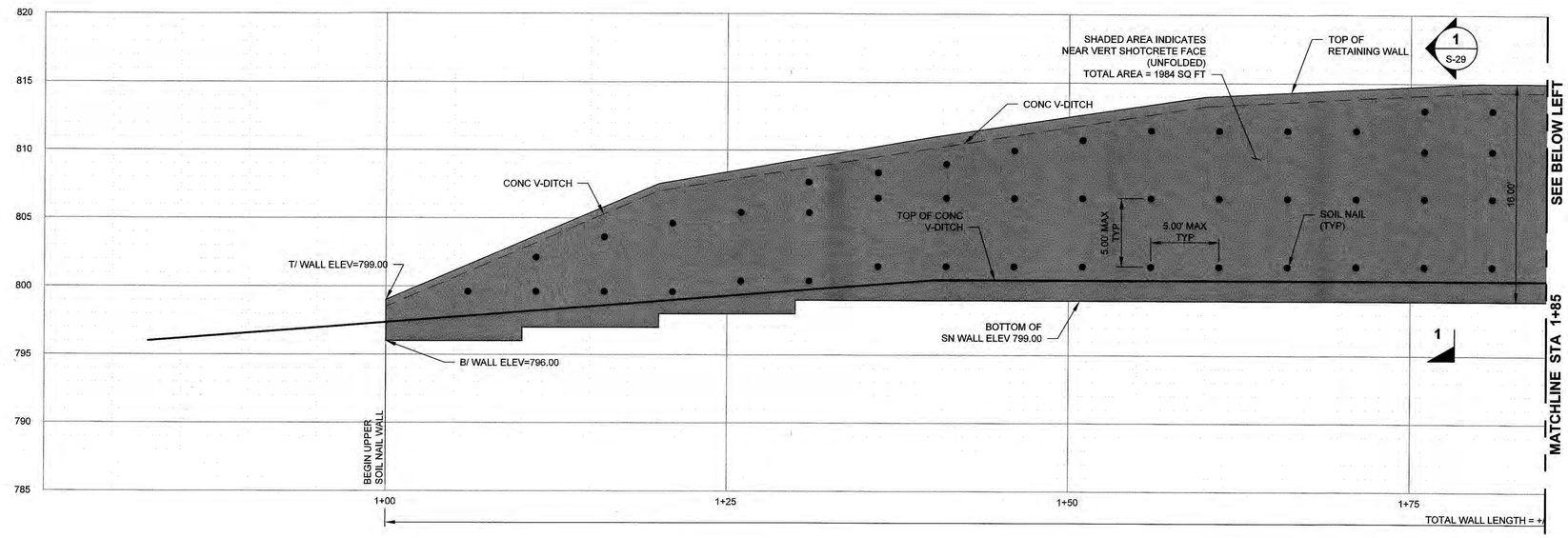
0 5 10
1"=5'

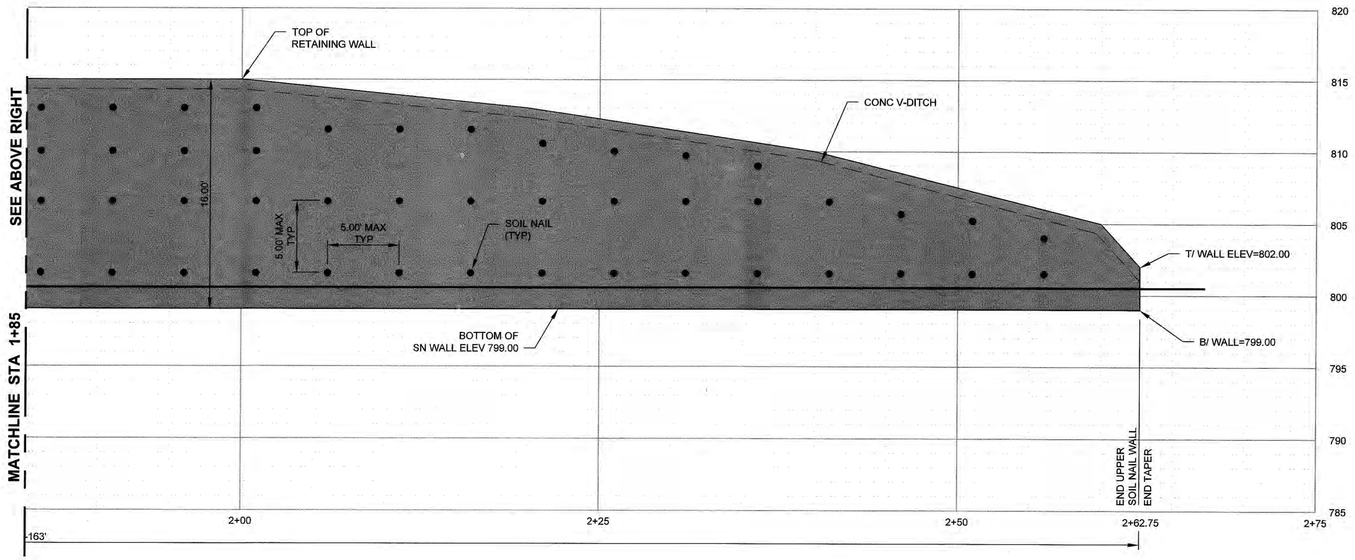
CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

ROADWAY RETAINING WALLS
FLATTENED WALL ELEVATIONS - II

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 52 OF 76
S-23





UPPER SOIL NAIL WALL (D)

SCALE: 1" = 5'

NOTES:

1. PROVIDE 3" DEEP, VERTICAL, V-NOTCH CONTROL JOINT IN FACE WALL AT 15-FT HORIZONTAL SPACING.

0 5 10
1"=5'

ISSUED FOR BID

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER
JAKE DARIN SALTSMAN
No. C75463
Exp. 3/31/26
CIVIL
STATE OF CALIFORNIA
04/19/24

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City of Morgan Hill
Public Works Department
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EAST DUNNE HILLSIDE
WATER RESERVOIR

UPPER SOIL NAIL WALL
FLATTENED WALL ELEVATION

FILE NUMBER:
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SHEET: 53 OF 76
S-24

SHEET SIZE: 24x36
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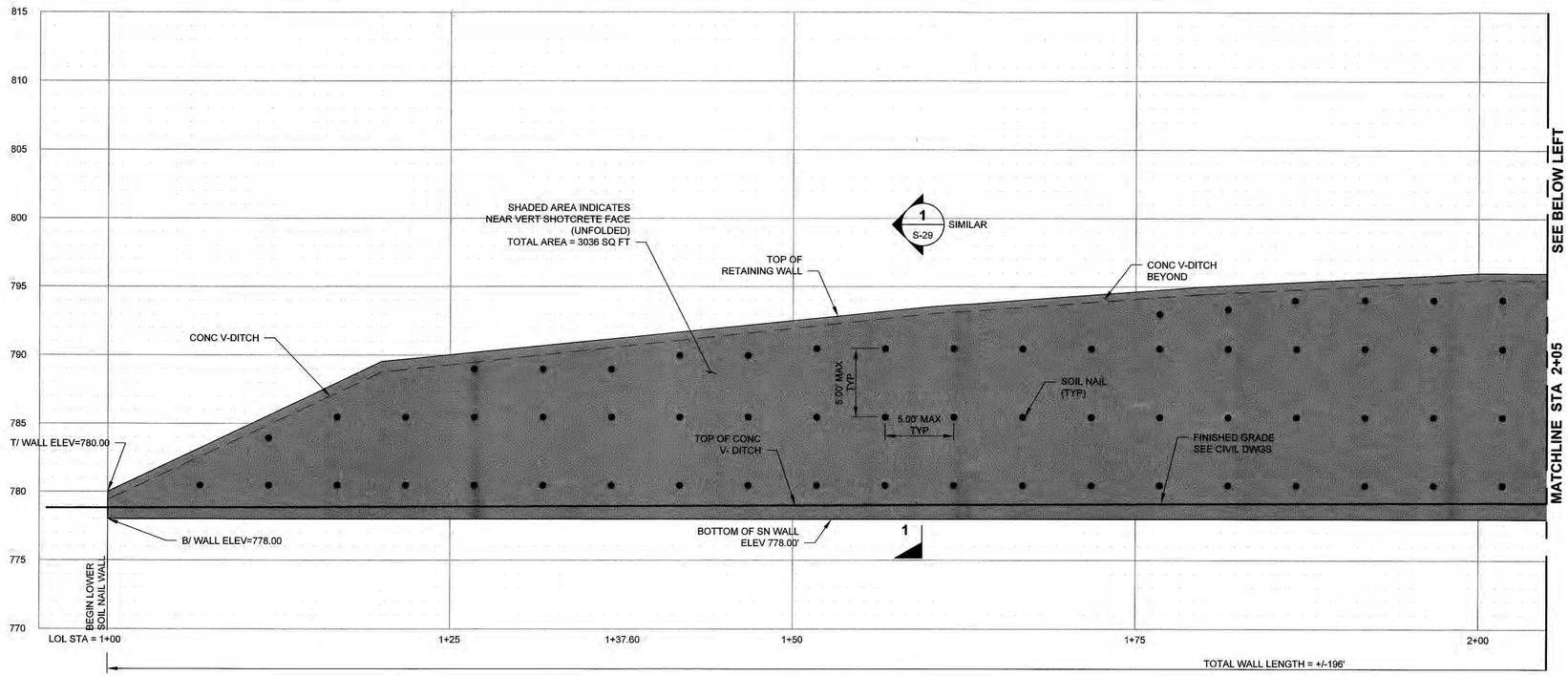
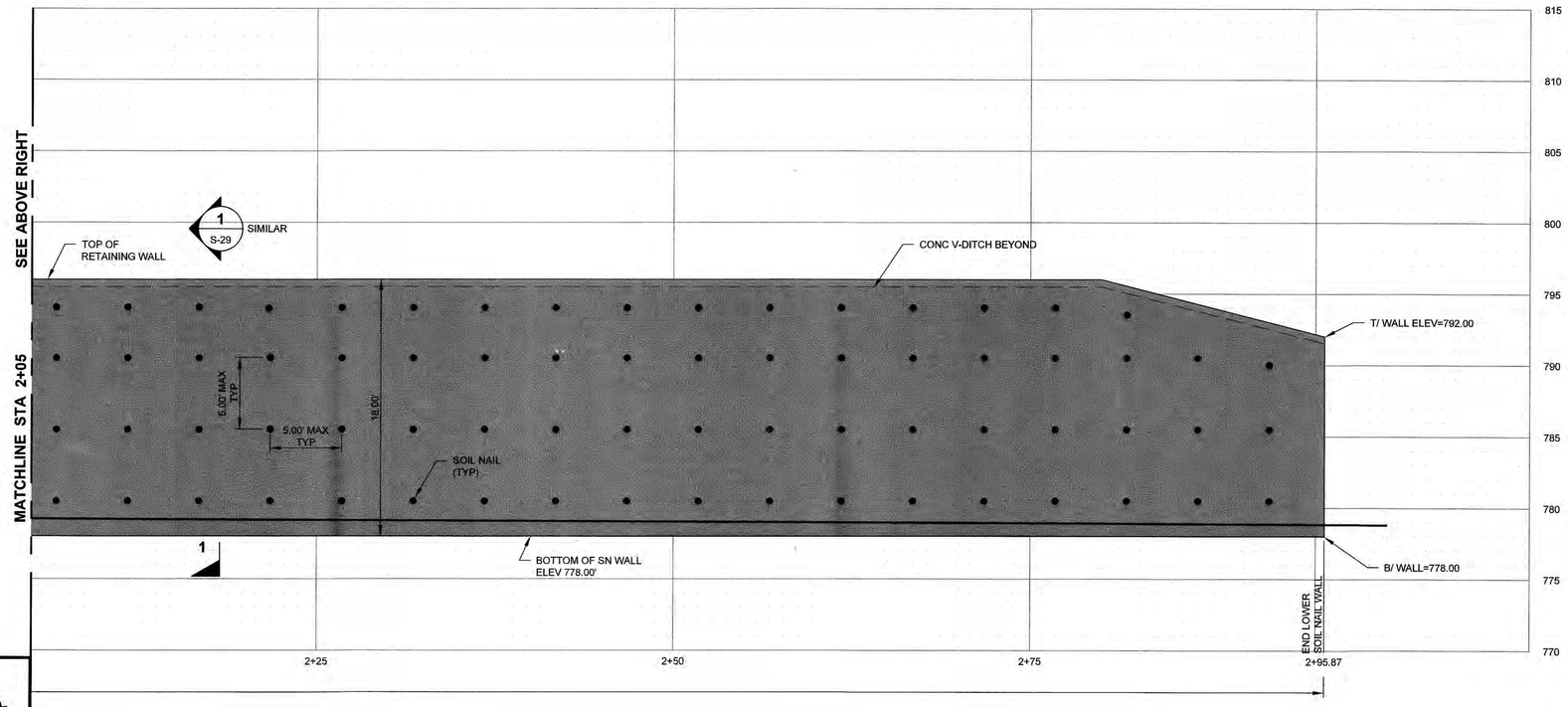


NOTES:

1. PROVIDE ¾" DEEP, VERTICAL, V-NOTCH CONTROL JOINT IN FACE WALL AT 15-FT HORIZONTAL SPACING.



LOWER SOIL NAIL WALL E
SCALE: 1" = 5'
S-21

0 5 10
1"=5'

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER
JOE DARIN SALTER
No. C75467
Exp. 3/31/26
CIVIL
STATE OF CALIFORNIA
04/19/24

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City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

LOWER SOIL NAIL WALL
FLATTENED WALL ELEVATION

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 54 OF 76
S-25

SHEET SIZE: 24x36
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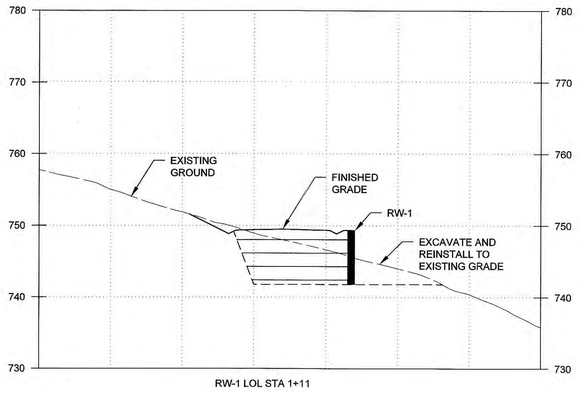
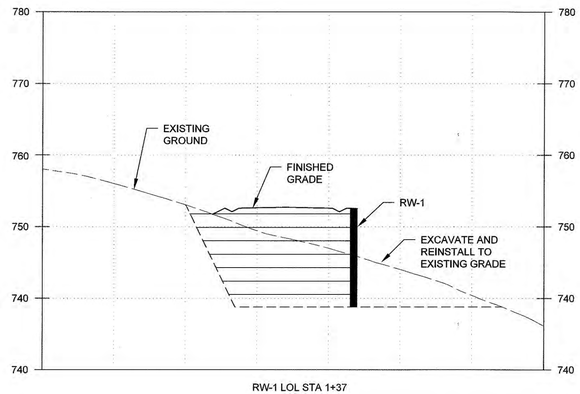


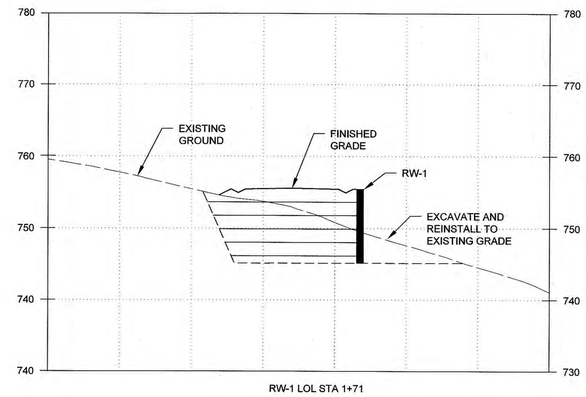
RW-1 LOL STA 1+11

RW 1-A



RW-1 LOL STA 1+37

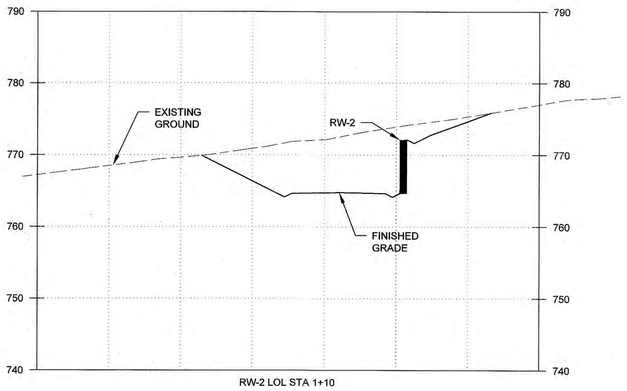
RW 1-B



RW-1 LOL STA 1+71

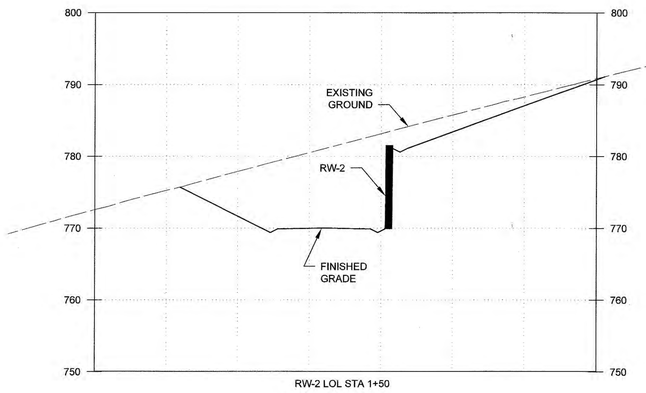
RW 1-C

RW-1 TRANSVERSE SECTIONS



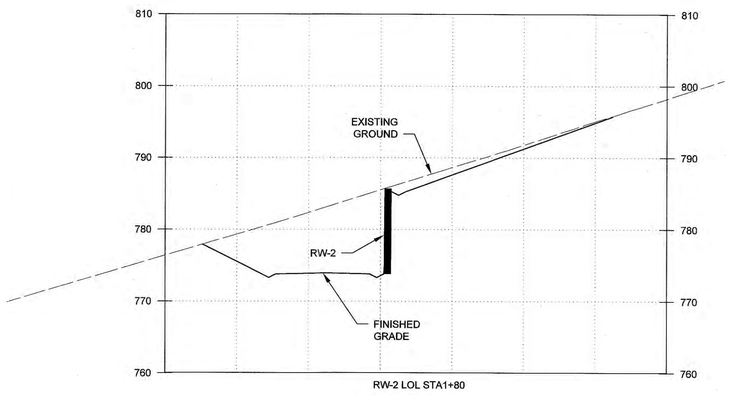
RW-2 LOL STA 1+10

RW 2-A



RW-2 LOL STA 1+50

RW 2-B



RW-2 LOL STA1+80

RW 2-C

RW-2 TRANSVERSE SECTIONS

SCALE: 1" = 10'

0 10 20

1"=10'

SHEET SIZE: 24x36

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER DRAKE DARIN SKALTSOUNIS No. C75453 Exp. 3/31/26 CIVIL STATE OF CALIFORNIA

