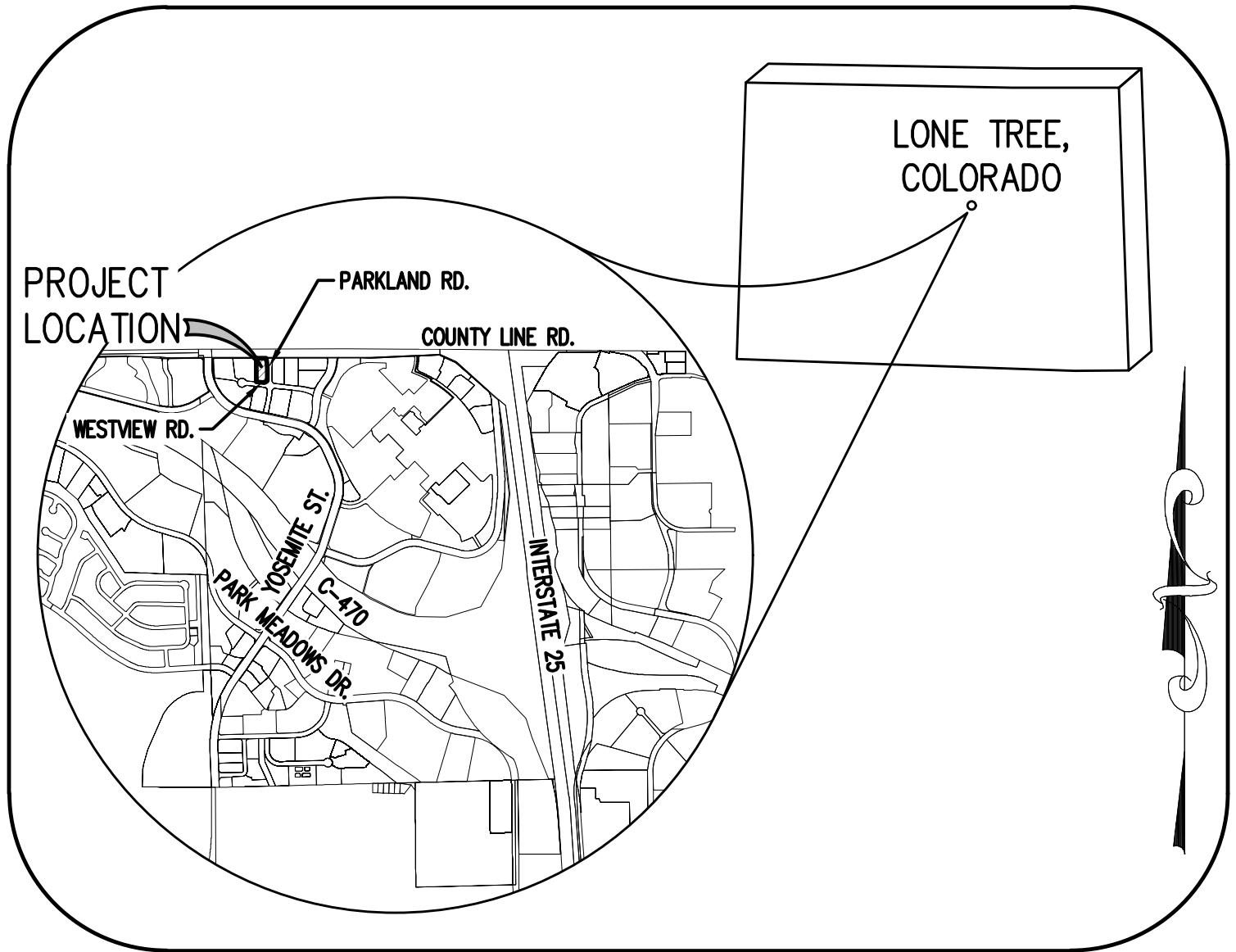


SITE DEVELOPMENT PLANS FOR MURPHY USA (NTI) LONE TREE, COLORADO 9091 WESTVIEW RD (MURPHY #25181)



VICINITY MAP
1"=2000'

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GALLOWAY & COMPANY, INC.
5500 GREENWOOD VILLAGE BLVD., SUITE 200
GREENWOOD VILLAGE, CO 80111
(303) 770-8884
CONTACT: JOE PARK

BASED ON SURVEY BY:
GALLOWAY & COMPANY, INC.
1155 KELLY JOHNSON BLVD., SUITE 305
COLORADO SPRINGS, CO 80920
EMAIL: JOHNHOUSTON@GALLOWAYUS.COM
PHONE: (719) 337-7232
DATE: 01/29/26

RESOURCE LIST

PLANNING & ZONING

CITY PLANNING
9220 KIMMER DR., SUITE 100
LONE TREE, CO 80124
CONTACT: ROSHANA FLOYD
(303) 708-1818

STORMWATER

STORMWATER MANAGEMENT
9220 KIMMER DR., SUITE 100
LONE TREE, CO 80124
(303) 708-1818

ELECTRIC

XCEL ENERGY
2070 S VALENTIA ST
DENVER, CO, 80231
(303) 671-3830

SEWER & WATER

SOUTHGATE WATER & SANITATION DISTRICT
3722 E ORCHARD ROAD
CENTENNIAL, CO 80121
(303) 779-0261

TANK AND PRODUCT PIPING

GALLOWAY & COMPANY, LLC
5500 GREENWOOD PLAZA BLVD SUITE 200
GREENWOOD VILLAGE, 80111
CONTACT: DAVE JONES
(303) 962-8506

HEALTH DEPARTMENT

DOUGLAS COUNTY HEALTH DEPARTMENT
11045 E LANSING CIRCLE, 3RD FLOOR
ENGLEWOOD, CO 80112
(720) 643-2400

GEOTECHNICAL

UNITED CONSULTING
625 HOLCOMB BRIDGE ROAD
NORCROSS, GA300071
CONTACT:NHAN "YUNG" DANG
(720) 209-0029

BUILDING CANOPY MANUFACTURER

FREY MOSS STRUCTURES
1801 ROCKDALE INDUSTRIAL BLVD.
CONYERS, GEORGIA 30012
CONTACT: JENNIFER GOODMAN
(770) 483-7543 EXT. 151

BUILDING/CANOPY DESIGN

GREENBERG FARROW
3 EXECUTIVE DRIVE, SUITE 150
SOMERSET, NJ 08873
CONTACT: CHRIS CERBO
(732) 537-0832

OWNER

MURPHY OIL USA, INC.
200 PEACH STREET
EL DORADO, AR 71730
PM: GRANT DENNIS
(870) 315-3430

CIVIL ENGINEER

GALLOWAY & COMPANY, INC.
5500 GREENWOOD PLAZA BLVD., SUITE 200
COLORADO SPRINGS, CO 80920
CONTACT: JOE PARK, P.E.
(303) 770-8884

LANDSCAPE

GALLOWAY & COMPANY, INC.
1155 KELLY JOHNSON BLVD., SUITE 305
COLORADO SPRINGS, CO 80920
CONTACT: JON ROMERO, P.L.A.
(719) 308-2532

FIRE DEPARTMENT

SOUTH METRO FIRE RESCUE
9195 E MINERAL AVE
CENTENNIAL, CO 80112
(720) 989-2000

ENGINEERING CERTIFICATION NOTE

THESE CONSTRUCTION PLANS FOR MURPHY OIL USA WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION I) IN ACCORDANCE WITH THE REQUIREMENTS OF DOUGLAS COUNTY'S ROADWAY DESIGN AND CONSTRUCTION STANDARDS, STORM DRAINAGE AND TECHNICAL CRITERIA, AND THE GRADING, EROSION AND SEDIMENT CONTROL MANAGER.

JOSEPH D. PARK, P.E.
GALLOWAY & COMPANY, LLC.

GENERAL NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR RAZING AND REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, UNDERGROUND STORAGE TANKS AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED.
- CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
- THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
- SAFETY NOTICE TO CONTRACTOR:** IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY AND SECURITY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.
- ALL CONSTRUCTION WITHIN STATE HIGHWAY DEPARTMENT RIGHT-OF-WAY SHALL BE COORDINATED WITH THE HIGHWAY DEPARTMENT RESIDENT MAINTENANCE ENGINEER.
- ALL SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE RELEVANT UTILITY COMPANY OR REGULATORY AUTHORITY, AND THE SPECIFICATIONS FOR THE CONSTRUCTION OF THE EXISTING IMPROVEMENTS WHICH ARE BEING ALTERED OR REPLACED. CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIFICATION SECTIONS FOR ITEMS SUCH AS LANDSCAPING AND IRRIGATION THAT ARE AFFECTED BY THE WORK BUT NOT COMPLETELY DETAILED OR SPECIFIED ON THESE PLANS.
- CONSTRUCTION AND INSTALLATION OF 2,824 SF BUILDING, ALL UTILITY ENTRANCES AND (1) 25,000 GALLON & (1) 26,000 GALLON UNDERGROUND TANKS SHALL BE IN ACCORDANCE WITH ASSOCIATED PLANS.
- THE GENERAL CONTRACTOR TO COORDINATE THE CANOPY SIGN LOCATIONS AND FREE-STANDING SIGNAGE WITH MURPHY'S DEVELOPMENT PROJECT MANAGER AND SIGN COMPANY.

NOTES TO CONTRACTOR

- THE CONTRACTOR SHALL PROVIDE THE ENGINEER OF RECORD WITH THE DATE WHEN CONSTRUCTION IS TO BEGIN.
- THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION STAKING AND LAYOUT.
- THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE ENGINEER OF RECORD OF ANY DEVIATIONS DURING CONSTRUCTION AND SHALL REPORT THEM IMMEDIATELY.
- CONTRACTOR IS REQUIRED TO KEEP REDLINE AS-BUILTS AND TO PROVIDE THOSE TO MURPHY UPON COMPLETION.
- CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING THE AS-BUILT AND CERTIFICATE OF OCCUPANCY (C.O.) REQUIREMENTS FOR THE ISSUING AUTHORITY.
- IF AN ELEVATION CERTIFICATE OR AS-BUILT SURVEY IS REQUIRED BY THE ISSUING AUTHORITY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SCHEDULING OF THE SURVEY WITH THE CIVIL CONSULTANT PRIOR TO DEADLINE FOR OBTAINING THE C.O. AND AFTER NECESSARY COMPLETED WORK TO BE SHOWN ON SURVEY.

PROPERTY DESCRIPTION

LOT 3, PARK MEADOWS TOWN CENTER FILING NO. 1-A, 3RD AMENDMENT, ACCORDING TO THE PLAT THEREOF RECORDED MAY 14, 1996 AT RECEPTION NO. 9625832. COUNTY OF DOUGLAS, STATE OF COLORADO.

THE ABOVE DESCRIPTION CONTAINS 42,332 SQUARE FEET OR 0.97 ACRES, MORE OR LESS

BENCHMARK (VERTICAL) INFORMATION

DOUGLAS COUNTY, COLORADO, SURVEY CONTROL MONUMENT AND NATIONAL GEODETIC SURVEY (NGS) BENCHMARK, DESIGNATION "JOG".
DESCRIPTION: 3.25" BRASS CAP STAMPED, "HORIZONTAL CONTROL MARK THE DIRECTOR NATION GEODETIC SURVEY, JOG, 1977" IN A CONCRETE COLUMN.
NGS DATASHEET STATION RECOVER DESCRIPTION: "RECOVERY NOTE BY WOOLPERT CONSULTANTS 2010 (DJK). STATION IS FLUSH. RIGHT-OF-WAY FENCE IS NOT IN PLACE. MARK IS ABOUT 35 FT (10.7M) WEST SOUTHWEST OF THE WESTERLY EDGE OF A PAVED PARKING LOT, ABOUT 30 FT (9.1M) NORTH OF AN ELECTRICAL CONTROL BOX, ABOUT 5 FT (1.5M) WEST OF A CARSONITE WITNESS POST AND ABOUT 3 FT (.09M) EAST OF A STEEL FENCE POST."
ELEVATION = 5893.36' (NAVD88)

ON-SITE BENCHMARK #1
NO. 5 REBAR W/ GREEN PLASTIC CAP STAMPED, "GALLOWAY CONTROL", LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF PARKLAND ROAD AND WESTVIEW ROAD, APPROXIMATELY 27.0' EAST OF THE POINT OF TANGENT OF THE BACK OF A CONCRETE CURB AND APPROXIMATELY 68.0' NORTHEAST OF A SANITARY SEWER MANHOLE LOCATED IN THE INTERSECTION OF SAID ROADS.
ELEVATION = 5793.64'

ON-SITE BENCHMARK #2
CHISELED "X" ON THE NORTHEAST END OF A CONCRETE CURB AT THE BACK OF A HANDICAP RAMP, LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF PARKLAND ROAD AND WESTVIEW ROAD, APPROXIMATELY 6.0' NORTHEAST OF A LIGHT POLE AND APPROXIMATELY 137.1' SOUTHWEST OF A STOP SIGN.
ELEVATION = 5793.17

BASIS OF BEARINGS

ALL BEARINGS ARE GRID BEARINGS OF THE COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983. THIS BEARING IS BASED ON THE NORTH RIGHT-OF-WAY LINE OF WESTVIEW ROAD AND IS CONSIDERED TO BEAR N84°09'52"W, MONUMENTED ON THE EAST END OF THE LINE BY A FOUND NO. 5 REBAR WITH NO CAP, AND ON THE WEST END OF THE LINE BY A FOUND NO. 5 REBAR WITH A 1.25" YELLOW PLASTIC CAP STAMPED, "BENCHMARK LS 16401."

WETLANDS NOTE

ANY DEVELOPMENT, EXCAVATION, CONSTRUCTION, OR FILLING IN A U.S. ARMY CORPS OF ENGINEERS DESIGNATED WETLAND IS SUBJECT TO LOCAL, STATE AND FEDERAL APPROVALS. THE CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS AND/OR RESTRICTIONS AND ANY VIOLATION WILL BE SUBJECT TO FEDERAL PENALTY. THE CONTRACTOR SHALL HOLD THE OWNER/DEVELOPER, THE ENGINEER AND THE LOCAL GOVERNING AGENCIES HARMLESS AGAINST SUCH VIOLATION.

FLOOD CERTIFICATION

THIS PROPERTY IS NOT LOCATED WITHIN ANY PRESENTLY ESTABLISHED 100-YEAR FLOOD PLAIN, AS SHOWN BY THE FEDERAL MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP FOR THE CITY OF LONE TREE, COMMUNITY PANEL NUMBER 0034G, DATED 3/16/2016.

NOTICE TO BIDDERS

ALL QUESTIONS REGARDING THE PREPARATION OF THE GENERAL CONTRACTOR'S BID SHALL BE DIRECTED THROUGH MURPHY'S CONSTRUCTION WEBSITE (HTTPS://MURPHYUSA.PROJECTMATES.COM/) INCLUDING Q&A, RFI'S, BID SUBMISSION, CHANGE ORDER REQUESTS, ETC. ONCE AWARDED THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S PROJECT MANAGER. SUBCONTRACTORS MUST DIRECT THEIR QUESTIONS THROUGH THE GENERAL CONTRACTOR. THE CONSULTING ARCHITECT AND/OR THE CONSULTING ENGINEER SHALL NOT BE CONTACTED DIRECTLY WITHOUT PRIOR AUTHORIZATION FROM THE OWNER/DEVELOPER.

ENGINEERING CERTIFICATION NOTE:

THESE CONSTRUCTION PLANS FOR MURPHY OIL USA WERE PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF LONE TREE, DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS, STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA, AND THE GRADING, EROSION AND SEDIMENT CONTROL MANUAL.

JOE PARK
COLORADO P.E. NO. 42470
GALLOWAY & COMPANY, LLC.
5500 GREENWOOD PLAZA BLVD, SUITE 200
GREENWOOD VILLAGE, CO 80111

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

JOB NO.: MOC148

DATE SHEET NO.

7/31/2026

C-0

CITY OF LONE TREE GENERAL NOTES

1. THE CITY OF LONE TREE ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE ENGINEERING DIVISION HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL CONFORMANCE WITH THE CITY OF LONE TREE SUBDIVISION RESOLUTION OR APPROVED VARIANCES TO THOSE REGULATIONS. THE CITY OF LONE TREE ENGINEER, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY, OTHER THAN STATED ABOVE, FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS. THE OWNER AND ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE IS AFFIXED TO THIS DOCUMENT.
2. ALL ROADWAY CONSTRUCTION SHALL CONFORM TO CURRENT DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS.
3. ALL MATERIAL AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE CITY OF LONE TREE ENGINEERING DIVISION. THE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.
4. THE CONTRACTOR SHALL NOTIFY THE CITY OF LONE TREE PUBLIC WORKS, INSPECTION SECTION, (303) 662-8112, A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO STARTING CONSTRUCTION, AND/OR BEFORE RESTARTING CONSTRUCTION AFTER A SHUTDOWN OF MORE THAN 10 DAYS.
5. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ACTUAL CONSTRUCTION. FOR INFORMATION, CONTACT: UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT (800) 922-1987 OR 811.
6. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY (SIGNED BY BOTH THE DESIGN AND ENGINEER AND CITY OF LONE TREE) OF THE CONSTRUCTION PLANS AND GESC REPORT AND PLAN, AND ONE (1) COPY OF THE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS AT THE JOB SITE AT ALL TIMES.
7. ALL PROPOSED STREET CUTS TO EXISTING PAVEMENTS FOR UTILITIES, STORM SEWER, OR OTHER PURPOSES ARE LISTED AND REFERENCED BELOW:
- STORM SEWER CONNECTION, SHEET C4.2.
8. A R.O.W./CONSTRUCTION PERMIT MUST BE OBTAINED BEFORE ANY WORK WITHIN EXISTING OR PROPOSED PUBLIC R.O.W. THE PERMIT APPLICATION MUST BE SUBMITTED TO THE CITY OF LONE TREE ENGINEER FOR REVIEW/PROCESSING A MINIMUM OF 7 DAYS PRIOR TO REQUESTED START FOR THE WORK IN THE R.O.W.
9. A PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE SUBMITTED TO THE CITY OF LONE TREE ENGINEER FOR ACCEPTANCE WITH THE PERMIT APPLICATION. AN EXCAVATION OR PUBLIC IMPROVEMENT CONSTRUCTION PERMIT WILL NOT BE ISSUED WITHOUT AN APPROVED TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION.
10. THE CONSTRUCTION PLANS SHALL BE CONSIDERED VALID FOR TWO (2) YEARS FROM THE DATE OF CITY OF LONE TREE ACCEPTANCE/APPROVAL. IF APPLICABLE CONSTRUCTION PERMITS HAVE NOT BEEN OBTAINED, AND CONSTRUCTION STARTED WITHIN THAT TIME, THESE PLANS SHALL BE VOID AND WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY THE CITY OF LONE TREE.
11. CONTRACTOR SHALL NOTIFY THE CITY OF LONE TREE ENGINEER INSPECTOR WHEN WORKING OUTSIDE OF THE PUBLIC RIGHT-OF-WAY ON ANY FACILITY WHICH WILL BE CONVEYED TO THE CITY, URBAN DRAINAGE AND FLOOD CONTROL DISTRICT, OR OTHER SPECIAL DISTRICT FOR MAINTENANCE (STORM SEWER, ENERGY DISSIPATORS, DETENTION OUTLET STRUCTURES, OR OTHER DRAINAGE INFRASTRUCTURES). FAILURE TO NOTIFY ENGINEERING INSPECTOR TO ALLOW THEM TO INSPECT THE CONSTRUCTION MAY RESULT IN NON-ACCEPTANCE OF THE FACILITIES/ INFRASTRUCTURE BY CITY AND/OR URBAN DRAINAGE.

SOUTHGATE WATER SYSTEM -- GENERAL NOTES

1. ALL WATER LINES, SYSTEM PLANS, AND CONSTRUCTION WILL CONFORM TO THE CURRENT SOUTHGATE WATER DISTRICT SYSTEM SPECIFICATIONS AND THE DENVER WATER ENGINEERING STANDARDS, AND ARE SUBJECT TO CONSTRUCTION OBSERVATION BY SOUTHGATE PERSONNEL OR A SOUTHGATE REPRESENTATIVE. A COPY OF SOUTHGATE'S SPECIFICATIONS ARE AVAILABLE AT WWW.SOUTHGATEDISTRICTS.ORG.
2. ONLY AFTER CONSTRUCTION PLANS HAVE BEEN REVIEWED AND APPROVED BY SOUTHGATE, THE OWNER, THE OWNER'S ENGINEER OR CONTRACTOR, WILL SCHEDULE A PRE-CONSTRUCTION MEETING WITH SOUTHGATE AT LEAST 2 BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION. APPROVED CONSTRUCTION PLANS, SIGNED BY THE DISTRICT MANAGER AND DISTRICT ENGINEER WILL BE DISTRIBUTED AT THE PRE-CONSTRUCTION MEETING.
3. CONSTRUCTION WILL NOT BE PERMITTED TO START UNTIL ALL EASEMENT ARE SIGNED AND RECORDED AND THE PRE-CONSTRUCTION MEETING HAS BEEN HELD.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE PROCUREMENT OF ALL PERMITS FOR THE CONSTRUCTION OF MAIN AND SERVICES. ALL PERMITS MUST BE APPROVED AND FEES MUST BE PAID PRIOR TO CONSTRUCTION STARTING.
5. SOUTHGATE REQUIRES 2 BUSINESS DAYS NOTICE PRIOR TO START OF CONSTRUCTION AND NOTIFICATIONS OF ANY BREAK IN CONSTRUCTION (DUE TO WEATHER, SCHEDULING, ETC.) AND WHEN CONSTRUCTION WILL RESUME.
6. SOUTHGATE REQUIRES 2 BUSINESS DAYS NOTICES PRIOR TO ANY OVERTIME WORKED ON A WEEKDAY. COSTS INCURRED BY SOUTHGATE ASSOCIATED WITH CONSTRUCTION OVERTIME WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. A COPY OF EACH OF ALL SURVEY CUT SHEETS MUST BE SUBMITTED TO SOUTHGATE AND TO THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL CONTACT ALL APPROPRIATE UTILITY COMPANIES FOR NOTIFICATION AND LOCATES PRIOR TO CONSTRUCTION COMMENCING. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES AND COSTS THAT RESULT BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES, INCLUDING SOUTHGATE UTILITIES.
9. SOUTHGATE OR ITS REPRESENTATIVE IS NOT A GUARANTOR OF THE CONSTRUCTION CONTRACTOR'S OBLIGATIONS AND PERFORMANCE OF CONTRACT.
10. OBSERVATIONS OF WORK IN PROGRESS AND ON-SITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY SOUTHGATE OR SOUTHGATE'S REPRESENTATIVE OF THE CONTRACTORS' PERFORMANCE.

CITY OF LONE TREE STRIPING AND SIGNAGE NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT VERSION OF THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE "COLORADO SUPPLEMENTAL MUTCD" AND THE DOUGLAS COUNTY "ROAD AND CONSTRUCTION STANDARDS MANUAL". FURTHER SPECIFICATIONS AND ILLUSTRATIONS ARE LOCATED IN THE COLORADO DIVISION OF HIGHWAYS "M AND S STANDARDS".
2. DELINEATION OF ROADWAYS SHALL BE AS SPECIFIED IN THE COLORADO "M AND S MANUAL".
3. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN. STREET NAME SIGNS SHALL BE MOUNTED SO THAT THEY CAN BE SEEN FROM ALL DIRECTIONS OF TRAVEL.
4. INSTALLATION OF SIGNS SHALL CONFORM TO THE MUTCD MOUNTING HEIGHT REQUIREMENTS, INCLUDING A 7-FOOT MINIMUM HEIGHT FROM THE BOTTOM OF THE LOWEST SIGN PANEL TO THE TOP GRADE OF SIDEWALK.
5. ALL NEWLY INSTALLED TRAFFIC SIGNS SHALL MEET THE MINIMUM RETRO-REFLECTIVITY AND ILLUMINATION STANDARDS AS SET FORTH BY THE MUTCD (LATEST EDITION). THESE MINIMUM REQUIREMENTS SHALL FALL UNDER THE REQUIREMENTS OF THE TWO (2) YEAR WARRANTY PERIOD FOR NEW CONSTRUCTION.
6. DIAMOND GRADE MATERIAL SHALL BE USED ON ALL STOP SIGNS.
7. THE CONTRACTOR INSTALLING SIGNS IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND UTILITIES. LONE TREE PUBLIC WORKS SHALL BE CONTACTED A MINIMUM OF 72 HOURS PRIOR TO INSTALLATION AT 303-662-8112.
8. FOLLOWING INSTALLATION, THE CONTRACTOR SHALL NOTIFY THE CITY OF LONE TREE PUBLIC WORKS DEPARTMENT, 303-662-8112. A FIELD INSPECTION OF LOCATION AND INSTALLATION OF ALL SIGNS SHALL BE PERFORMED BY PUBLIC WORKS. ALL DISCREPANCIES IDENTIFIED DURING THE FIELD INSPECTION MUST BE CORRECTED BEFORE THE TWO-YEAR WARRANTY PERIOD WILL BEGIN.
9. SIGNAGE AND STRIPING HAS BEEN DETERMINED BY INFORMATION AVAILABLE AT THE TIME OF REVIEW. PRIOR TO INITIATION OF THE WARRANTY PERIOD, LONE TREE RESERVES THE RIGHT TO REQUIRE MODIFICATIONS TO EXISTING OR INSTALLATION OF ADDITIONAL SIGNAGE AND/OR STRIPING IF THEY DETERMINE THAT AN UNFORESEEN CONDITION WARRANTS SUCH MODIFICATION ACCORDING TO THE MUTCD OR THE CDOT M AND S STANDARDS. ALL SIGNAGE AND STRIPING SHALL FALL UNDER THE REQUIREMENTS OF THE TWO (2) YEAR WARRANTY PERIOD FOR NEW CONSTRUCTION.
10. FINAL STRIPING AND CROSSWALK LAYOUT TO BE APPROVED BY THE CITY OF LONE TREE PRIOR TO INSTALLATION. LONE TREE PUBLIC WORKS SHALL BE CONTACTED A MINIMUM OF 72 HOURS PRIOR TO INSTALLATION AT 303-662-8112.
11. CROSSWALKS SHALL:
BE CONSTRUCTED USING 125 MIL PREFORMED THERMOPLASTIC.
LINE UP WITH THE HANDICAP RAMPS AT BOTH ENDS.
BE CENTERED ON LANE LINES SO AS TO BE STRADDLED BY VEHICLES.
12. ALL PAVEMENT MARKINGS SHALL BE AS FOLLOWS:
FOR CONCRETE SURFACE: METHYL METHACRYLATE OR EPOXY PAINT.
FOR ASPHALT SURFACE: PAINT, 90 MIL PREFORMED THERMOPLASTIC,
INLaid
MARKING TAPE, METHYL METHACRYLATE, OR EPOXY PAINT.
TURN ARROWS AND ONLYS: 125 MIL PREFORMED THERMOPLASTIC.
13. ALL PAVEMENT MARKING SHALL BE PRECEDED BY THE APPROPRIATE SURFACE PREPARATION.
14. ANY SIGNAGE AND/OR OTHER TRAFFIC CONTROL DEVICES REMOVED SHALL BE RETURNED TO THE CITY OF LONE TREE.
15. TYPE III LIGHTED BARRICADES SHALL BE SET AT ENDS OF ROADWAYS, SEPARATING FINISHED AND UNFINISHED CONSTRUCTION AREAS AND WILL BE MAINTAINED BY THE CONTRACTOR/DEVELOPER.