04/19/24

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SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

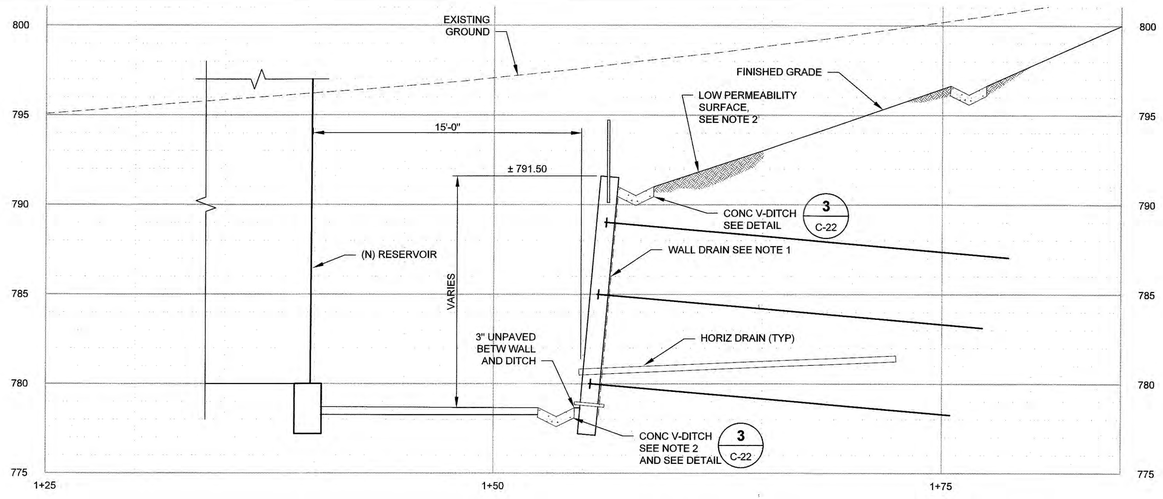
ROADWAY RETAINING WALLS TRANSVERSE SECTIONS

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 55 OF 76

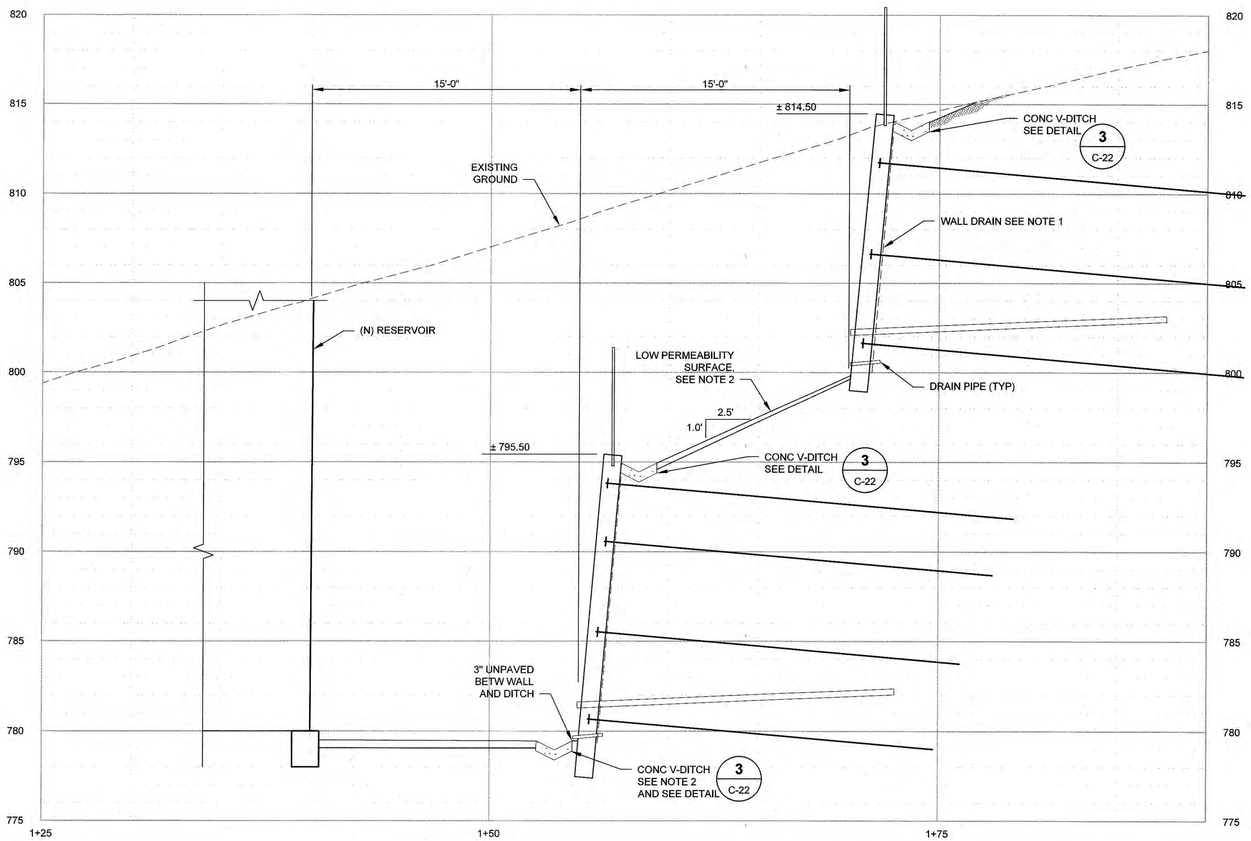
S-26



TRANSVERSE SECTION F

SCALE: 1/4" = 1'-0"

S-21



TRANSVERSE SECTION G

SCALE: 1/4" = 1'-0"

S-21

0 3 6

1/4"=1'-0"

NOTES:

1. **RETAINING WALL DRAINAGE:** A PREFABRICATED DRAINAGE COMPOSITE SUCH AS "CCW MIRADRAIN 6000XL", "SITEDRAIN C-180" OR EQUIVALENT STRIP DRAINS MAY BE USED FOR DRAINAGE BEHIND THE RETAINING WALLS. INSTALL THE DRAINAGE COMPOSITE ON THE BACK OF THE WALL NO MORE THAN 1-FOOT BELOW THE GROUND SURFACE AND CONNECT TO OUTLET TEE AT BASE OF WALL.
2. EXPOSED SLOPE BETWEEN WALLS SHALL BE BACKFILLED WITH MIN 1 FOOT OF ON SITE CLAY TOPSOIL (CL) WITH EXPANSIVE INDEX (EI) LESS THAN 50.
3. COMPACT BACKFILL AGAINST RETAINING WALLS IN ACCORDANCE WITH THE SPECIFICATIONS. AVOID OVER-COMPACTION BECAUSE INCREASED COMPACTION EFFORT CAN RESULT IN LATERAL PRESSURES SIGNIFICANTLY HIGHER THAN THOSE RECOMMENDED. COMPACT BACKFILL PLACED WITHIN 5-FEET OF THE WALLS WITH HAND-OPERATED EQUIPMENT.

SHEET SIZE: 24x36 PATRICK TRAN 4/19/2024 2:37 PM c:\bms\kjce-pwd\0257141\1\67200\1-S-27.dwg

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER JANE DARIN SALMEEN No. C75469 Exp. 3/31/26 CIVIL STATE OF CALIFORNIA

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City of Morgan Hill
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100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

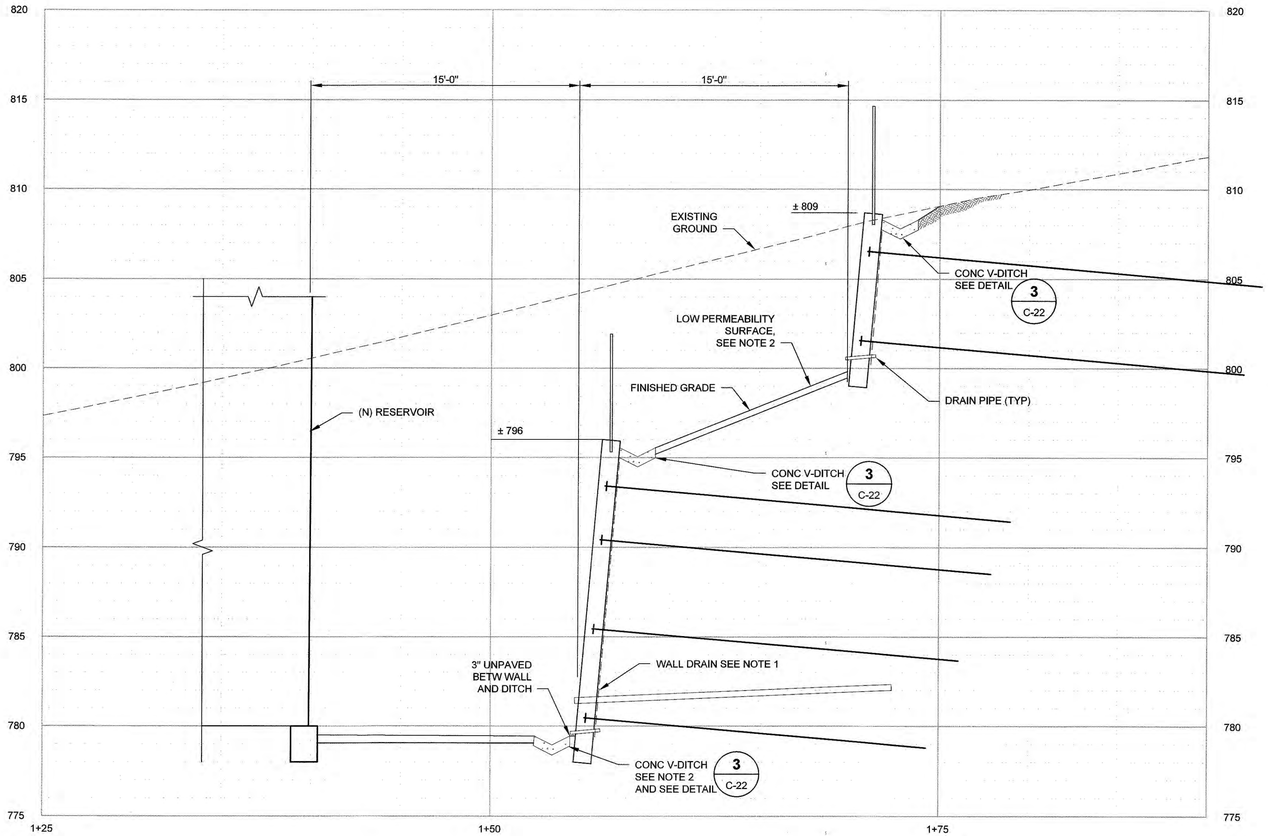
SOIL NAIL WALLS TRANSVERSE SECTIONS - I

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 56 OF 76

S-27



TRANSVERSE SECTION H S-21
SCALE: 1/4" = 1'-0"

NOTES:

1. **RETAINING WALL DRAINAGE:** A PREFABRICATED DRAINAGE COMPOSITE SUCH AS "CCW MIRADRAIN 6000XL", SITEDRAIN C-180" OR EQUIVALENT STRIP DRAINS MAY BE USED FOR DRAINAGE BEHIND THE RETAINING WALLS. INSTALL THE DRAINAGE COMPOSITE ON THE BACK OF THE WALL NO MORE THAN 1-FOOT BELOW THE GROUND SURFACE AND CONNECT TO OUTLET TEE AT BASE OF WALL.
2. EXPOSED SLOPE BETWEEN WALLS SHALL BE BACKFILLED WITH MIN 1 FOOT OF ON SITE CLAY TOPSOIL (CL) WITH EXPANSIVE INDEX (EI) LESS THAN 50.
3. COMPACT BACKFILL AGAINST RETAINING WALLS IN ACCORDANCE WITH THE SPECIFICATIONS. AVOID OVER-COMPACTION BECAUSE INCREASED COMPACTION EFFORT CAN RESULT IN LATERAL PRESSURES SIGNIFICANTLY HIGHER THAN THOSE RECOMMENDED. COMPACT BACKFILL PLACED WITHIN 5-FEET OF THE WALLS WITH HAND-OPERATED EQUIPMENT.

SHEET SIZE: 24x36
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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER JOHN DARIN SALMEN No. C75452 Exp. 3/31/26 CIVIL STATE OF CALIFORNIA
04/19/24

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JDS	JDS	
CHECKED: PIB		VERT:
APPROVED:	DATE: 4/10/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

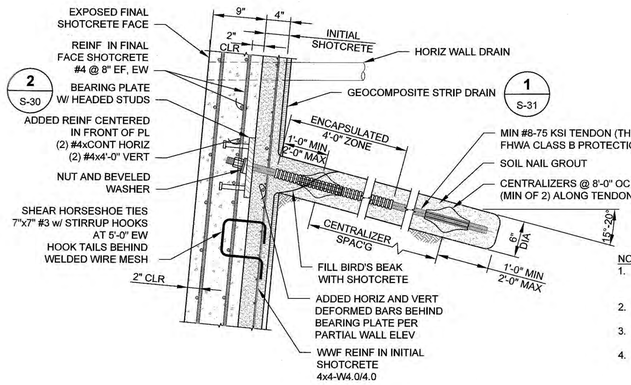
0 3 6
1/4"=1'-0"

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

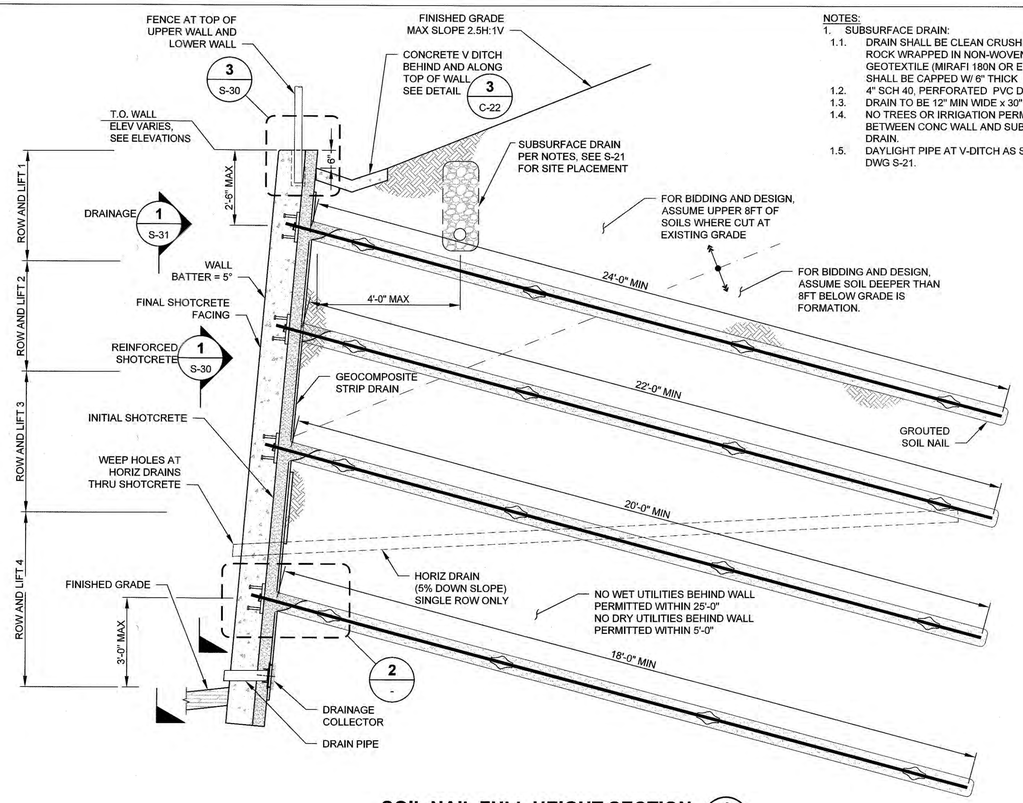
SOIL NAIL WALLS
TRANSVERSE SECTIONS - II

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 57 OF 76
S-28



NOTES:
1. THE SOIL NAIL WALL SHALL BE DESIGNED, DETAILED, FABRICATED AND INSTALLED BY THE CONTRACTOR AS A DEFERRED SUBMITTAL.
2. DESIGN PARAMETERS SHOWN AS MINIMUM STANDARD FOR BIDDING AND ARE PRELIMINARY.
3. TENDON HARDWARE & BEARING PLATE TO MATCH TENDON CORROSION PROTECTION.
4. PROVIDE CLASS B PROTECTION IS HOT DIP GALV W/ PARTIAL ENCAPSULATION AT BIRDS BEAK.

SOIL NAIL WALL SECTION 2
SCALE: NTS



NOTES:
1. SUBSURFACE DRAIN:
   1.1. DRAIN SHALL BE CLEAN CRUSHED DRAIN ROCK WRAPPED IN NON-WOVEN DRAIN GEOTEXTILE (MIRAFI 180N OR EQ). DRAIN SHALL BE CAPPED W/ 6" THICK FILL.
   1.2. 4" SCH 40, PERFORATED PVC DRAIN PIPE.
   1.3. DRAIN TO BE 12" MIN WIDE x 30" TALL.
   1.4. NO TREES OR IRRIGATION PERMITTED BETWEEN CONC WALL AND SUBSURFACE DRAIN.
   1.5. DAYLIGHT PIPE AT V-DITCH AS SHOWN ON DWG S-21.

SOIL NAIL FULL HEIGHT SECTION 1
SCALE: NTS S-24

SOIL NAIL NOTES

1. SEE SPECIFICATION SECTION 02485 FOR DESIGN AND CONSTRUCTION INFORMATION FOR THE SOIL NAIL WALL SYSTEM.
2. THE SOIL NAIL WALL SYSTEM SHALL BE DESIGNED, DETAILED, FABRICATED AND ISNTALLED BY THE CONTRACTOR AS A DEFERRED SUBMITTAL. THE DESIGN PARAMETERS SHOWN ON THESE DRAWINGS ARE MINIMUM CONSTRUCTION STANDARDS. WHERE A CONFLICT BETWEEN GOVERNING CODES EXISTS, THE MORE STRINGENT CODE REQUIREMENT SHALL GOVERN THE FINAL DESIGN.
3. SOIL PROPERTIES PER THE DESIGN PARAMETERS TABLE BELOW.
4. GOVERNS CODES ARE:
   4.1. 2022 CBC
   4.2. ACI 318-19
   4.3. 2015 FHWA-NHI-14-007 "CIRCULAR 7" DATED FEBRUARY 2015.
5. DRILLING: BORE HOLE CASING MAY BE REQUIRED. CONTRACTOR SHALL PROVIDE CASING AS REQUIRED. WHERE CAVING IS OBSERVED AFTER DRILLING, SOIL NAIL SUBJECT TO REJECTION.
6. NAIL CORROSION PROTECTION SYSTEM: HOT DIP GALV TENDONS, WITH PARTIAL ENCAPSULATION
7. SOIL NAILS: ASTM A615, 75 KSI
8. PLATE STEEL: ASTM A572
9. SOIL NAIL ENCAPSULATION: HDPE CONFORMING TO ASTM D1248, WITH 30-MIL MINIMUM WALL THICKNESS; FACTORY PRE-GROUTED.
10. SOIL NAIL GROUT: NEAT SAND-CEMENT PER ASTM C-109, NON-CORROSIVE TO REBAR AS DEMONSTRATED BY LAB TESTING. 3,000 PSI 28-DAY STRENGTH, 1500 PSI 3-DAY STRENGTH. SAND CONFORMING TO ASTM C33.
11. SOIL NAIL CENTRALIZERS: NON-CONDUCTIVE.
12. DRAINAGE: GEOCOMPOSITE STRIP DRAINS PER THE DETAILS. PVC PIPE SHALL CONFORM TO ASTM D1785 SCHEDULE 40, PVC SOLVENT CEMENT SHALL CONFORM TO ASTM D2564. ANY PVC EXPOSED TO SUNLIGHT SHALL BE COATED FOR UV RESISTANCE.
13. FIELD TENSION TESTING:
   13.1. PROOF LOAD TESTING (PRODUCTION) IS REQUIRED PER THE SPECS: 5% OF PRODUCTION SOIL NAILS PER ROW AND ONE ADDITIONAL PER ROW, MINIMUM, BUT NOT LESS THAN ONE PROOF TEST PER CREW SHIFT OR 10-HOURS OF PRODUCTION.
   13.2. VERIFICATION TESTING (SACRIFICIAL) IS REQUIRED PER THE SPECS: PROVIDE TWO VERIFICATION TESTS PER WALL (UPPER, LOWER, RW-2 AND RW-3), ONE EACH IN THE UPPERMOST AND LOWERMOST ROWS - MINIMUM OF 8 FOR THE PROJECT.
   13.3. TESTING PARAMETERS PER SOIL NAIL TESTING PARAMETERS TABLE BELOW.
14. DAILY INSPECTION IS REQUIRED, IN CONFORMANCE WITH DFI AND FHWA STANDARD PRACTICE.

SOIL NAIL DESIGN PARAMETERS

PARAMETER	DESCRIPTION	VALUE
C'_c	SOIL COHESION, COLLUVIUM	1500 PSF
PHI'_c	SOIL INTERNAL FRICTION, COLLUVIUM	27 DEG
C'_f	SOIL COHESION, FORMATION	300 PSF
PHI'_f	SOIL INTERNAL FRICTION, FORMATION	36 DEG
GAMMA	SOIL UNIT WEIGHT (MOIST)	115 PCF MIN, 125 PCF MAX
qu	ULTIMATE BOND STRENGTH	15 PSI
kmax	MAX SEISMIC COEFF	0.81g
kh	HORIZ SEISMIC COEFF	0.42g
DELTA	SOIL-WALL INTERFACE FRICTION COEFF	0.50
FS, DCR	FACTOR OF SAFETY OR DEMAND CAPACITY RATIOS	-

SOIL NAIL TESTING PARAMETERS

PARAMETER	DESCRIPTION	VALUE
VTL	VERIFICATION TEST LOAD	51 KIPS
LBVT	BONDED LENGTH FOR VT	15 FT
PTL	PROOF TEST LOAD	25 KIPS
LBPT	BONDED LENGTH FOR PROOF TEST	10 FT

SHOTCRETE NOTES

1. SPECIFICATIONS FOR SHOTCRETE CONSTRUCTION ARE DEFINED IN ACI 506.2-16.
2. INITIAL SHOTCRETE FACING SHALL BE PLACED WITHIN 24 HOURS OF EARTH EXCAVATION.
3. MANDATORY SHOTCRETE REQUIREMENTS PER TABLE BELOW. CONTRACTOR SHALL CONFIRM SHOTCRETE COMPRESSION STRENGTH HAS REACHED AT LEAST 2,000 PSI PRIOR TO NEXT LIFT EXCAVATION.
4. DAILY INSPECTION IS REQUIRED, IN CONFORMANCE WITH DFI, ACI, AND FHWA STANDARD PRACTICE, AND CBC CODE REQUIREMENTS.

SHOTCRETE CONSTRUCTION PARAMETERS

506.2 SECTION	DESCRIPTION
1.1.1	ALL SHOTCRETE IS STRUCTURAL
1.4.1.9	ACI NOZZLEMAN CERTIFICATION REQ'D FOR ALL WORK
1.5.1	PRECONSTRUCTION WORK IS REQUIRED: TEST PANELS.
1.6.3.1	NOT USED
2.1.7	DEFORMED REBAR: ASTM A615, Gr 60 WWF: ASTM A1064, Gr 60
2.4.1, 2, 4	28-DAY STRENGTH = 4,500 PSI 3-DAY STRENGTH - 2,500 PSI MAX W/CM, RATIO = 0.42 AIR ENTRAINMENT = NOT REQ'D
2.4.5	MAX WATER-SOLUABLE CHLORIDE ION CONTENT = 0.0015 PER WEIGHT CEMENT
2.4.6, 7, 8, 9	NOT USED
2.5	NOT USED
3.4.5	NOT USED
3.8.1	TOLERANCES PER ACI 117
JOINTS	REINF STEEL CONTINUOUS THROUGH JOINTS
FINISH	TROWEL FINISH
FACING COLOR	EARTH TONE. PROVIDE OWNER WITH COLOR PALETTE FOR SELECTION.

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER JANE DARIN SALTARELLI No. C75463 Exp. 3/31/26 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

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CHECKED: PIB		VERT:
APPROVED:	DATE: 4/30/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

SOIL NAIL WALLS NOTES AND SECTIONS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 58 OF 76
S-29

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:37 PM
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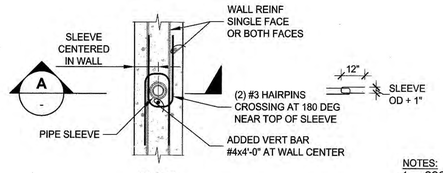
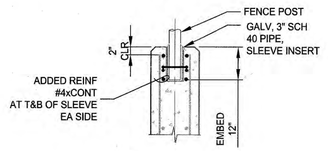


PLAN



SIDE SECTION A

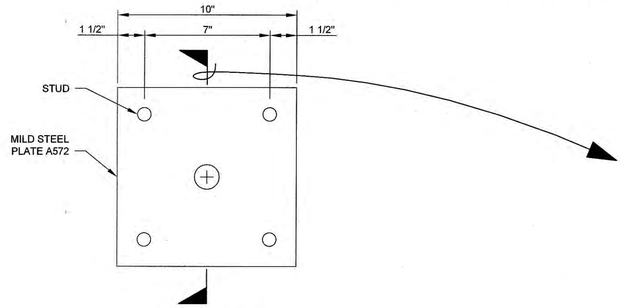
NOTES:
1. COORDINATE POST LOCATION WITH SLEEVE LOCATION PRIOR TO CONCRETE PLACEMENT.
2. GROUT ANNULUS BETWEEN POST AND SLEEVE WITH SIKAGROUT 212 OR EQUAL (FLOWABLE CONSISTANCY). PROVIDE TOP FILLET TO SHED MOISTURE.
3. FILL BOTTOM OF POST W/ RIGID FOAM.
4. SLEEVES SHALL BE HDG STEEL PIPE. CAP TOP AND BOTTOM BEFORE APPLYING SHOTCRETE.
5. THICKEN UPPER 1'-0" OF CONC WALL AS REQ'D UP TO 3" LOCALLY AT FENCE POST INSERTS.

POST BASE IN WALL

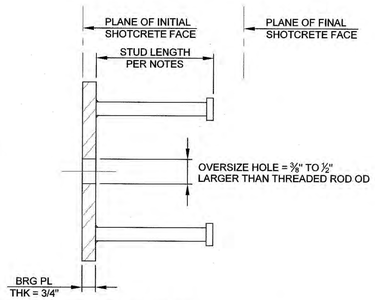
NOT TO SCALE

3 / S-29

NOTES:
1. THE SOIL NAIL WALL AND ITS COMPONENTS SHALL BE DESIGNED, DETAILED AND INSTALLED BY THE CONTRACTOR AS A DEFERRED SUBMITTAL. DETAILING AND MATERIALS SHOWN TO PROVIDE MINIMUM STANDARD AND FOR BIDDING.
2. HEADED STUDS SHALL BE TYPE A, 60 KSI TENSILE, ¾"Øx6⅜" LONG STUD SHAFT w/ 1 ½"Øx⅜" THK HEAD. STUD WELDING PER AWS D1.1. FINAL AS-WELDED STUD SHAFT ≥ 6".
3. WELDMENT SHALL BE HDG OR EPOXY COATED AFTER FABRICATION TO MATCH SOIL NAIL PROTECTIVE COATING.



FRONT VIEW



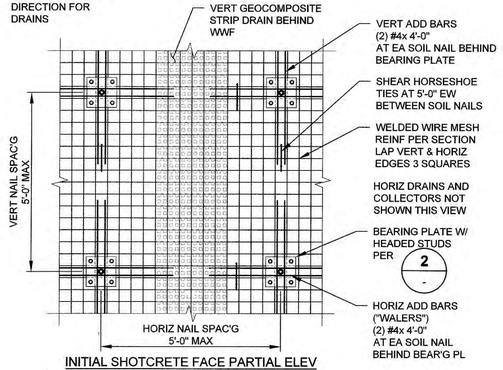
SECTION

HEADED STUD BEARING PLATE

SCALE: NTS

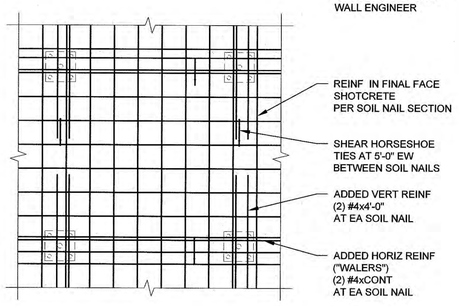
2 / -

NOTE:
ADJUST REINF POSITION UP TO 2" INCHES EITHER DIRECTION FOR DRAINS



INITIAL SHOTCRETE FACE PARTIAL ELEV

NOTE:
REINF SHOWN IS MINIMUM REINFORCING. ACTUAL REINFORCING PER CONTRACTOR'S WALL ENGINEER



FINAL SHOTCRETE FACE PARTIAL ELEV

SHOTCRETE PARTIAL ELEV

SCALE: ½" = 1'-0"

1 / S-29

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:37 PM
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REGISTERED PROFESSIONAL ENGINEER — JARE DARIN SALTER — No. C73469 — Exp. 3/31/26 — CIVIL — STATE OF CALIFORNIA
04/19/24

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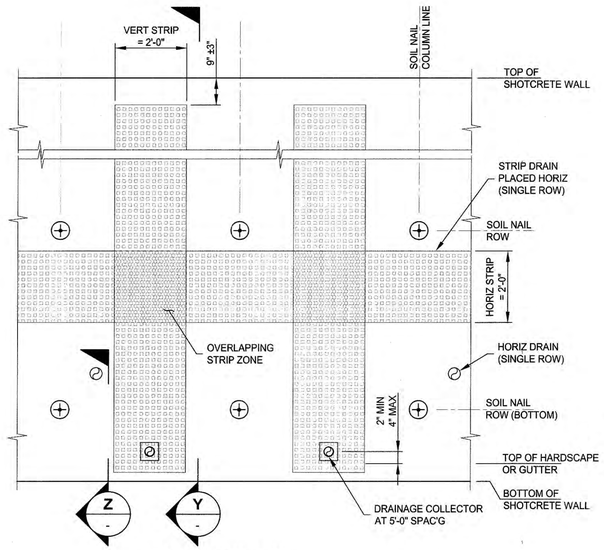
CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

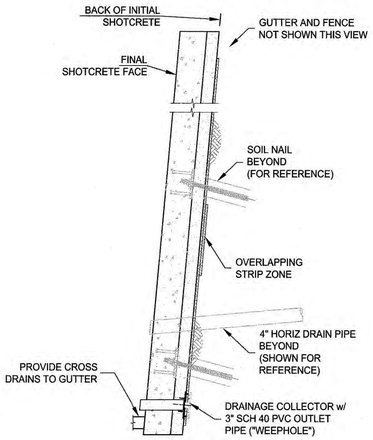
SOIL NAIL WALLS
DETAILS - I

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 59 OF 76
S-30

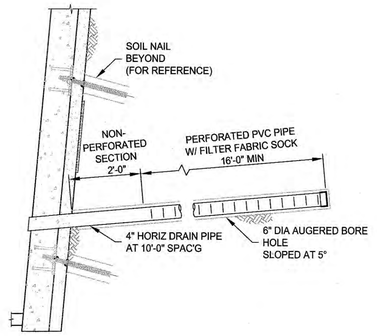
NOTES:
1. GEOCOMPOSITE STRIP DRAINS ("STRIP") SHALL BE SITEDRAIN C-180 BY AWD (OR EQUAL).
2. VERT STRIPS REQ'D MIDSPAN BETWEEN ALL SOIL NAIL COLUMNS.
3. HORIZ STRIP NOT REQ'D ABOVE BOTTOM SOIL NAIL OR BELOW TOP SOIL NAIL ROW.
4. LAP STRIPS 1'-0".
5. DRAINAGE COLLECTOR SHALL BE TEE OUTLET BY AWD (OR EQUAL); REQ'D AT BASE OF EVERY VERT STRIP.
6. NO TIE IN OR INTERSECTION BETWEEN 4" HORIZ DRAIN AND GEOCOMPOSITE STRIP DRAIN.



FACE ELEVATION (BEHIND WALL)



SIDE SECTION (COLLECTOR) Y



SIDE SECTION (HORIZ DRAIN) Z

DRAINAGE BEHIND SOIL NAIL WALL 1
SCALE: 1/2" = 1'-0"

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:37 PM
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REGISTERED PROFESSIONAL ENGINEER
JULIE DARIN SALTZMAN
No. C75469
Exp. 3/31/26
CIVIL
STATE OF CALIFORNIA
04/19/24

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VERT:
JOB NUMBER: KJ 2368021*00

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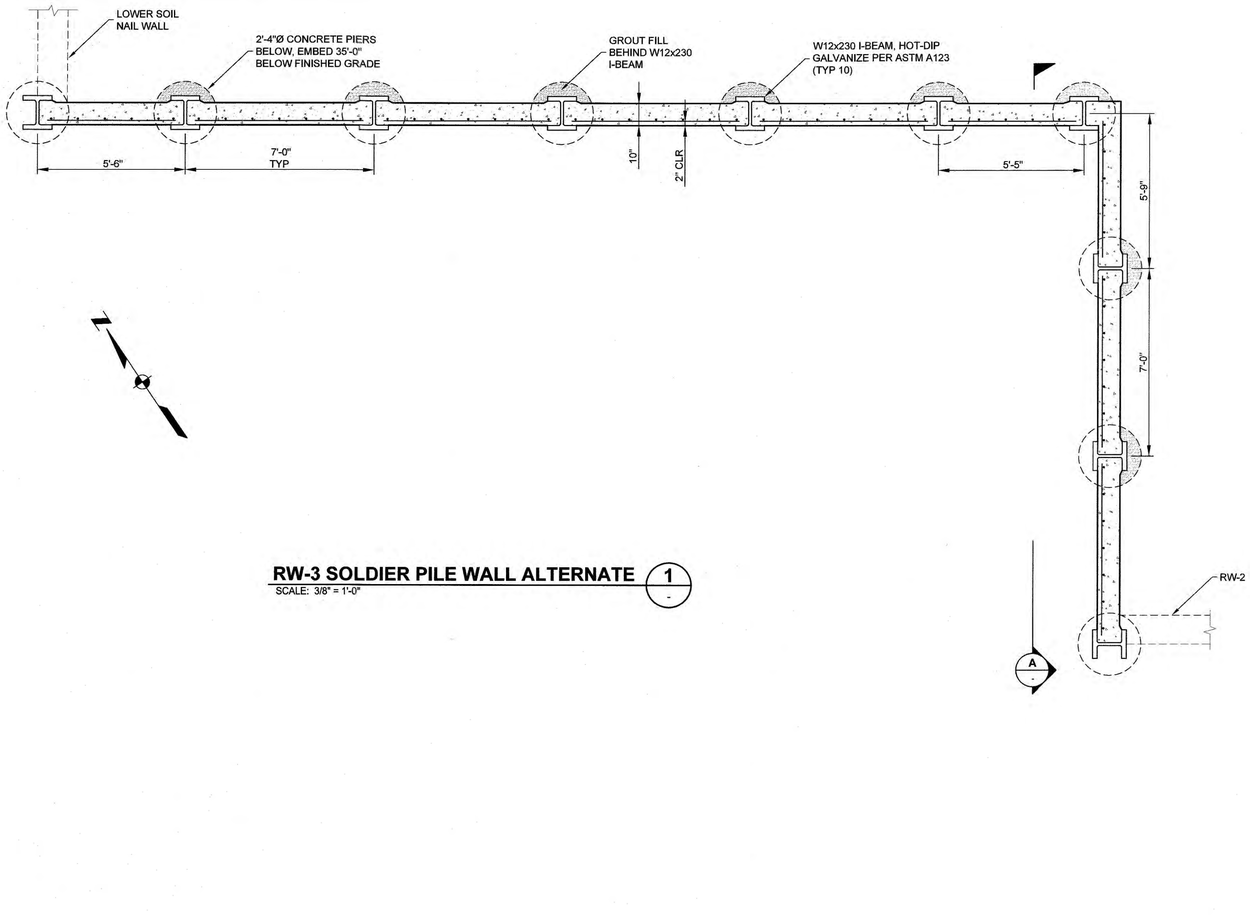
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

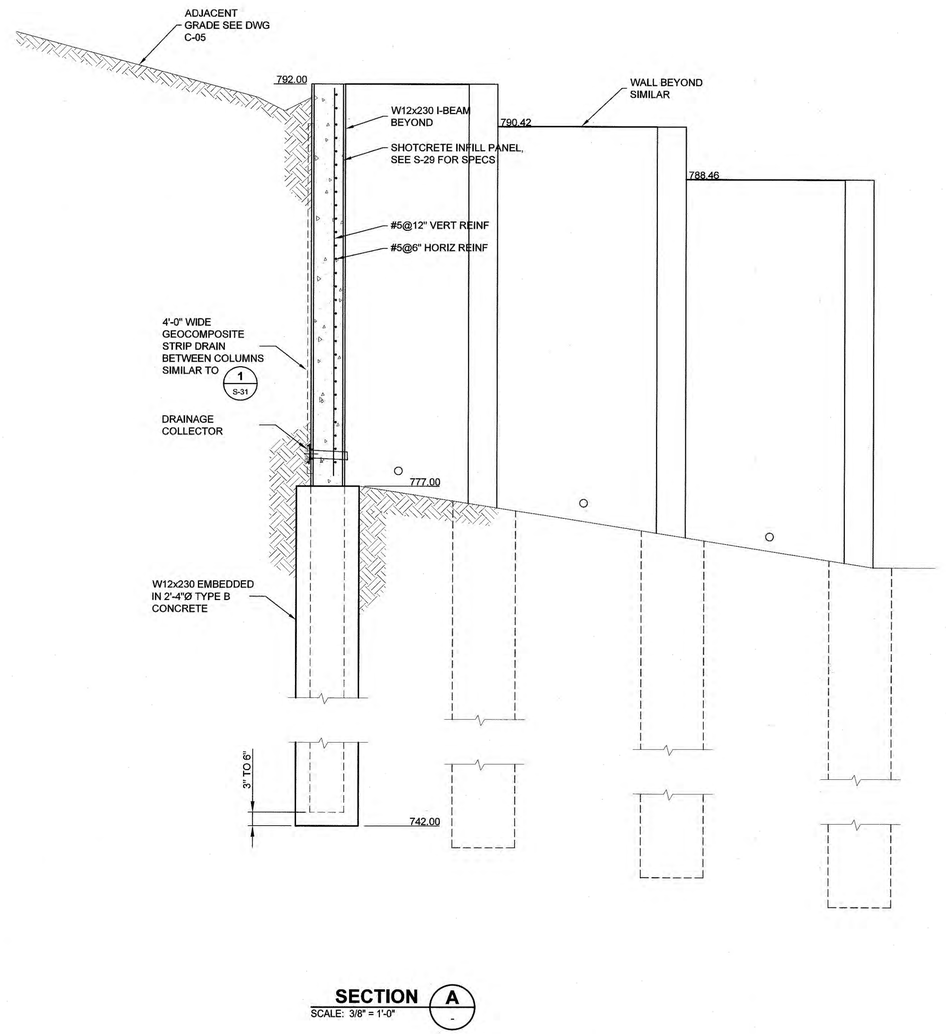
SOIL NAIL WALLS
DETAILS - II

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 60 OF 76
S-31



RW-3 SOLDIER PILE WALL ALTERNATE 1

SCALE: 3/8" = 1'-0"