SOUTHGATE SANITARY SEWER -- GENERAL NOTES

1. ALL SEWER LINES, MANHOLES, SANITARY SEWER SYSTEM PLANS, AND CONSTRUCTION WILL CONFORM TO CURRENT SOUTHGATE SANITATION DISTRICT SPECIFICATIONS, AND ARE SUBJECT TO CONSTRUCTION OBSERVATION BY SOUTHGATE PERSONNEL OR REPRESENTATIVES. A COPY OF SOUTHGATE'S SPECIFICATIONS ARE AVAILABLE AT WWW.SOUTHGATEDISTRICTS.ORG.
2. ONLY AFTER CONSTRUCTION PLANS HAVE BEEN REVIEWED AND APPROVED BY SOUTHGATE, THE OWNER, THE OWNER'S ENGINEER OR CONTRACTOR, WILL SCHEDULE A PRE-CONSTRUCTION MEETING WITH SOUTHGATE AT LEAST 2 BUSINESS DAYS PRIOR TO THE STARTING OF CONSTRUCTION. APPROVED CONSTRUCTION PLANS, SIGNED BY THE DISTRICT ENGINEER, WILL BE DISTRIBUTED AT THE PRE-CONSTRUCTION MEETING.
3. CONSTRUCTION WILL NOT BE PERMITTED TO START UNTIL ALL EASEMENTS ARE SIGNED AND RECORDED AN THE PRE-CONSTRUCTION MEETING HAS BEEN HELD.
4. ALL PERMITS AND FEES MUST BE PAID PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE PROCUREMENT OF ALL PERMITS FOR THE CONSTRUCTION OF MAINS AND SERVICES.
5. SOUTHGATE REQUIRES 2 BUSINESS DAYS NOTICE PRIOR TO START OF CONSTRUCTION AND NOTIFICATION OF A BREAK IN CONSTRUCTION (DUE TO WEATHER, SCHEDULING, ETC.) AND WHEN CONSTRUCTION WILL RESUME.
6. SOUTHGATE REQUIRES 2 BUSINESS DAYS NOTICE PRIOR TO ANY OVERTIME WORKED ON A WEEKDAY. COSTS INCURRED BY SOUTHGATE ASSOCIATED WITH CONSTRUCTION OVERTIME WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. A MINIMUM OF ONE COPY EACH OF ALL SURVEY CUT SHEETS MUST BE GIVEN TO SOUTHGATE AND TO THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL CONTACT ALL APPROPRIATE UTILITY COMPANIES FOR NOTIFICATION AND LOCATES PRIOR TO CONSTRUCTION COMMENCING. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES AND COSTS THAT RESULT BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES, INCLUDING SOUTHGATE UTILITIES.
9. SOUTHGATE OR ITS REPRESENTATIVE IS NOT A GUARANTOR OF THE CONSTRUCTION CONTRACTORS' OBLIGATION AND PERFORMANCE OF CONTRACT.
10. OBSERVATIONS OF WORK IN PROGRESS AND ON-SITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY SOUTHGATE OR ITS REPRESENTATIVE OF THE CONTRACTORS' PERFORMANCE.
11. SOUTHGATE AND/OR ITS REPRESENTATIVE IS NOT RESPONSIBLE FOR SAFETY IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS RELATING THERETO.
12. SOUTHGATE AND/OR ITS REPRESENTATIVE EXERCISES NO CONTROL OF THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS, OR ANY OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERINTENDING OF THE SAME.
13. SOUTHGATE REQUIRES 2 BUSINESS DAYS NOTICE PRIOR TO ANY WEEKEND OR NIGHT WORK. COSTS INCURRED BY SOUTHGATE ASSOCIATED WITH WEEKEND AND NIGHT WORK WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
14. A SET OF APPROVED PLANS SHALL BE MAINTAINED BY THE CONTRACTOR AND KEPT ON SITE AT ALL TIMES. THESE PLANS SHALL BE USED TO MAKE THE "AS-CONSTRUCTED" NOTES DURING THE COURSE OF THE CONSTRUCTION. THESE NOTES SHALL INCLUDE, BUT ARE NOT LIMITED TO, ANY DEVIATIONS FROM THE APPROVED PLANS, NOTING THE TYPES AND LOCATIONS OF THE MATERIALS IN PLACE.
15. ALL REQUIRED TESTING EQUIPMENT WILL BE SUPPLIED BY THE CONTRACTOR, INCLUDING, BUT NOT LIMITED TO, AIR MONITORING AND VENTILATION EQUIPMENT. THE CONTRACTOR MUST SUPPLY ANY ADDITIONAL EQUIPMENT REQUIRED BY OSHA FOR MANHOLE ENTRY, DURING TESTING. SOUTHGATE REQUIRES 2 BUSINESS DAYS NOTICE PRIOR TO TESTING FOR SCHEDULING PURPOSES.
16. THE CONTRACTOR WILL SCHEDULE COMPACTION TESTING WITH THE SOILS CONSULTANT. SEVERAL COMPACTION TESTS ARE REQUIRED AT INTERSECTIONS WITH OTHER UTILITIES, AT MANHOLES, SERVICE STUBS, AND AT RANDOM LOCATIONS OVER THE SEWER LINE. TESTING WILL BE REQUIRED WHEN SOILS MATERIAL CHANGES. TESTING WILL BE REQUIRED FOR EVERY THIRD SERVICE INSTALLATION. THE SOILS ENGINEER IS REQUIRED TO SUBMIT COMPACTION TEST RESULTS ON A DAILY BASIS.
17. ALL SEWER LINES WILL BE FLUSHED AND CLEANED PRIOR TO ANY VIDEOING ON THE PROJECT. THE WATER USED IN THE FLUSHING AND CLEANING OPERATION SHALL BE PUMPED OUT OF THE SYSTEM. WATER WILL NOT BE DISCHARGED INTO ADJOINING SYSTEM. THE PLUG AT THE DISCHARGE END OF THE PROJECT MUST REMAIN IN PLACE UNTIL THE SYSTEM HAS BEEN ACCEPTED AND NOTICE HAS BEEN GIVEN BY SOUTHGATE FOR THE SYSTEM TO BE PLACED INTO SERVICE.
18. ALL SEWER LINES MUST BE JETTED PRIOR TO THE START OF THE WARRANTY, AND MAY BE REQUIRED AGAIN PRIOR TO RELEASE OF WARRANTY BY SOUTHGATE. COSTS OF JETTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL PUMPING ASSOCIATED WITH THE LINE JETTING.
19. CONSTRUCTION WATER IS AVAILABLE BY PURCHASING A PERMIT FROM SOUTHGATE WATER DISTRICT AND DENVER WATER. CURRENT DENVER WATER CERTIFICATION IS REQUIRED ON ALL WATER METERS. SOUTHGATE WATER DISTRICT DOES NOT SUPPLY WATER METERS.

20. PIPELINE ACCEPTANCE AND THE START OF THE WARRANTY PERIOD OF THE NEW SEWER MAINS WILL NOT BE CONSIDERED UNTIL ALL REQUIREMENTS FOR ACCEPTANCE HAVE BEEN FULFILLED, INCLUDING:
A. ALL TESTING IS COMPLETE WITH SATISFACTORY RESULTS
B. COMPLETE SET OF SIGNED COMPACTION TEST RESULTS IS SUBMITTED TO SOUTHGATE
C. ALL SEWER CUT SHEETS ARE SUBMITTED TO SOUTHGATE
D. ALL PUNCH LIST ITEMS ARE COMPLETED TO THE SATISFACTORY OF SOUTHGATE
E. FIRST LIFT UP PAVING IS COMPLETED, AT A MINIMUM
F. SURVEYED RECORD DRAWINGS HAVE BEEN SUBMITTED TO AND APPROVED BY SOUTHGATE. REQUIREMENTS FOR RECORD DRAWINGS CAN BE FOUND AT WWW.SOUTHGATEDISTRICTS.ORG
G. RECORDED ADDRESS PLANT, IF APPLICABLE, IS SUBMITTED TO SOUTHGATE
H. WARRANTY FUNDS ARE SUBMITTED TO SOUTHGATE IN THE FORM OF A LETTER OF CREDIT OR CHECK EQUAL TO TEN PERCENT (10%) OF THE TOTAL COST OF SEWER IMPROVEMENTS. THE LETTER OR CHECK MUST BE EFFECTIVE FOR A MINIMUM OF FIFTEEN (15) MONTHS FROM START OF WARRANTY.
21. THE NEW SEWER SYSTEM WILL BE TESTED IN ACCORDANCE WITH SOUTHGATE SPECIFICATIONS. ALL REQUIRED TESTING MUST BE COMPLETED PRIOR TO THE START OF WARRANTY:
A. VIDEO 100% OF NEW SYSTEM
B. LOW PRESSURE AIR TEST 100% OF NEW SYSTEM
C. DEFLECTION TEST 100% OF NEW SYSTEM
22. RELEASE OF SECURITY AND WARRANTY OF FACILITIES IS DEPENDENT UPON SUCCESSFUL COMPLETION OF A MINIMUM OF ONE (1) YEAR WARRANTY AND CONVEYANCE OF DOCUMENTS.
23. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF THE SYSTEM FROM PIPE ACCEPTANCE TO RELEASE OF SECURITY AND WARRANTY. FAILURE TO MAINTAIN SEWER LINES BY THE TERMS OF THE IMPROVEMENTS AGREEMENT MAY BE CONSIDERED GROUNDS FOR PERMANENT ABANDONMENT OF FACILITIES.
24. SEWER SERVICE TEMPS WILL NOT BE SOLD UNTIL PROJECT ACCEPTANCE IS ACHIEVED.
25. MANHOLE RIMS WILL BE SET AT AN ELEVATION RELATIVE TO THE PAVEMENT, IN ACCORDANCE WITH THE APPROPRIATE CITY, COUNTY, OR STATE HIGHWAY DEPARTMENT STANDARDS. REGARDLESS IF THE MANHOLE IS IN A PAVED OR UNPAVED AREA, A MINIMUM OF FOUR INCHES (4") OF CONCRETE RISER RINGS SHALL BE INSTALLED TO ADJUST ROOM ELEVATIONS TO FINAL GRADE. THE MAXIMUM ACCEPTABLE VERTICAL ADJUSTMENT UTILIZING RISER RINGS IS 12 INCHES (12"). NO CONCRETE ADJUSTMENT SECTIONS ARE ALSO APPROVED FOR USE IN VERTICAL ADJUSTMENTS OF RING AND COVER. A MINIMUM OF ONE RISER SECTION WILL BE REQUIRED FOR VERTICAL ADJUSTMENT.
26. EXISTING PIPE AT THE POINT OF CONNECTION WILL NOT BE "BROKEN OUT" AND NO SERVICE CONNECTIONS WILL BE MADE UNTIL THE NEW SERVICE SYSTEM IS ACCEPTED BY SOUTHGATE.
27. THE CONTRACTOR SHALL VERIFY INVERT ELEVATIONS OF EXISTING LINES BY MEANS OF CERTIFIED SURVEY PRIOR TO THE INSTALLATION OF BARREL AND CONE SECTION.
28. THE CONTRACTOR WILL VERIFY EXISTING MANHOLE INVERTS AT PROPOSED POINTS OF CONNECTION, PRIOR TO THE CONSTRUCTION STATEMENT.
29. THE ALIGNMENT SHALL BE STAKED EVERY 25 FEET FOR THE FIRST 100 FEET OUT OF EACH MANHOLE AND EVERY 50 FEET THEREAFTER, ALONG WITH BOTH SIDES OF THE EASEMENT. (FOR USE WITH LASER EQUIPMENT ONLY.)
30. TRENCH COMPACTION IN STREET RIGHT OF WAY IS TO CONFORM TO APPLICABLE MUNICIPAL STANDARDS (COLORADO DEPARTMENT OF TRANSPORTATION, ARAPAHOE COUNTY, DOUGLAS COUNTY, CITY OF GREENWOOD VILLAGE, CITY OF CENTENNIAL, OR THE CITY OF LONE TREE).
31. CONNECTION TIES INTO AN EXISTING SEWER LINE SHALL BE PLUGGED WITH A PLUMBERS PLUG IN THE UPSTREAM PIPE AND TIED OFF TO A STEP INSIDE. THIS PLUG SHALL REMAIN IN PLACE UNTIL THE NEW SYSTEM IS ACCEPTED. SOUTHGATE WILL ISSUE NOTICE FOR SERVICE CONNECTIONS AND REMOVAL OF PLUG.
32. ALL PRIVATE SERVICE LINES MUST BE INSPECTED BEFORE BACKFILL -- CALL SOUTHGATE AT-303-779-0261 TO SCHEDULE YOUR INSPECTION
33. ALL GREASE AND SAND/OIL INTERCEPTORS MUST BE INSPECTED BEFORE BACKFILL -- CALL SOUTHGATE AT-303-779-0261 TO SCHEDULE YOUR INSPECTION

- 18.4. FIST LIFT OF PAVING IS COMPLETED, AT A MINIMUM
- 18.5. SURVEYED RECORD DRAWINGS HAVE BEEN SUBMITTED TO AND APPROVED BY SOUTHGATE. CONTACT THE SOUTHGATE ENGINEERING DEPARTMENT FOR REQUIREMENTS PRIOR TO SUBMITTING RECORD DRAWINGS
- 18.6. RECORDED ADDRESS PLAT, IF APPLICABLE I, IS SUBMITTED TO SOUTHGATE
- 18.7. WARRANTY FUNDS ARE SUBMITTED TO SOUTHGATE IN THE FORM OF A LETTER OF CREDIT OR CHECK EQUAL TO TEN PERCENT (10%) OF THE TOTAL COST OF WATER IMPROVEMENTS. THE LETTER OR CHECK WILL BE EFFECTIVE FOR A MINIMUM OF FIFTEEN (15) MONTHS FROM START OF WARRANTY PERIOD.
19. THEORETICAL STATIC WATER PRESSURES ARE ESTIMATED TO RANGE FROM ___ PSI AT USGS ELEVATION ___ TO ___ PSI AT USGS ELEVATION ____ SOUTHGATE HAS PROVIDED ONLY THE HYDRAULIC GRADIENT ELEVATION. THIS HYDRAULIC GRADIENT, OF WHICH WAS PROVIDED AT THE TIME OF PLAN REVIEW, MAY CHANGE IN THE FUTURE AS OVERALL WATER SYSTEM OPERATIONS WARRANT.
20. THE LINE SHALL BE CHLORINATED IN ACCORDANCE WITH THE REQUIREMENTS OF DENVER WATER ENGINEERING STANDARDS AND THE COLORADO STATE BOARD OF HEALTH. CHLORINATION SHALL OCCUR PRIOR TO HYDROSTATIC TESTING.
21. CHLORINE TESTS BY A STATE CERTIFIED LAB WILL BE TAKEN EVERY 1000 FEET OF PIPE INSTALLED. THE RESULTS MUST BE SUBMITTED TO SOUTHGATE AND DENVER WATER.
22. ALL NEW WATER LINES WILL BE HYDROSTATIC PRESSURE TESTED. THE TESTING EQUIPMENT AND/OR ANY COSTS SHALL BE PROVIDED BY THE CONTRACTOR. THE TEST WILL BE CONDUCTED AT 50 PSI ABOVE NORMAL OPERATING PRESSURE OR AT 150 PSI, WHICHEVER IS GREATER. UPON WRITTEN RECORD OF A PASSING CHLORINE TEST, AND SATISFACTORY COMPACTION TEST RESULTS, SOUTHGATE WILL WITNESS PRESSURE TESTING AT THE CONTRACTOR'S CONVENIENCE.
23. ALL NEW WATER LINES WILL REQUIRE A CLEAR WATER TEST TAKEN BY A STATE CERTIFIED LAB FOR BACTERIOLOGICAL RESULTS. THE RESULTS MUST BE SUBMITTED TO SOUTHGATE AND DENVER WATER. THE RESULTS MUST BE SUBMITTED TO SOUTHGATE AND DENVER WATER. CLEAR WATER TESTS WILL BE TAKEN AT THE CONTRACTOR'S EXPENSE PRIOR PIPELINE ACCEPTANCE, START OF THE WARRANTY PERIOD, AND PRIOR TO THE RELEASING TAPS OR CONNECTION TO EXISTING PIPE.
24. ADDITIONAL TESTING MAY BE REQUIRED AT THE DISCRETION OF SOUTHGATE.
25. SOUTH METRO FIRE RESCUE AUTHORITY WILL ALSO INSPECT FIRELINE AND

- WILL OBSERVE TESTING
26. EXISTING VALVES OWNED AND OPERATED BU SOUTHGATE MAY ONLY BE OPERATED BY SOUTHGATE PERSONNEL. VALVES INSTALLED BY THE CONTRACTOR MAY BE OPERATED UNTIL SOUTHGATE ACCEPTS THE SYSTEM. COORDINATE WITH SOUTHGATE A MINIMUM OF 2 BUSINESS DAYS BEFORE EXISTING VALVES ARE TO BE OPERATED.
27. RELEASE OF SECURITY AND WARRANTY OF FACILITIES IS DEPENDENT UPON SUCCESSFUL COMPLETION OF A MINIMUM OF ONE (1) YEAR WARRANTY PERIOD AND CONVEYANCE OF DOCUMENTS.
28. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF THE SYSTEM FROM PIPE ACCEPTANCE TO RELEASE OF SECURITY AND WARRANTY. FAILURE TO MAINTAIN WATER LINES BY THE TERMS OF THE IMPROVEMENTS AGREEMENT MAY BE CONSIDERED GROUNDS FOR PERMANENT ABANDONMENT OF FACILITIES.
29. STUB-IN AGREEMENTS ARE AVAILABLE THRU SOUTHGATE AND DENVER WATER ONLY AFTER COMPLETED TESTING AND MAIN LINE INSTALLATION, IT MAY BE OBTAINED PRIOR TO PIPELINE ACCEPTANCE AND START OF THE WARRANTY PERIOD.
30. WATER SERVICE TAPS WILL NOT BE SOLD UNTIL PROJECT ACCEPTANCE IS ACHIEVED.
31. ONLY THE FOLLOWING FIRE HYDRANTS ARE PERMITTED BY SOUTHGATE:
31.1. MEULLER CENTURION MODEL A-423
31.2. WATEROUS PACER MODEL WB-67 WITH BRONZE BUSHED SHOE AND SHAFT COUPLING
31.3. AVK SERIES 27
32. ONLY ONE (1) CONNECTION POINT IS PERMITTED TO EXISTING SYSTEM PRIOR TO COMPLETION OF TESTING
33. THE CONTRACTOR SHALL VERIFY ELEVATIONS OF EXISTING LINES AND CONNECTION POINTS BY MEANS OF CERTIFIED SURVEY PRIOR TO STAKING AND INSTALLATION
34. THE ALIGNMENT SHALL BE STAKED AND GRADED EVERY FIFTY (50) FEET. ALL FITTINGS AND VERTICAL DEPRESSIONS ARE TO BE STAKED. THE FIRE HYDRANTS WILL BE STAKED AND GRADED TO THE BOTTOM OF FLANGE. FITTING. THIS GRADE WILL BE SET THREE (3) INCHES ABOVE PROPOSED GRADING FINISH ELEVATIONS. STAKE BOTH SIDES OF EASEMENTS WHERE THE WATER LINE IS NOT LOCATED IN PAVED AREAS.
35. WATER LINES SHALL HAVE A MINIMUM OF FOUR AND ONE-HALF (4.5) FEET OF COVER
36. ALL WATER LINES SHALL BE LOCATED A MINIMUM OF TEN (10) FEET FROM SANITARY SEWER LINES, AND THREE (3) FEET FROM THE EDGE OF

- CONCRETE CURB AND GUTTER OR CONCRETE PAN.
37. PRIOR TO INSTALLATION OF WATER MAINS, ROAD CONSTRUCTION, AT A MINIMUM, MUST HAVE PROGRESSSED THE "SUB-GRADE" STAGE. SUB-GRADE IS DEFINED AS AN ELEVATION OF NO MORE THAT SEVEN (7) INCHES BELOW THE FINISHED STREET GRADE. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES AND ALL FIRE HYDRANTS TO FINAL GRADE.
38. TRENCH COMPACTION IN STREET RIGHT-OF-WAY IS TO CONFORM TO APPLICABLE MUNICIPAL STANDARDS (COLORADO DEPARTMENT OF TRANSPORTATION, ARAPAHOE COUNTY, DOUGLAS COUNTY, CITY OF GREENWOOD BILLAGE, CITY OF CENTENNIAL, OR THE CITY OF LONE TREE.
39. THE BEDDING WILL BE PER SOUTHGATE'S STANDARD DETAIL, I.E. 6 INCHES UNDERNEATH THE PIPE AND 12 INCHES OVER THE TOP OF THE PIPE.
40. A MINIMUM OF FOUR (4) FEET, TWO (2) FEET EITHER SIDE OF A SERVICE TAP SHALL BE EXPOSED FOR EACH CONNECTION.
41. ALL PRIVATE SERVICE LINES MUST BE INSPECTED BEFORE BAKFILL -- CALL SOUTHGATE AT 303-779-0261 TO SCHEDULE YOUR INSPECTION.
42. WATER SHUT-OFFS MUST BE SCHEDULED WITH SOUTHGATE A MINIMUM OF 2 BUSINESS DAYS IN ADVANCE -- CALL 303-779-0261 TO SCHEDULE. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING CUSTOMERS AFFECTED BY SHUT-OFF A MINIMUM OF 48 HOURS NOTICE.

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

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Sheet 2 of 29

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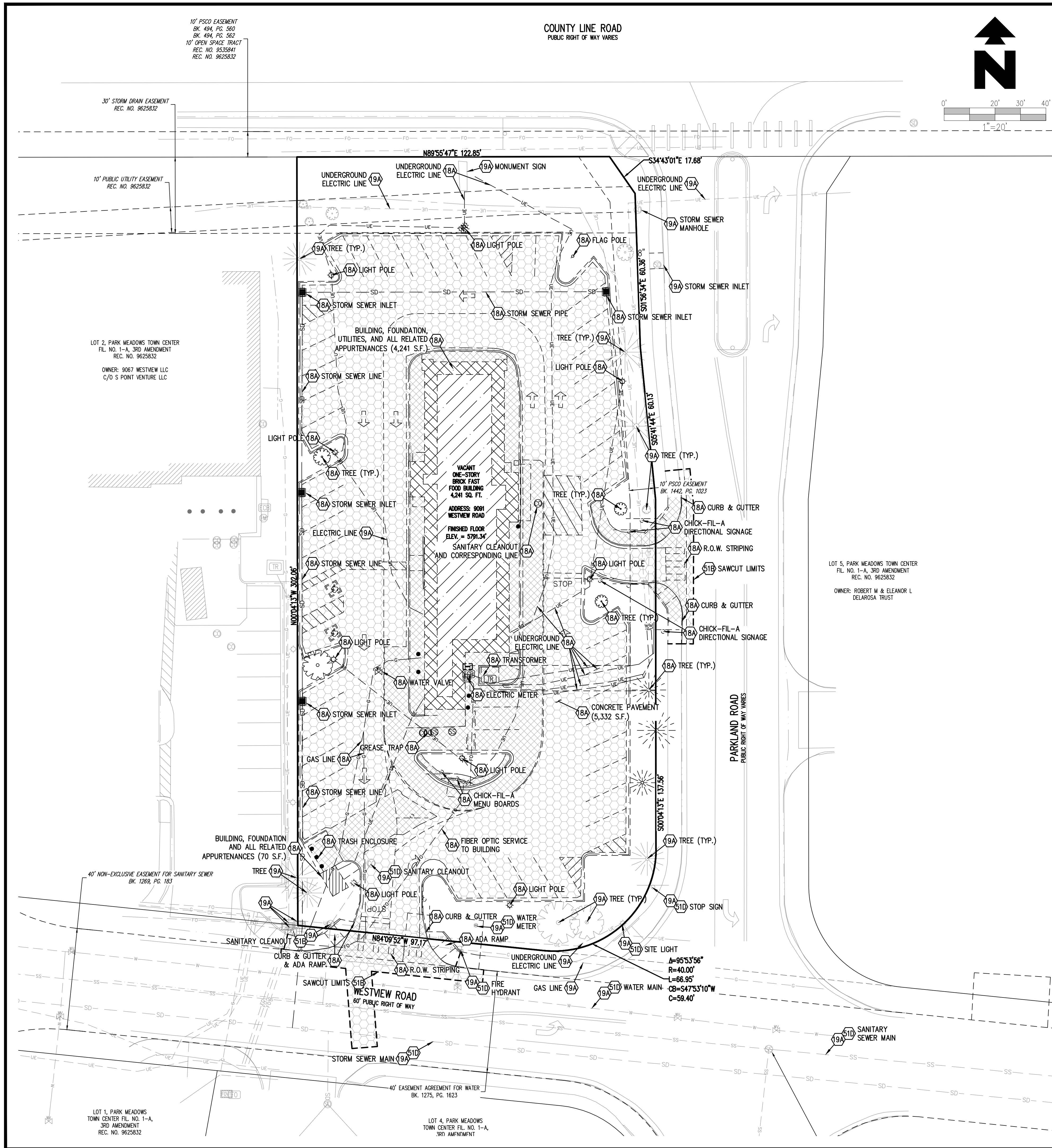
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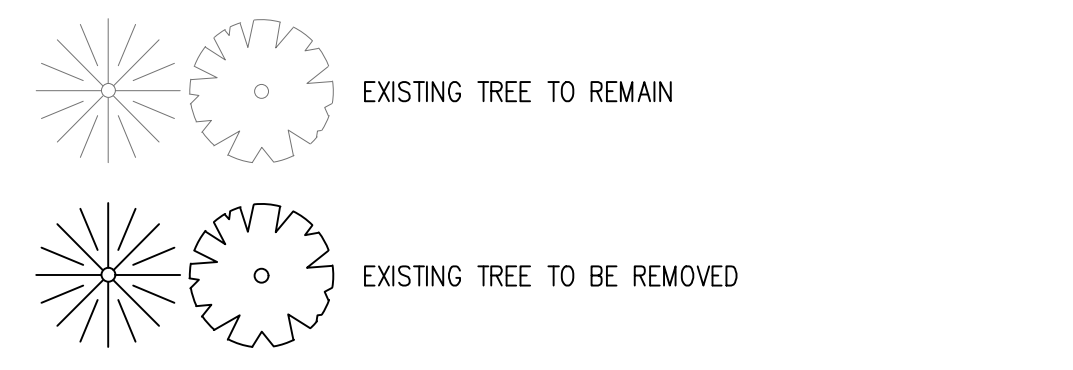
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EXISTING	
---	SD --- EXISTING STORM SEWER (LESS THAN 12\"
---	SS --- EXISTING SANITARY SEWER
---	W --- EXISTING WATER
---	UE --- EXISTING UNDERGROUND ELECTRIC
---	OHE --- EXISTING OVERHEAD ELECTRIC
---	FO --- EXISTING FIBER OPTIC
---	G --- EXISTING GAS
SL	EXISTING STREET LIGHT
TR	EXISTING TRANSFORMER
EM	EXISTING ELECTRIC METER
EB	EXISTING ELECTRIC BOX
ECB	EXISTING ELECTRIC CONTROL BOX
FOB	EXISTING FIBER OPTIC BOX
GM	EXISTING GAS METER
SMH	EXISTING SANITARY SEWER MANHOLE
WV	EXISTING WATER VALVE
SI	EXISTING STORM INLET
FH	EXISTING FIRE HYDRANT
S	EXISTING SIGN
WM	EXISTING WATER METER
FOV	EXISTING FIBER OPTIC VAULT
SSM	EXISTING SANITARY STORM MANHOLE
SCO	EXISTING SANITARY CLEAN OUT



PROPOSED	
---	BOUNDARY LINE
---	EXISTING ASPHALT TO BE REMOVED
---	EXISTING CONCRETE TO BE REMOVED

GENERAL DEMOLITION NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, UNDERGROUND STORAGE TANKS AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED.
- CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
- THE GENERAL CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
- DEMO ALL SIDEWALKS TO NEAREST JOINT.

!!!ATTENTION!!!
ADDITIONAL UTILITIES MAY BE PRESENT ON THE SITE THAT HAVE NOT BEEN PICKED UP BY SURVEY, PLEASE CONTACT THE ENGINEER PRIOR TO DEMOLITION OF ANY UTILITIES NOT SHOWN ON THIS PLAN.

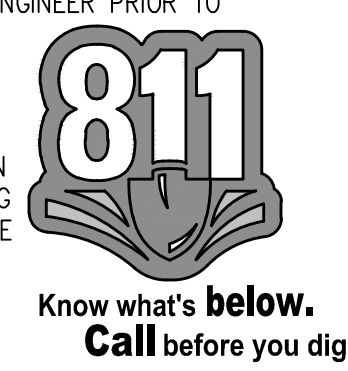
DEMOLITION NOTES	
18A	EXISTING TO BE REMOVED
19A	EXISTING TO REMAIN
19B	EXISTING TO REMAIN AND ABANDON
51B	LIMITS OF SAWCUT AND PAVEMENT REMOVAL
51D	PROTECT EXISTING STRUCTURE AND/OR PIPES DURING DEMOLITION AND CONSTRUCTION PHASES

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR CONSTRUCTION SAFETY

CAUTION - NOTICE TO CONTRACTOR

- ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

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ENGINEERING STAMP

DEMOLITION PLAN
MURPHY USA (NTI)
9091 WESTVIEW RD
LONE TREE
COLORADO

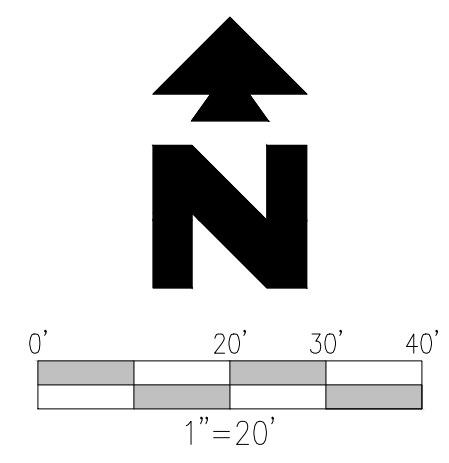
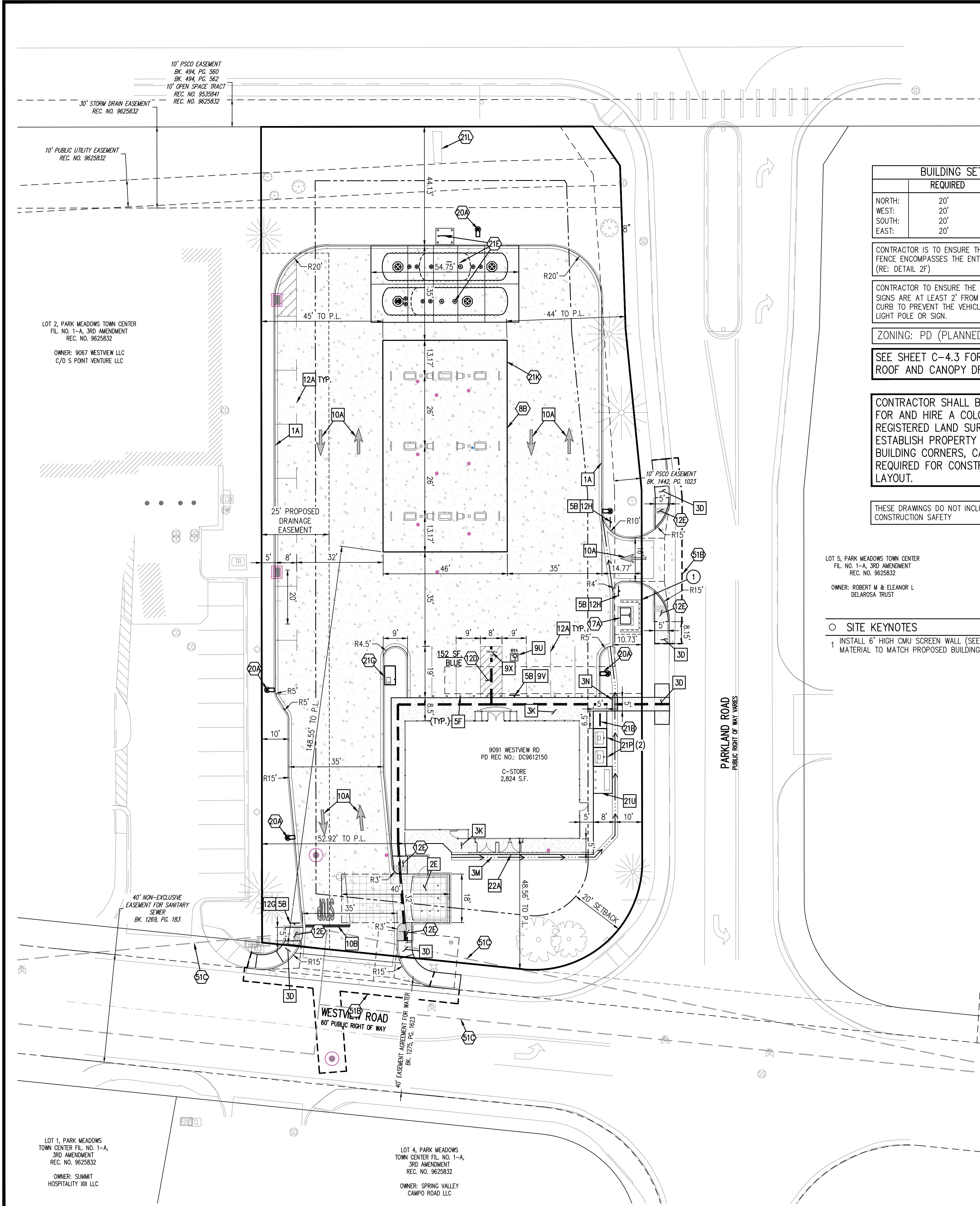
MURPHY OIL USA, INC.

200 PEACH STREET
EL DORADO, AR 71730

MURPHY USA

Galloway

5500 Greenwood Plaza Blvd, Suite 200
Greenwood Village, CO 80111
303.770.8884 • GallowayUS.com



BUILDING SETBACKS		
	REQUIRED	PROVIDED
NORTH:	20'	200.96'
WEST:	20'	52.92'
SOUTH:	20'	47'
EAST:	20'	23.02'

CONTRACTOR IS TO ENSURE THAT THE CONSTRUCTION FENCE ENCOMPASSES THE ENTIRE WORK AREA. (RE: DETAIL 2F)

CONTRACTOR TO ENSURE THE LIGHT POLES AND SIGNS ARE AT LEAST 2' FROM THE BACK OF THE CURB TO PREVENT THE VEHICLES STRIKING THE LIGHT POLE OR SIGN.

ZONING: PD (PLANNED DEVELOPMENT)

SEE SHEET C-4.3 FOR BUILDING ROOF AND CANOPY DRAINAGE

CONTRACTOR SHALL BE RESPONSIBLE FOR AND HIRE A COLORADO REGISTERED LAND SURVEYOR TO ESTABLISH PROPERTY CORNERS, BUILDING CORNERS, CANOPY, ETC. AS REQUIRED FOR CONSTRUCTION LAYOUT.

THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR CONSTRUCTION SAFETY

LOT 5, PARK MEADOWS TOWN CENTER
FIL. NO. 1-A, 3RD AMENDMENT
REC. NO. 9625832

OWNER: ROBERT M & ELEANOR L
DELA ROSA TRUST

○ SITE KEYNOTES

- 1 INSTALL 6" HIGH CMU SCREEN WALL (SEE SITE DETAILS). COLOR AND MATERIAL TO MATCH PROPOSED BUILDING.

PRE-CONSTRUCTION IMPERVIOUS SITE RATIO (ISR)		
AREA	SQUARE FEET	%
IMPERVIOUS (ROOF AND PAVING)	32,426	76.6
LANDSCAPE AREA	9,906	23.4
GROSS SITE	42,332	100

POST-CONSTRUCTION IMPERVIOUS SITE RATIO (ISR)		
AREA	SQUARE FEET	%
IMPERVIOUS (ROOF AND PAVING)	30,248	71.4
LANDSCAPE AREA	12,084	28.6
GROSS SITE	42,332	100

○ SITE NOTES

- 8B OVERHEAD CANOPY (TYP. PER CANOPY PLANS)
12A 4" YELLOW LANE STRIPE (SEE SIZE INDICATED AT SYMBOL)
12D 4" WIDE PAINTED STRIPES. 2' O.C. @ 45° (SEE SIZE INDICATED AT SYMBOL)
12E PROPOSED RAMP (SEE ENLARGED GRADING PLANS FOR DETAILS)
17A TRANSFORMER
20A SITE LIGHT
21B BIKE RACK
21E UNDERGROUND STORAGE TANKS (1-25,000 GAL. & 1-26,000 GAL.)
21G AIR/VACUUM UNIT WITH 4'X7' CONCRETE SLAB
21K MURPHY EXPRESS ID SIGN PER APPROVED RENDERING
21L PRICE SIGN PER APPROVED ELEVATION
51B LIMITS OF SAWCUT AND PAVEMENT REMOVAL
51C SIGHT TRIANGLE

□ SITE DETAILS

- 1A INTEGRAL CONCRETE CURB
2E DUMPSTER ENCLOSURE
3D CONCRETE SIDEWALK
3K CONCRETE SIDEWALK AROUND BUILDING
3M 2" CONCRETE PAN
3N 2" CURB CHASE
5B TRAFFIC SIGN IN BOLLARD
5F STEEL BOLLARD W/ COVER (SINGLE)
9U ACCESSIBLE PARKING SYMBOL (SEE PAINT COLOR INDICATED AT SYMBOL)
9V ACCESSIBLE / VAN ACCESSIBLE PARKING SIGN MOUNTED IN BOLLARD
9X "NO PARKING" PAINTED ON PAVEMENT
10A TRAFFIC FLOW ARROW
10B STOP BAR
12A 4" YELLOW LANE STRIPE (SEE SIZE INDICATED AT SYMBOL)
12G "STOP" SIGN
12H "DO NOT ENTER" SIGN
21P 5'x7' ICE UNIT (SEE NUMBER INDICATED AT SYMBOL)
21U 7'x10' CONCRETE SLAB FOR PROPANE TANKS
22A SCREENING WALL (SEE BUILDING PLANS FOR DETAILS)

PARKING INFORMATION: MURPHY OIL						
DESCRIPTION	BUILDING AREA (S.F.)	REQUIRED:				
		RATIO	SPACES			
FUELING STATION	2,824		REGULAR	UNDER CANOPY	ACCESSIBLE	TOTAL
		26 (PER REQUESTED VARIANCE)				
STALL DIMENSIONS:		PROVIDED:				
9'x19' (MIN.)		RATIO	SPACES			
			REGULAR	UNDER CANOPY	ACCESSIBLE	TOTAL
			13	12	1	26
NO. OF FUEL ISLANDS: 6						
NO. OF VEHICLE FUELING POINTS: 12						

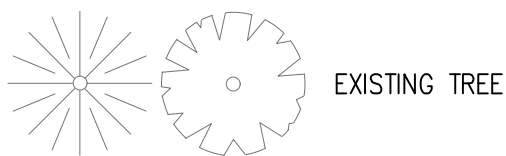
CAUTION - NOTICE TO CONTRACTOR

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2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



EXISTING

- EXISTING STREET LIGHT
EXISTING TRANSFORMER
EXISTING ELECTRIC METER
EXISTING ELECTRIC BOX
EXISTING ELECTRIC CONTROL BOX
EXISTING FIBER OPTIC BOX
EXISTING GAS METER
EXISTING SANITARY SEWER MANHOLE
EXISTING WATER VALVE
EXISTING STORM INLET
EXISTING FIRE HYDRANT
EXISTING SIGN
EXISTING WATER METER
EXISTING FIBER OPTIC VAULT
EXISTING SANITARY STORM MANHOLE
EXISTING SANITARY CLEAN OUT



SITE LEGEND

- PROPERTY BOUNDARY LINE
ADJACENT PROPERTY BOUNDARY LINE
EXISTING EASEMENT LINE
PROPOSED EASEMENT LINE
20' SETBACK LINE
SIGHT TRIANGLE
PROPOSED SAWCUT LINE
PROPOSED SWALE FLOWLINE
PROPOSED CURB AND GUTTER
EXISTING CURB AND GUTTER
ADA PATH OF TRAVEL
SIGHT TRIANGLE
PROPOSED SIGN
PROPOSED PIPE BOLLARD
PROPOSED ADA PARKING SYMBOL
PROPOSED DETECTABLE WARNING TRUNCATED DOMES
PROPOSED STANDARD DUTY CONCRETE PAVEMENT
PROPOSED HEAVY DUTY CONCRETE PAVEMENT
PROPOSED CONCRETE SIDEWALK
PROPOSED UNDERGROUND STORAGE TANKS

GENERAL SITE NOTES

1. ALL DIMENSIONS SHOWN ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
2. ALL CURB RETURN RADII SHALL BE 5', AS SHOWN TYPICAL ON THIS PLAN, UNLESS OTHERWISE NOTED.
3. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON: ALL CURB AND GUTTER ADJACENT TO PAVING SHALL BE INSTALLED PER DETAIL.
4. PAVEMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE PAVING PLAN OVER THE ENTIRE PARKING LOT AREA AND ALL APPROACH DRIVES.
5. SEE ASSOCIATED PLANS FOR CANOPY, COLUMN, DISPENSER ISLAND DETAILS AND LAYOUT.
6. CONTRACTOR SHALL BEGIN CONSTRUCTION OF ANY LIGHT POLE BASES FOR RELOCATED LIGHT FIXTURES AND RELOCATION OF ELECTRICAL SYSTEM AS SOON AS DEMOLITION BEGINS. CONTRACTOR SHALL BE AWARE THAT INTERRUPTION OF POWER TO ANY LIGHT POLES OR SIGNS SHALL NOT EXCEED 24 HOURS.
7. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED/SODDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
8. CONTRACTOR SHALL PURCHASE AND INSTALL A MAILBOX AND SHALL COORDINATE LOCATION OF MAILBOX WITH MURPHY CONSTRUCTION MANAGER AND/OR ON-SITE REPRESENTATIVE AND LOCAL POSTMASTER.
9. ALL PROPOSED PAVEMENT STRIPING OR MARKINGS SHALL FOLLOW THE SPECIFICATIONS FOR PAINT INCLUDED IN DETAIL 10A.

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

C-3.0

Sheet 4 of 23

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COLORADO

SITE PLAN
MURPHY USA (NTI)
9091 WESTVIEW RD

LONE TREE

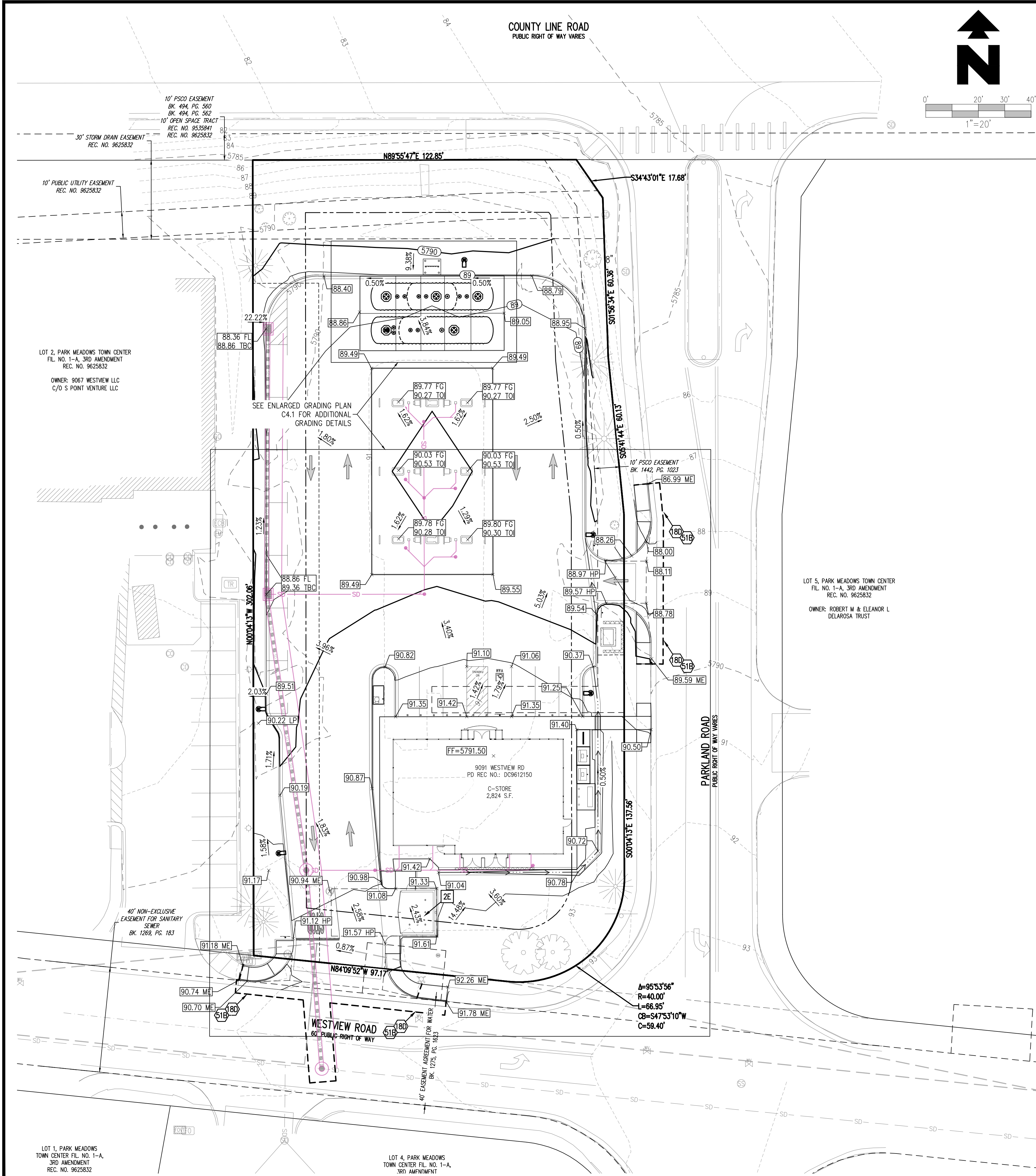
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MURPHY OIL USA, INC.

200 PEACH STREET
EL DORADO, AR 71730

MURPHY
USA



GENERAL GRADING NOTES

1. PRIOR TO INSTALLATION OF STORM OR SANITARY SEWER, WATER MAIN, OR ANY OTHER UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY, AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSING AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS OR REQUIRED DEVIATIONS FROM THE PLAN PRIOR TO CONSTRUCTION. NOTIFICATION SHALL BE MADE A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.
2. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND GROUND COVER ESTABLISHED. ANY RELOCATED TREES SHALL BE MAINTAINED UNTIL SUCH POINT AS TREE IS RE-ESTABLISHED. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE STABILIZED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
4. REFER TO GEOTECHNICAL REPORT FOR SPECIFIC SITE SOIL CONDITIONS AND CONSIDERATIONS.
5. CONTRACTOR SHALL COMPLY COMPLETELY WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING AND OTHER MEANS OF PROTECTION. THIS IS TO INCLUDE, BUT NOT LIMITED FOR ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH PERFORMANCE CRITERIA AS REQUIRED BY OSHA.
6. ALL HDPE PIPE IN SANDY OR HIGHLY EROSION, OR EXPANSIVE SOILS SHALL BE N-12 WT IB (OR EQUIVALENT WITH SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. 4"-48" PIPE SHALL MEET ASTM F2648 (OR AASHTO M252 TYPE S) REQUIREMENTS AND SHALL HAVE A MINIMUM MANNINGS "n" DESIGN VALUE OF 0.012. JOINTS SHALL BE WATERTIGHT ACCORDING TO ASTM D3212 (OR AASHTO M252, M294) REQUIREMENTS. GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. JOINT PERFORMANCE, FITTINGS, MATERIAL PROPERTIES AND INSTALLATION SHALL BE DONE PER THE COMPLETE ADS SPECIFICATION FOR ADS N-12 WE IB PIPE FOUND IN THE ADS, INC. DRAINAGE HANDBOOK, LATEST EDITION.
7. ALL OTHER HDPE PIPE SHALL BE N-12 ST IB (OR EQUIVALENT WITH SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. 4"-48" SHALL MEET ASTM F2648 (OR AASHTO M252 TYPE S OR SP) REQUIREMENTS AND SHALL HAVE A MINIMUM MANNINGS "n" DESIGN VALUE OF 0.012. JOINT PERFORMANCE, FITTINGS, MATERIAL PROPERTIES AND INSTALLATION SHALL BE DONE PER THE COMPLETE ADS SPECIFICATIONS FOR ADS N-12 ST IB PIPE FOUND IN THE ADS, INC. HAND BOOK, LATEST EDITION.
8. IF USING HDPE PERFORATED PIPE FOR SUBSURFACE DRAINAGE AND DETENTION/RETENTION SYSTEMS, THE PERFORATION SHALL MEET THE AASHTO CLASS II STANDARD PERFORATION PATTERN REQUIREMENTS.
9. STORM SEWER LINES 18"-54" DIAMETER ARE TO BE REINFORCED CONCRETE PIPE ACCORDING TO ASTM C-76 (WATERTIGHT) UNLESS OTHERWISE INDICATED.
10. CORRUGATED METAL PIPE, WHERE SPECIFICALLY SPECIFIED ON PLAN, SHALL BE TYPE II OF AASHTO M 36 GALVANIZED WITH TYPE 3 JOINTS.
11. CONTRACTOR SHALL ESTABLISH GRADES OF FINISH PAVEMENT TO ENSURE PROPER (POSITIVE) DRAINAGE AND PREVENT PUDDLING OF WATER, SPECIALLY IN PEDESTRIAN WALKWAYS. UNPAVED AREAS OF SITE SHALL ALSO BE GRADED FOR POSITIVE DRAINAGE. CONSULT ENGINEER SHOULD THEIR BE CONFLICTS WITH CRITICAL GRADES SHOWN HEREON.
12. CONTRACTOR SHALL VERIFY ACTUAL FINISH FLOOR ELEVATION AFTER BUILDING SET AND NOTIFY ENGINEER AND PM WITHIN 48 HOURS OF ANY DISCREPANCY.
13. PIPE JOINTS SHALL BE WRAPPED WITH GEOTEXTILE FABRIC (LAPPED 18").
14. CONTRACTOR TO CONFIRM BUILDING AND CANOPY FOOTER ELEVATIONS PRIOR TO BUILDING BEING SET.

GRADING NOTES

- 180 MATCH EXISTING PAVEMENT ELEVATIONS
- 51B LIMITS OF SAWCUT & PAVEMENT REMOVAL

GRADING DETAILS

- 28A STORM SEWER TRENCH & BEDDING
- 2E DUMPSTER ENCLOSURE

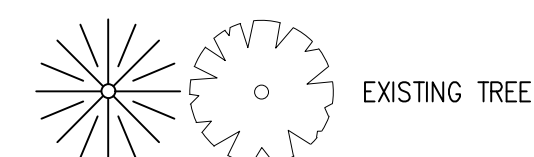
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EXISTING

- 5460--- EXISTING MAJOR CONTOUR
- 52--- EXISTING MINOR CONTOUR
- SD--- EXISTING STORM SEWER
- SD--- PROPOSED STORM SEWER
- EXISTING STREET LIGHT
- EXISTING TRANSFORMER
- EXISTING ELECTRIC METER
- EXISTING ELECTRIC BOX
- EXISTING FIBER OPTIC BOX
- EXISTING GAS METER
- EXISTING SANITARY SEWER MANHOLE
- EXISTING WATER VALVE
- EXISTING STORM INLET
- EXISTING FIRE HYDRANT
- EXISTING SIGN
- EXISTING BOLLARD



PROPOSED

- BOUNDARY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- SPOT ELEVATIONS:
 - XX.XX TBC = TOP BACK OF CURB
 - XX.XX FL = FLOWLINE
 - XX.XX TOI = TOP OF ISLAND
 - XX.XX LP = LOW POINT
 - XX.XX HP = HIGH POINT
 - XX.XX ME = MATCH EXISTING
 - XX.XX = FINISHED GRADE
 - XX.XX TRG = TOP OF RAMP
 - XX.XX BR = BOTTOM OF RAMP
 - XX.XX SW = SIDEWALK
 - XX.XX PAN= PAN EDGE
 - DRAINAGE SLOPE AND DIRECTION

3.00% 4.0:1

SOIL PREPARATION & PAVEMENT DESIGN NOTE

SOIL PREPARATION AND PAVEMENT DESIGN SHALL BE PER RECOMMENDATIONS FROM A GEOTECHNICAL REPORT PREPARED FOR THIS SITE AS FOLLOWS: GEOTECHNICAL ENGINEERING EXPLORATION AND ANALYSIS: PROPOSED MURPHY OIL USA FUEL STATION

GEOTECHNICAL ENGINEER:UNITED CONSULTING

PROJECT NO:MP01L-25-CO-09967-02
DATE:FEBRUARY 27, 2026

THE CONTRACTOR MUST FULLY REVIEW THIS REPORT PRIOR TO CONSTRUCTION. INFORMATION IN THE GEOTECHNICAL REPORT SUPERSEDES ANY CONFLICTING INFORMATION CONTAINED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS. REFER TO GENERAL STRUCTURAL NOTES FOR SPECIFIC SOIL PREPARATION AT SITE STRUCTURES.

SEE SHEET C-4.3 FOR BUILDING ROOF AND CANOPY DRAINAGE

ALL CASTINGS SHALL BE COATED WITH BLACK ASPHALTIC VARNISH.

THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR CONSTRUCTION SAFETY

CITY OF LONE TREE

DATE

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ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

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Sheet 5 of 23

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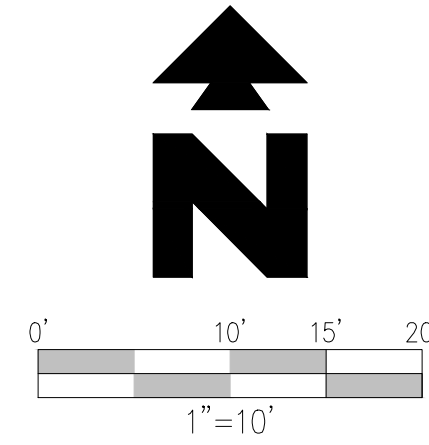
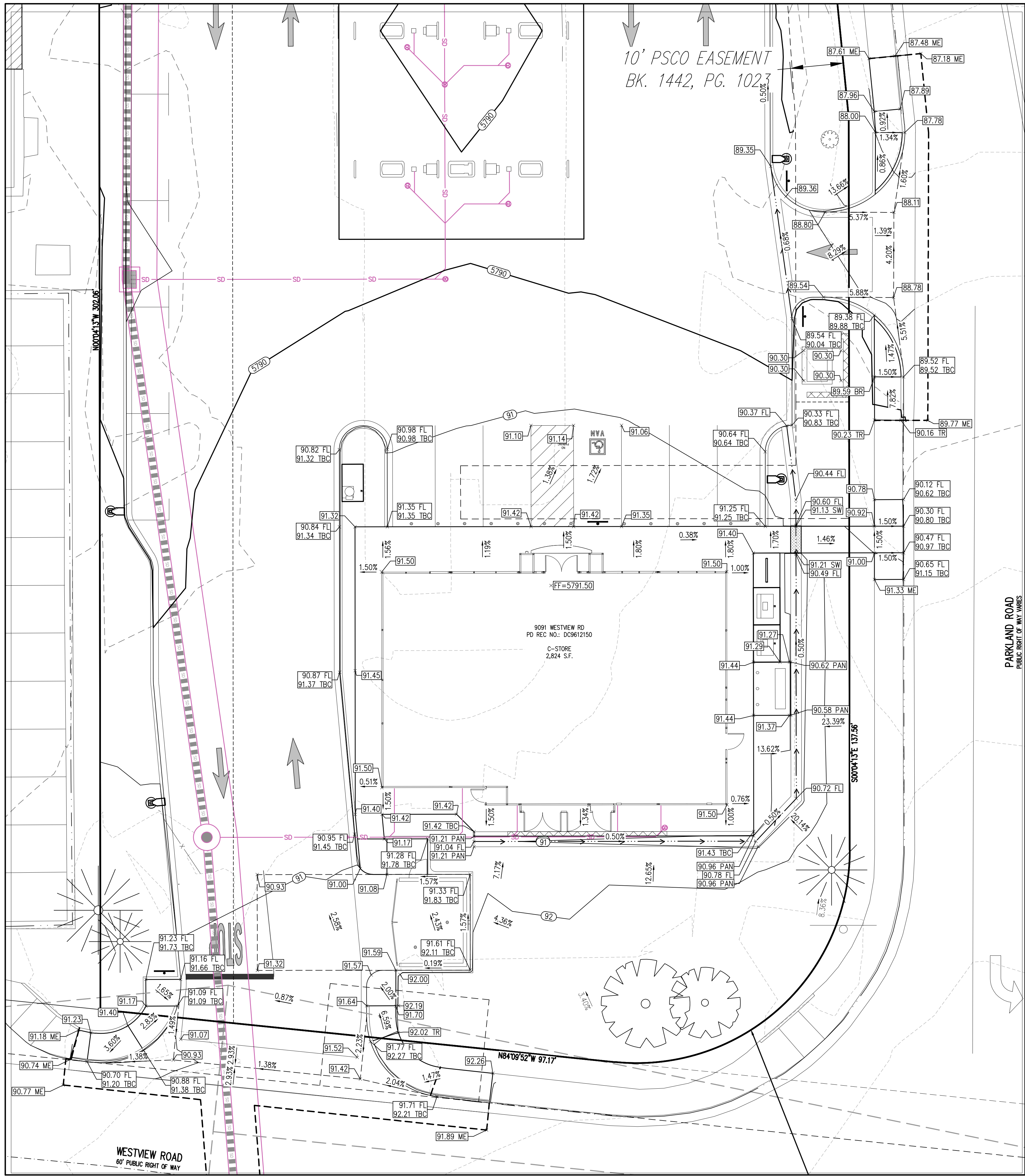
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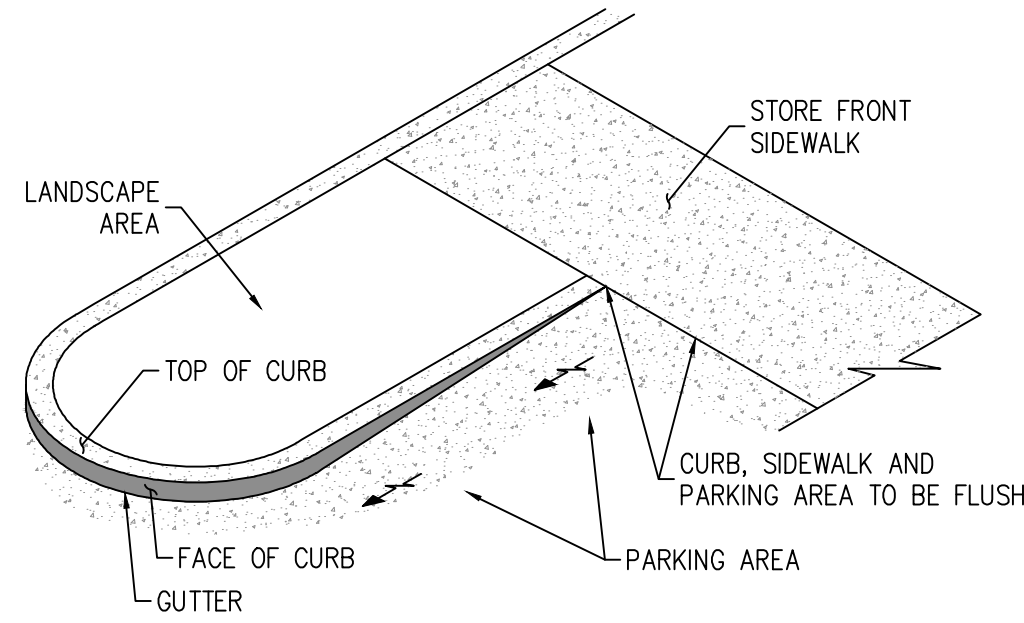
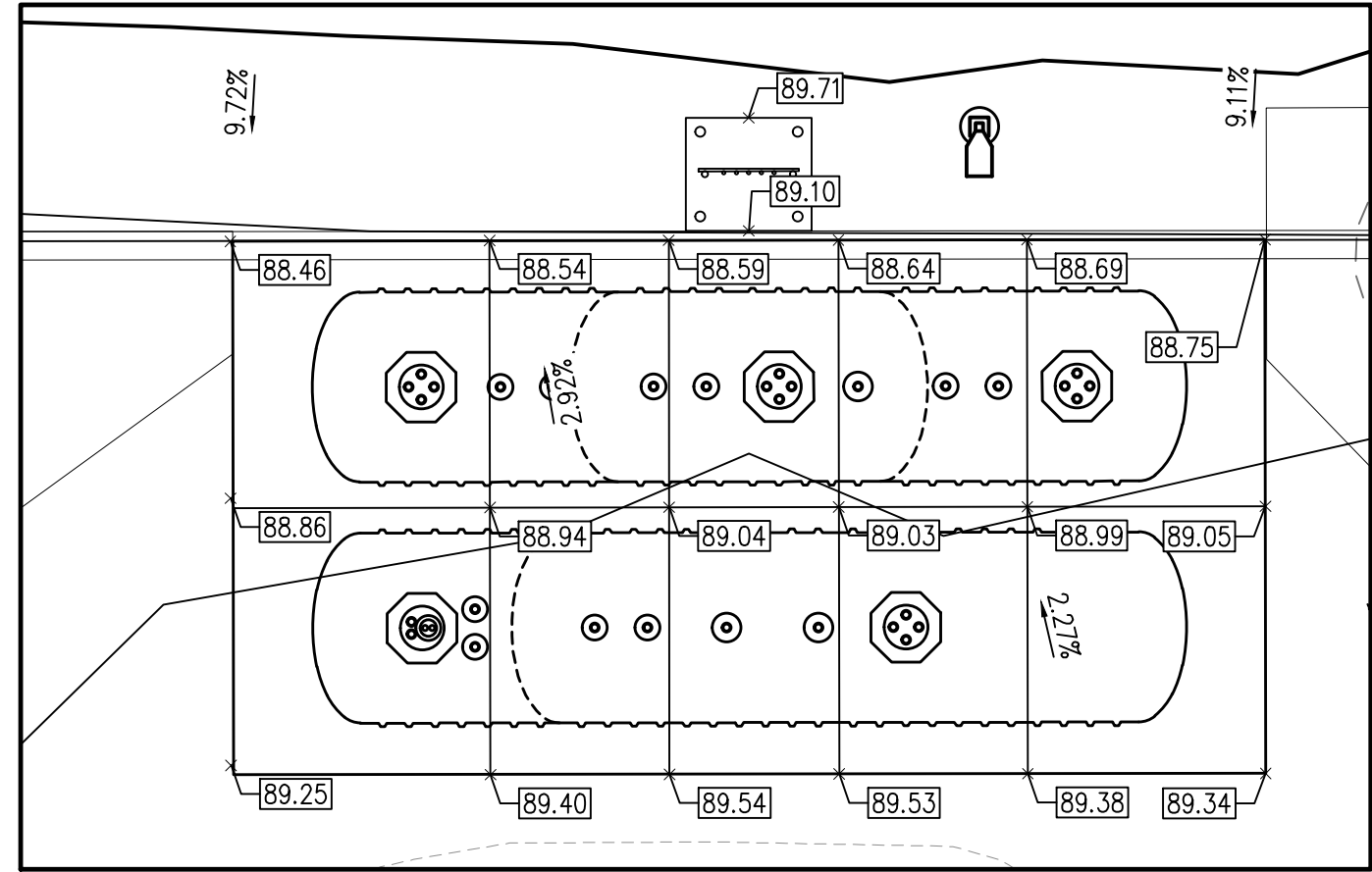
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- PROPOSED
- BOUNDARY LINE
 - MAJOR CONTOUR
 - MINOR CONTOUR
 - SPOT ELEVATIONS:
 - XX.XX TBC = TOP BACK OF CURB
 - XX.XX FL = FLOWLINE
 - XX.XX TOI = TOP OF ISLAND
 - XX.XX LP = LOW POINT
 - XX.XX ME = MATCH EXISTING
 - XX.XX = FINISHED GRADE
 - DRAINAGE SLOPE AND DIRECTION
 - STORM SEWER (LESS THAN 12"Ø)
 - PROPOSED STORM SEWER (12"Ø AND LARGER)



CURB ISLAND AT STORE FRONT
DESIGN WIND SPEED= 130 M.P.H.