SECTION A

SCALE: 3/8" = 1'-0"

SHEET SIZE: 24x36

PATRICK TRAN 4/19/2024 2:37 PM

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REGISTERED PROFESSIONAL ENGINEER JACKIE DARIN SAITO No. C75467 Exp. 3/31/26 CIVIL STATE OF CALIFORNIA
04/19/24

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Public Works Department
CITY OF MORGAN HILL
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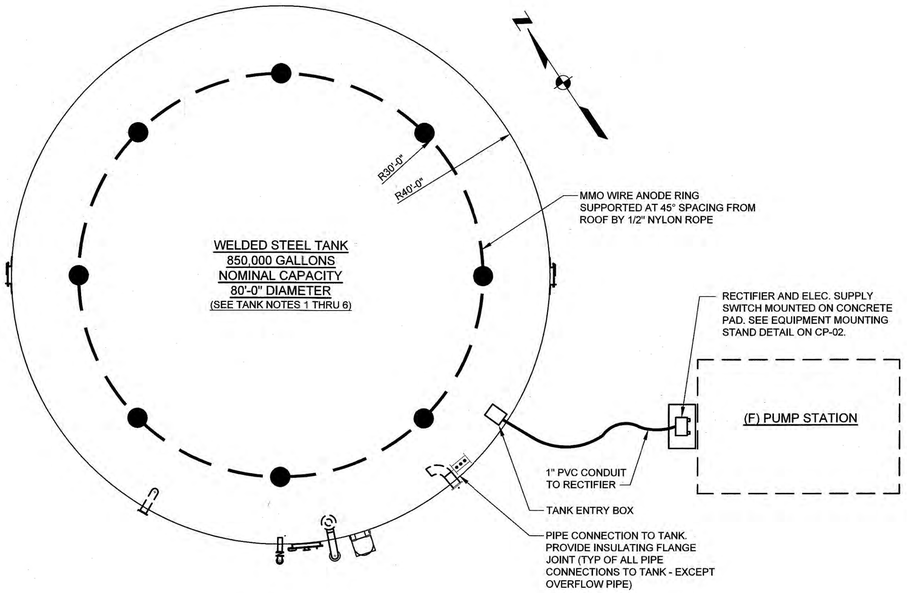
EAST DUNNE HILLSIDE
WATER RESERVOIR

SOLDIER PILE WALL
PLAN AND SECTION

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 61 OF 76
S-32



ANODE DETAIL - PLAN
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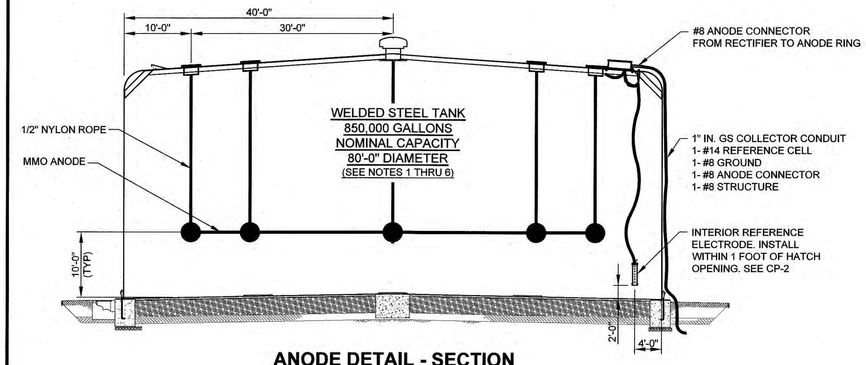
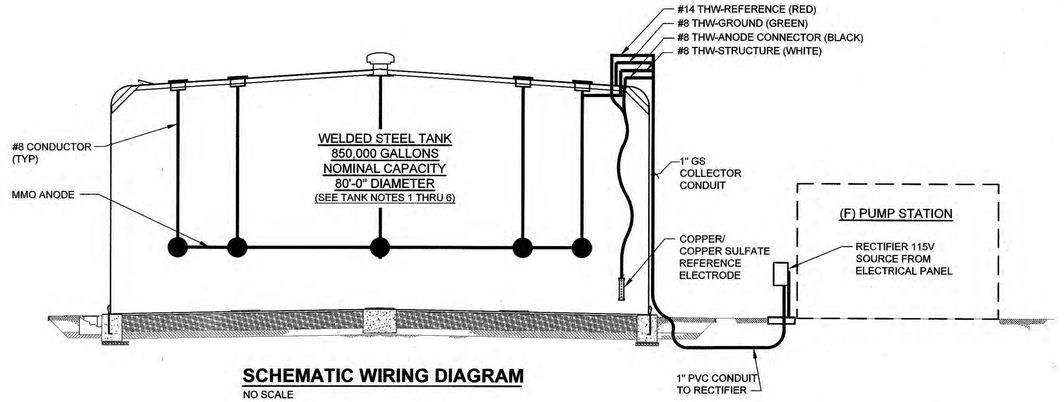


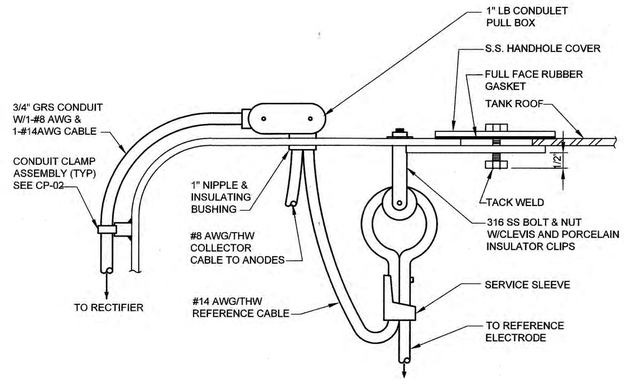
ANODE DETAIL - SECTION
NO SCALE

NOTES :

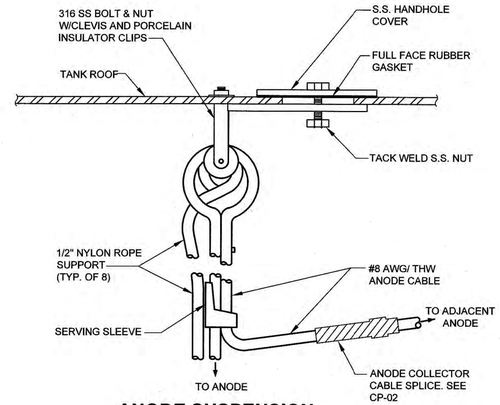
1. THE CATHODIC PROTECTION SYSTEM FOR RESERVOIR INTERIOR SHALL CONSIST OF A MIXED METAL OXIDE (MMO) WIRE ANODE IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM WITH A COPPER-COPPER SULFATE REFERENCE ELECTRODE AND (8) 1.5 MM DIAMETER BY 50 FEET LONG ANODE. THE ANODE CABLE SHALL BE NO. 8 AWG/ THW, THE COLLECTOR CABLE SHALL BE NO. 8 AWG/HMWPE AND THE REFERENCE ELECTRODE CABLE SHALL BE NO. 14 AWG/TW.
2. THIS DRAWING SHALL BE COORDINATED WITH EQUIPMENT MANUFACTURER'S DRAWINGS.
3. ALL COMPONENTS OF THE CATHODIC PROTECTION SYSTEMS (CONDUIT, RECTIFIER, HANDHOLES, ETC.) SHALL BE PAINTED TO MATCH THE COLOR OF THE TANK.
4. LOCATIONS OF ALL CATHODIC PROTECTION ELEMENTS TO BE COORDINATED IN THE FIELD WITH THE CITY'S REPRESENTATIVE
5. PROVIDE PROTECTIVE COATING TO ALL INTERIOR METAL SURFACES INCLUDING STAINLESS STEEL LADDER , CONDUITS AND ACCESSORIES IN ACCORDANCE WITH SPECIFICATION SECTION 09960.
6. ALL STAINLESS STEEL TANK COMPONENTS AND ACCESSORIES SHALL BE TYPE 316 OR 316L.



SCHEMATIC WIRING DIAGRAM
NO SCALE



PULL BOX AND REFERENCE ELECTRODE SUSPENSION
NO SCALE



ANODE SUSPENSION
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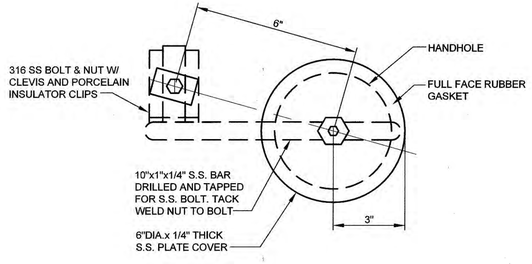
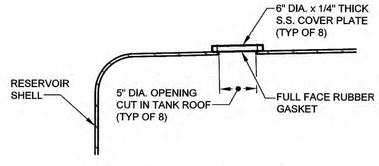


ANODE SUPPORT HANDHOLE COVER
NO SCALE



NOTE: THIS DRAWING SHALL BE COORDINATED WITH TANK MANUFACTURER'S DRAWINGS.

ANODE SUPPORT HANDHOLE DETAIL
NO SCALE

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REGISTERED PROFESSIONAL ENGINEER RONALD LEE BARRETT No. C45483 Exp. 12/31/24 CIVIL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

CATHODIC PROTECTION PLAN, SECTION, SCHEMATIC AND DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 62 OF 76
CP-01

SHEET SIZE: 24x36
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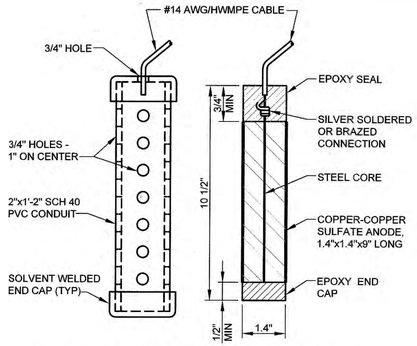
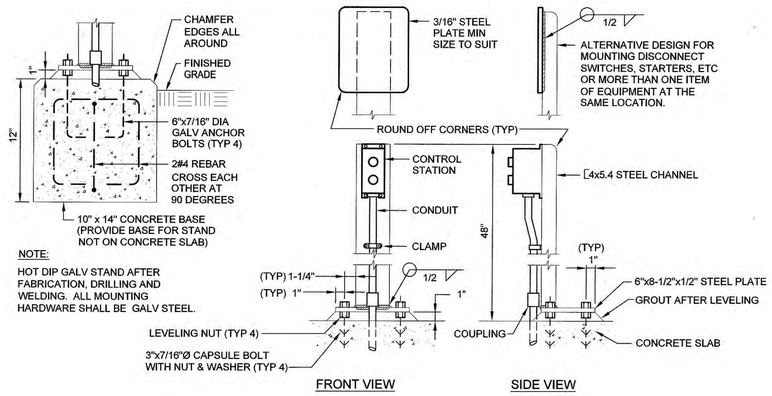


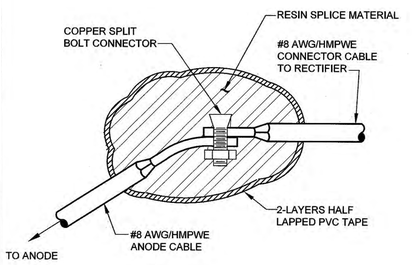
NOTE: INSTALL REFERENCE ELECTRODE INSIDE PVC CONDUIT.

INTERIOR REFERENCE ELECTRODE
NO SCALE

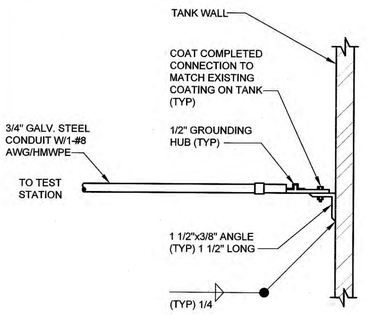


NOTE:
HOT DIP GALV STAND AFTER FABRICATION, DRILLING AND WELDING. ALL MOUNTING HARDWARE SHALL BE GALV STEEL.

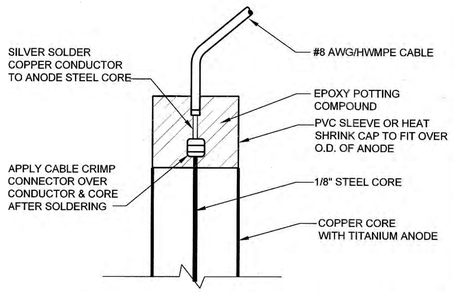
EQUIPMENT MOUNTING STAND
NO SCALE



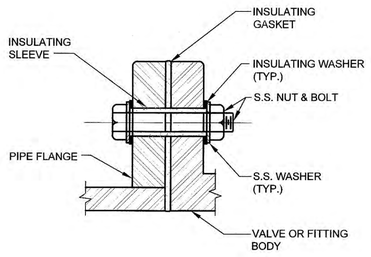
ANODE COLLECTOR CABLE SPLICE
NO SCALE



STRUCTURE CABLE CONNECTION
NO SCALE

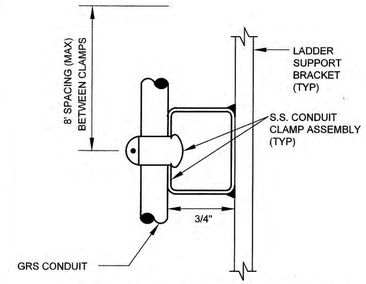


LEAD WIRE ATTACHMENT TO ANODE
NO SCALE



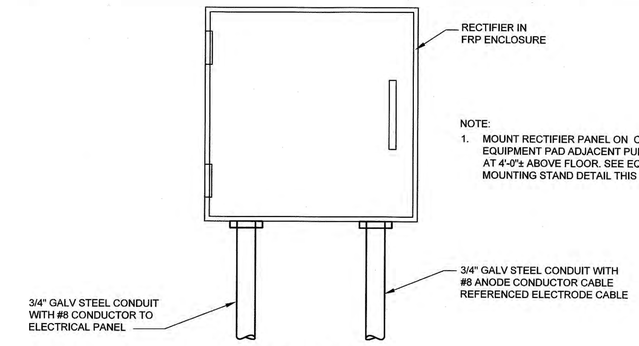
NOTE: PIPE COATING NOT SHOWN.

INSULATING FLANGE DETAIL
NO SCALE



NOTE: COAT WITH SAME COATING AS TANK EXTERIOR

CONDUIT CLAMP ASSEMBLY
NO SCALE



NOTE:
1. MOUNT RECTIFIER PANEL ON CONCRETE EQUIPMENT PAD ADJACENT PUMP STATION AT 4'-0"± ABOVE FLOOR. SEE EQUIPMENT MOUNTING STAND DETAIL THIS SHEET.

RECTIFIER DETAIL
NO SCALE

SHEET SIZE: 24x36

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — DONALD LEE BARRETT — No. C45483 Exp. 6/30/24 CIVIL — STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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WORK ACCEPTED: INSPECTOR:
BY: DATE:

Kennedy/Jenks Consultants©
2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

DRAWN: NEB	DESIGN: DLB	HOR:
CHECKED: DBH		VERT:
APPROVED:	DATE: 4/19/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 58579 — CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

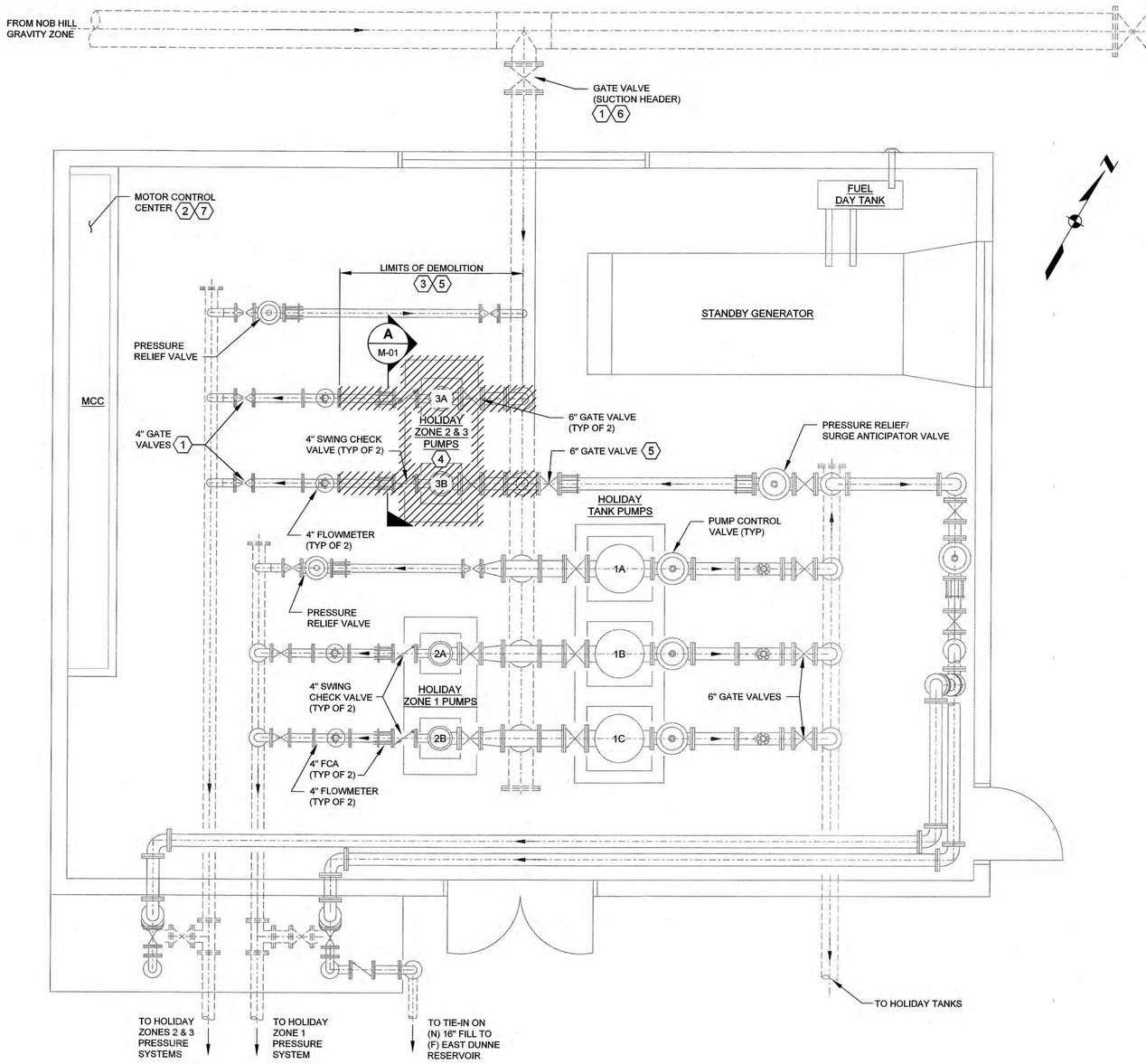
EAST DUNNE HILLSIDE WATER RESERVOIR

CATHODIC PROTECTION DETAILS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 63 OF 76
CP-02