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CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

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ENLARGED GRADING PLAN
MURPHY USA (NT)
9091 WESTVIEW RD
LONE TREE
COLORADO

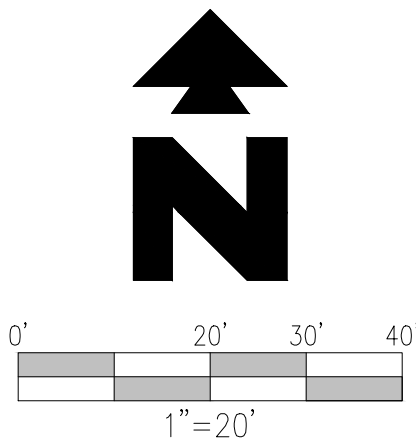
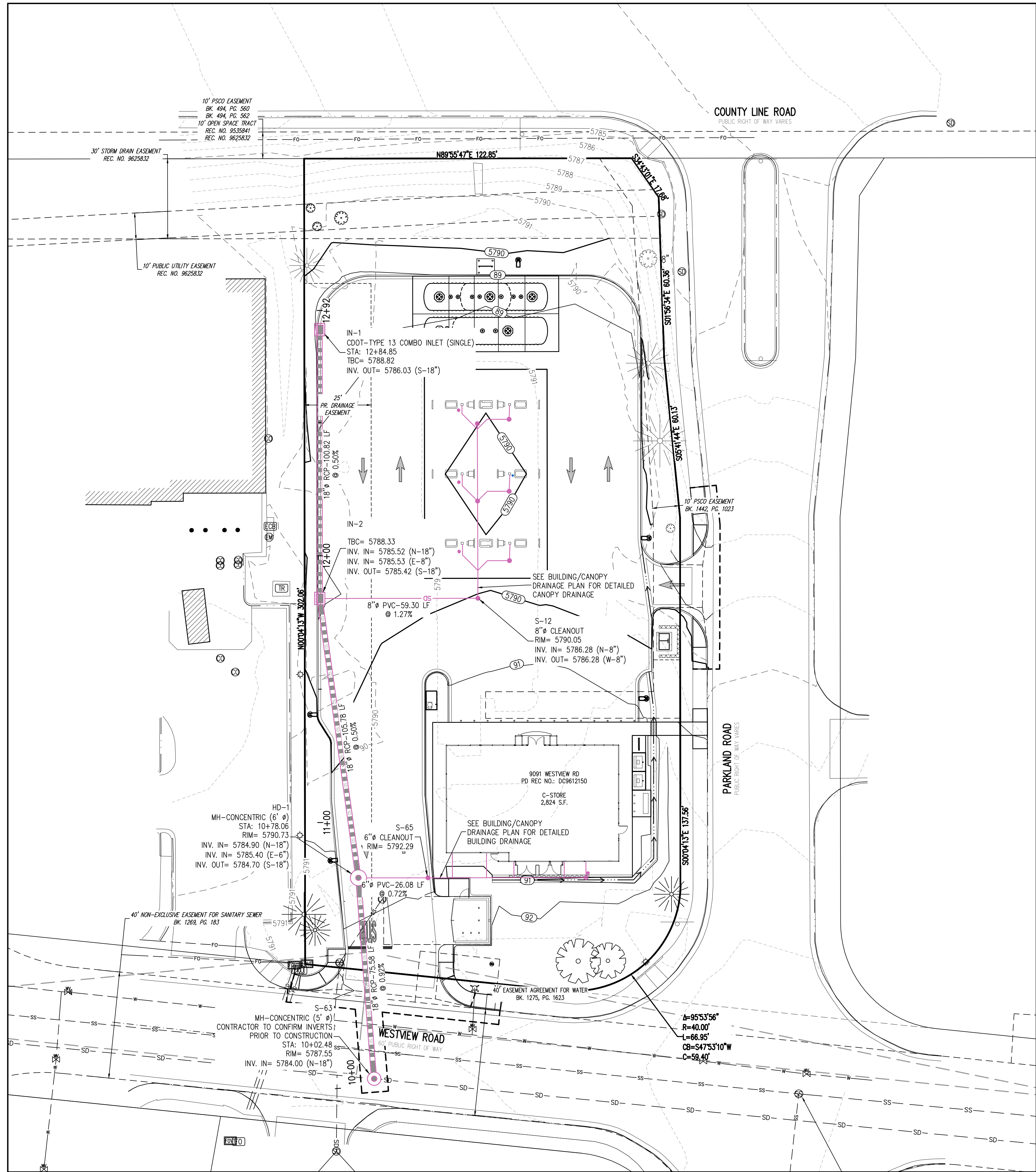
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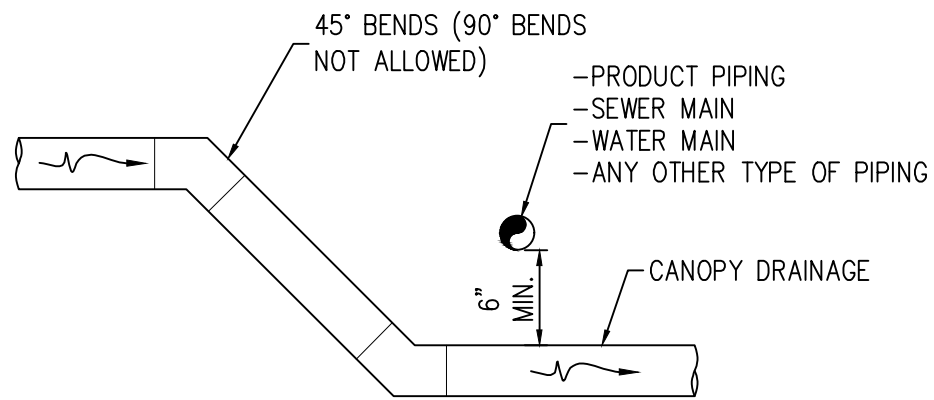
200 PEACH STREET
EL DORADO, AR 71730

MURPHY
USA



EXISTING	
---	5460 --- EXISTING MAJOR CONTOUR
---	52 --- EXISTING MINOR CONTOUR
---	SD --- EXISTING STORM SEWER (LESS THAN 12"Ø)
---	SS --- EXISTING SANITARY SEWER
---	W --- EXISTING WATER
---	UE --- EXISTING UNDERGROUND ELECTRIC
---	OHE --- EXISTING OVERHEAD ELECTRIC
---	FO --- EXISTING FIBER OPTIC
---	G --- EXISTING GAS
⊙	EXISTING STREET LIGHT
⊞	EXISTING TRANSFORMER
⊞	EXISTING ELECTRIC METER
⊞	EXISTING ELECTRIC BOX
⊞	EXISTING FIBER OPTIC BOX
⊞	EXISTING GAS METER
⊞	EXISTING SANITARY SEWER MANHOLE
⊞	EXISTING WATER VALVE
⊞	EXISTING STORM INLET
⊞	EXISTING FIRE HYDRANT
⊞	EXISTING SIGN
⊞	EXISTING BOLLARD
⊞	EXISTING TREE

PROPOSED	
---	BOUNDARY LINE
---	W --- WATER SERVICE
---	SS --- SANITARY SERVICE
---	E --- ELECTRICAL SERVICE
---	SD --- PROPOSED STORM SEWER (LESS THAN 12"Ø)
---	SD --- PROPOSED STORM SEWER (12"Ø AND LARGER)



TYPICAL PIPE CROSSING
DESIGN WIND SPEED= 130 M.P.H.

SEE SHEET C-4.3 FOR BUILDING
ROOF AND CANOPY DRAINAGE

CONTRACTOR TO VERIFY ALL
ELEVATIONS AND CONFLICTS PRIOR TO
INSTALLING BUILDING AND CANOPY
DRAINAGE.

THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR
CONSTRUCTION SAFETY

CITY OF LONE TREE
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ENGINEERING DIVISION ACCEPTANCE BLOCK

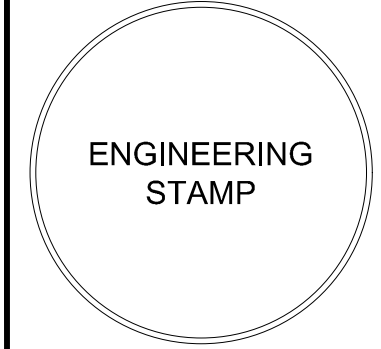
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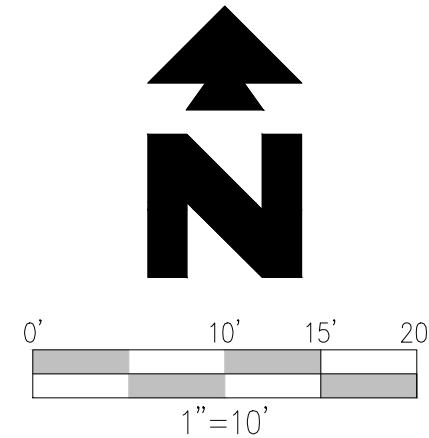
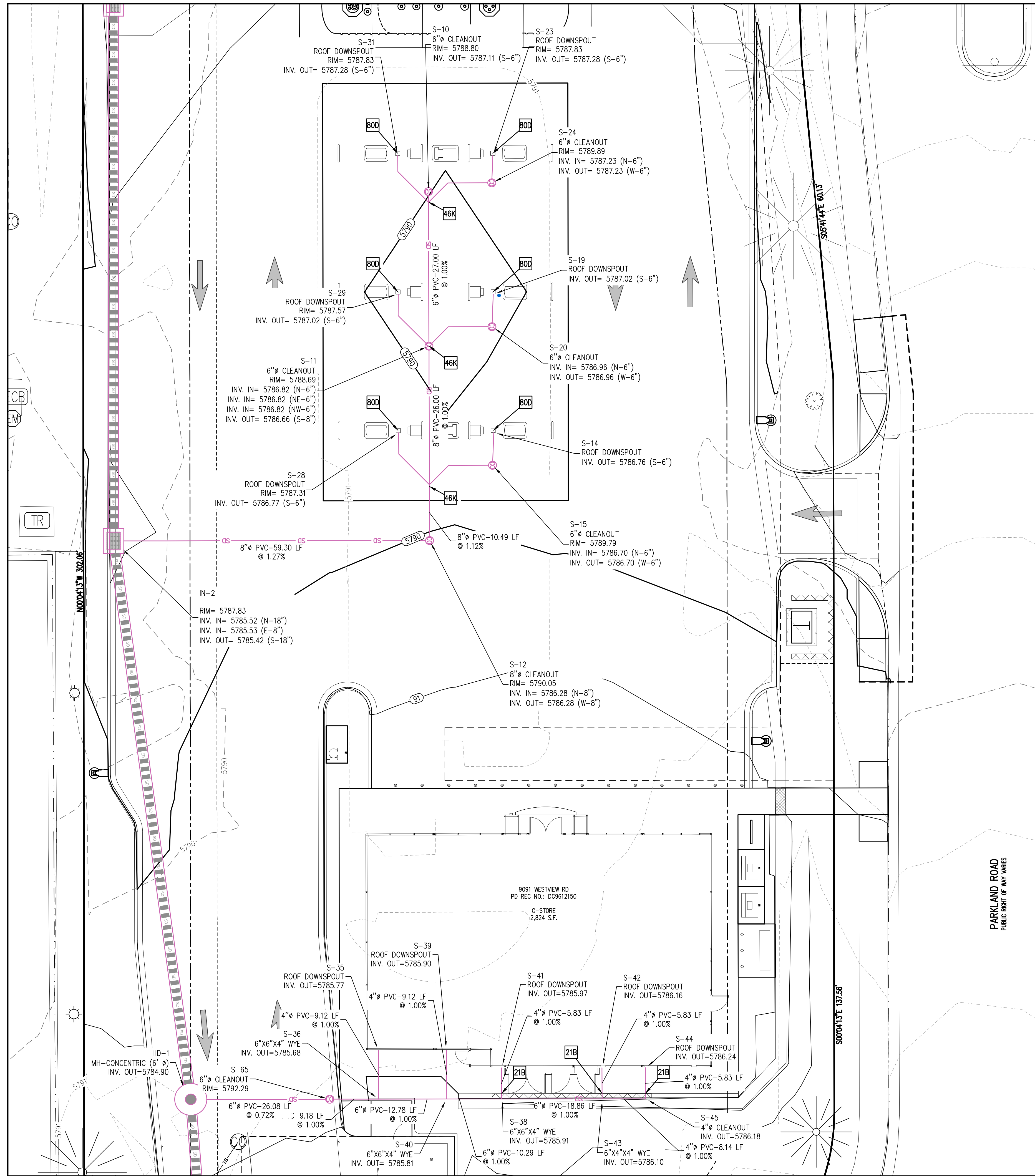


OVERALL DRAINAGE PLAN
MURPHY USA (NTI)
9091 WESTVIEW RD
LONE TREE
COLORADO

Galloway
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Greenwood Village, CO 80111
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MURPHY OIL USA, INC.
200 PEACH STREET
EL DORADO, AR 71730

MURPHY USA

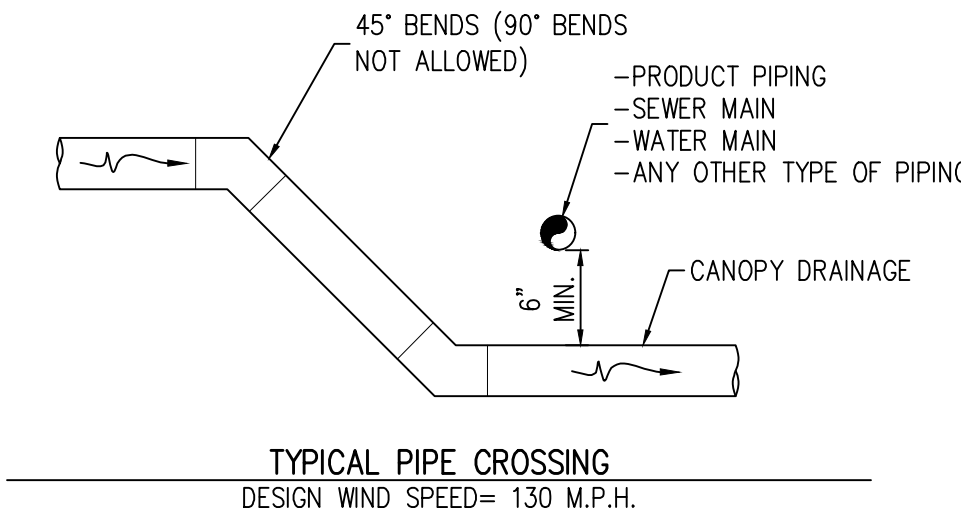


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☼	EXISTING STREET LIGHT
⊞	EXISTING TRANSFORMER
⊙	EXISTING ELECTRIC METER
⊞	EXISTING ELECTRIC BOX
⊙	EXISTING FIBER OPTIC BOX
⊙	EXISTING GAS METER
⊙	EXISTING SANITARY SEWER MANHOLE
⊙	EXISTING WATER VALVE
⊙	EXISTING STORM INLET
⊙	EXISTING FIRE HYDRANT
⊙	EXISTING SIGN
•	EXISTING BOLLARD
☼	EXISTING TREE
☼	EXISTING TREE

PROPOSED	
---	BOUNDARY LINE
---	CANOPY PVC PIPE DRAINAGE
---	PROPOSED MAJOR CONTOUR ELEVATIONS
---	PROPOSED MINOR CONTOUR ELEVATIONS
---	PROPOSED STORM PIPE

- GENERAL - CANOPY DRAINAGE NOTES**
- DRAINAGE PIPING AND FITTINGS FOR CANOPY DRAINAGE SHALL BE SOLVENT WELD PVC SCH. 40 (MIN.)
 - REFER TO CLEANOUT DETAIL FOR REQUIRED HEAVY DUTY COVER.
 - DRAINAGE PIPING SHALL BE ROUTED BELOW PRODUCT PIPING (MIN. 6" VERTICAL SEPARATION). COORDINATE WITH TANK/PIPING PLANS.

- CANOPY DRAINAGE DETAILS**
- 18C CONNECT TO EXISTING STORM DRAIN INLET - NEATLY CORE OPENING IN WALL OF CATCH BASIN AND SEAL ANNULAR SPACE WITH NON-SHRINK GROUT
- 46K ROOF DRAIN DOWNSPOUT CONNECTION
- 80D DOWNSPOUT COLLECTOR
- 21B CURB OUTFALL



CONTRACTOR TO VERIFY ALL ELEVATIONS AND CONFLICTS PRIOR TO INSTALLING BUILDING AND CANOPY DRAINAGE.

THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR CONSTRUCTION SAFETY

CAUTION - NOTICE TO CONTRACTOR

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2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

811
Know what's below.
Call before you dig.

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

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Sheet 8 of 23

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BUILDING & CANOPY DRAINAGE PLAN

MURPHY OIL USA (NTI)

9091 WESTVIEW RD

LONE TREE

COLORADO

MURPHY OIL USA, INC.

200 PEACH STREET

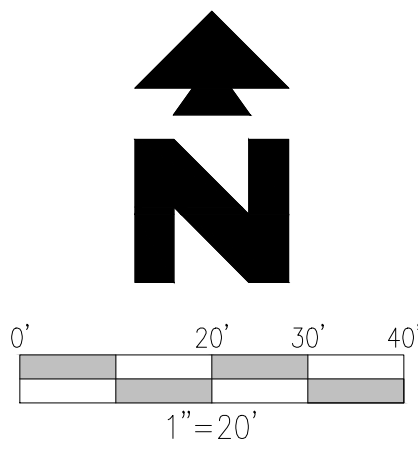
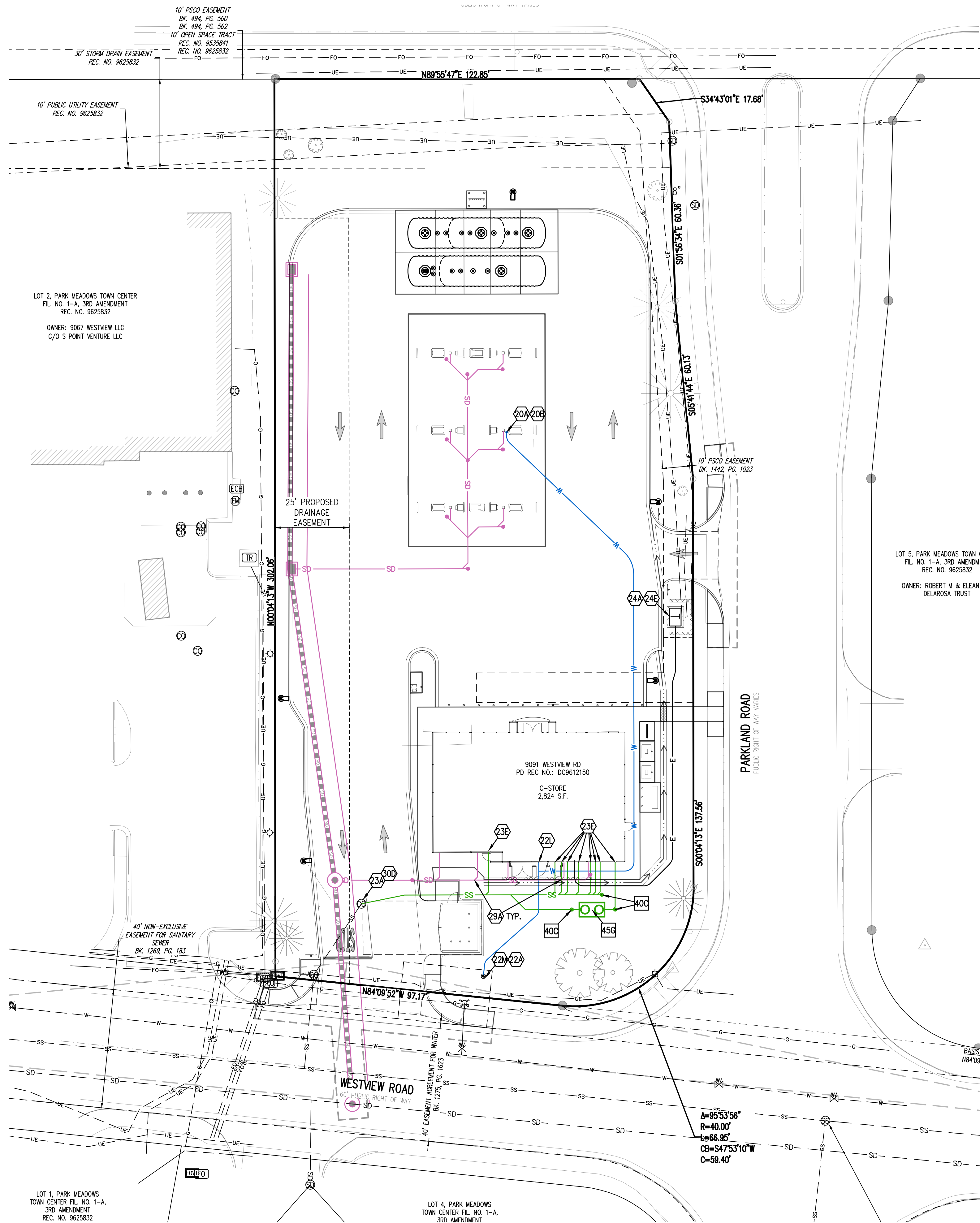
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CAUTION:
UNDERGROUND AND
ABOVE GROUND UTILITIES

GENERAL UTILITY NOTES

- ALL BUILDING WATER LINES FROM METER TOWARDS BUILDING SHALL BE SCHEDULE 40 PVC MEETING ASTM D1785 & D2665 SPECIFICATIONS AND SHALL BE RATED FOR USE WITH POTABLE WATER PER NSF ST. 61 WITH 36" MIN. COVER.
- ALL SANITARY SEWER LINES SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE SPECIFIED BY THE UTILITY COMPANY, PROVIDE 36" MINIMUM COVER.
- CONTRACTOR SHALL COORDINATE ANY DISRUPTIONS TO EXISTING UTILITY SERVICES WITH ADJACENT PROPERTY OWNERS.
- ALL ELECTRIC AND TELEPHONE EXTENSIONS INCLUDING SERVICE LINES SHALL BE CONSTRUCTED TO THE APPROPRIATE UTILITY COMPANY SPECIFICATIONS. ALL UTILITY DISCONNECTIONS SHALL BE COORDINATE WITH THE DESIGNATED UTILITY COMPANIES.
- CONSTRUCTION SHALL NOT START ON ANY PUBLIC UTILITY SYSTEM UNTIL WRITTEN APPROVAL HAS BEEN RECEIVED BY THE ENGINEER FROM THE APPROPRIATE GOVERNING AUTHORITY AND CONTRACTOR HAS BEEN NOTIFIED BY THE ENGINEER.
- PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OTHER UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM CONSULTING ENGINEER(S) AND THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. NOTIFICATION SHALL BE MADE A MINIMUM OF (72) HOURS PRIOR TO CONSTRUCTION. CONSULTANT AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.
- CONTRACTOR SHALL COMPLY COMPLETELY WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING AND OTHER MEANS OF PROTECTION. THIS IS TO INCLUDE, BUT NOT LIMITED FOR ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH PERFORMANCE CRITERIA AS REQUIRED BY OSHA.
- FREEZELESS WATER BIBB TO BE LOCATED ON BUILDING SIDE OF CANOPY COLUMN.
- WATERLINE SERVICE TO DISPENSER ISLAND TO BE ¾" SCH. 40 PVC.

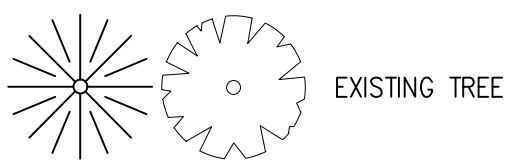
UTILITY INSTALLATION RESPONSIBILITIES

- WATER SERVICE:**
- UTILIZING EXISTING METER AND SERVICE CONNECTION, NO FEES ARE ANTICIPATED.
 - PLAN TO USE EXISTING WATER METER.
 - CONTRACTOR TO PROVIDE AND INSTALL WATER LINES AND APPURTENANCES FROM METER TO BUILDING.
- ELECTRIC SERVICE:**
- PLAN TO USE EXISTING TRANSFORMER.
 - CONTRACTOR TO PROVIDE AND INSTALL 2-4" CONDUITS FROM TRANSFORMER TO BUILDING INCLUDING SWEEPS (36" R.), AND SECONDARY WIRE.
- SEWER SERVICE:**
- CONTRACTOR TO CONNECT TO EXISTING STUB OUT, PROVIDE AND INSTALL SERVICE LINES AND CLEANOUTS FROM POINT OF CONNECTION TO BUILDING.
- INTERNET SERVICE:**
- CONTRACTOR TO INSTALL 2-2" CONDUITS WITH PULL STRING FROM BUILDING TO CONNECTION POINT.

SEE COVER SHEET FOR UTILITY CONTACTS.

EXISTING

- 5460 EXISTING MAJOR CONTOUR
- 52 EXISTING MINOR CONTOUR
- SD EXISTING STORM SEWER (LESS THAN 12")
- SS EXISTING SANITARY SEWER
- W EXISTING WATER
- UE EXISTING UNDERGROUND ELECTRIC
- OHE EXISTING OVERHEAD ELECTRIC
- FO EXISTING FIBER OPTIC
- G EXISTING GAS
- EXISTING STREET LIGHT
- EXISTING TRANSFORMER
- EXISTING ELECTRIC METER
- EXISTING ELECTRIC BOX
- EXISTING FIBER OPTIC BOX
- EXISTING GAS METER
- EXISTING SANITARY SEWER MANHOLE
- EXISTING WATER VALVE
- EXISTING STORM INLET
- EXISTING FIRE HYDRANT
- EXISTING SIGN
- EXISTING BOLLARD



PROPOSED

- BOUNDARY LINE
- W WATER SERVICE
- SS SANITARY SERVICE
- E ELECTRICAL SERVICE
- SD PROPOSED STORM SEWER (LESS THAN 12")
- SD PROPOSED STORM SEWER (12" & LARGER)

UTILITY NOTES

- 20A FREEZE-LESS YARD HYDRANT AT PUMP ISLAND (¾" SCH. 40 PVC)
- 20B POINT OF CONNECTION - CANOPY WATER SERVICE
- 22A POINT OF CONNECTION - WATER SERVICE
- 22L METERED DOMESTIC WATER SERVICE ENTRY PER ARCH. PLANS (SEE SIZES THIS SHEET)
- 22M EXISTING WATER METER
- 23A POINT OF CONNECTION - EXISTING SANITARY SEWER
- 23E SANITARY SEWER SERVICE ENTRY (PER ARCH. PLANS)
- 24A POINT OF CONNECTION FOR UNDERGROUND ELECTRIC SERVICE
- 24E TRANSFORMER
- 29A MAINTAIN MIN. 18" VERTICAL SEPARATION
- 30D VERIFY LOCATION AND DEPTH OF EXISTING UTILITY BEFORE CONSTRUCTING PROPOSED UTILITY

UTILITY DETAILS

- 40C SANITARY SEWER CLEAN OUT
- 45G 1,000 GALLON GREASE INTERCEPTOR

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR CONSTRUCTION SAFETY

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

CAUTION - NOTICE TO CONTRACTOR

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SHEET NO.

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Sheet 11 of 29

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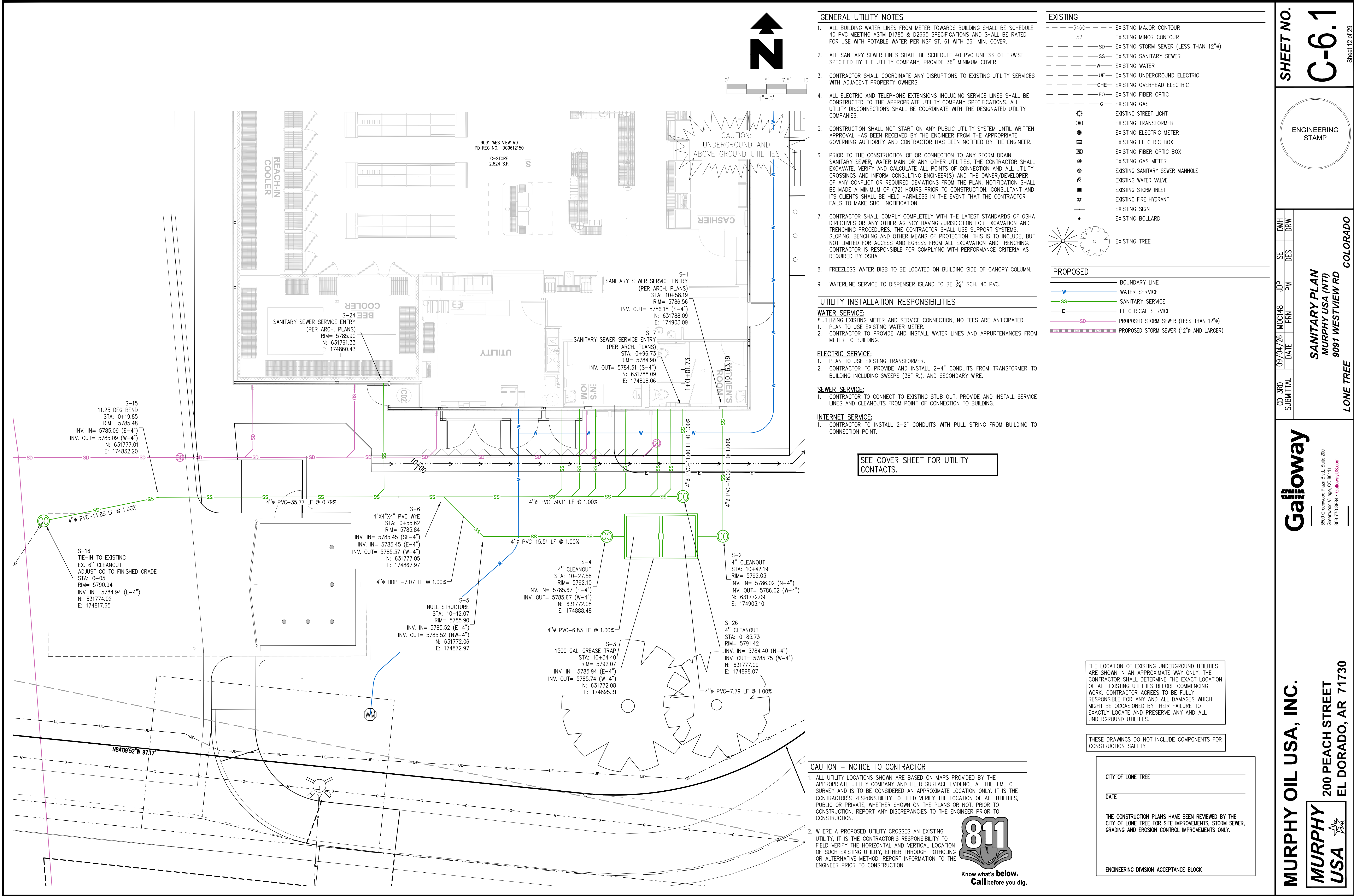
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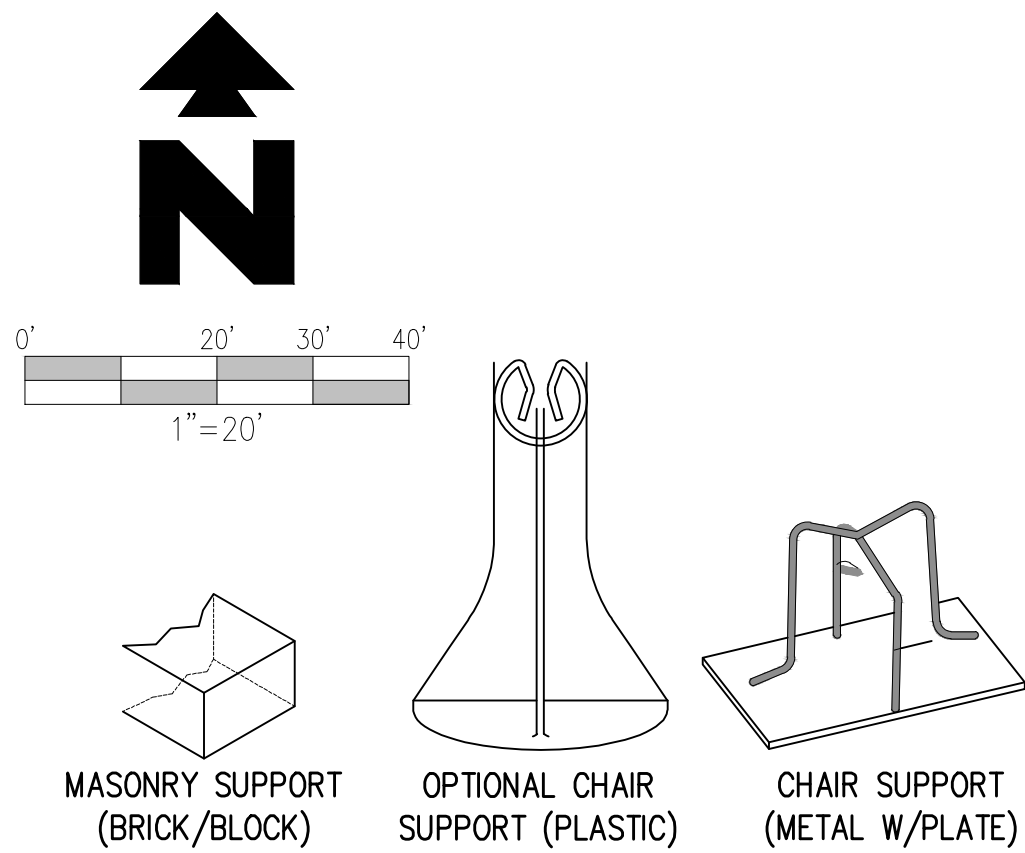
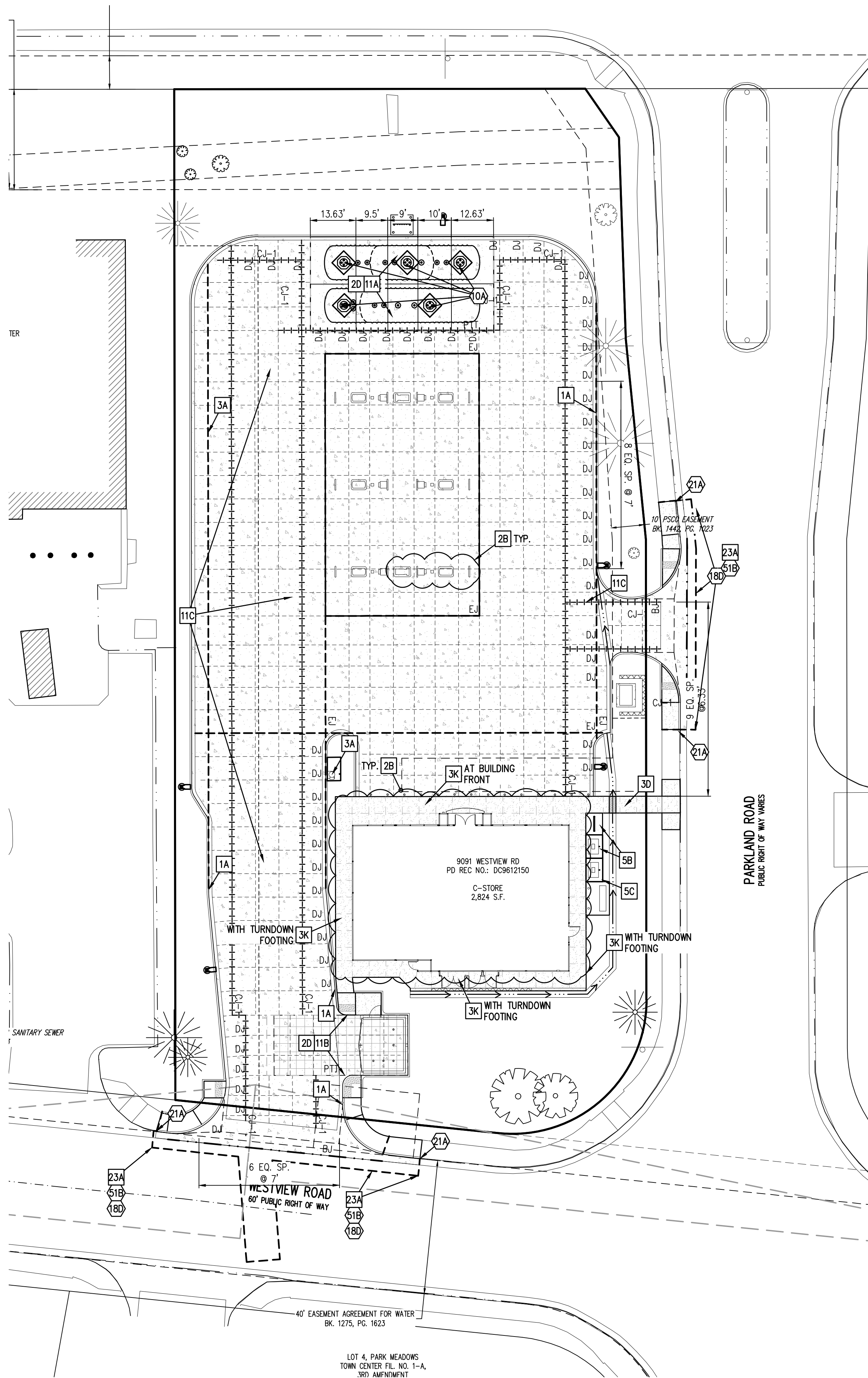
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MURPHY
USA





- NOTES:**
- CONTRACTOR SHALL UTILIZE THE APPROPRIATE SUPPORT DEVICE TO ACCEPT MESH OR REBAR REINFORCEMENT TYPES.
 - CHAIR SUPPORTS SHALL BE PLACED AT THREE FEET (3') O.C.E.W. MIN. SPACING.
 - SUPPORT SHALL BE SIZED TO PROVIDE ADEQUATE STRUCTURAL SUPPORT DURING CONSTRUCTION AND MAINTAIN THE REINFORCEMENT WITHIN THE CENTER OF THE PAVEMENT SECTION.

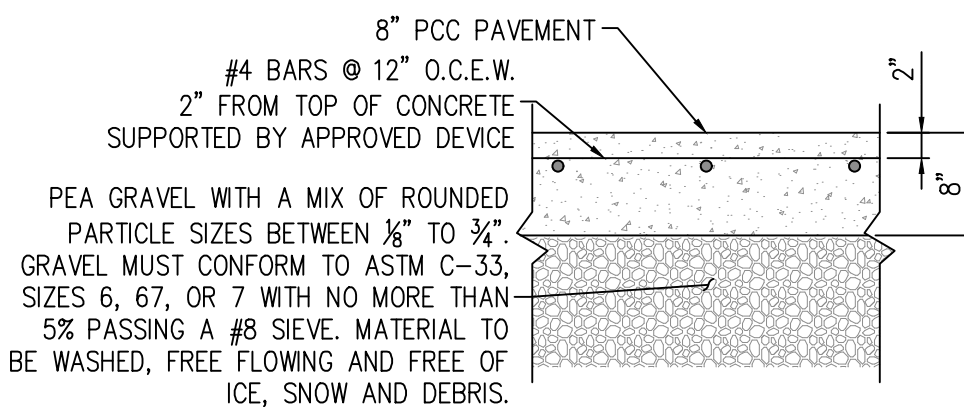
CHAIR SUPPORT FOR REINFORCED CONCRETE PAVEMENT
N.T.S.

- TOPSOIL / EXISTING PAVEMENT LAYER** – REMOVE EXISTING PAVEMENT SECTION, SURFICIAL VEGETATION (6\"/>
- EXISTING SUBGRADE** – EXISTING SOILS AT TIME OF GEOTECH INVESTIGATION WERE FOUND TO BE EXCESSIVELY WET. EXISTING SOILS SHALL BE REMOVED TO ALLOW FOR PLACEMENT OF 24\"/>

AS AN ALTERNATIVE TO THE REMOVAL AND REPLACEMENT OF EXISTING MATERIAL TO ALLOW FOR 24\"/>

- PROPOSED PAVEMENT AND BASE MATERIAL** (RE: THIS SHEET)
- FILL MATERIAL (IMPORTED MATERIAL)** – SHALL CONSIST OF HOMOGENOUS SOILS FREE OF ORGANIC MATTER AND DEBRIS, OR PARTICLES LARGER THAN THREE (3) INCHES IN DIAMETER WITH LIQUID LIMIT LESS THAN 40, PLASTICITY INDEX BETWEEN 10 AND 20, AND CONSIST OF CLAYEY OR SILTY SANDS OR SANDY CLAY SOIL (SC, SM OR CL), AS DEFINED BY THE UNIFIED CLASSIFICATION SYSTEM. SELECT FILL SHOULD BE PLACED IN MAXIMUM LIFTS OF 8\"/>

TYPICAL EARTHWORK SECTIONS
N.T.S.



- PAVING NOTES**
- 18D MATCH EXISTING PAVEMENT ELEVATIONS
 - 21A TAPER CURB TO MATCH EXISTING CURB
 - 23A ASPHALT BUTTING JOINT
 - 51B LIMITS OF SAWCUT AND PAVEMENT REMOVAL

- PAVING DETAILS**
- 1A INTEGRAL CONCRETE CURB
 - 3A AIR/VAC UNIT MOUNTING SLAB
 - 3D CONCRETE SIDEWALK
 - 3K CONCRETE SIDEWALK AT BUILDING
 - 5B ICE BOX MOUNTING SLAB
 - 5C PROPANE BOX MOUNTING SLAB
 - 11A 8\"/>
 - 11B 8\"/>
 - 11C 5\"/>

- JOINT LAYOUT NOTES**
- 10A TANK MANHOLE REINFORCEMENT (SEE NOTE 6 IN THE GENERAL JOINT NOTES, THIS SHEET)

- JOINT LAYOUT DETAILS – SEE DETAIL SHEETS C-7.1**
- 2B TOOLED CONTROL JOINT
 - 2D #4 SMOOTH DOWEL BARS @ 24\"/>
 - 23A ASPHALT BUTTING JOINT

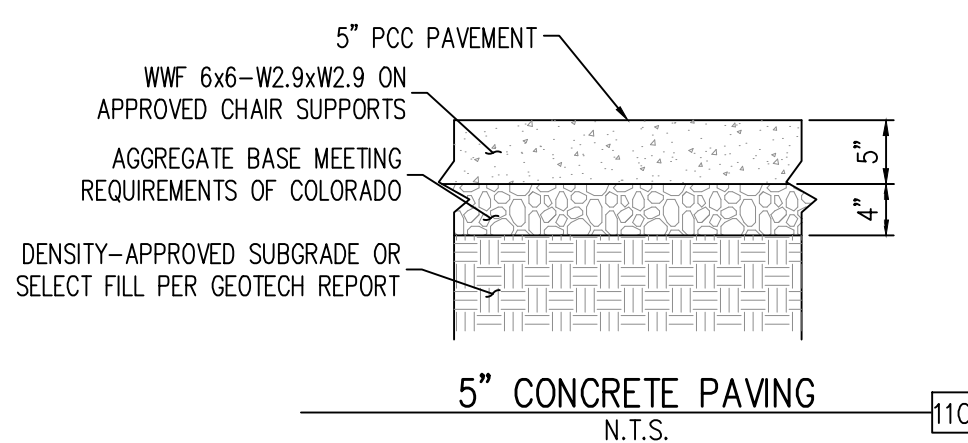
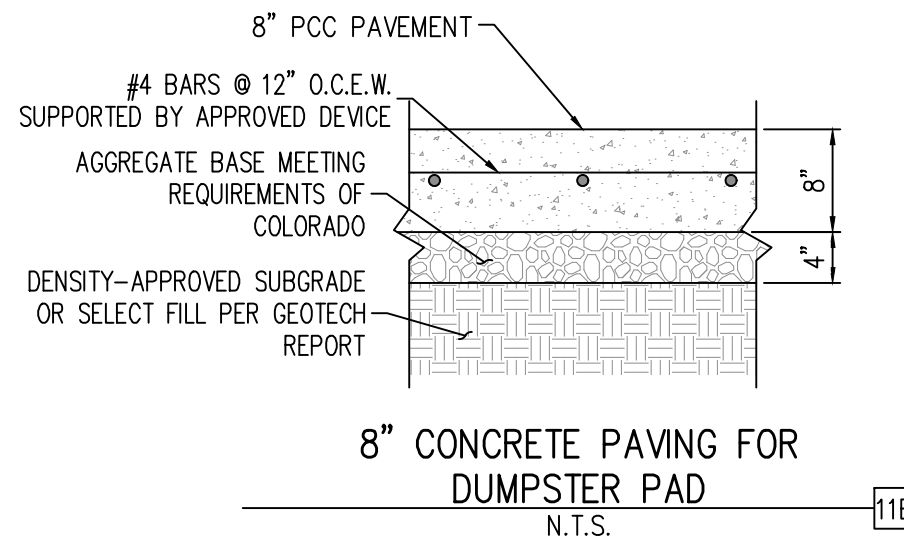
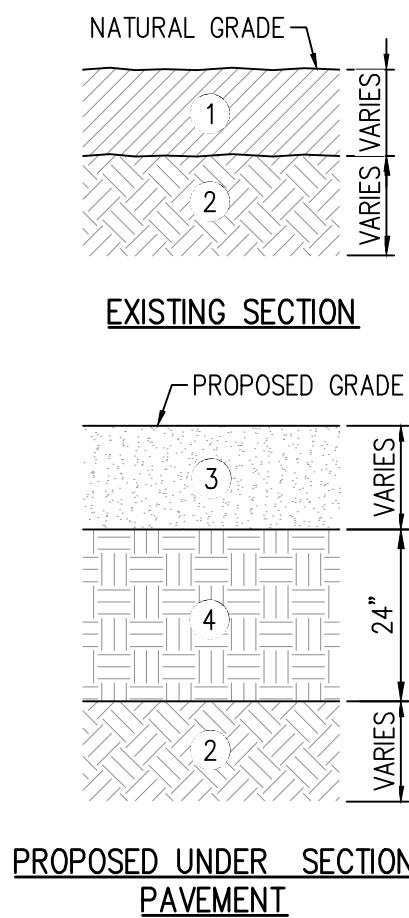
SOIL PREPARATION & PAVEMENT DESIGN NOTE

SOIL PREPARATION AND PAVEMENT DESIGN SHALL BE PER RECOMMENDATIONS FROM A GEOTECHNICAL REPORT PREPARED FOR THIS SITE AS FOLLOWS: GEOTECHNICAL ENGINEERING EXPLORATION AND ANALYSIS: PROPOSED MURPHY OIL USA FUEL STATION

GEOTECHNICAL ENGINEER: UNITED CONSULTING

PROJECT NO: MPOIL-25-CO-09967-02
DATE: FEBRUARY 27, 2026

THE CONTRACTOR MUST FULLY REVIEW THIS REPORT PRIOR TO CONSTRUCTION. INFORMATION IN THE GEOTECHNICAL REPORT SUPERSEDES ANY CONFLICTING INFORMATION CONTAINED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS. REFER TO GENERAL STRUCTURAL NOTES FOR SPECIFIC SOIL PREPARATION AT SITE STRUCTURES.



- NOTES:**
- CONCRETE SHALL BE 4,000 PSI COMPRESSIVE STRENGTH.
 - SEE SHEET C-13 FOR CONCRETE SPECIFICATIONS.

CONCRETE PAVING
DESIGN WIND SPEED= 130 M.P.H.

- PAVING LEGEND**
- CONCRETE SIDEWALK
 - CONCRETE SIDEWALK AT BUILDING
 - 8\"/>
 - 8\"/>
 - 5\"/>

- JOINT LEGEND**
- DJ DUMMY JOINT (DJ)
 - EJ EXPANSION JOINT (EJ)
 - CJ-1 CONSTRUCTION JOINT (CJ-1)
 - PTT PAVEMENT THICKNESS TRANSITION
 - BJ ASPHALT BUTTING JOINT

- GENERAL PAVING NOTES**
- CONCRETE ON ASPHALT UTILITY CUT REPAIR TO BE DYED TO MATCH SURROUND ASPHALT.
 - UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON ALL CURB AND GUTTER ADJACENT TO ASPHALT PAVING SHALL BE INSTALLED PER DETAIL 1A (SEE DETAILS SHEET C-9)
 - SEE ASSOCIATED PLANS FOR CANOPY, COLUMN, DISPENSER ISLAND DETAILS AND LAYOUT.
 - SURFACE COURSE, BASE, AND SUB-GRADE SHALL BE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS FOR LOCAL SOILS OR DRAINAGE CONDITIONS AND/OR METHODS.
 - SUBGRADE SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR OR AS SPECIFIED BY THE GEOTECHNICAL REPORT WHICHEVER IS MORE STRINGENT.
 - FOLLOW RECOMMENDATIONS IN GEOTECH REPORT FOR REINFORCEMENT OF CONCRETE SECTIONS.
 - FOLLOW RECOMMENDATIONS IN GEOTECH REPORT FOR PERMANENT UNDERDRAINS IN THE PAVEMENT AREAS.

- GENERAL JOINT NOTES**
- THIS PLAN IS FOR RELATIVE LAYOUT AND SCOPE OF WORK PURPOSES ONLY. REFER TO SITE PLAN FOR RELATIONSHIP OF THESE STRUCTURE TO EXISTING CONDITIONS AND REFERENCE POINTS.
 - 1/2\"/>
 - DOWELED JOINTS SHALL BE LOCATED ON 12\"/>
 - TANK SLAB SHALL EXTEND 2'-0\"/>
 - CHAMFER CORNER WHEN MEETING ASPHALT PAVING ONLY (24\"/>
 - REINFORCE CONCRETE SLAB AROUND MANHOLE WITH 4 #5 REBAR 96\"/>
 - EXPANSION JOINTS SHALL BE FILLED WITH SIKAFLEX-1C-SL (LIMESTONE).

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SEE SHEET C-13.0 FOR CONCRETE SPECIFICATIONS AND SHEET C-13.1 EARTHWORK SPECIFICATIONS

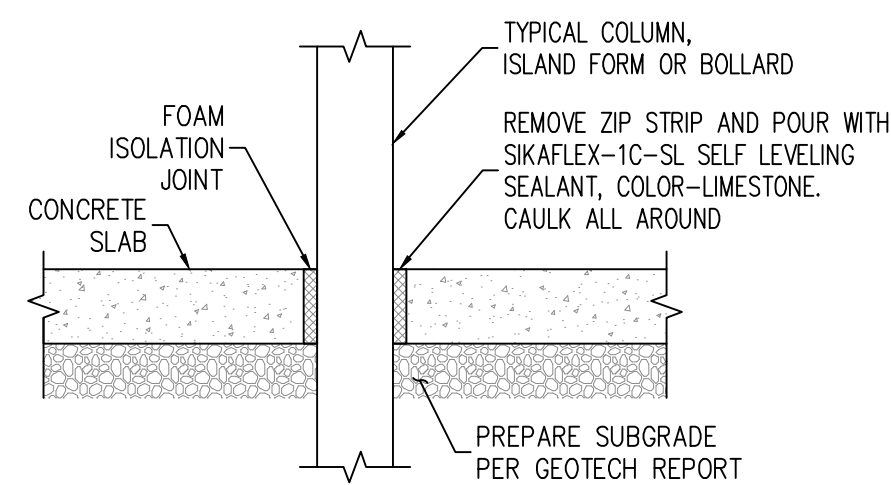
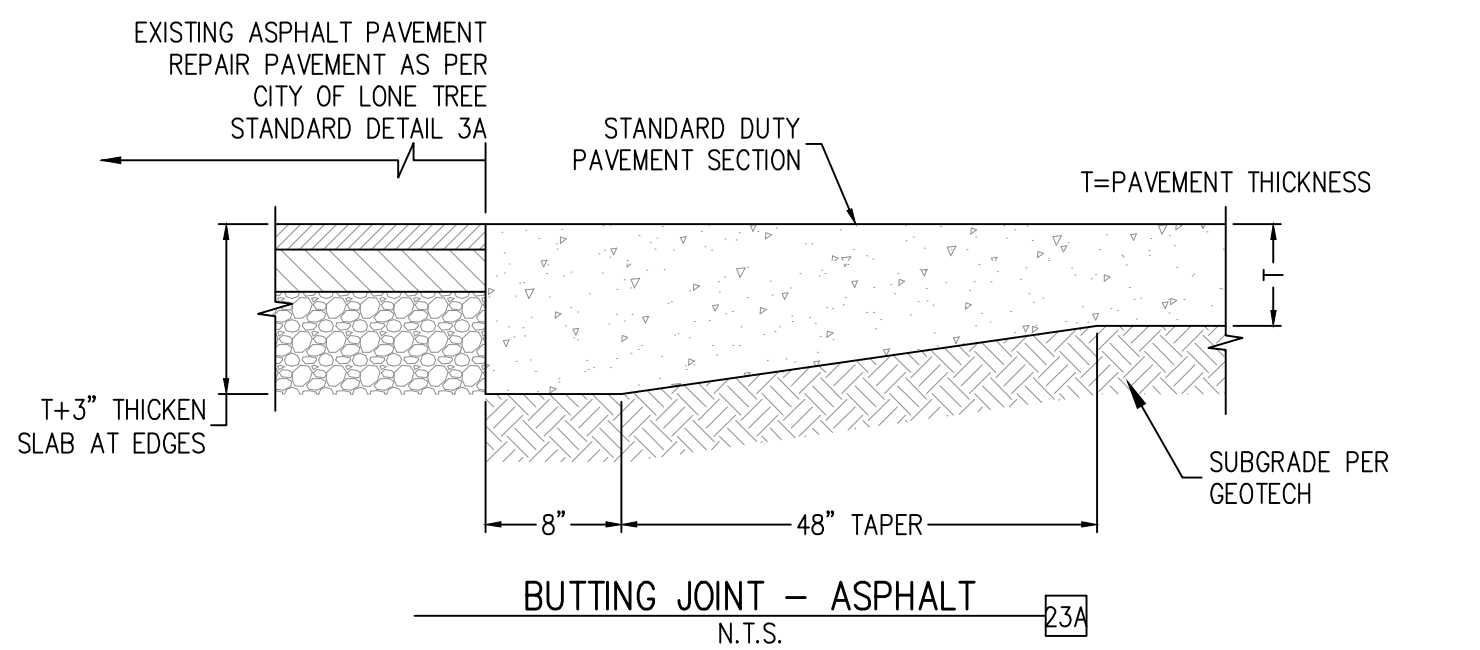
THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR CONSTRUCTION SAFETY

CITY OF LONE TREE

DATE

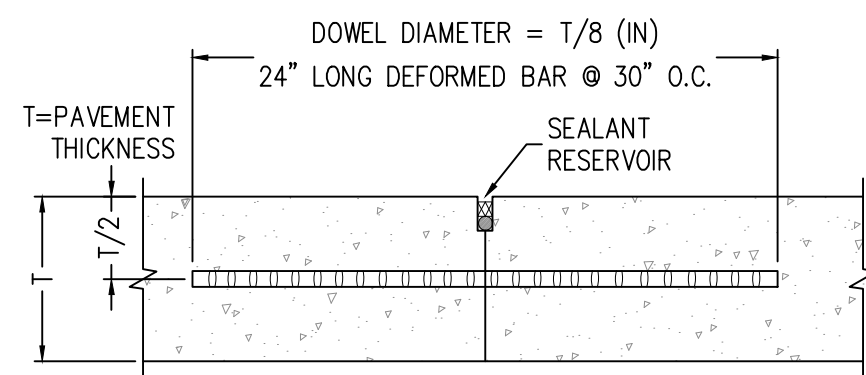
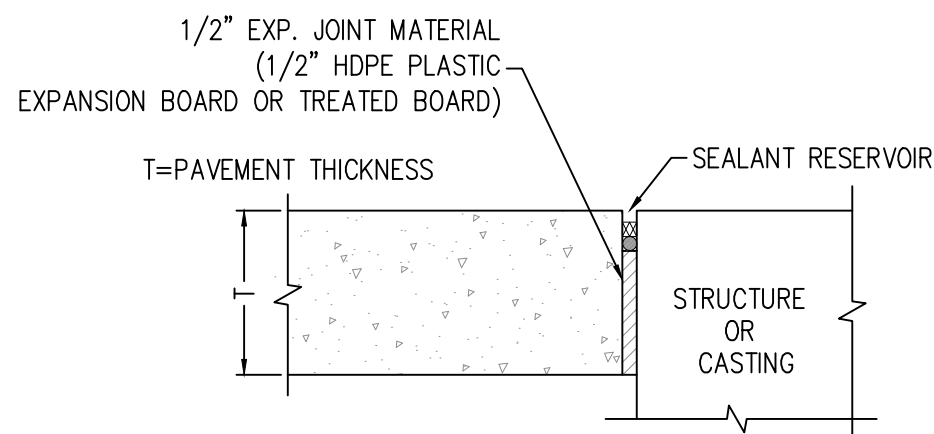
THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK



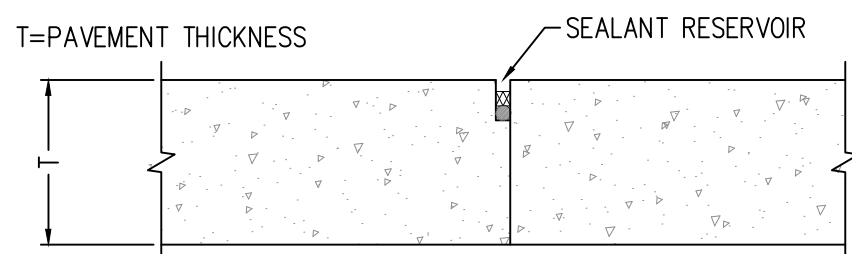
- NOTES:**
1. CONTRACTOR TO INSTALL FOAM ISOLATION JOINTS AROUND ALL CONCRETE TO METAL JOINTS (I.E. COLUMNS, ISLANDS BOLLARDS, HOSE BIBB, ETC.)
 2. CONTRACTOR TO USE DECK-O-FOAM, ASSHTO-M-153-84, BY SEALTIGHT OR EQUIVALENT.