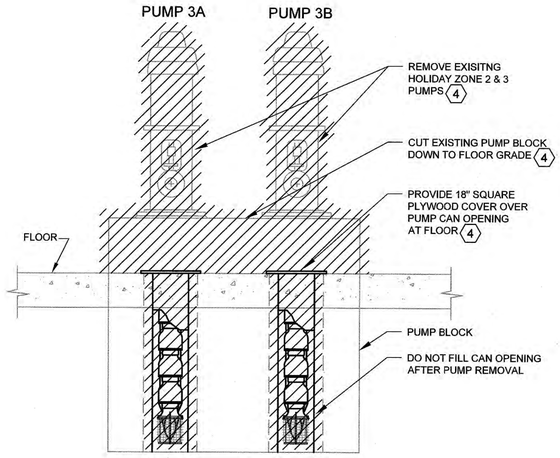
DEMOLITION SEQUENCE

1. CLOSE GATE VALVES AT SUCTION HEADER AND AT GATE VALVES ON DISCHARGE OF HOLIDAY ZONE 2 AND 3 PUMPS 3A AND 3B.
2. LOCK-OUT AND TAG-OUT ALL MOTOR STARTERS IN PUMP STATION.
3. REMOVE SUCTION AND DISCHARGE PIPING OF HOLIDAY ZONE 2 AND 3 PUMPS BETWEEN BRANCHES FROM SUCTION HEADER AND FLOWMETER FOR EACH PUMP
4. REMOVE HOLIDAY ZONE 2 AND 3 PUMPS (PUMPS 3A AND 3B).
5. INSTALL TEMPORARY BLIND FLANGES AT BRANCHES FROM SUCTION HEADER, AT FLOWMETERS FOR HOLIDAY ZONE 2 AND 3 PUMPS, 3A AND 3B, AND AT RETURN VALVE FROM HOLIDAY TANK PRESSURE RELIEF VALVE.
6. RE-OPEN 12" GATE VALVE ON SUCTION HEADER.
7. RESTORE ELECTRIC SERVICE TO HOLIDAY TANK PUMPS AND HOLIDAY ZONE 1 PUMPS. MOTOR STARTERS FOR THE HOLIDAY ZONE 2 PUMPS 2A & 2AND 3 PUMPS, 3A AND 3B.



PLAN - EXISTING

0 2 4
3/8"=1'-0"



HOLIDAY ZONE 2 AND 3 PUMP DEMOLITION SECTION A M-01

0 1 2 3
1/2"=1'-0"

SHEET SIZE: 24x36

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SCALES
0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER ZACHARY D. HANSEN No. M28997 Exp. 6/30/24 MECHANICAL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

Revisions

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APPROVED: DATE: 4/30/24
JOB NUMBER: K/J 2368021*00

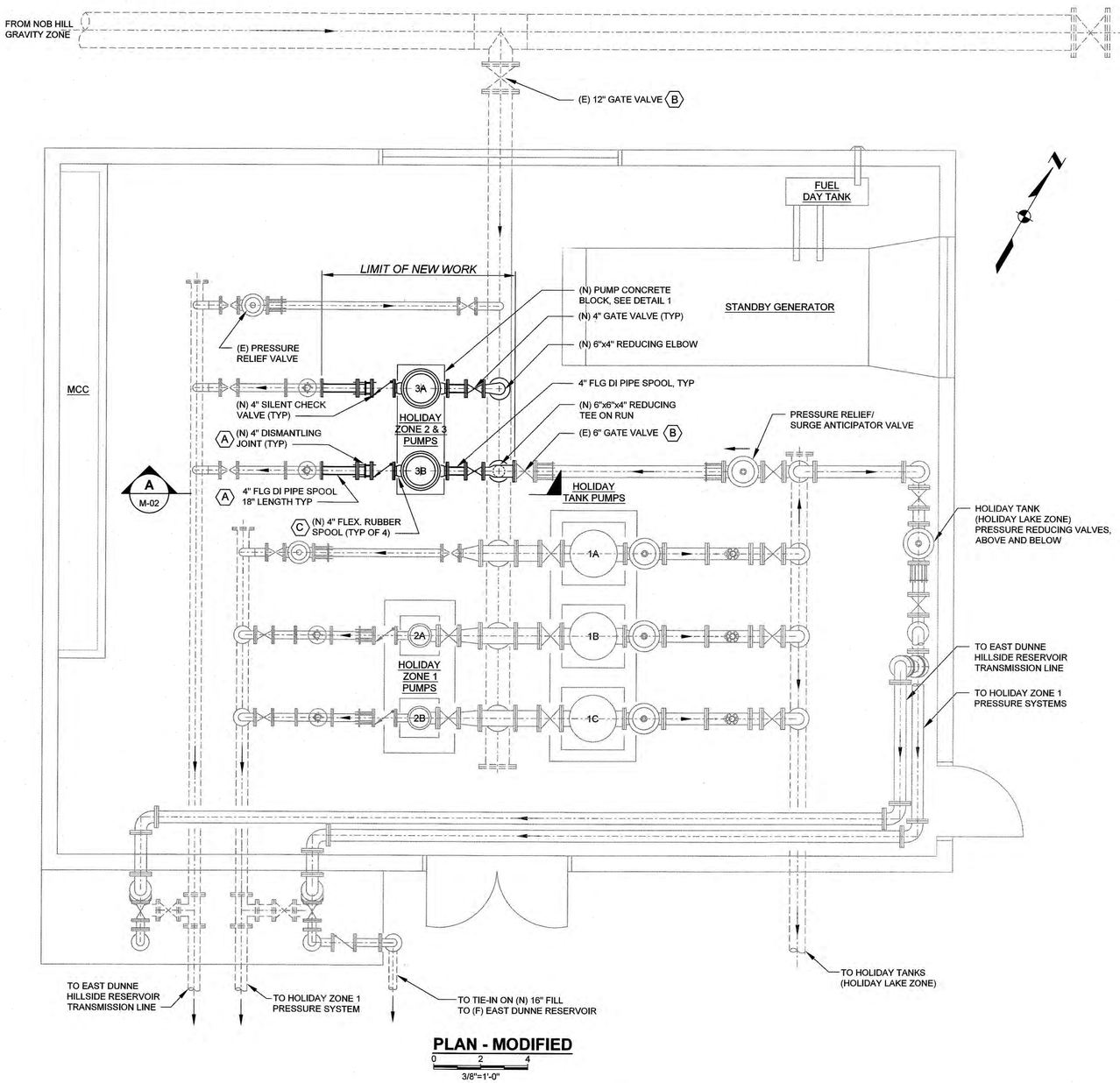
SCOTT C. CREER RCE 58879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

EAST DUNNE BOOSTER PUMP STATION EXISTING PIPING PLAN

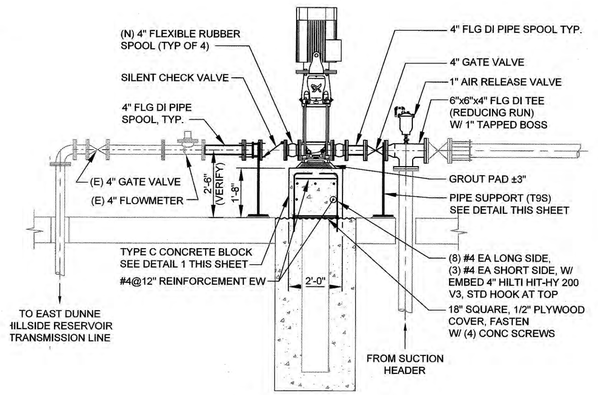
FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 64 OF 76
M-01



PLAN - MODIFIED

0 2 4

3/8"=1'-0"

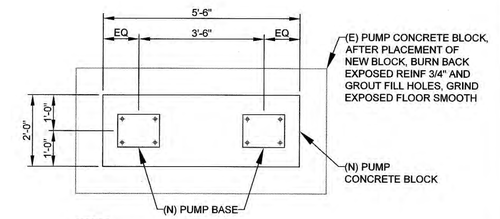


SECTION A

0 2 4

3/8"=1'-0"

M-02



NOTES:

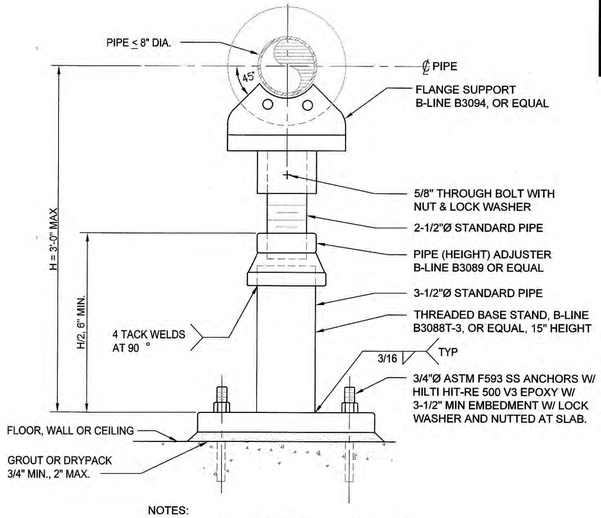
1. FINAL DIMENSIONS FOR CONCRETE BLOCK SHALL BE COORDINATED WITH FAVORABLY REVIEWED PUMP ANCHORAGE SUBMITTAL.

DETAIL 1

0 1 2 3

1/2"=1'-0"

M-02



NOTES:

1. DO NOT CUT OR WELD AFTER GALVANIZING.
2. PIPE SUPPORT MAY BE ORIENTED IN ANY DIRECTION.

TYPE 9 SUPPORT (T9S)

SCALE: NONE (SEISMIC RESTRAINT)

GENERAL SHEET NOTES

1. PROCESS MECHANICAL EQUIPMENT AND PIPING LOCATIONS, DIMENSIONS, AND LAYOUTS ARE BASED ON THE EQUIPMENT SELECTED AND SPECIFIED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO FURNISH EQUIPMENT THAT REQUIRES AN ARRANGEMENT OR SPACE OTHER THAN THAT INDICATED ON THE DRAWINGS OR AS SPECIFIED, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL DETAILED DRAWINGS AND EQUIPMENT LISTS (FOR IMPACTED DISCIPLINES) SHOWING EQUIPMENT AND PIPING LOCATIONS, DIMENSIONS, AND LAYOUTS PROPOSED. THIS INFORMATION SHALL INCLUDE, BUT NOT BE LIMITED TO, PLANS, SECTIONS, DETAILS, AND SCHEMATICS OF EQUIPMENT AND APPURTENANCES REQUIRED. THE CONTRACTOR SHALL PROVIDE DETAILS OF CHANGES TO ADJACENT PIPE ROUTING TO ACCOMMODATE TIE-IN LOCATIONS FOR PROPOSED EQUIPMENT.
2. EQUIPMENT FOUNDATION AND PAD DIMENSIONS SHOWN ON THE PROCESS MECHANICAL DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE EQUIPMENT PAD DIMENSIONS WITH THE MANUFACTURER TO ACCOMMODATE THE ACTUAL SIZE OF EQUIPMENT FURNISHED (AS SHOWN ON THE APPROVED SHOP DRAWINGS) AND AVAILABLE SPACE. REFER TO THE STRUCTURAL DRAWINGS AND STRUCTURAL STANDARD DETAILS FOR EQUIPMENT PAD DESIGN REQUIREMENTS.
3. EQUIPMENT BASES HAVING DRAIN OUTLETS, EQUIPMENT DRAINS, AND PIPING DRAINS SHALL BE PIPED WITH A CONTINUOUS SLOPE TO THE NEAREST FLOOR DRAIN, FLOOR SINK, HUB DRAIN, OR TRENCH DRAIN. DRAIN PIPE NOMINAL DIAMETER AND MATERIAL SHALL BE PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. DRAIN PIPING SHALL BE SUITABLY SUPPORTED AND ROUTED IN SUCH A MANNER TO AVOID TRIP HAZARDS.
4. PROCESS MECHANICAL PIPING SYSTEMS AND EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY TO BE EASILY DISMANTLED AND REMOVED WITHOUT DISTURBING THE REMAINING AND ADJACENT EQUIPMENT, PIPING, AND SUPPORTS.
5. PIPING CONNECTED TO PROCESS MECHANICAL EQUIPMENT SHALL BE INSTALLED AND SUPPORTED SUCH THAT IT DOES NOT IMPART STRAIN ON THE EQUIPMENT.
6. PROVIDE PIPE SUPPORTS REQUIRED FOR A COMPLETE PIPING SYSTEM. PIPE SUPPORTS SHALL BE PROVIDED WHERE REQUIRED BY THE SPECIFICATION SECTION 'PIPE SUPPORTS'.
7. VALVE AND GATE ACTUATORS SHALL BE MOUNTED TO ALLOW PROPER OPENING AND CLOSING WITHOUT INTERFERENCE WITH ADJACENT PIPING OR EQUIPMENT. UNLESS INDICATED ON THE DRAWINGS, ORIENTATION OF OPERATORS SHALL BE APPROVED BY THE ENGINEER.
8. UNLESS INDICATED ON THE DRAWINGS, REFER TO THE MANUFACTURER'S RECOMMENDATIONS AND PROJECT SPECIFICATIONS REGARDING THE LOCATION OF THE VALVE SEAT (UPSTREAM OR DOWNSTREAM) AND STEM ORIENTATION.
9. ADHERE TO SPECIFICATION SECTION 01190 FOR ANCHORAGE REQUIREMENTS.
10. SEE SPECIFICATION SECTION 02510 FOR PIPE MATERIAL REQUIREMENTS.

SHEET KEYNOTES

A. CONNECT FLANGED END OF PIPE SECTION TO (E) FLOW METER. CUT PIPE TO LENGTH CONNECT DISMANTLING JOINT TO (E) SWING CHECK VALVE.

B. CLOSE 12" GATE VALVE ON SUCTION HEADER. CLOSE 6" GATE VALVE AT PUMP SUCTION. REMOVE BLIND FLANGE, INSTALL FLANGED PIPE SPOOL AND FLEXIBLE RUBBER SPOOL TO PUMP SUCTION CONNECTION. RE-OPEN GATE VALVE ON SUCTION HEADER. RE-OPEN GATE VALVES AT PUMP SUCTION.

C. PROVIDE FLEXIBLE RUBBER SPOOLS AT SUCTION AND DISCHARGE CONNECTIONS TO PUMP 3A AND 3B

SHEET SIZE: 24x36

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER ZACHARY D. HARRIS No. M28640 Exp. 6/30/24 MECHANICAL STATE OF CALIFORNIA

04/19/24

NO.	DESCRIPTION	DATE	BY

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2350 Mission College Boulevard, Suite 700, Santa Clara, California 95054

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CHECKED: EJP		VERT:
APPROVED:	DATE: 4/19/24	JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

CITY OF MORGAN HILL
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

EAST DUNNE BOOSTER PUMP STATION MODIFIED PIPING PLAN

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 65 OF 76

M-02

LEGEND

ABBREVIATIONS

a	CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED
A	AMMETER, AMPERES
AC	ALTERNATING CURRENT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
AWG	AMERICAN WIRE GAGE
b	CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN
BCG	BARE COPPER GROUND
C	CONDUIT, CONTACTOR
CAB	CABINET
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONT	CONTINUED, CONTINUATION
CP	CONTROL PANEL
DC	DIRECT CURRENT
DIA	DIAMETER
DWG	DRAWING
(E)	EXISTING
ELEC	ELECTRIC, ELECTRICAL
EQPT	EQUIPMENT
(F)	FUTURE
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HH	HANDHOLE
INSTR	INSTRUMENT, INSTRUMENTATION
I/O	INPUT/OUTPUT
JB	JUNCTION BOX
KCMIL	THOUSANDS OF CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LP	LIGHTING PANEL
LT, LTG	LIGHT, LIGHTING
mA	MILLIAMPERES
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD, MTG	MOUNTED, MOUNTING
(N)	NEW
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
PB	PULLBOX, PUSHBUTTON
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PSI	POUNDS PER SQUARE INCH
PWR	POWER
RCPT	RECEPTACLE
REQD	REQUIRED
RVSS	REDUCED VOLTAGE, SOLID STATE
SCADA	SUPERVISORY CONTROL AND DATA ACQUISTION
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL, SOLID STATE
SW	SWITCH
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
UG	UNDERGROUND
V	VOLTS
VA	VOLT-AMPERES
W	WIRE, WATTS
WP	WEATHERPROOF
XFMR	TRANSFORMER

PLAN SYMBOLS

- OH — OVERHEAD POWER LINE
- UNDERGROUND CONDUIT
- UNDERGROUND DUCT LINE (CONCRETE ENCASEMENT)
- UNDERGROUND DIRECT BURIAL CONDUITS
- MULTIPLE CONDUIT RUN
- CONDUIT CONCEALED IN FLOOR
- CONDUIT CONCEALED IN WALL OR CEILING
- CONDUIT EXPOSED
- 3/4"C-3#12 — CALLOUT INDICATING CONDUIT SIZE, NUMBER OF WIRES AND WIRE SIZE
- (135) — CALLOUT INDICATING CONDUIT PER SCHEDULE
- CONDUIT RUN, HATCH MARKS INDICATE NO. OF #12 CONDUCTORS NO HATCH MARKS IS 2#12 UNLESS OTHERWISE NOTED
- HOME RUN TO PANELBOARD OR AS INDICATED
- FLEXIBLE CONDUIT
- CONDUIT RUN, BROKEN AND CONTINUED ON SAME SHEET OR AS NOTED
- CONDUIT WITH SEAL FITTING
- CAP ON CONDUIT STUB
- OPEN CIRCLE DENOTES UPWARD CONDUIT RISER
- SOLID CIRCLE DENOTES DOWNWARD CONDUIT RISER
- INDICATES REMOVAL
- G — BARE COPPER GROUND TO GROUND WIRE IN SLAB OR UNDERGROUND GROUND GRID. SIZE AS NOTED.
- G — GROUND CONNECTION
- GROUND ROD AND BOX
- (M) MOTOR
- CONTROL STATION
- EQUIPMENT MOUNTING STAND
- INSTRUMENT
- POLE MOUNTED FIXTURE
- (A) LIGHT FIXTURE IDENTIFICATION
- (J) (J) WALL/CEILING MOUNTED JUNCTION BOX
- EMH EHH SHH — ELECTRIC MANHOLE / POWER HANDHOLE / SIGNAL HANDHOLE

DIAGRAM SYMBOLS

- MCP 100AT / 100AT 100AF — CIRCUIT BREAKER, 3 POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED. IF TWO RATINGS APPEAR (EG. 100/625) THEN DEVICE IS MCP; NUMERATOR IS CONTINUOUS CURRENT RATING & DENOMINATOR IS INSTANTANEOUS TRIP SETTING.
- POWER OR DISTRIBUTION TRANSFORMER RATING AS NOTED
- (WHD) WATTHOUR DEMAND METER
- VFD — VARIABLE FREQUENCY DRIVE
- RVSS — REDUCED VOLTAGE STARTER, SOLID STATE
- GROUND CONNECTION
- FUSE. RATING IN AMPERES
- (ETM) ELAPSED TIME METER
- (M) MOTOR
- (**) CONTROL DEVICE COIL. PREFIX NUMBER, WHEN USED, DISTINGUISHES BETWEEN DEVICES OF THE SAME TYPE.
  - ** CR - CONTROL RELAY
  - TR - TIMING RELAY
- (*) INDICATING LIGHT
- PTT, 1 — (*) PUSH-TO-TEST INDICATING LIGHT
  - * COLORS:
  - A - AMBER
  - G - GREEN
  - R - RED
- TERMINAL
- NO CR / NC CR — CONTACT NORMALLY OPEN / CLOSED
- START / STOP — PUSHBUTTON NORMALLY OPEN / CLOSED
- SWITCH, 1-POLE
- AMP/FRAME — CIRCUIT BREAKER, MCP 3-POLE
- H O A — HAND-OFF-AUTOMATIC SWITCH X-INDICATES CONTACTS CLOSED
- CONTROL POWER TRANSFORMER

SENSING SWITCHES			
CLOSE ON			SENSED VARIABLE
RISING	FALLING		
TS	TS		TEMPERATURE

TIMED CONTACTS			
SYMBOL	NORMAL	OPEN TO CLOSED	CLOSED TO OPEN
TR	OPEN	DELAYED	INSTANTANEOUS
TR	CLOSED	INSTANTANEOUS	DELAYED

GENERAL NOTES:

G1. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

G2. THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.