FOAM ISOLATION JOINT (IJ)
N.T.S. [2F]



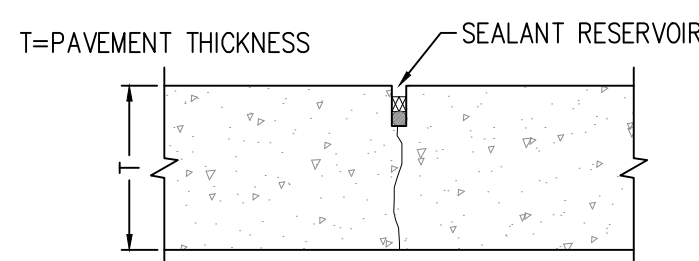
- NOTES:**
1. THIS DETAIL SHOULD BE UTILIZED ON THE JOINT ALONG THE ENTIRE PERIMETER OF THE PAVEMENT.
 2. TIE BARS SHALL BE SUPPORTED BY AN APPROVED DEVICE.

CONSTRUCTION JOINT (CJ-1)
DESIGN WIND SPEED= 130 M.P.H.

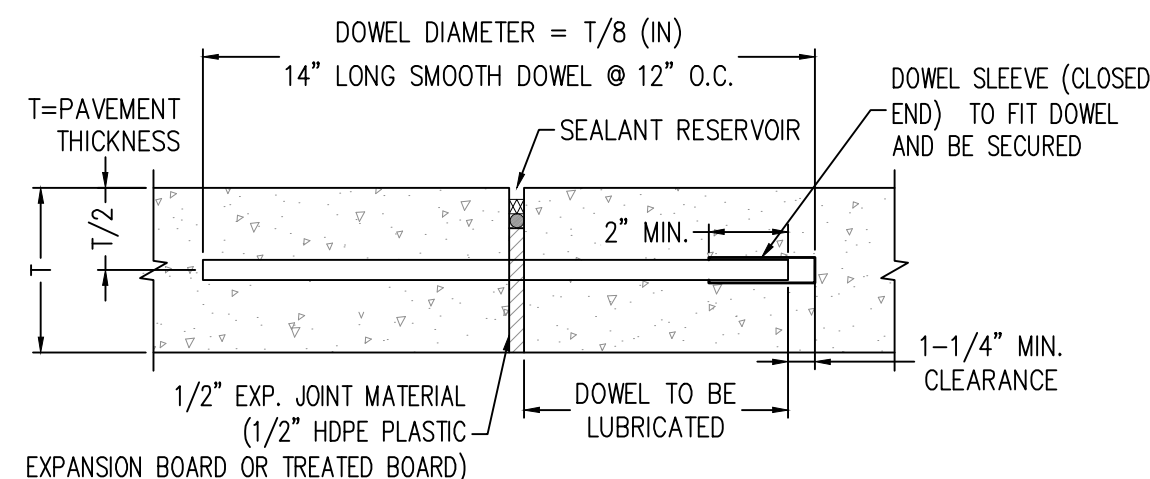


- NOTES:**
1. THIS DETAIL IS NOT APPLICABLE ALONG OUTER PERIMETER OF PAVED AREA.
 2. THIS DETAIL SHALL BE USED AS REQUIRED FOR CONSTRUCTION PURPOSES.

CONSTRUCTION JOINT (CJ-2)
DESIGN WIND SPEED= 130 M.P.H.

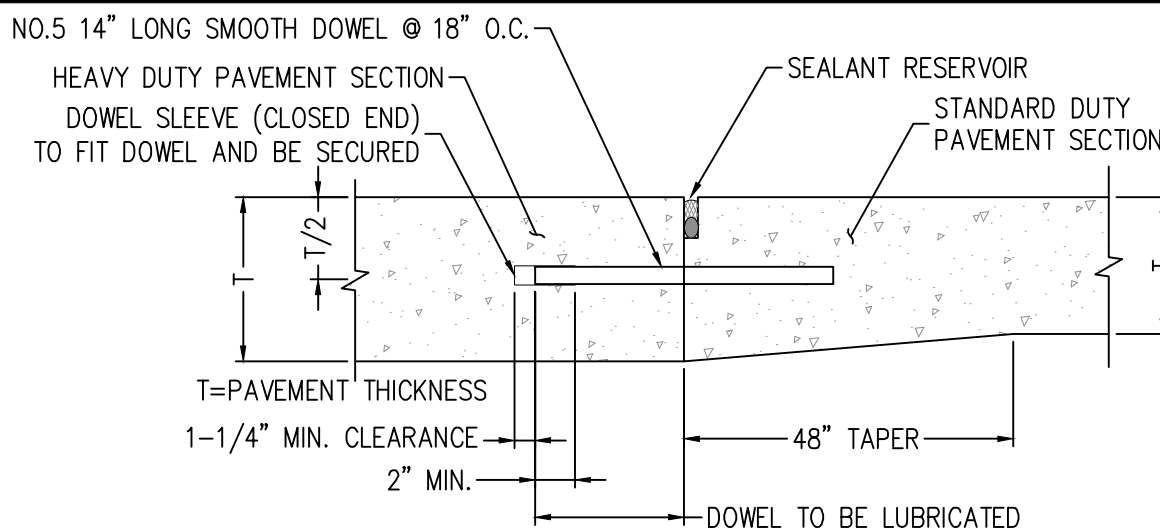


DUMMY JOINT (Dj)
DESIGN WIND SPEED= 130 M.P.H.



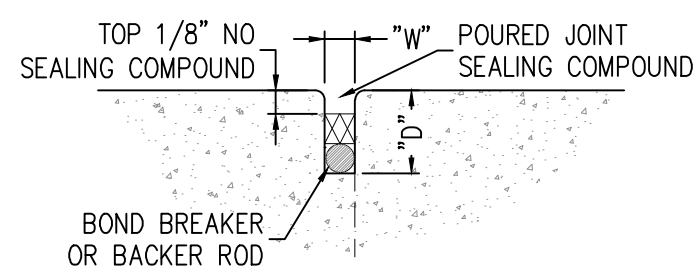
- NOTE:**
1. DOWELS SHALL BE SUPPORTED BY AN APPROVED DEVICE.

EXPANSION JOINT (Ej)
DESIGN WIND SPEED= 130 M.P.H.



- NOTES:**
1. THIS DETAIL SHOULD BE UTILIZED ON JOINTS SEPARATING PAVEMENTS OF DIFFERING THICKNESS.
 2. DOWELS SHALL BE SUPPORTED BY AN APPROVED DEVICE.

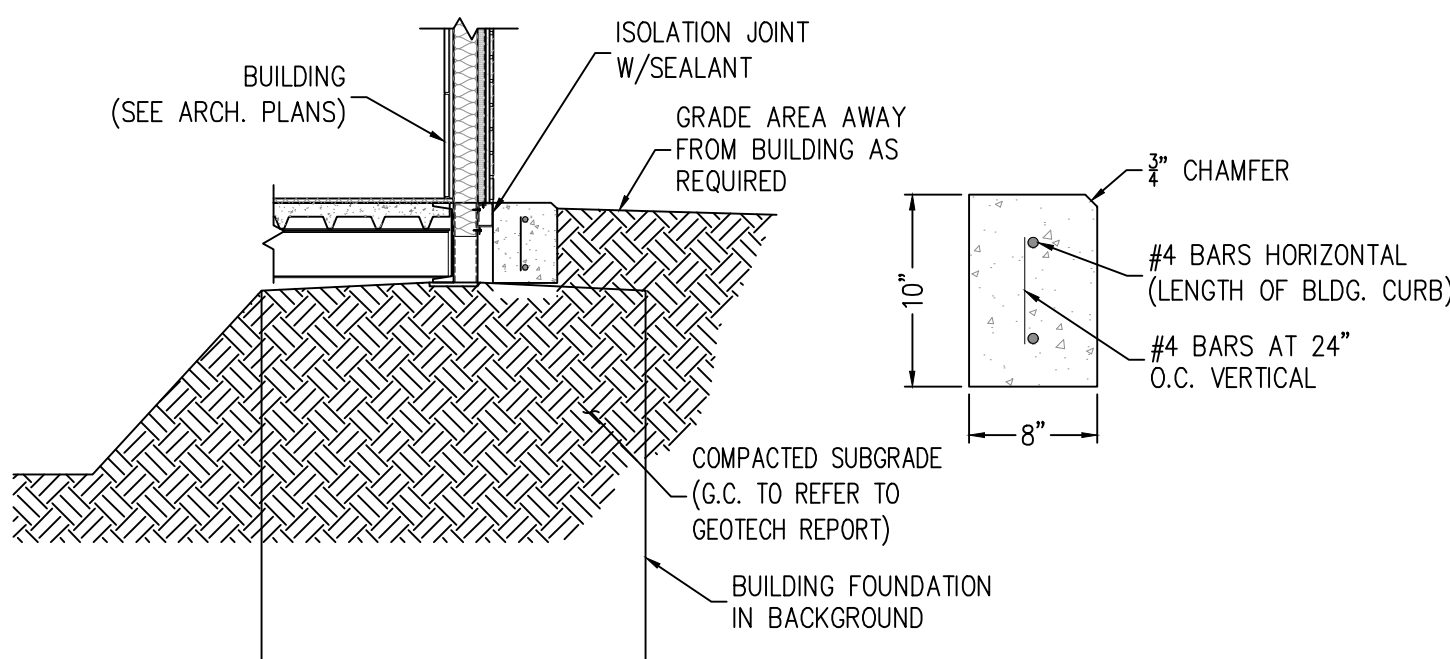
PAVEMENT THICKNESS TRANSITION
DESIGN WIND SPEED= 130 M.P.H.



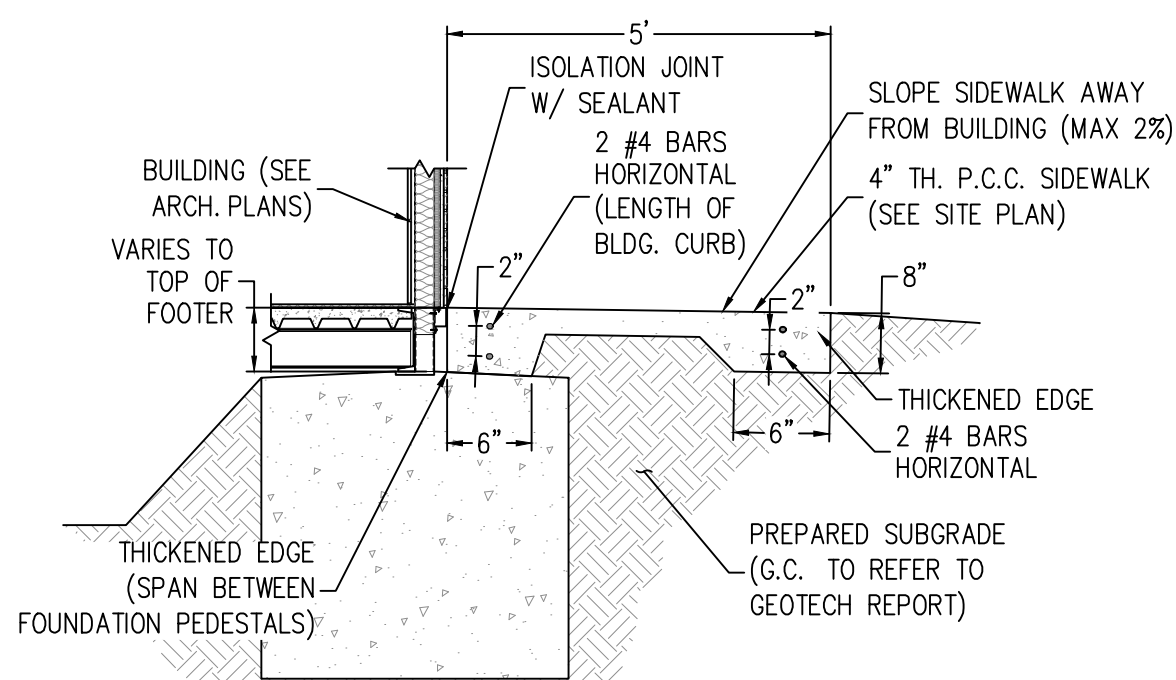
DIMENSION	SAWCUT	FORMED
"W"	1/8" - 1/4"	1/2"
"D"	1"	1 1/8"

- NOTES:**
1. SEALANT RESERVOIR CAN BE FORMED (CAST-IN-PLACE) OR SAWCUT.
 2. SEALANT SHALL BE SIKAFLEX-1C-SL SELF LEVELING SEALANT, COLOR LIMESTONE.
 3. PROVIDE 3/4" BACKER ROD FOR FORMED SEALANT RESERVOIR.
 4. PROVIDE BOND BREAKER FOR SAWCUT SEALANT RESERVOIR.
 5. TOOL 1/2" RADIUS FOR FORMED SEALANT RESERVOIR.

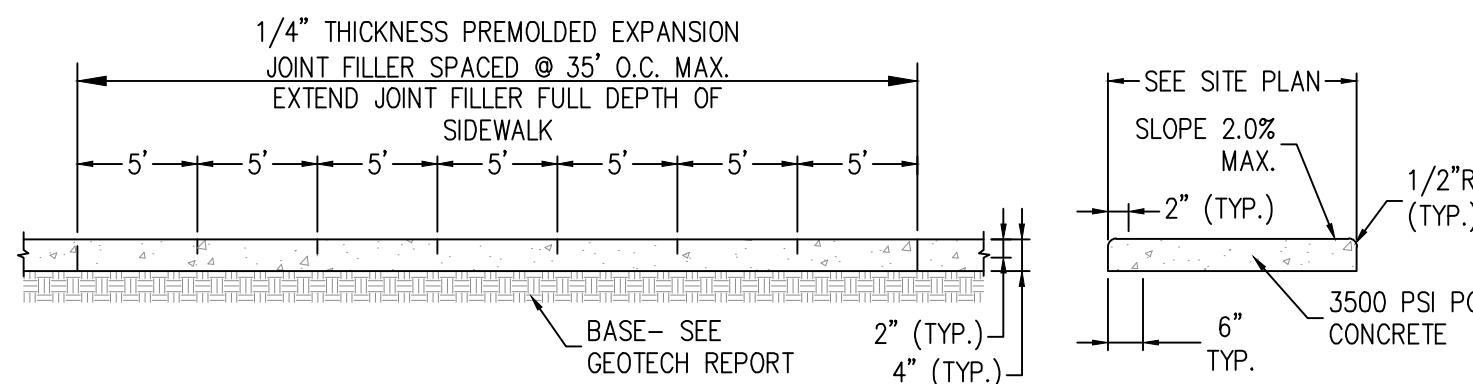
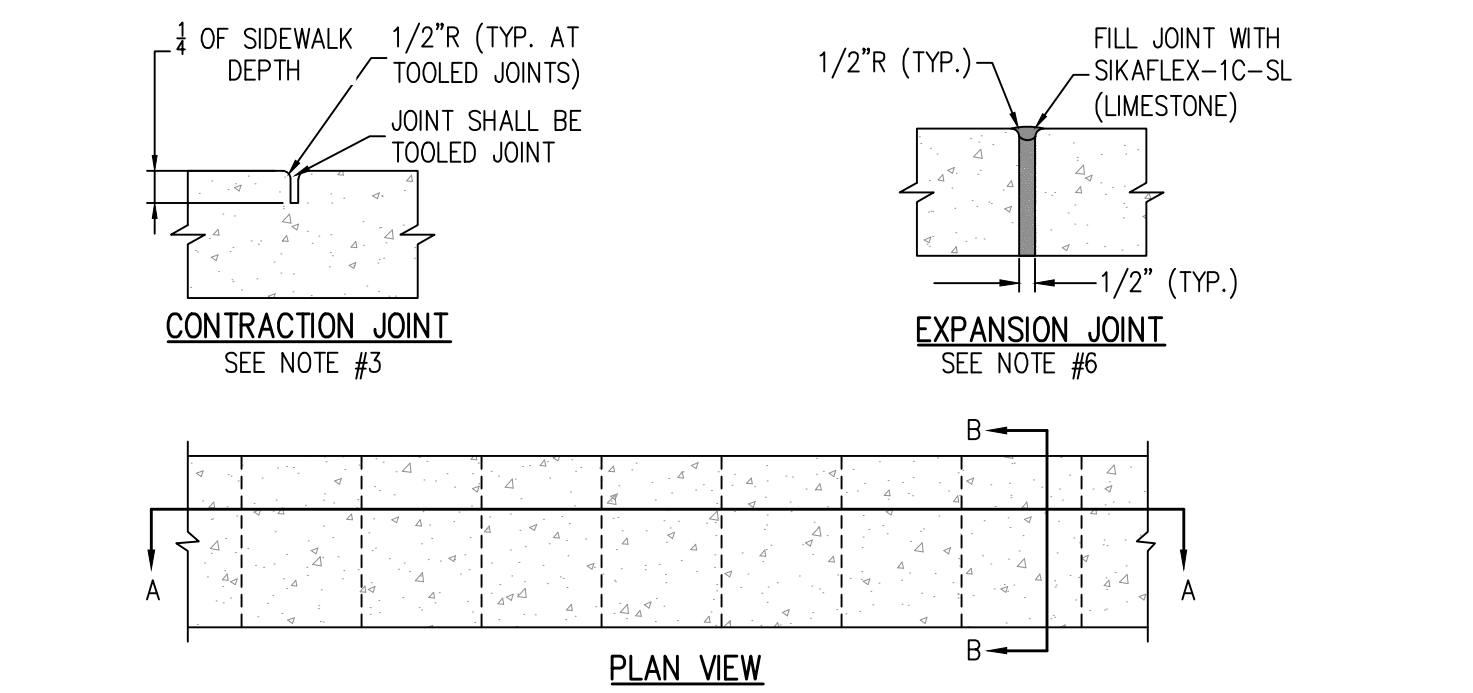
SEALANT RESERVOIR DETAIL (ADJACENT TO STRUCTURES)
N.T.S. [2G]



BARRIER CURB AT BUILDING INTERFACE (WHERE SIDEWALK NOT INSTALLED AND/OR WHERE LANDSCAPING IS ADJACENT TO BUILDING)
N.T.S. [54B]



SIDEWALK AT BUILDING INTERFACE W/ THICKENED EDGE
N.T.S. [54A]



SECTION A-A

SECTION B-B

- NOTES:**
1. REINFORCEMENT SHALL BE NO.3 BARS, 24" O.C. EACH WAY OR 6 X 6 -W1.4 X W1.4 WMF. REINFORCEMENT SHALL BE PLACED 2" FROM TOP OF SIDEWALK WHERE REQUIRED.
 2. CONCRETE SHALL BE 3,500 PSI.
 3. CONTRACTION JOINTS SHALL BE PLACED A MAXIMUM OF 5' O.C.
 4. TOOLED JOINTS SHALL BE PLACED IN FRESH CONCRETE WITH A MINIMUM DEPTH OF 1/4 OF THE TOTAL DEPTH OF SIDEWALK. TOOLED JOINT SHALL ALSO HAVE A MINIMUM 1/2" RADIUS ON EXPOSED EDGES.
 5. FULL DEPTH EXPANSION JOINTS SHALL BE PLACED A MAXIMUM OF 35' O.C. PREMOLDED JOINT FILLER SHALL BE INSTALLED AT ALL EXPANSION JOINTS. EXTEND JOINT FILLERS FULL WIDTH AND DEPTH OF JOINT, AND NOT LESS THAN 1/2" OR MORE THAN 1" BELOW FINISHED SURFACE. JOINT SEALANT SHALL BE PLACED ABOVE JOINT FILLER IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 6. A FULL DEPTH EXPANSION JOINT SHALL BE PLACED WHERE THE SIDEWALK ABUTS THE BUILDING. PREMOLDED JOINT FILLER SHALL BE INSTALLED AT FULL DEPTH OF JOINT, AND NOT LESS THAN 1/2" OR MORE THAN 1" BELOW FINISHED SURFACE. JOINT SEALANT SHALL BE PLACED ABOVE JOINT FILLER IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

CONCRETE SIDEWALK
N.T.S. [3D]

SHEET NO.

C-7.1

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DATE
09/04/26

JOINT DETAILS
MURPHY USA (NT)
9091 WESTVIEW RD

LONE TREE

COLORADO

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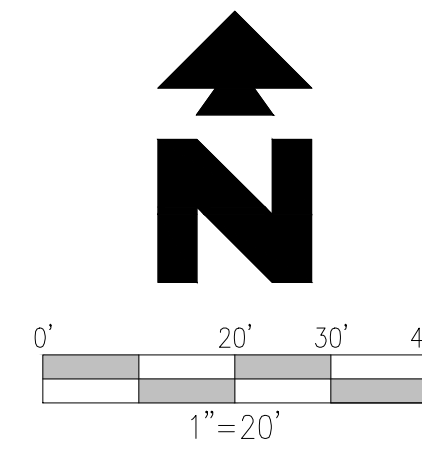
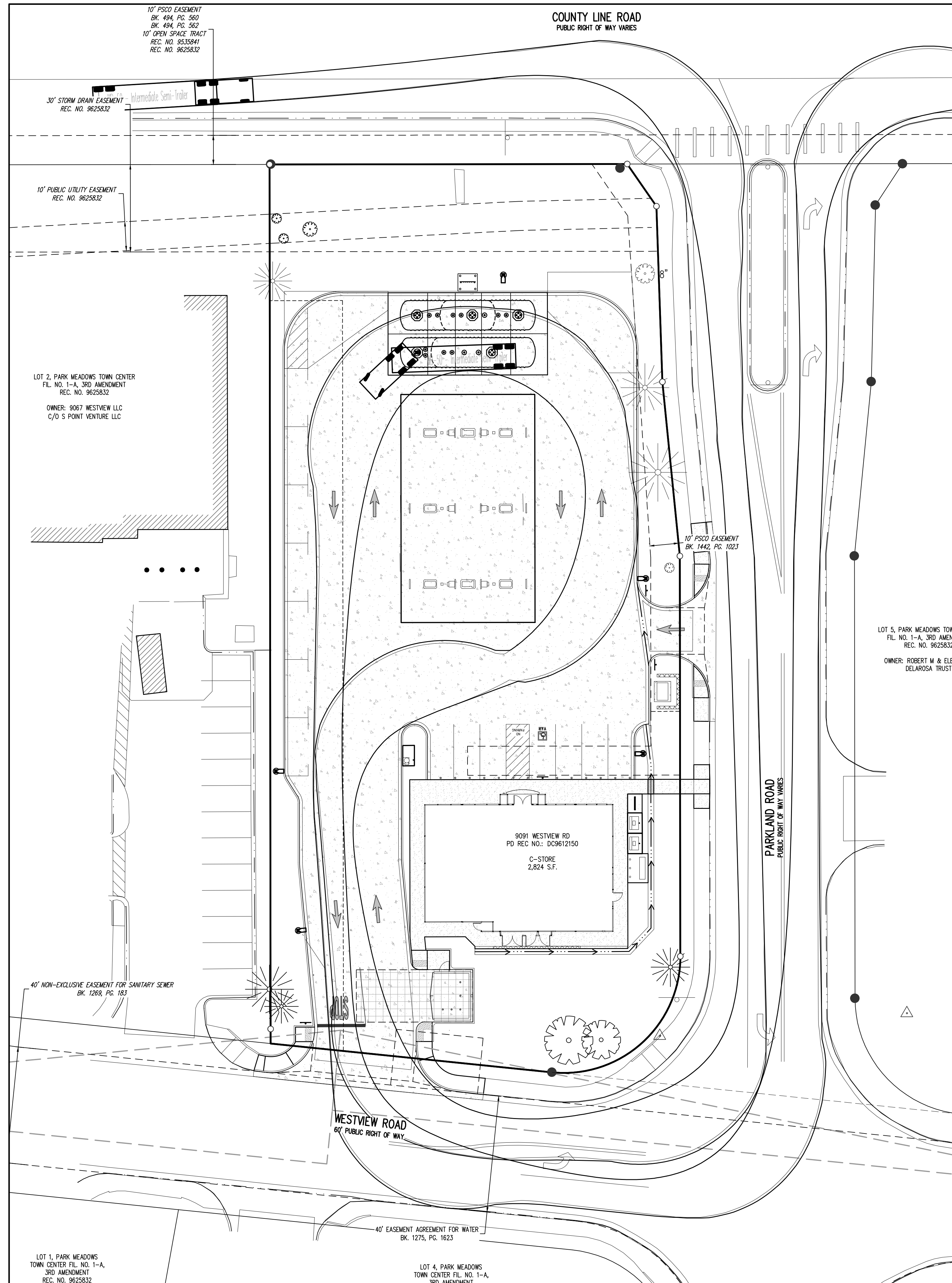
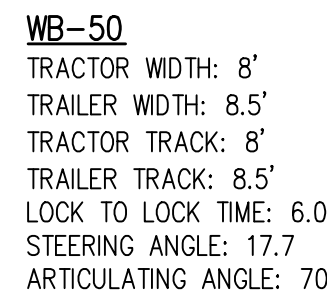
MURPHY
USA

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK



PROPOSED

— BOUNDARY LINE
— CURB AND GUTTER

THESE DRAWINGS DO NOT INCLUDE COMPONENTS FOR
CONSTRUCTION SAFETY

CAUTION - NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
 2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.
- 



Know what's **below**.
Call before you dig.

CITY OF LONE TREE

DATE _____

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ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

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SITE CIRCULATION PLAN

**MURPHY USA (NTI)
9091 WESTVIEW RD**

9091 WESTVIEW RD

COLORADO

LONE TREE

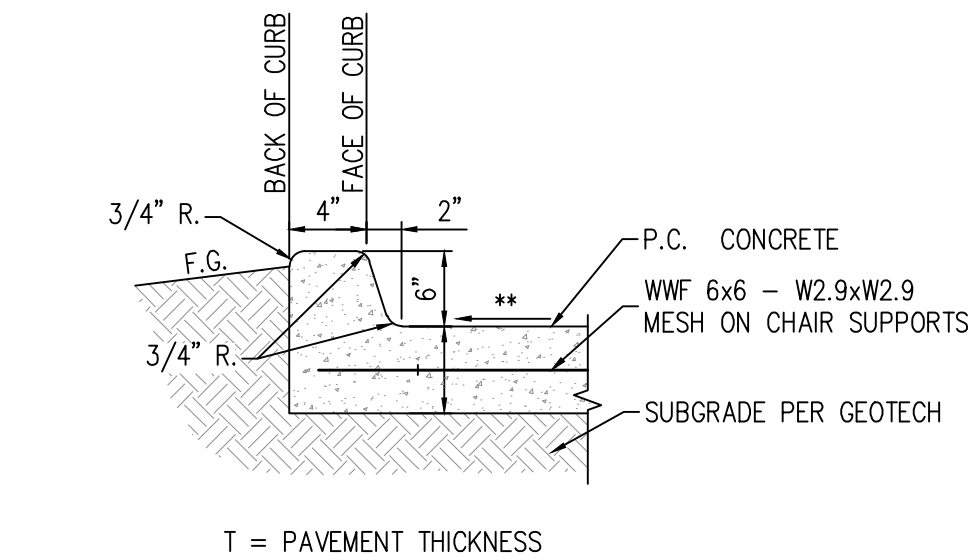
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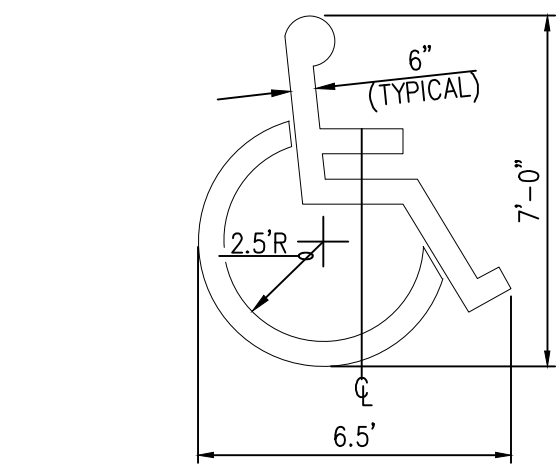
200 PEACH STREET
EL DORADO, AR 717

MURPHY
USA 



NOTE:
** GUTTER SLOPE TO MATCH ADJACENT PAVEMENT,
TRAVERSE AND LONGITUDINAL.

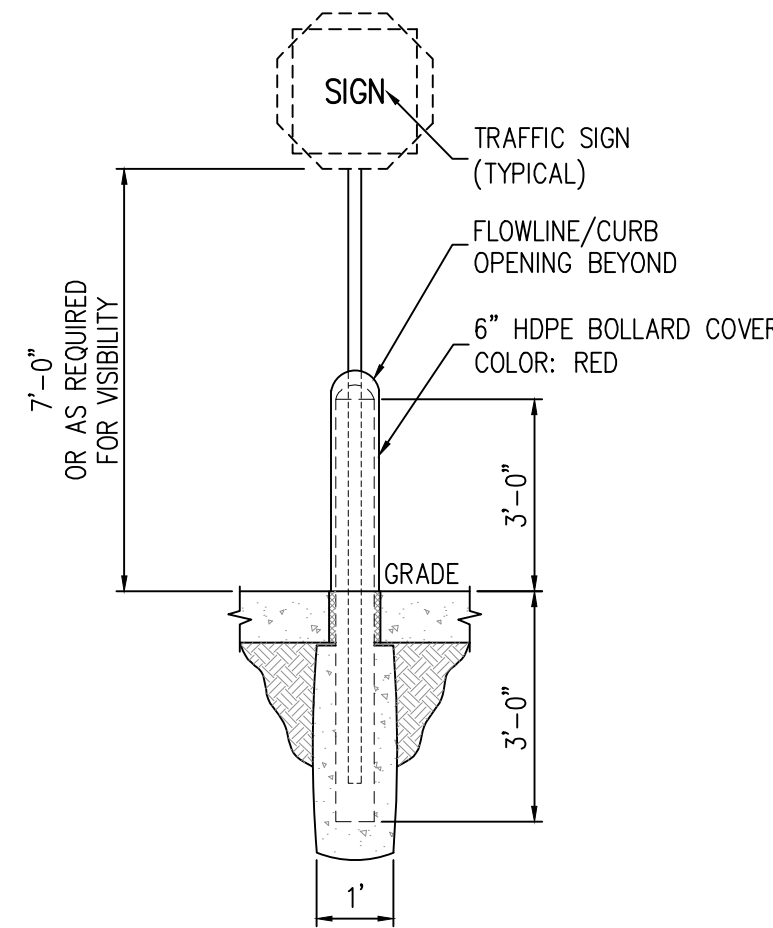
INTEGRAL CURB
N.T.S.



NOTES:
1. LOCATE AT EDGE OF PARKING SPACE UNLESS
ACCOMPANIED BY "VAN" LETTERING.

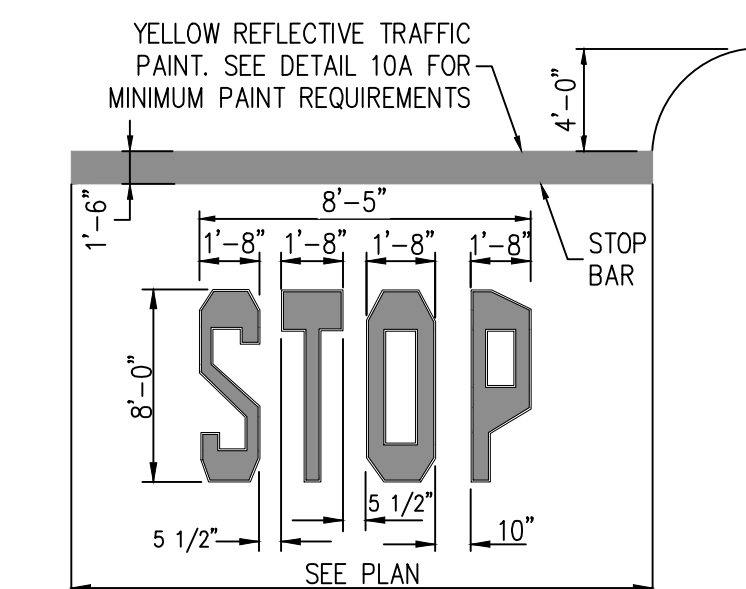
2. COLOR PER ADA REQUIREMENTS

ACCESSIBLE PARKING SYMBOL
N.T.S.



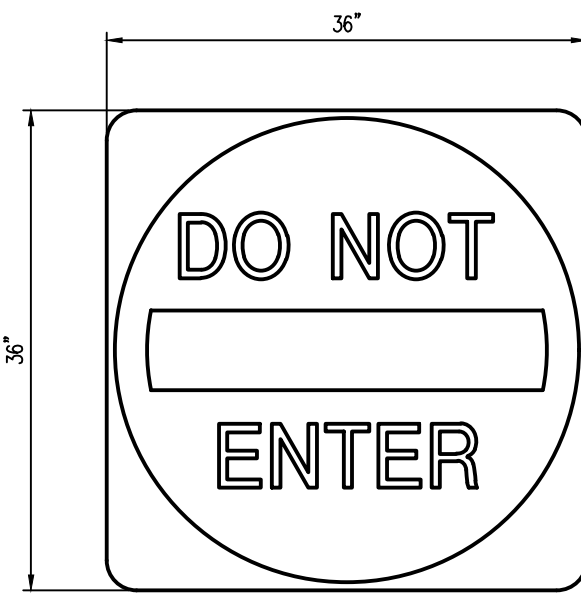
NOTE:
1. ALL TRAFFIC SIGNS TO BE INSTALLED IN BOLLARD.

SIGN IN BOLLARD
N.T.S.



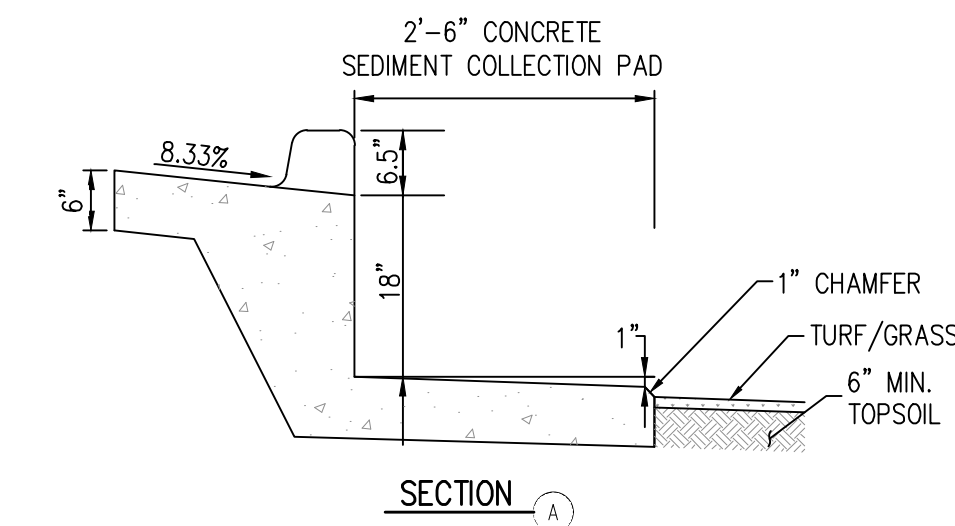
NOTE:
1. YELLOW REFLECTIVE TRAFFIC PAINT. SEE DETAIL
10A FOR MINIMUM PAINT REQUIREMENTS

STOP BAR
N.T.S.

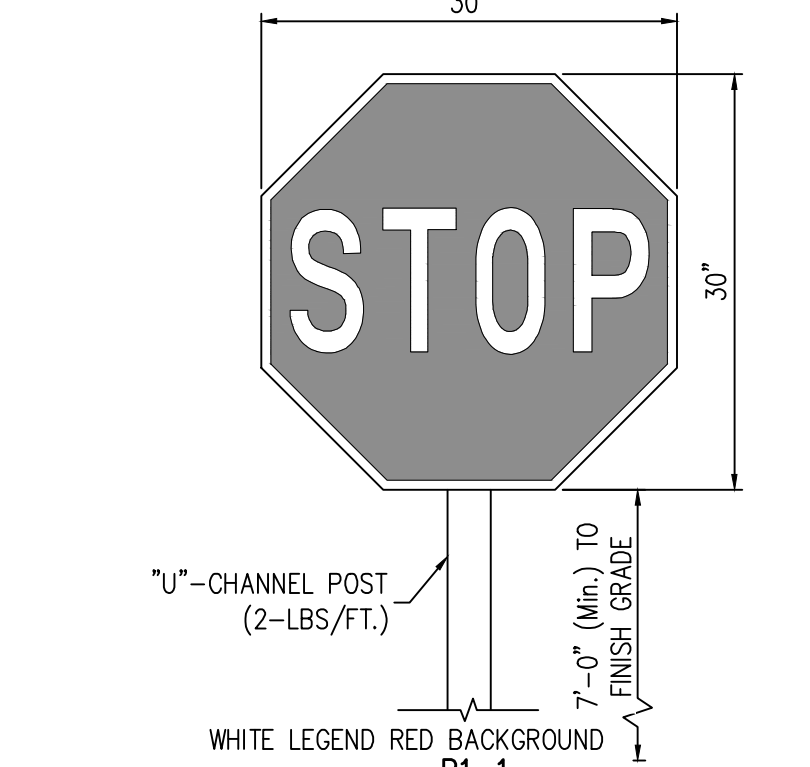


NOTES:
1. SIGN DETAILS ARE PROVIDED AS A MINIMUM STANDARD ONLY.
2. SIGNS SHALL COMPLY WITH JURISDICTION HAVING AUTHORITY.
3. CONTRACTOR SHALL COORDINATE WITH JURISDICTION HAVING AUTHORITY, SUPPLY & INSTALL.

MUTCD R5-1 "DO NOT ENTER" SIGN DETAIL
N.T.S.



CURB CUT WITH SEDIMENT PAD
N.T.S.



NOTE:
1. SIGN TO BE INSTALLED IN BOLLARD (SEE DETAIL
5B THIS SHEET)

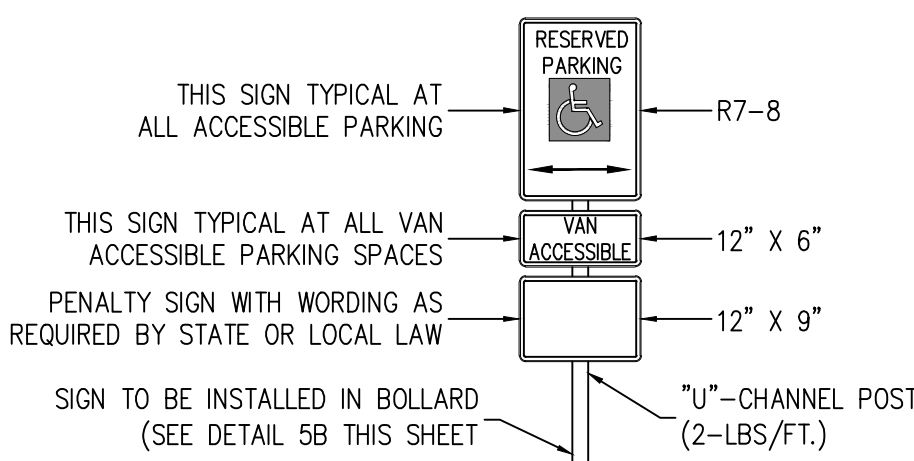
STOP SIGN
N.T.S.

12" MIN.
HT.

NO PARKING

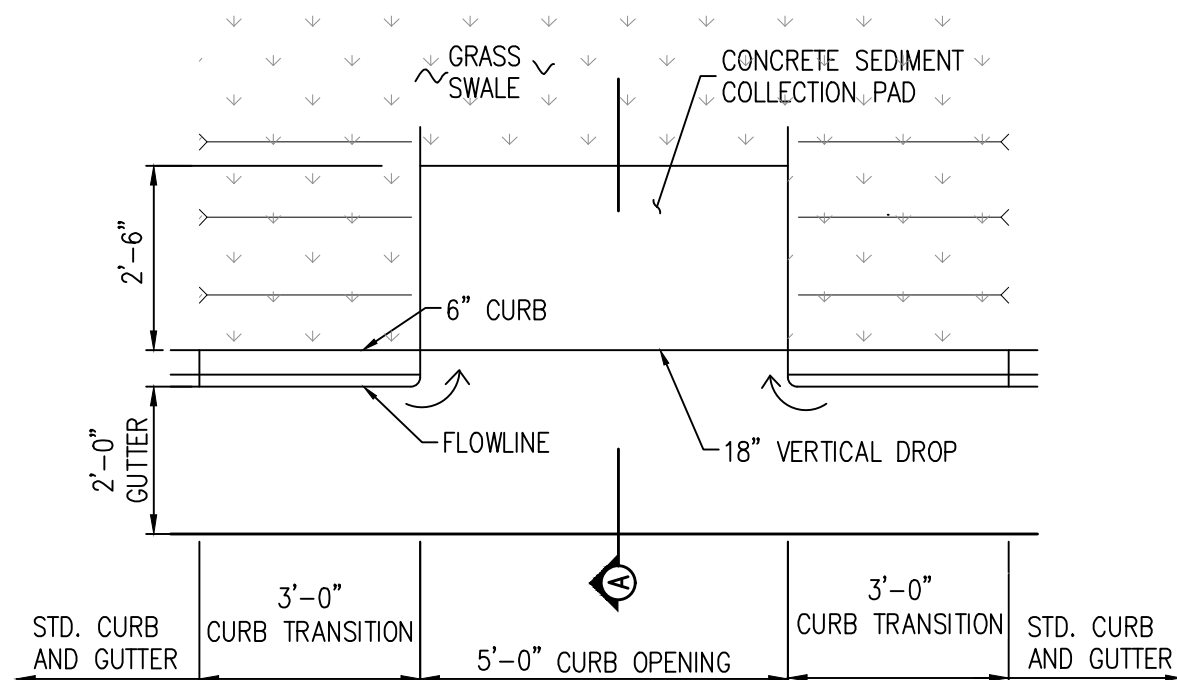
NOTES:
1. ALL LETTERS TO BE CAPITAL.
2. LETTER HEIGHT 12" MIN. AND STROKE WIDTH OF 2"
MIN.

"NO PARKING" ON PAVEMENT
N.T.S.

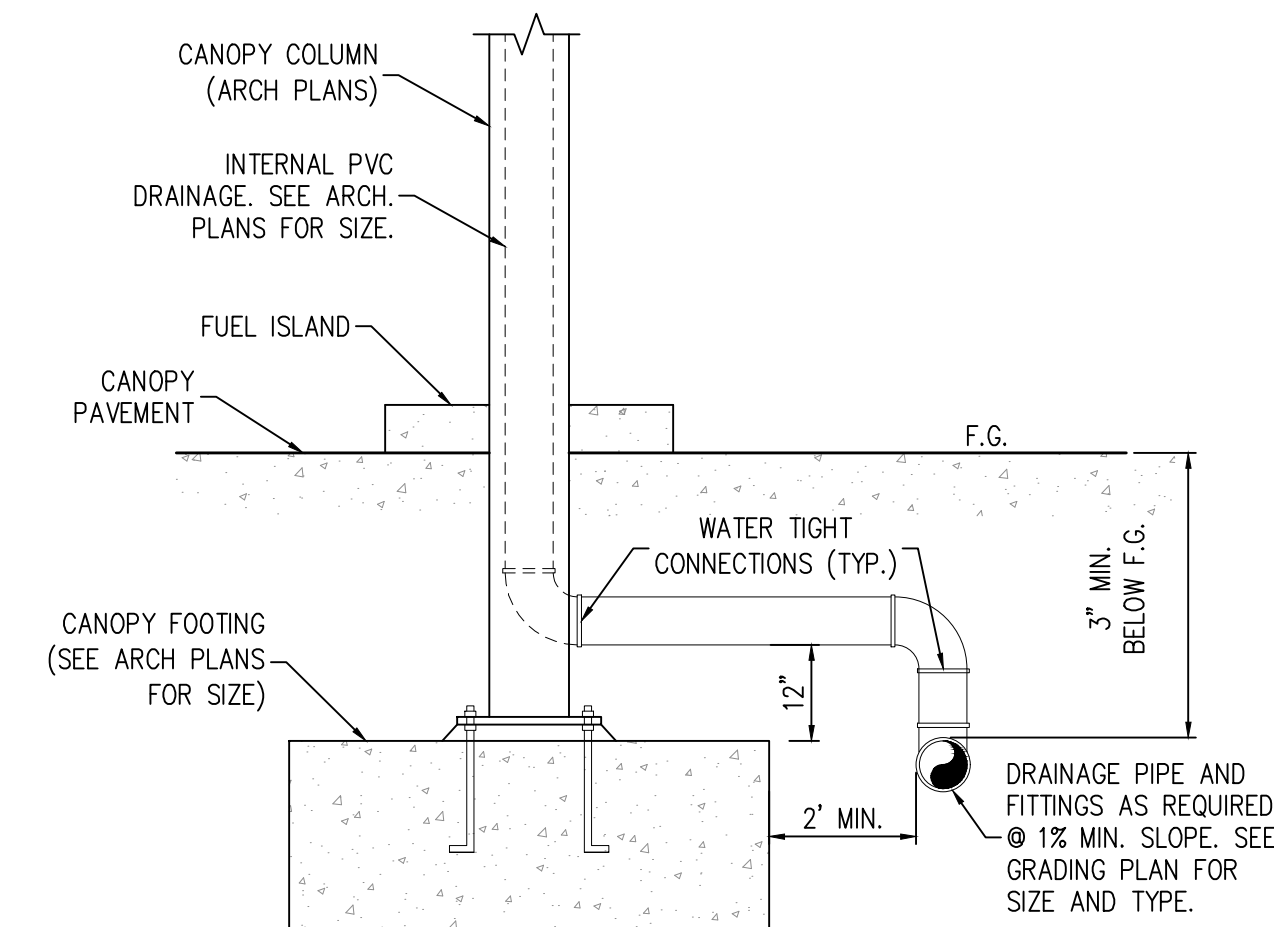


NOTE:
1. SIGN TO BE INSTALLED IN BOLLARD (SEE DETAIL
5B THIS SHEET)

ACCESSIBLE PARKING SIGN
N.T.S.

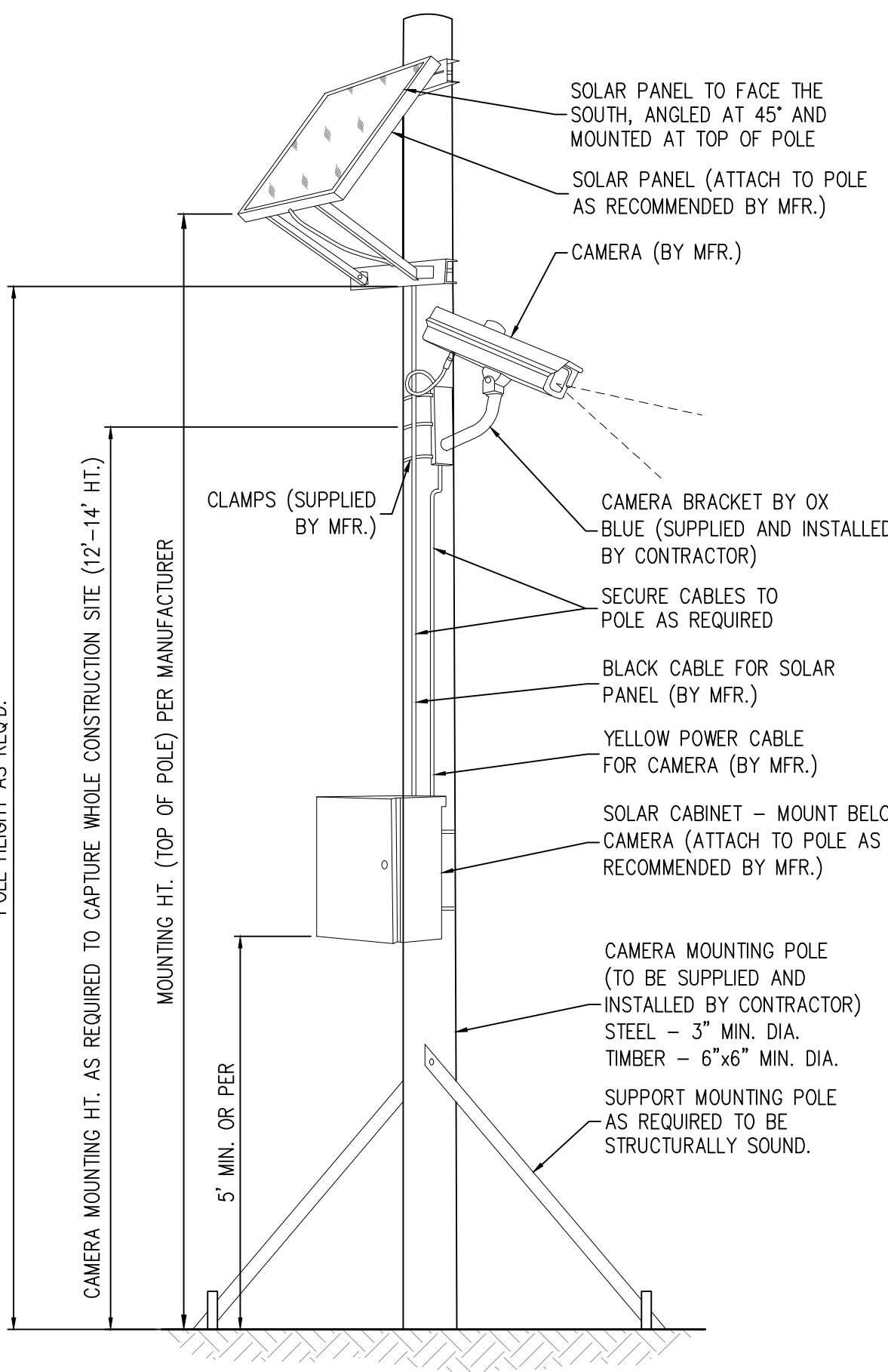


PLAN



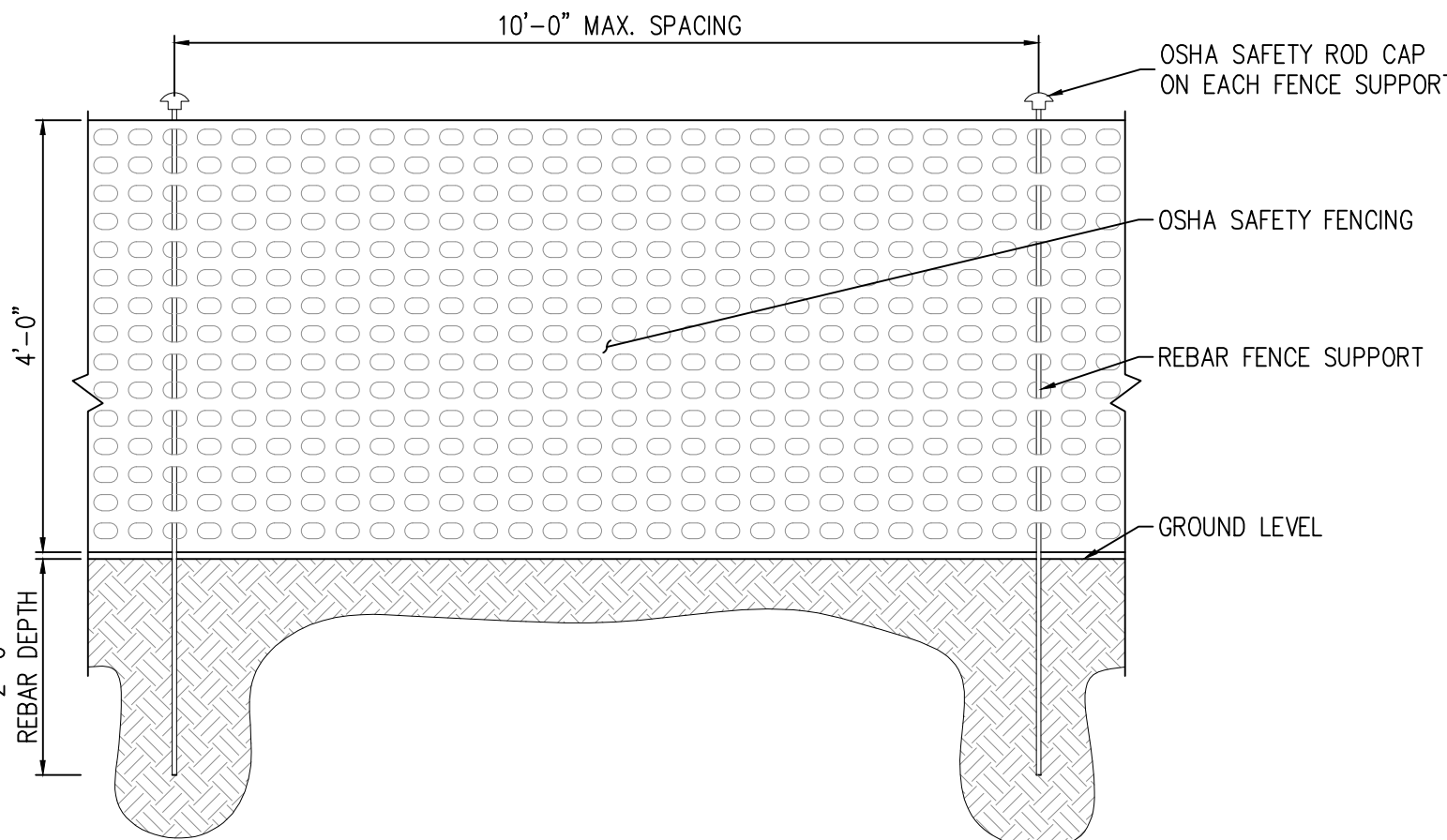
NOTES:
1. PIPE MUST BE SCHEDULE 40 PVC
2. WATER TIGHT CONNECTIONS REQUIRED.
3. COORDINATE DOWNSPOUT COLLECTION PIPE WITH
PRODUCT PIPING TO AVOID CONFLICTS.

DOWNSPOUT COLLECTOR
N.T.S.

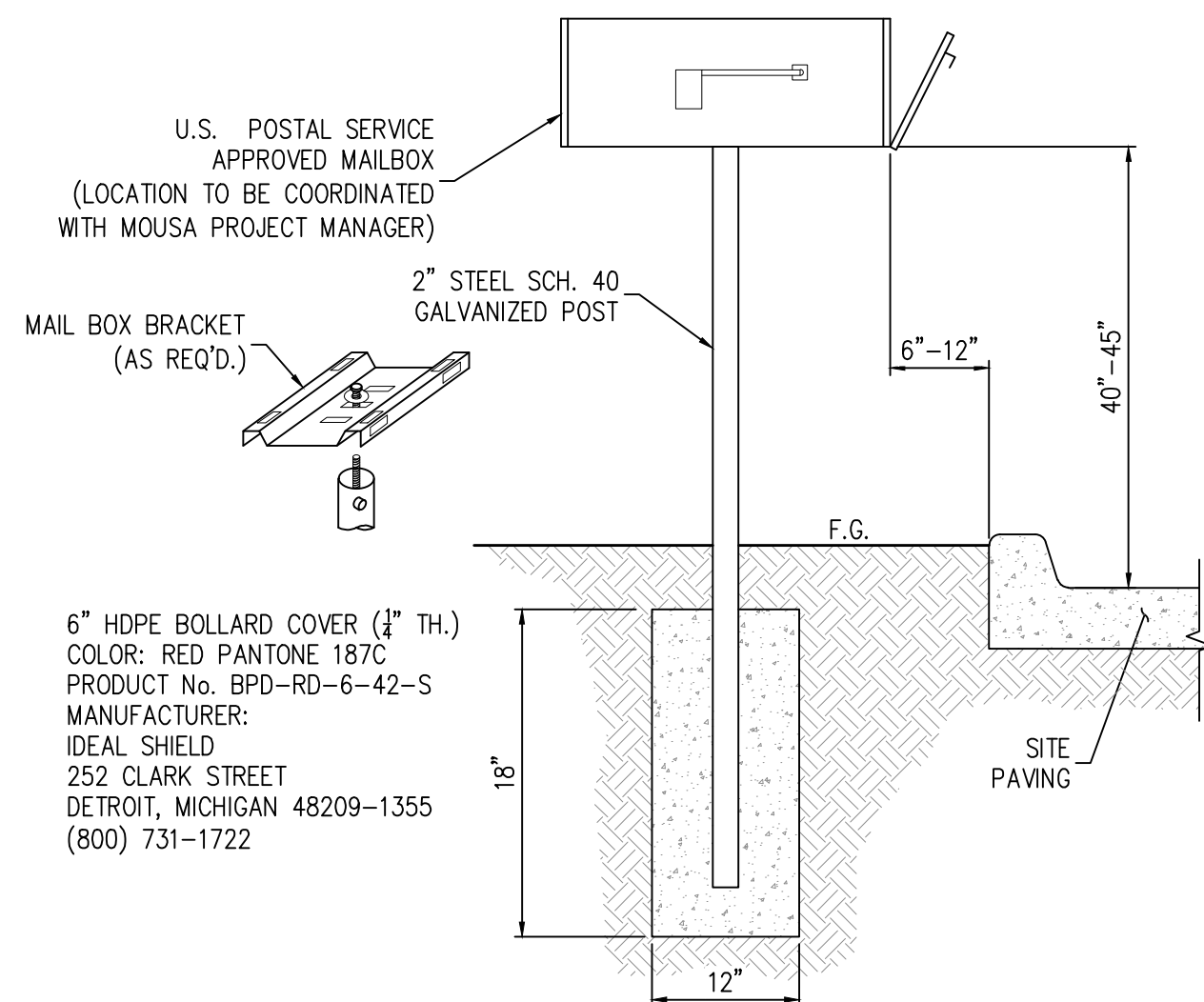


NOTES:
1. CAMERA AND SOLAR POWER STATION BY OX BLUE
CORPORATION.
2. CAMERA TO BE INSTALLED AND ACTIVATED PER
MFR. REQUIREMENTS BY GC PRIOR TO
CONSTRUCTION.
3. MOUNTING POLE TO BE SUPPLIED AND INSTALLED
BY CONTRACTOR.
4. LAG BOLTS/CLAMPS USED TO ATTACH CAMERA,
SOLAR PANEL AND CABINET TO POLE ARE TO BE
SUPPLIED AND INSTALLED BY CONTRACTOR.
5. CONSTRUCTION CAMERA SHALL BE COORDINATED
WITH MURPHY CONSTRUCTION MANAGER AND
PLACED ON MURPHY PROPERTY WHERE THE ENTIRE
WORK SITE CAN BE VIEWED WITH CAMERA.
6. MOUNTING POLE TO BE STRUCTURALLY SOUND &
WITHSTAND 300 LBS OF FORCE AT 5' ABOVE
GROUND.
7. FOR ANY MOUNTING OF CAMERA ON OFF-SITE
STRUCTURE, CONTRACTOR MUST SECURE PERMITS
AND/OR PERMISSION FROM RESPECTIVE OWNER
AND PROVIDE TO MURPHY.
8. MOUNTING CAMERA SYSTEM ON JOB SHACK IS NOT
ALLOWED.

CONSTRUCTION CAMERA
N.T.S.