G3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON. NO PAYMENT WILL BE MADE FOR CHANGES WHICH HAVE NOT BEEN FAVORABLY REVIEWED BY THE ENGINEER.

G4. INFORMATION SHOWN MAY NOT BE ALL INCLUSIVE. SEE ALSO ANSI C37.2, Y1.1, Y32.2, AND Y32.9.

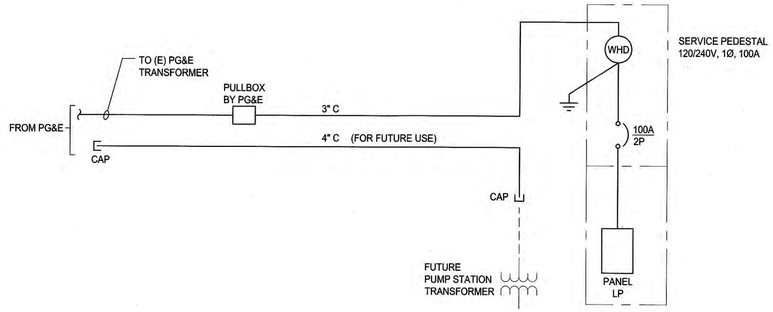
G5. VERIFY ALL COLOR REQUIREMENTS BEFORE ORDERING MATERIALS.

G6. REFER TO CIVIL, LANDSCAPING AND CATHODIC PROTECTION DRAWINGS FOR CERTAIN CONTROL DIAGRAMS AND EXACT LOCATIONS OF MECHANICAL EQUIPMENT AND FOR CERTAIN CONNECTIONS TO BE MADE TO ELECTRICAL CIRCUITS.

PLAN NOTES:

P1. CONDUIT SIZE AND FILL SHALL BE AS INDICATED. WHERE NO SIZE IS SHOWN, THE CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED BY THE AUTHORITY HAVING CODE ENFORCEMENT JURISDICTION. WHERE NO FILL IS INDICATED, THE FILL SHALL BE 2#12. PROVIDE 3/16 INCH NYLON PULL ROPE IN EACH EMPTY CONDUIT.

P2. NUMBER OF CIRCLES DOES NOT REPRESENT THE NUMBER OF CONDUITS IN THE ENCASEMENT.



SINGLE LINE DIAGRAM

NO SCALE

PANEL LP										
240/120 VOLTS, SINGLE PHASE, 3 WIRE		BUS:	100A	AIC:	10KA	MAIN:	100A/2P	MOUNTING: IN SERVICE PEDESTAL		
CKT NO	DESCRIPTION	CONNECTED KVA A	CONNECTED KVA B	DEMAND FACTOR	TRIP AMPS/ POLES	CKT NO	DESCRIPTION	CONNECTED KVA A	CONNECTED KVA B	DEMAND FACTOR	TRIP AMPS/ POLES
1	PLC PANEL	0.4		100%	20/1	2	LIGHTING	1.0		100%	20/1
3	IRRIGATION PUMP		0.3	100%	20/1	4	RECEPTACLES		0.3	100%	20/1
5	IRRIGATION CONTROLLER	0.1		100%	20/1	6	SEISMIC SENSOR MOTORIZED VALVE	0.5		100%	20/2
7	CATHODIC PROTECTION RECTIFIER		0.3	100%	20/1	8			0.5	100%	
9	SPARE			100%	20/1	10	SPARE			100%	20/1
11	SPACE			100%	20/1	12	SPARE			100%	20/1
13	SPACE			100%	20/1	14	SPARE			100%	20/1
15	SPACE			100%	20/1	16	SPACE			100%	20/1
17	SPACE			100%	20/1	18	SPACE			100%	20/1
PHASE SUBTOTALS (KVA):		0.5	0.6					1.5	0.8		
					TOTAL						
PHASE TOTALS (CONNECTED KVA):		2.0	1.4		3.4	KVA					
PHASE TOTALS (CONNECTED AMPS):		16.7	11.3		14.0	A					
PHASE TOTALS (DEMAND KVA):		2.0	1.4		3.4	KVA					
PHASE TOTALS (DEMAND AMPS):		0.0	0.0		14.0	A					
MAX PHASE AMPS					16.7	A					
PERCENT LOAD MAX PHASE:					16.7	%					

LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	LAMP TYPE	TOTAL WATTS	1 Ø VOLTS	MOUNTING ARRANGEMENT	DESCRIPTION	CATALOG NUMBER
(A)	LED	62	120	ON TANK	AREA LIGHTING, ENCLOSED AND GASKETED, PRISMATIC FROSTED GLASS, UL LISTED FOR WET LOCATION. SINGLE DRIVER, 2100mA DRIVE CURRENT.	HUBBELL LIGHTING ASL-A-8L-4K-210-5-U-DB-SCPW
(B)	LED	62	120	8 FT POLE	AREA LIGHTING, ENCLOSED AND GASKETED, PRISMATIC FROSTED GLASS, UL LISTED FOR WET LOCATION. SINGLE DRIVER, 2100mA DRIVE CURRENT.	HUBBELL LIGHTING ASL-A-8L-4K-210-5-U-DB-SCPW

SHEET SIZE: 24x36

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SCALES
0 1"
0 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER SANDY SCHUIZE No. E15453 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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APPROVED: DATE: 4/19/24 JOB NUMBER: K/J 2368021*00

SCOTT C. CREER RCE 59879 CITY ENGINEER EXP. 06/30/2025

City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

ELECTRICAL LEGEND, SINGLE LINE DIAGRAM AND SCHEDULES

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 66 OF 76
E-01

East Dunne Avenue

Flaming Oak Lane

(E) TRANSFORMER

3"C

4"C - CAP FOR (F) TERMINATION

CUT (E) STREET PAVING AND REPAIR. ROUTE CONDUITS AS REQUIRED BY PG&E.

PULLBOX BY PG&E SEE NOTE 1

ROUTE ALONG SIDE OF ACCESS ROAD

CONCRETE ENCASE DUCT BENEATH RETAINING WALL FOUNDATION

RESERVOIR ACCESS ROAD

PL

SEE E-03 FOR ENLARGED ELECTRICAL PLAN

(N) E. DUNNE HILLSIDE RESERVOIR

SERVICE PEDESTAL AND PLC PANEL

3"C-PG&E 120/240V SERVICE

4"C. CAP FOR FUTURE TRANSFORMER

IRRIGATION PUMP STATION

FUTURE TRANSFORMER

(F) PUMP STATION

16'-0" WIDE DOUBLE LEAF GATE.

V-DITCH

CONCRETE RETAINING WALL

V-DITCH

B E-06

B

N

ELECTRICAL SITE PLAN

0 10 20 30

1"=20'

NOTE:

1. PULLBOX IS BASED ON THE 3" CONDUIT NEW SERVICE. THE 4" CONDUIT ENTERING THE PULLBOX IS FOR THE FUTURE PUMP STATION. PULLBOX SIZE IS PER PG&E.

Call 811 OR 1-800-227-2600 AT LEAST TWO DAYS BEFORE YOU DIG

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SCALES

0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER SCOTT C. CREER No. E15453 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA

04/19/24

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CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

ELECTRICAL RESERVOIR SITE PLAN

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 67 OF 76

E-02

SHEET SIZE: 24x36

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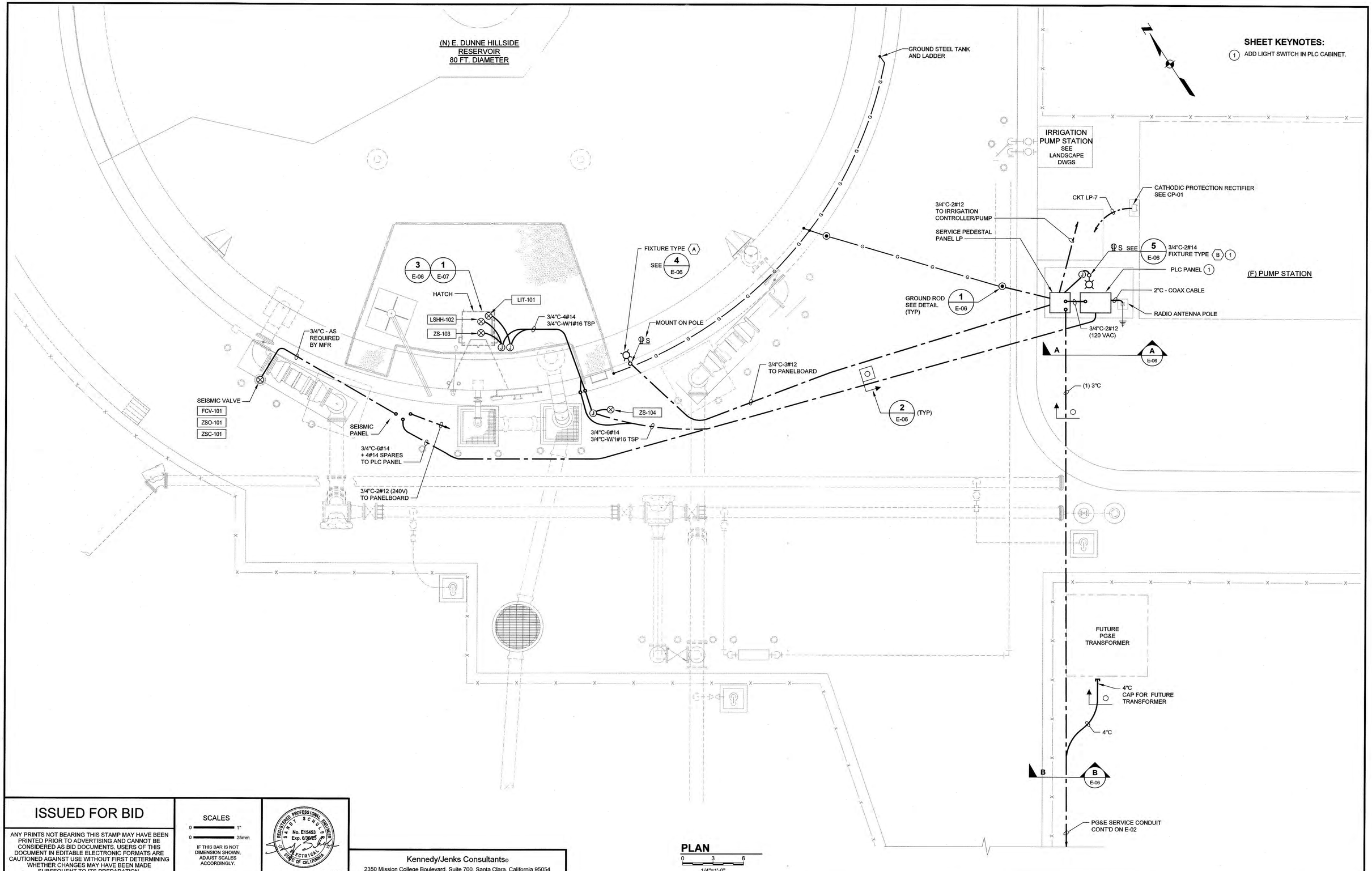

SHEET KEYNOTES:

1. ADD LIGHT SWITCH IN PLC CABINET.

PLAN

0 3 6

1/4"=1'-0"

SHEET SIZE: 24x36

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SCALES

0 1"

0 25mm

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04/19/24

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CITY OF MORGAN HILL

City of Morgan Hill

Public Works Department

100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE
WATER RESERVOIR

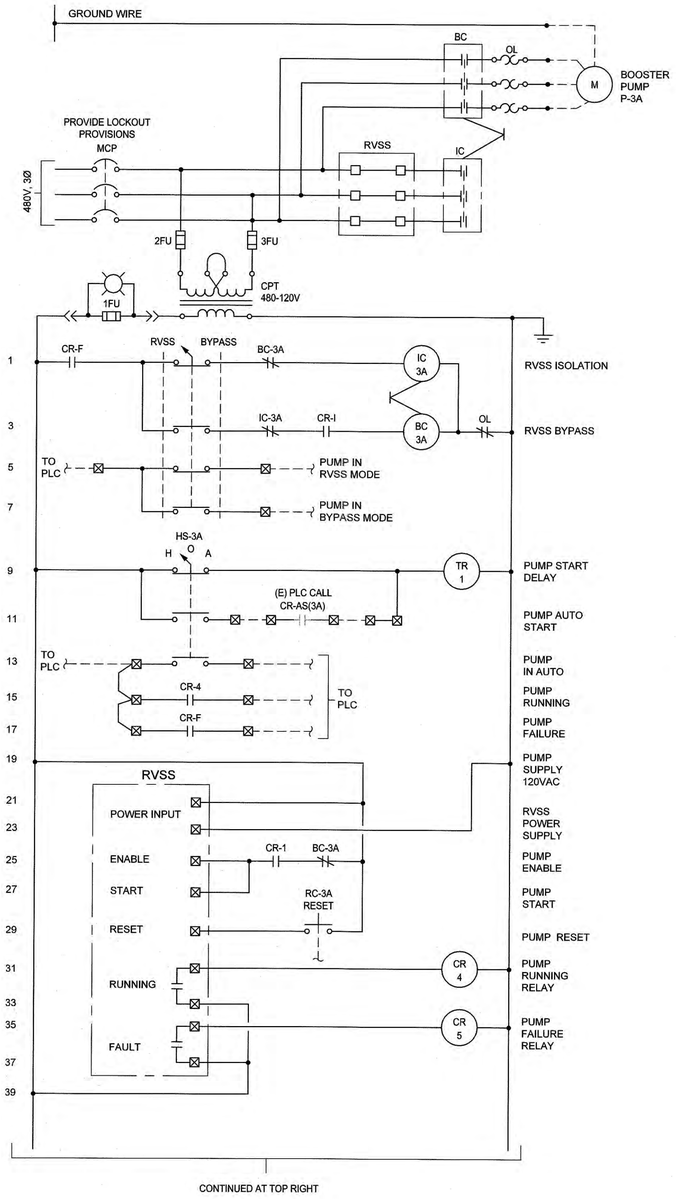
ELECTRICAL RESERVOIR PLAN

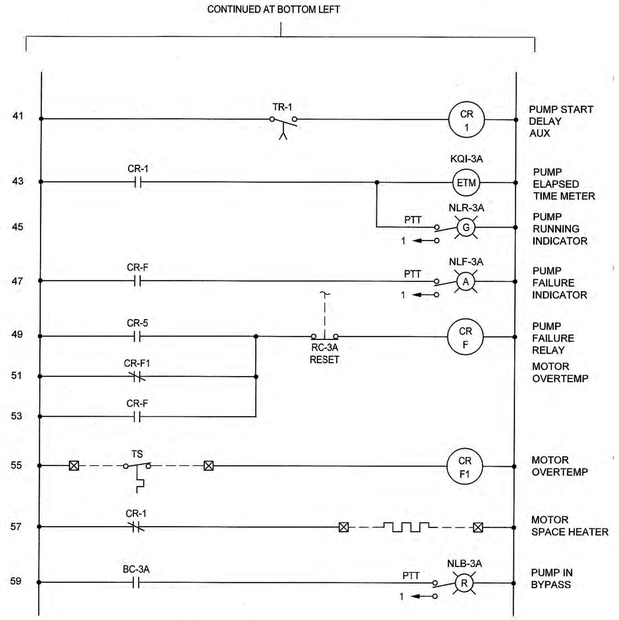
FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 68 OF 76

E-03

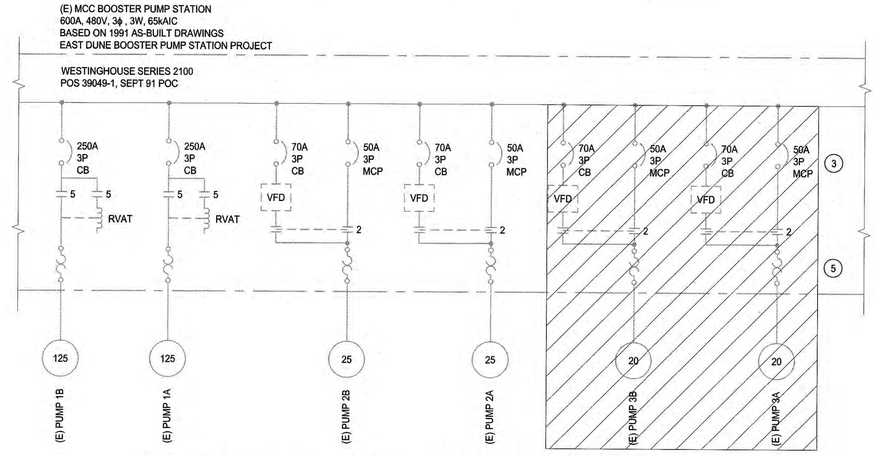




RVSS BOOSTER PUMP WIRING DIAGRAM

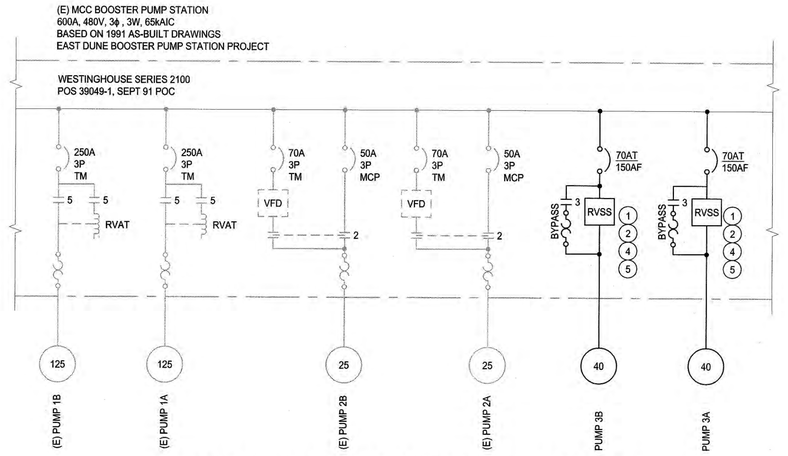
NO SCALE

TYPICAL OF P-3A AND P-3B



EXISTING MCC PARTIAL SINGLE LINE DIAGRAM - DEMOLITION

NO SCALE

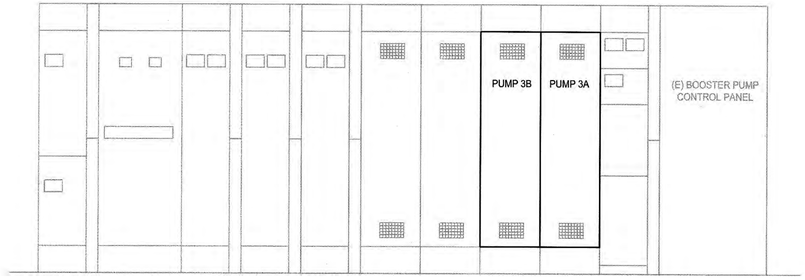


MCC PARTIAL SINGLE LINE DIAGRAM - MODIFIED

NO SCALE

SHEET NOTES:

1. CONTRACTOR SHALL REBUILD THE TWO MOTOR CONTROL CENTER SECTIONS FEEDING (E) PUMPS 3A AND 3B. NEW BUCKET SECTIONS WILL NOT REQUIRE A FULL SECTION. ADD SEPARATE BUCKET FOR SPACES.
2. PROVIDE NEW DOORS FOR REPLACED BUCKETS, NAMEPLATES TO MATCH EXISTING PUMP NAMES, AND NAMEPLATE FOR SPACE.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH OWNERS REGARDING PARTS IN BUCKETS TO BE DEMOLISHED.
4. CONTRACTOR SHALL ONLY HAVE ONE PUMP DOWN AT A TIME AND COORDINATE WITH OPERATIONS UPON PUMP SHUTDOWN SCHEDULE.
5. CONTRACTOR SHALL REMOVE ANY CONTROLS WIRES ASSOCIATED WITH (E) PUMPS 3A AND 3B AND VFD CONTROLS. CONTRACTOR SHALL INSTALL NEW CONTROL WIRES TO EXISTING CONTROL PANEL.



(E) MCC ELEVATION - MODIFIED

NO SCALE

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0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER SANDY SCHUELE No. E15453 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
04/19/24

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City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

ELECTRICAL - (E) BOOSTER PUMP STATION SINGLE LINE AND WIRING DIAGRAMS MODIFICATIONS

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 69 OF 76
E-04

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:39 PM
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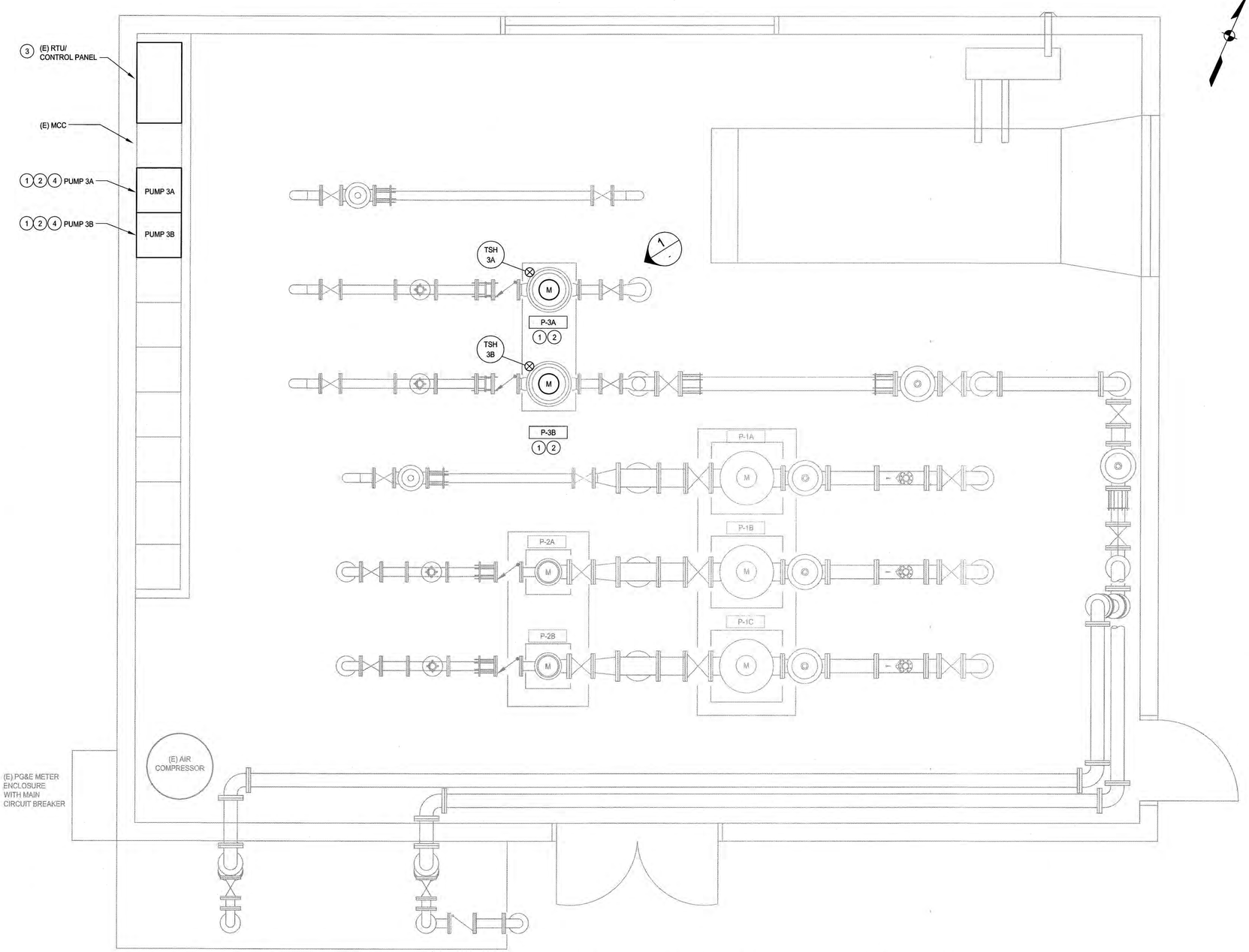

BOOSTER PUMP STATION - MODIFIED POWER/SIGNAL FLOOR PLAN

SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES:

1. BUILDING BACKGROUND IS BASED ON 1991 AS-BUILT DRAWINGS EAST DUNNE BOOSTER PUMP STATION.

SHEET KEYNOTES:

1. REBUILD THE TWO MOTOR CONTROL CENTER SECTIONS. PER SINGLE LINE DIAGRAM. MANDREL AND CLEAN EXISTING CONDUITS.
2. PULL 3#4, 1#6G FROM PUMP TO (E) MCC AND 4#14 FOR MOTOR HEATER AND THERMAL MOTOR SWITCH IN EXISTING CONDUIT.
3. MODIFY EXISTING CONTROL PANEL PER WIRING SCHEMATIC AND SIGNALS ASSOCIATED WITH THE REDUCED VOLTAGE STARTERS. CONTRACTOR SHALL WORK WITH TESCO CONTROLS TO MODIFY THE CONTROL PANEL AND UPDATE THE SCADA SYSTEM. CONTACT PERSON IS ROBERT FLINN.
4. EXTEND 6#14 CONTROL STATUS TO RTU PER WIRING SCHEMATIC ON SHEET E-04.

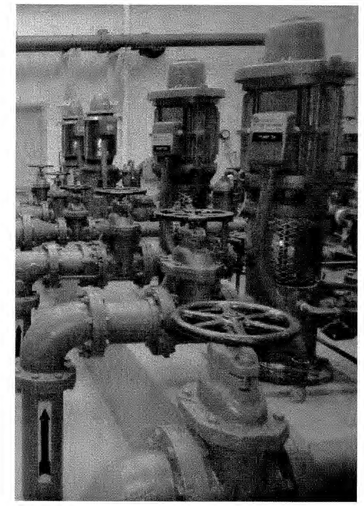

PHOTO 1

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0 1"
0 25mm
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04/19/24

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City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

EAST DUNNE HILLSIDE WATER RESERVOIR

EAST DUNNE BOOSTER PUMP STATION
MODIFIED POWER/SIGNAL FLOOR PLAN

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 70 OF 76
E-05

SHEET SIZE: 24x36
PATRICK TRAN 4/19/2024 2:39 PM
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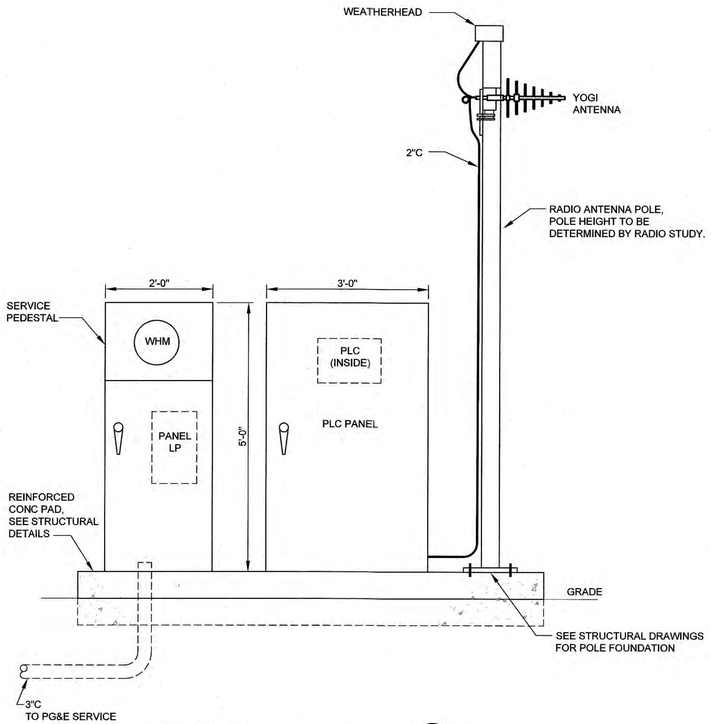


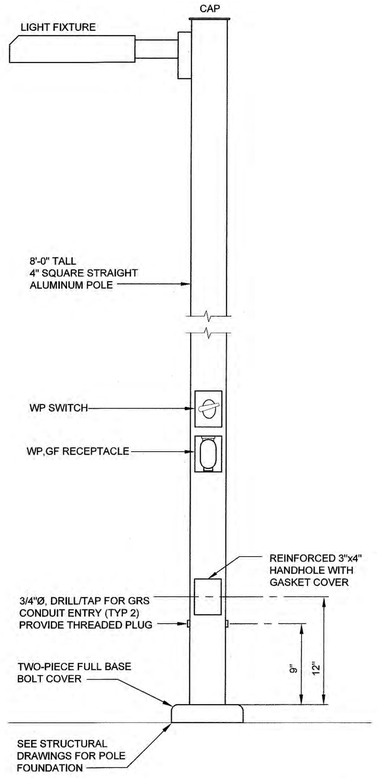
SECTION A

SCALE: 3/4"=1'-0"

DUCT BANK SECTION

NO SCALE

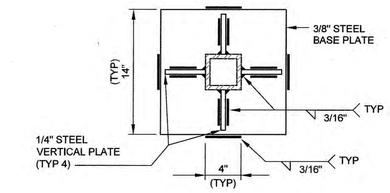
NOTES:
1. ALL DIMENSIONS ARE MINIMUMS.
2. REPLACE ROADWAY MATERIAL WITH LIKE SURFACE MATERIAL.
3. SEE PG&E DESIGN DRAWING.



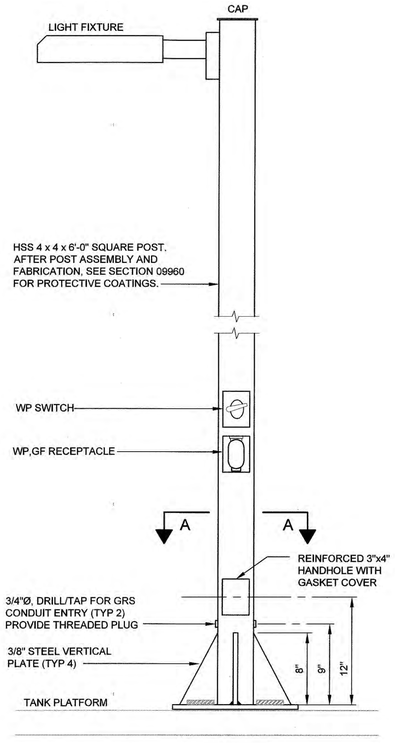
SITE LIGHTING

NO SCALE

NOTES:
1. HOT DIP GALV POLE ASSEMBLY, AFTER FABRICATION.
2. SEE STRUCTURAL DETAIL FOR FOUNDATION AND MOUNTING.
3. SEE STRUCTURAL SPECS FOR PAINT RE-TOUCHING AFTER FIELD WELDING.

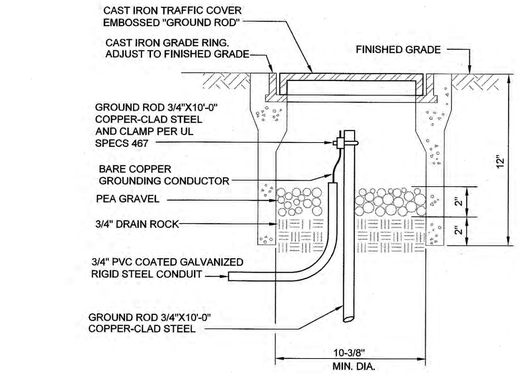


SECTION A



TANK TOP POST LIGHTING

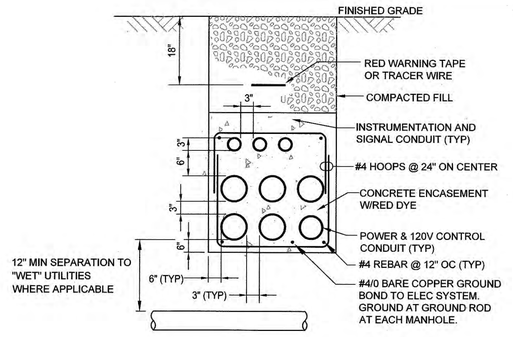
NO SCALE



PRECAST CONCRETE GROUND ROD BOX

SCALE: NONE

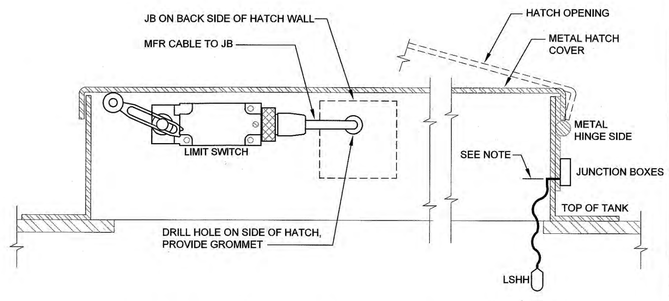
NOTE:
ROD AND FITTINGS SHALL BE COPPER WELD, BLACKBURN OR WEAVER.



TYPICAL REINFORCED DUCT BANK

SCALE: NONE

NOTES:
1. ALL DIMENSIONS ARE MINIMUMS
2. ADD 6" FOR RUNS BENEATH ROADS. REPLACE ROADWAY MATERIAL WITH LIKE SURFACE MATERIAL.
3. AT INTERSECTION WITH STRUCTURE, HOOK #4S INTO THE FOOTING OR WALL (TYP).
4. SEE DUCT BANK SECTIONS OR SCHEDULES FOR DUCT QUANTITIES AND/OR ARRANGEMENT OF DUCTS.



TANK LIMIT SWITCH AND LEVEL SENSOR

NO SCALE

NOTE:
PENETRATION SHOULD BE A MINIMUM OF 4" ABOVE THE TOP OF THE TANK.

SHEET SIZE: 24x36

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0 1"
0 25mm
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REGISTERED PROFESSIONAL ENGINEER SAJID SCHUH No. E15453 Exp. 6/30/25 ELECTRICAL STATE OF CALIFORNIA
04/19/24

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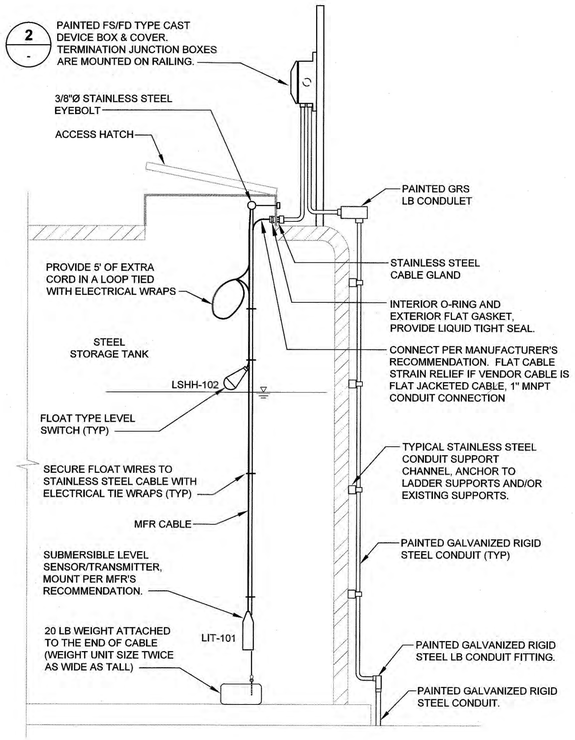
City of Morgan Hill
Public Works Department
100 Edes Ct. Morgan Hill, CA 95037 (408)776-7337, Fax (408)779-6282

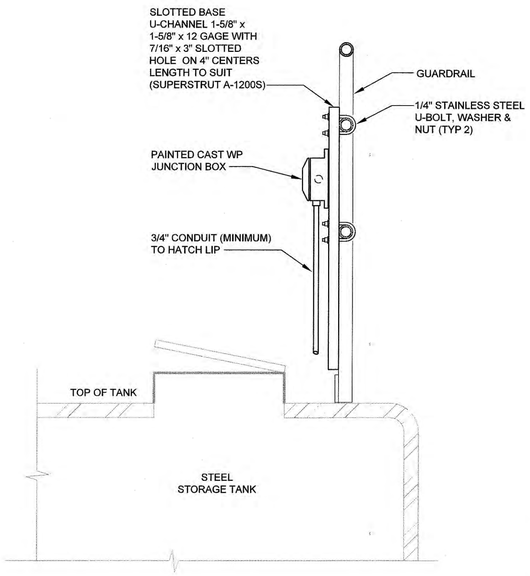
EAST DUNNE HILLSIDE WATER RESERVOIR

ELECTRICAL DETAILS - I

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 71 OF 76
E-06



CONDUIT SUPPORTS AT LADDER AND CONDUIT STUB-UPS AT TANK 1 / E-03
NO SCALE



NOTE:
1. FOR SQUARE OR RECTANGULAR RAILS, MOUNT JUNCTION BOX DIRECTLY TO RAIL. U-CHANNEL IS NOT REQUIRED.

JUNCTION BOX MOUNTED ON GUARDRAIL 2 / -
NO SCALE

SHEET SIZE: 24x36
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c:\bms\kjce-pw\d0257123\1672001-E-07.dwg

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04/19/24

NO.	DESCRIPTION	DATE	BY

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VERT:
APPROVED: DATE: 4/30/24
JOB NUMBER: K/J 2368021*00

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Public Works Department
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EAST DUNNE HILLSIDE WATER RESERVOIR

ELECTRICAL DETAILS - II

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 72 OF 76
E-07

INSTRUMENT SYMBOL IDENTIFIERS

J-1: IDENTIFICATION LETTERS (SEE TABLE BELOW)
J-2: LOOP NUMBER
J-3: VENDOR DESIGNATOR (NOTE 3)
J-4: FUNCTION BLOCK (SEE TABLE BELOW)
J-5: PANEL NUMBER
J-6: HANDSWITCH DESIGNATOR (SEE BELOW)

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL	DAMPER		
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY	SWITCH		
T	TEMPERATURE			TRANSMIT	
U	MULTI VARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, OR LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

GENERAL INSTRUMENT OR FUNCTION SYMBOLS	FIELD MOUNTED	PRIMARY LOCATION ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
DISCRETE INSTRUMENTS	- -	- -	X X	X X
SHARED DISPLAY, SHARED CONTROL	- -	- -	X X	X X
COMPUTER FUNCTION	- -	- -	X X	X X
PROGRAMMABLE LOGIC CONTROL	- -	- -	X X	X X

J-4 FUNCTION BLOCK DESIGNATORS

- Σ SUMMING
- △ DIFFERENCE
- ∫ INTEGRAL
- d/dt DERIVATIVE
- × MULTIPLYING
- ÷ DIVIDING
- */◆ CONVERT:
- √ ROOT EXTRACTION
- √ SQUARE ROOT
- x^n EXPONENTIAL
- > HIGH SELECTING
- < LOW SELECTING
- ± BIAS
- F(X) NONLINEAR OR UNSPECIFIED FUNCTION

* E - VOLTAGE
I - CURRENT
P - PNEUMATIC
A - ANALOG
B - BINARY
H - HYDRAULIC
O - ELECTROMAGNETIC, SONIC
R - RESISTANCE (ELECT)
D - DIGITAL

J-6 HANDSWITCH DESIGNATORS

HOA	HAND-OFF-AUTO	LR	LOCAL-REMOTE
HOR	HAND-OFF-REMOTE	OC	OPEN-CLOSE
F-R	FORWARD-REVERSE	OCA	OPEN-CLOSE-AUTO
1-0	ON-OFF	A/M	AUTO-MANUAL

INSTRUMENT SERVICES

- AS — INSTRUMENT AIR SUPPLY (NOTE 4)
- ES — 120 VAC ELECTRICAL SERVICE (DIFFERENT VOLTAGES ARE SPECIFICALLY NOTED)

PLC INPUT/OUTPUT

- DISCRETE INPUT
- ANALOG INPUT
- DISCRETE OUTPUT
- ANALOG OUTPUT

FLOW PRIMARY ELEMENTS

- ORIFICE PLATE
- SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE
- VENTURI TUBE
- AVERAGING PITOT TUBE
- FLUME
- WEIR
- TURBINE OR PROPELLER-TYPE PRIMARY ELEMENT
- THERMAL MASS FLOWMETER
- POSITIVE DISPLACEMENT TYPE FLOW TOTALIZING INDICATOR
- VORTEX SENSOR
- TARGET TYPE SENSOR
- FLOW NOZZLE
- M — MAGNETIC FLOWMETER
- SONIC FLOWMETER
- ROTAMETER
- ROTAMETER WITH INTEGRAL VALVE
- EDUCTOR

LINES

- MAIN PROCESS
- SECONDARY PROCESS
- I-2 / A — REFERENCES LEAVING SHEET
- LINE CONTINUATION TO DRAWING REFERENCE
- 24" BW — PIPE SYSTEM, PIPE SIZE IN INCHES
- ELECTRICAL SIGNAL
- SOFTWARE OR DATALINK
- PNEUMATIC
- HYDRAULIC
- CAPILLARY TUBE
- ELECTROMAGNETIC OR SONIC (GUIDED)
- MECHANICAL — OR — ELECTRICAL
- CONNECTED
- NOT CONNECTED

VALVES

- GATE VALVE / GATE VALVE CLOSED
- GLOBE VALVE
- PLUG VALVE / PLUG VALVE CLOSED
- CHECK VALVE
- PINCH VALVE
- DIAPHRAGM VALVE
- BUTTERFLY VALVE
- BALL VALVE / BALL VALVE CLOSED
- BALL-CHECK VALVE
- NEEDLE VALVE
- PLUG (COCK)
- PRESSURE REDUCING REGULATING VALVE, SELF-CONTAINED
- BACK PRESSURE REGULATING VALVE, SELF-CONTAINED
- PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP
- 3-WAY VALVE
- 4-WAY VALVE
- ANGLE VALVE
- PRESSURE RELIEF VALVE
- * FC = FAIL CLOSED, FO = FAIL OPEN, LC = LOCKED CLOSED, LO = LOCKED OPEN
- SHADING INDICATES PORT TO BE CLOSED DURING NORMAL OPERATION. DOT INDICATES PORT TO BE CLOSED DURING ALTERNATE OPERATION.
- AIR AND VACUUM RELIEF VALVE (AVRV)

VALVE OPERATORS

- DIAPHRAGM
- CYLINDER OPERATOR
- DIAPHRAGM PRESSURE BALANCED
- S — SOLENOID
- M — MOTOR
- SV — SOLENOID VALVE

TYPICAL CONNECTION

- IN-LINE DEVICE
- DIRECT CONNECTION TO PROCESS
- TEMPERATURE ELEMENT WITH WELL
- RADIATION OR SONIC SENSING
- FILLED SYSTEM, DIAPHRAGM SEAL CONNECTION

MISCELLANEOUS

- FLANGE
- UNION
- Y STRAINER
- FLOW STRAIGHTENING VANE
- TEE
- SCREWED CAP
- WELDED CAP
- BLIND FLANGE
- REDUCER
- HB — HOSE BIBB CONNECTION
- EXPANSION JOINT
- FLEXIBLE COUPLING
- FLANGED COUPLING ADAPTER
- SLUICE GATE OR SLIDE GATE
- DRAIN
- INSTRUMENT
- DIAPHRAGM SEAL
- RUPTURE DISK, PRESSURE
- RUPTURE DISK, VACUUM
- P — PURGE
- THERMOMETER WELL
- CALIBRATION CYLINDER
- PULSATION DAMPER
- AIR RELIEF VALVE
- AIR RELEASE
- LEVEL PROBE
- CHEMICAL DIFFUSER
- STATIC MIXER
- INJECTOR
- EDUCTOR
- 1 / 2 — INTERLOCK. NUMBER IS THE CROSS REFERENCE TO A SPECIFIC ELEMENTARY DIAGRAM OR TO A SPECIFIC CONTROL STRATEGY DESCRIBED IN THE SPECS
- T - TRAP
- * AV - AIR VALVE, F - FILTER, FH - FIRE HYDRANT
- WATER LINE
- GRAVITY FLOW

EQUIPMENT

- MIXER
- VERTICAL TURBINE PUMP
- INLINE VERTICAL PUMP
- SUBMERSIBLE PUMP
- PUMP BLOWER
- PUMP
- METERING PUMP
- PUMP PROGRESSIVE CAVITY
- ROTARY PUMP
- PERISTALTIC PUMP

NOTES:

1. THIS IS A GENERALIZED LEGEND SHEET.
2. SEE ALSO ISA S5.1, S5.3 AND S7.3.
3. INSTRUMENTS MARKED WITH AN ASTERISK ON THE PID ARE FURNISHED WITH THE EQUIPMENT.
4. REFER TO ISA RP7.7 FOR INSTRUMENT AIR QUALITY STANDARDS.

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SCALES
0 — 1"
0 — 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.

REGISTERED PROFESSIONAL ENGINEER — STEPHAN KOMELIUK — No. E23895 — Exp. 03-31-24 — ELECTRICAL — STATE OF CALIFORNIA
04/19/24

NO.	DESCRIPTION	DATE	BY

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City of Morgan Hill
Public Works Department
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EAST DUNNE HILLSIDE WATER RESERVOIR

PROCESS AND INSTRUMENTATION LEGEND

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 73 OF 76
I-01

SHEET SIZE: 24x36
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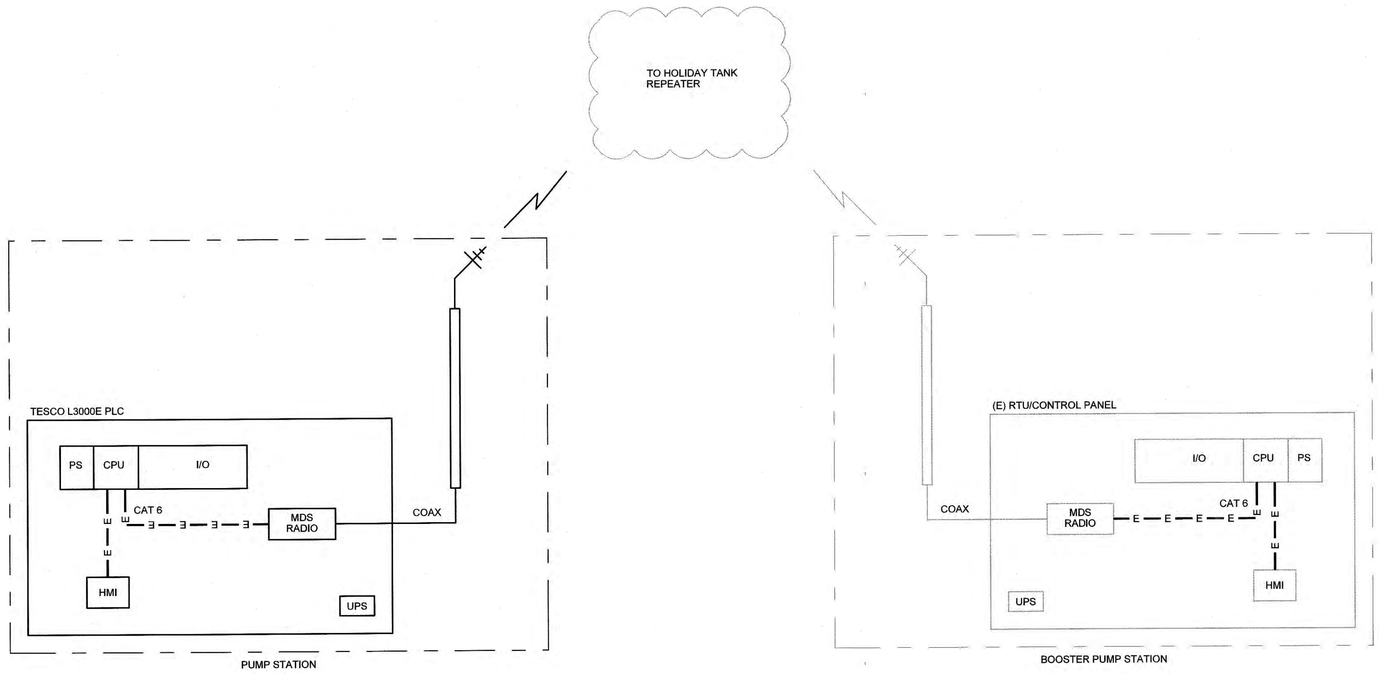

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0 1"

0 25mm

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REGISTERED PROFESSIONAL ENGINEER
STEPHAN KOMELIUK
No. E23895
Exp. 03-31-24
ELECTRICAL
STATE OF CALIFORNIA
04/19/24

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EAST DUNNE HILLSIDE
WATER RESERVOIR

NETWORK DIAGRAM

FILE NUMBER:

PRINT DATE: APRIL 2024

SHEET: 74 OF 76

I-02

(E) CITY SCADA

TESCO L3000E PLC

DISCHARGE VALVE OPEN ZIO 101 — ZIO 101
DISCHARGE VALVE CLOSED ZIC 101 — ZIC 101
SEISMIC ALARM HS 101 — HS 101
LOW LEVEL ALARM LAL 101
LOW LOW LEVEL ALARM LALL 101
HIGH LEVEL ALARM LAH 101
LEVEL LI 101 — LI 101
OVERFLOW ALARM LAHH 102 — LAHH 102
HATCH INTRUSION ZIO 103 — ZIO 103
LADDER INTRUSION ZIO 104 — ZIO 104
POWER FAIL YA 101 — YA 101
BATTERY LOW FAL 101 — FAL 101
UPS FAIL JAF 101 — JAF 101

YI 101 — UPS — 120V
TESCO L3000E PLC

SEISMIC SENSOR ACTUATED VALVE CONTROLLER
120V
HS 101 O/C/A
ZSO 101
ZSC 101
M 120V

ON HATCH
ZS 103
VENT
LSHH 102
16" OF
ON LADDER AT ENTRANCE
ZS 104
WATER TANK
LIT 101
12" D
NC
MANHOLE

IRRIGATION PUMP CONTROL PANEL 120V
M
IRRIGATION PUMP
RPBFP
-
16"
STORM DRAIN

FROM E. DUNNE BOOSTER PUMP STATION/ HOLIDAY ZONES 2 & 3
-
16"
16" (INLET)
FCV 101
10"
16" (OUTLET)
12"
TO (F) PUMP STATION

FROM (F) PUMP STATION
12"
12"
DISTRIBUTION TO HOLIDAY 1 & 2 RESERVOIRS (HIGH PRESSURE)

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0 25mm
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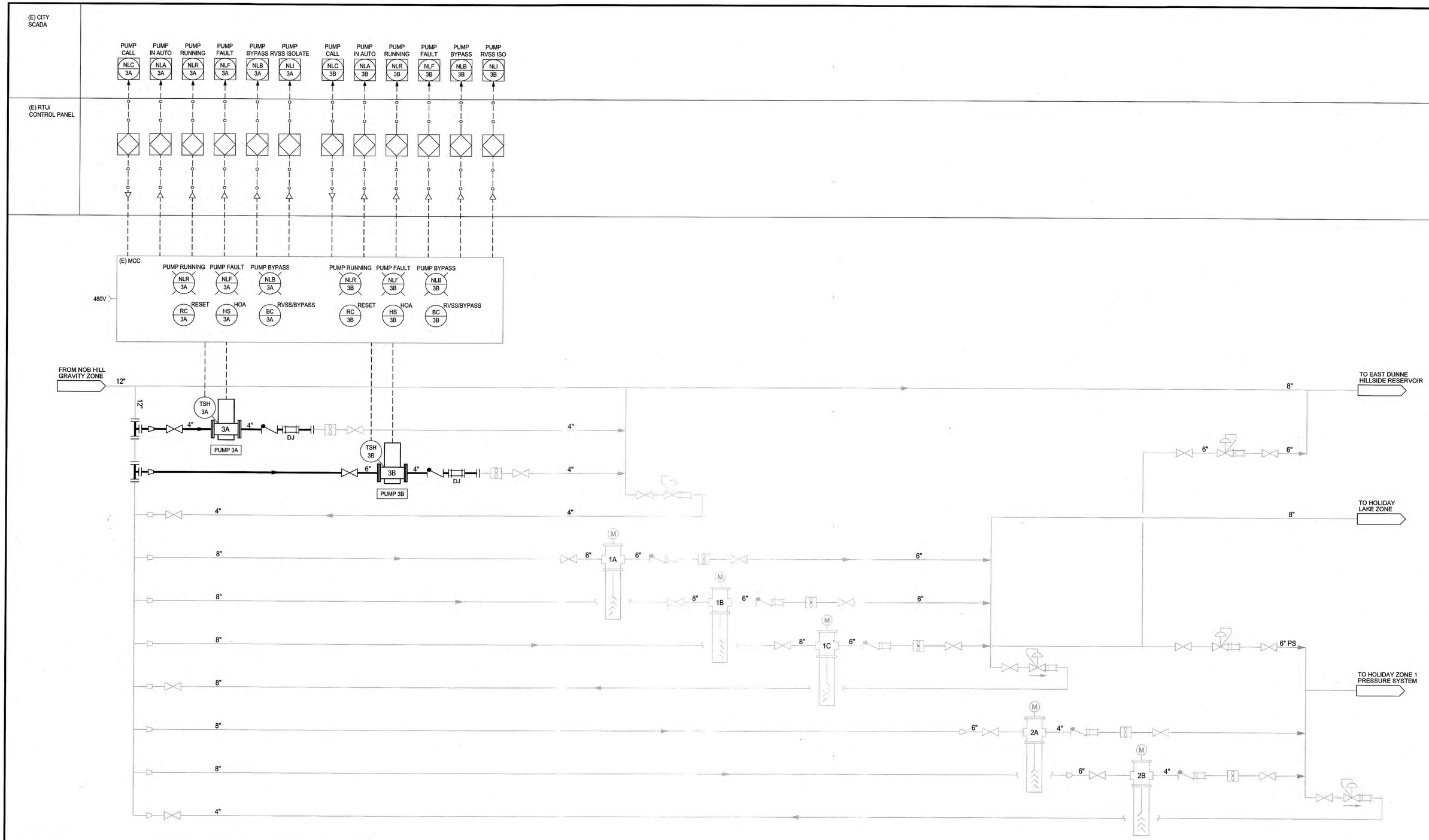
EAST DUNNE HILLSIDE WATER RESERVOIR

PROCESS AND INSTRUMENTATION DIAGRAM WATER STORAGE TANK

FILE NUMBER:
PRINT DATE: APRIL 2024
SHEET: 75 OF 76
I-03



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EAST DUNNE HILLSIDE WATER RESERVOIR

PROCESS AND INSTRUMENTATION DIAGRAM BOOSTER PUMP STATION

FILE NUMBER:
PRINT DATE: APRIL 2024
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I-04