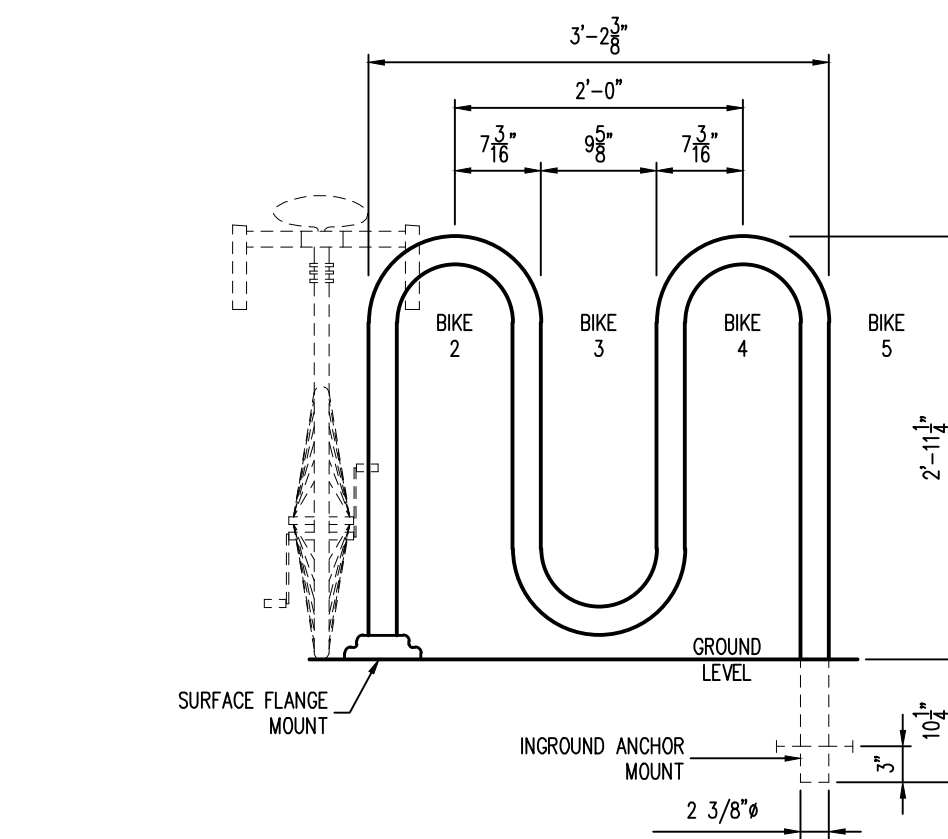


CONSTRUCTION SAFETY FENCE
N.T.S.

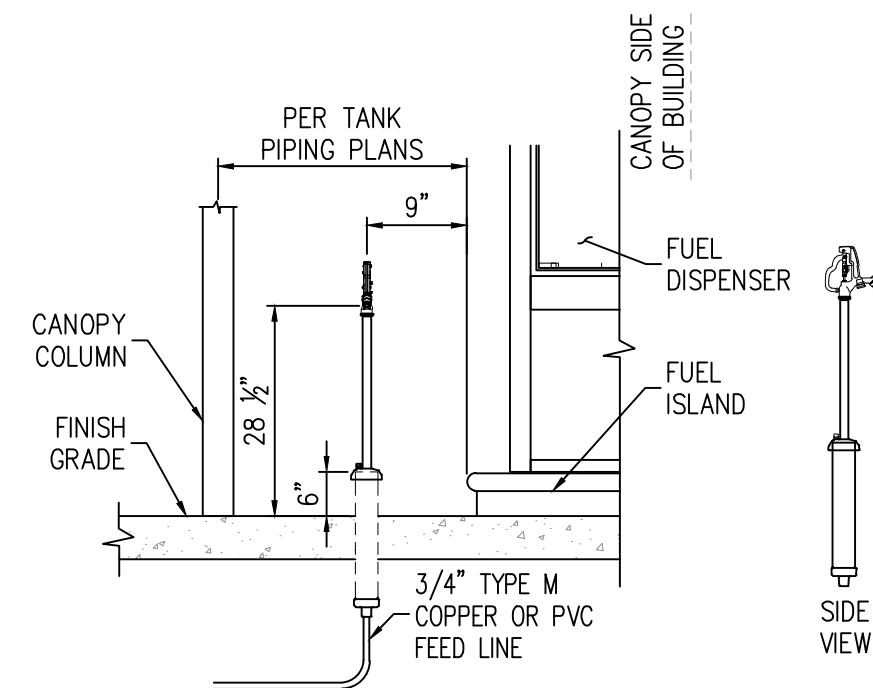


NOTE:
1. THE POST-TO-BOX ATTACHMENT SHALL BE OF
SUFFICIENT STRENGTH TO PREVENT THE BOX FROM
SEPARATING FROM THE POST TOP IF THE
INSTALLATION IS STRUCK BY AN AUTOMOBILE OR
LIGHT TRUCK.

MAIL BOX
N.T.S.

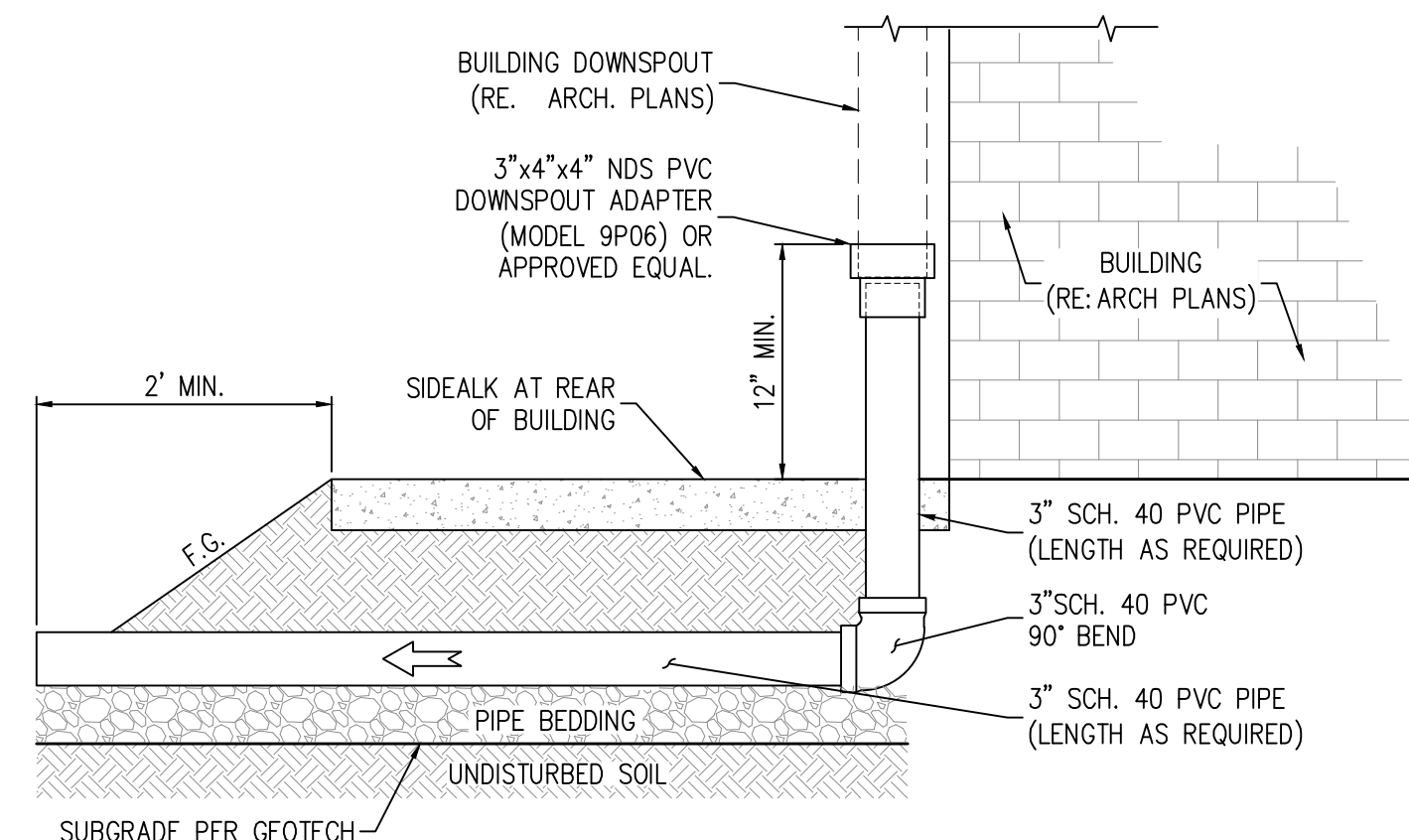


BICYCLE RACK DETAIL
NOT TO SCALE



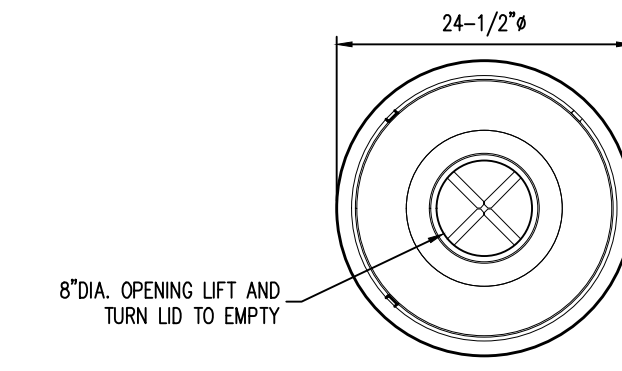
NOTES:
1. CONTRACTOR TO PROVIDE AND INSTALL WOODFORD
MODEL S-3 SANITARY YARD HYDRANT PER
MANUFACTURER'S SPECIFICATIONS. SEE UTILITY
PLAN TO DETERMINE LOCATION.
2. FREEZELESS YARD HYDRANT TO BE LOCATED
BETWEEN CANOPY COLUMN AND FUEL ISLAND FOR
PROTECTION.
3. REFER TO TANK/PIPING PLANS TO VERIFY
LOCATION OF TRASH CAN LOCATION PRIOR TO
INSTALLATION.

FREEZELESS HYDRANT
WITH HOSE BIB
N.T.S.



NOTES:
1. SEE CANOPY DRAINAGE SHEET FOR CONTINUATION.
2. CONTRACTOR TO VERIFY THERE ARE NO CONFLICTS
WITH OTHER UTILITY CONDUITS WHEN INSTALLING
UNDERGROUND DRAINAGE PIPES.
3. ROOF DRAINAGE SHALL BE PVC SCH. 40.
4. ROOF DRAINAGE PIPE SHALL HAVE SMOOTH
INTERIOR.

ROOF DRAIN
DOWNSPOUT CONNECTION
N.T.S.



NOTE:
SCARBOROUGH LITTER RECEPTACLE - 25" W X
33" H - TOP OPENING - VERTICAL STRAP
DETAIL - 30 GALLON - FREESTANDING OR
SURFACE MOUNT
LANDSCAPE FORMS, INC
7800 E MICHIGAN AVE.
KALAMAZOO, MICHIGAN 49048
800.430.6209 TOLL FREE
269.381.0396 PHONE
269.381.3455 FAX

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

CITY OF LONE TREE

DATE

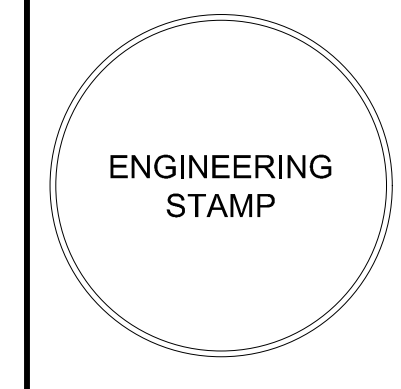
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ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

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SITE DETAILS
MURPHY USA (NTI)
9091 WESTVIEW RD
LONE TREE
COLORADO

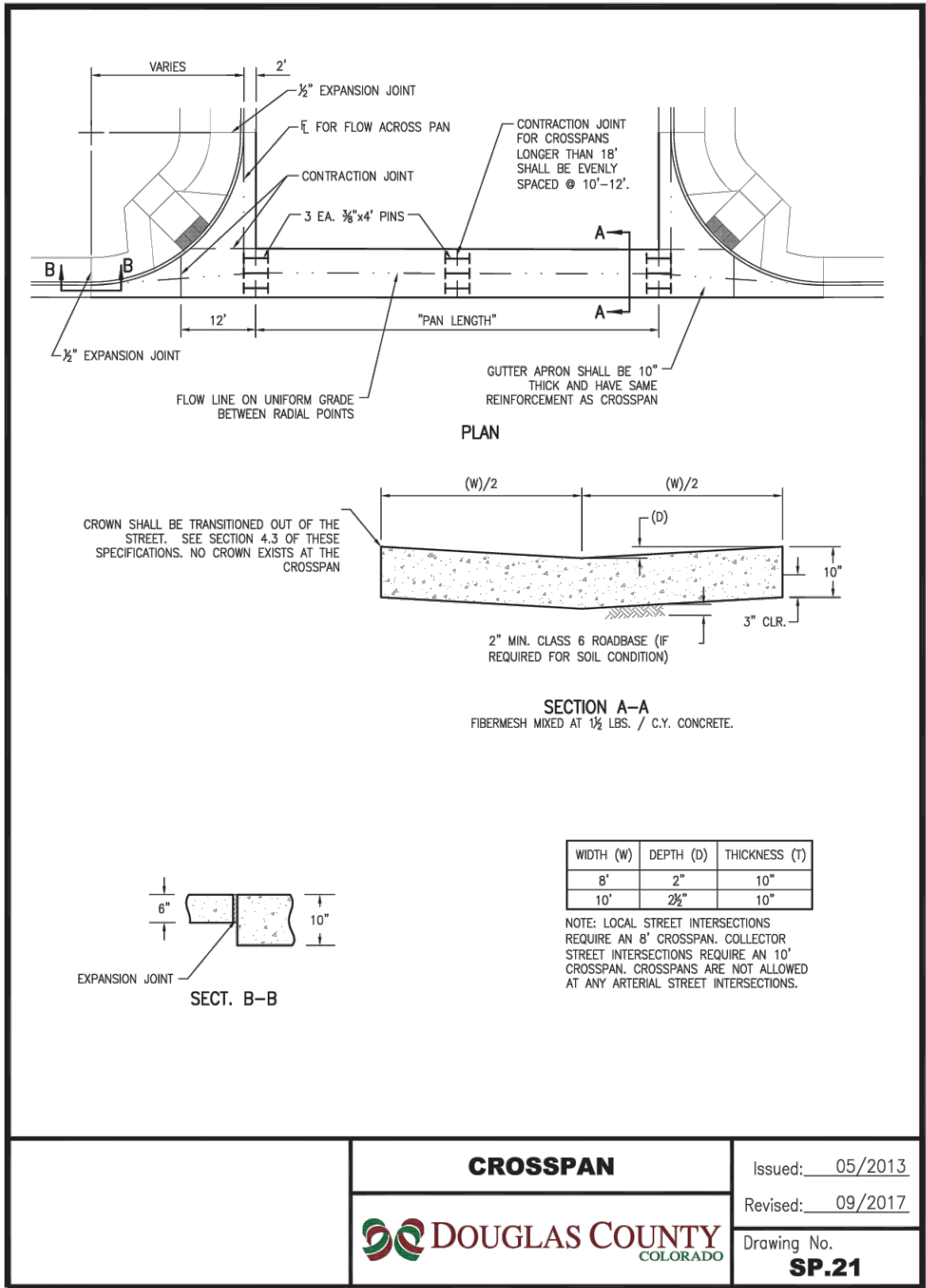
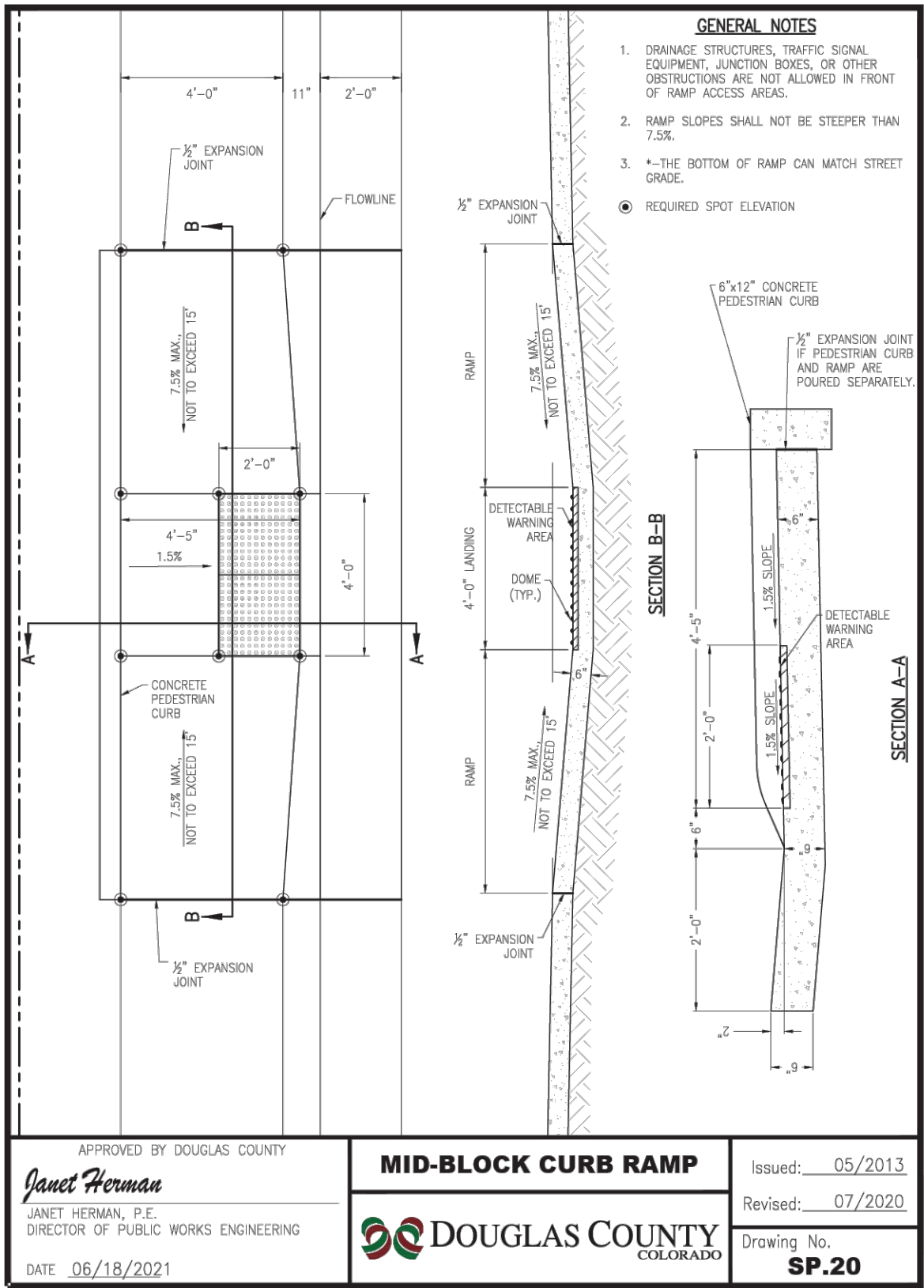
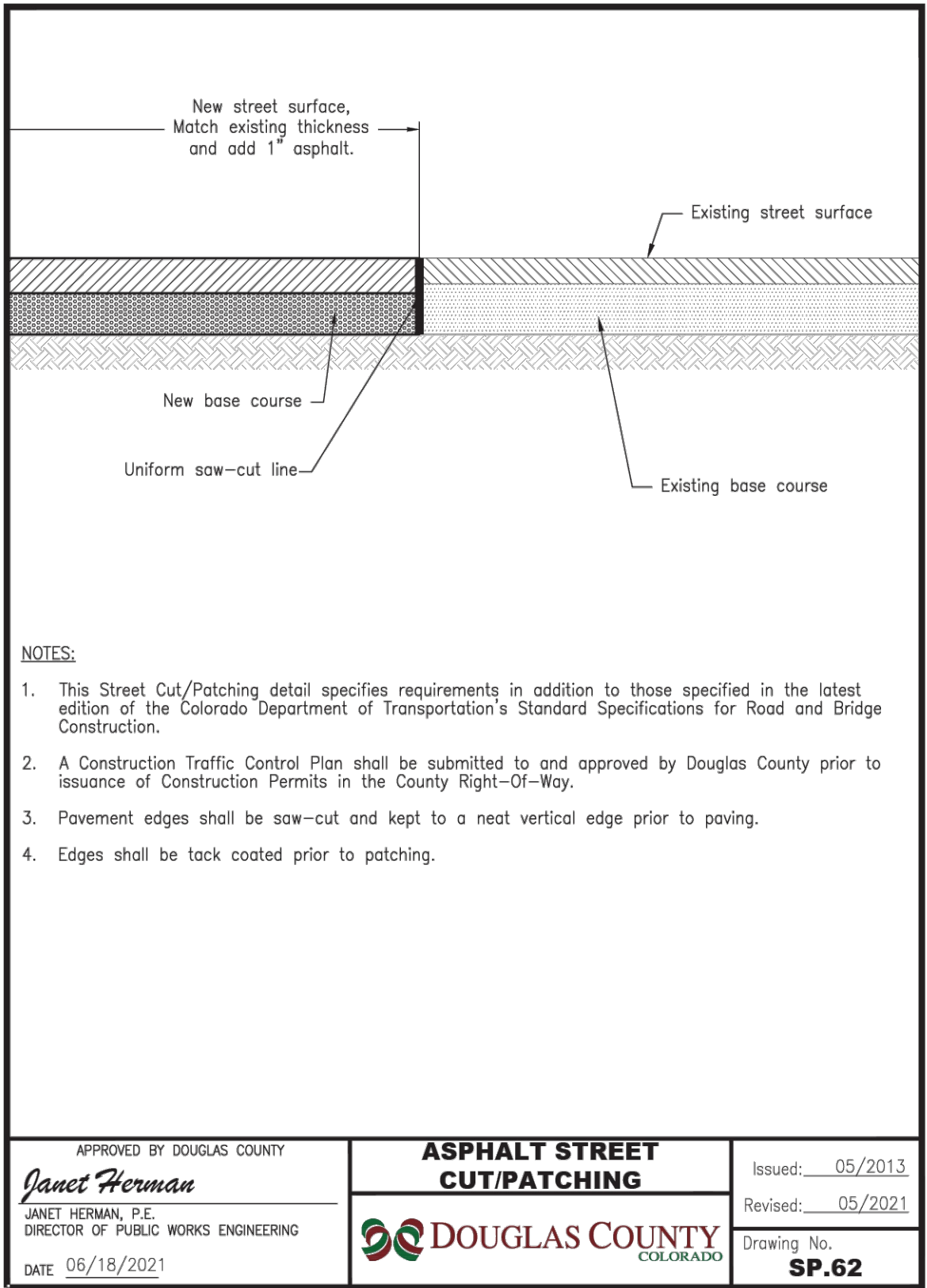
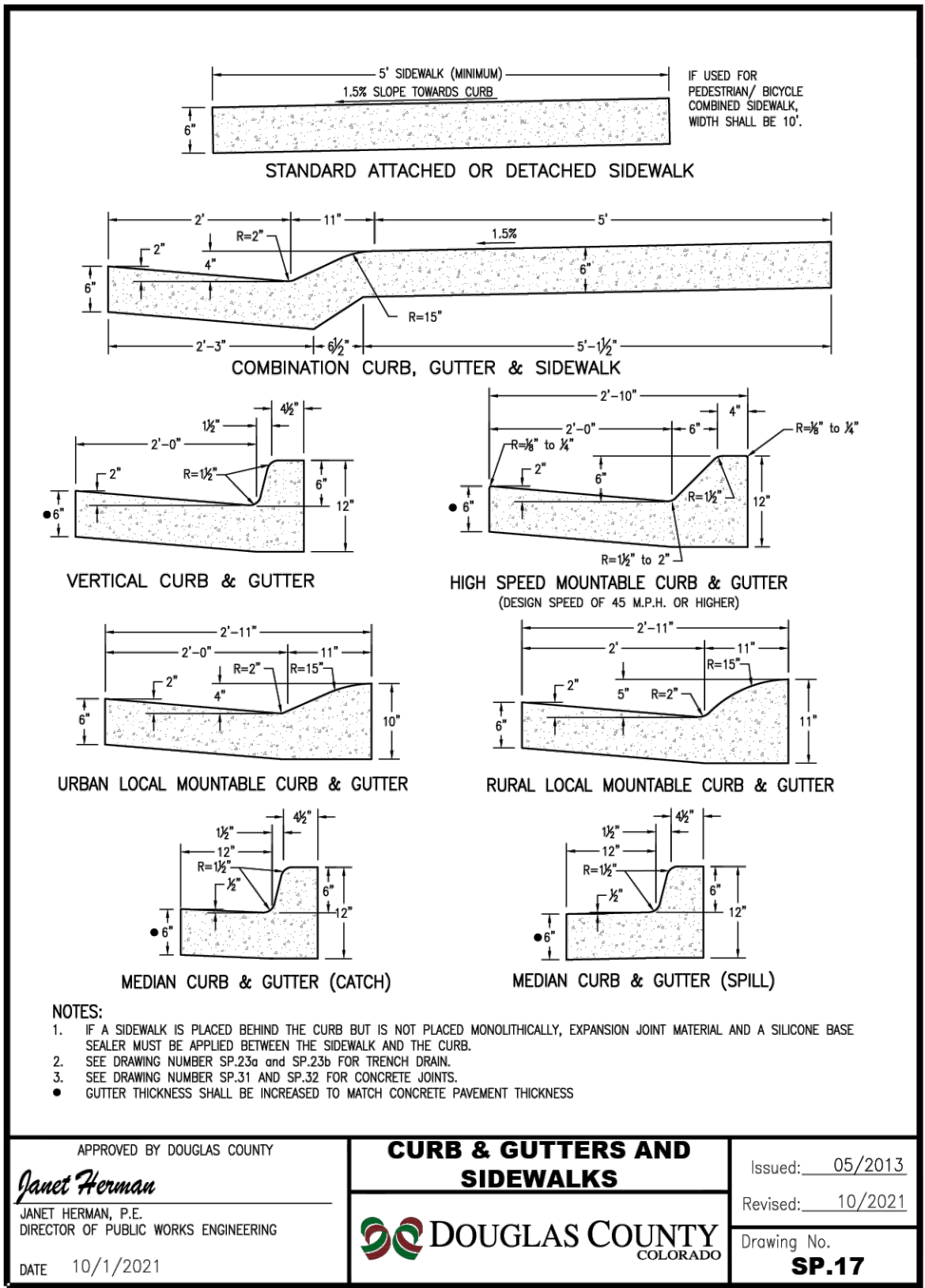
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USA



CITY OF LONE TREE

DATE

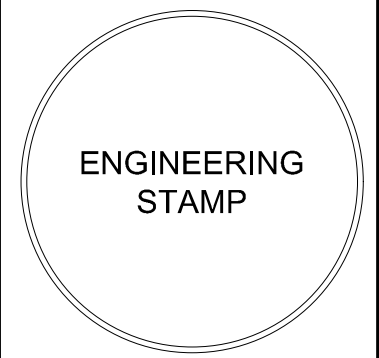
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ENGINEERING DIVISION ACCEPTANCE BLOCK

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DATE

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SITE DETAILS

MURPHY USA (NTI)

9091 WESTVIEW RD

LONE TREE

COLORADO

Galloway

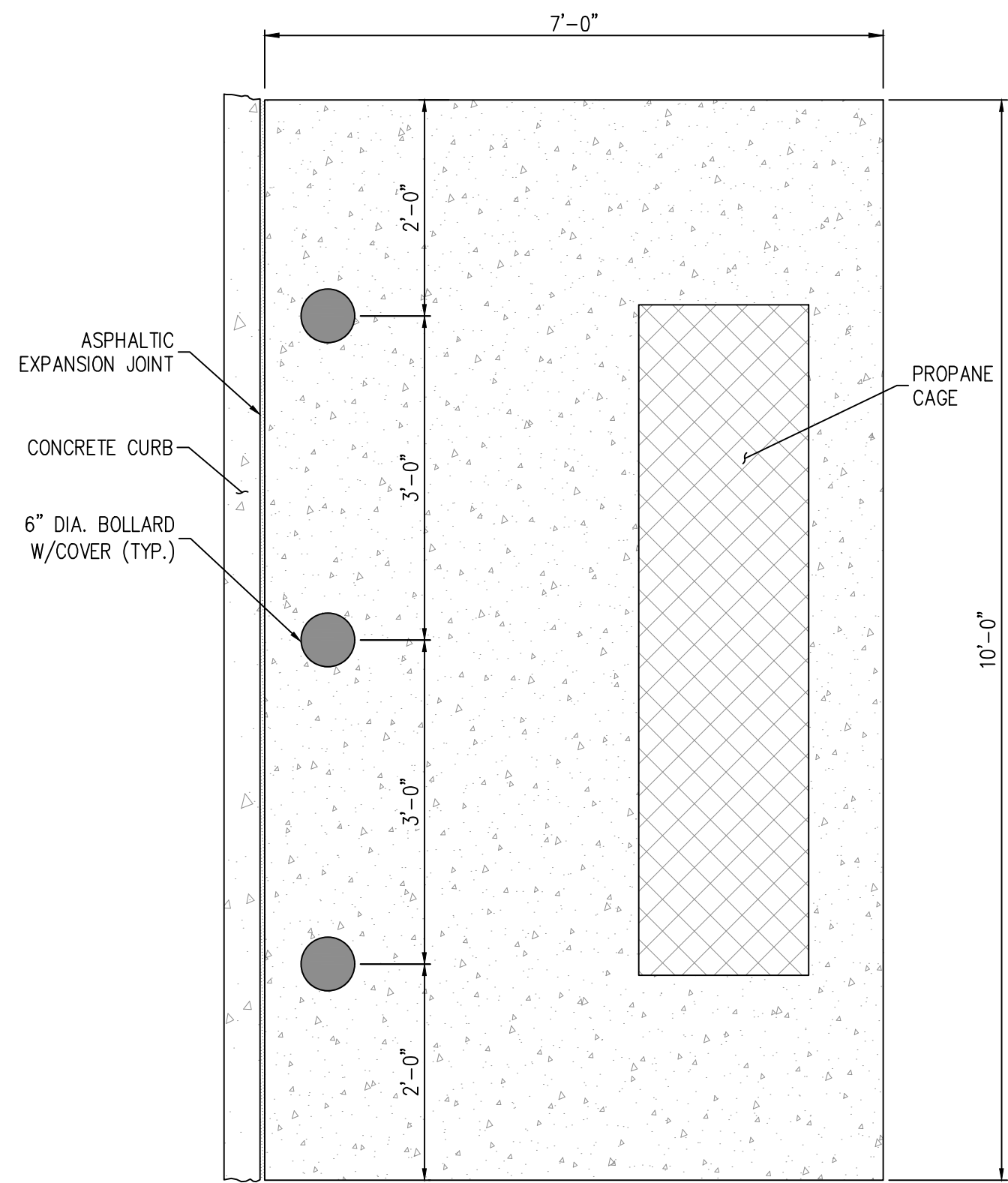
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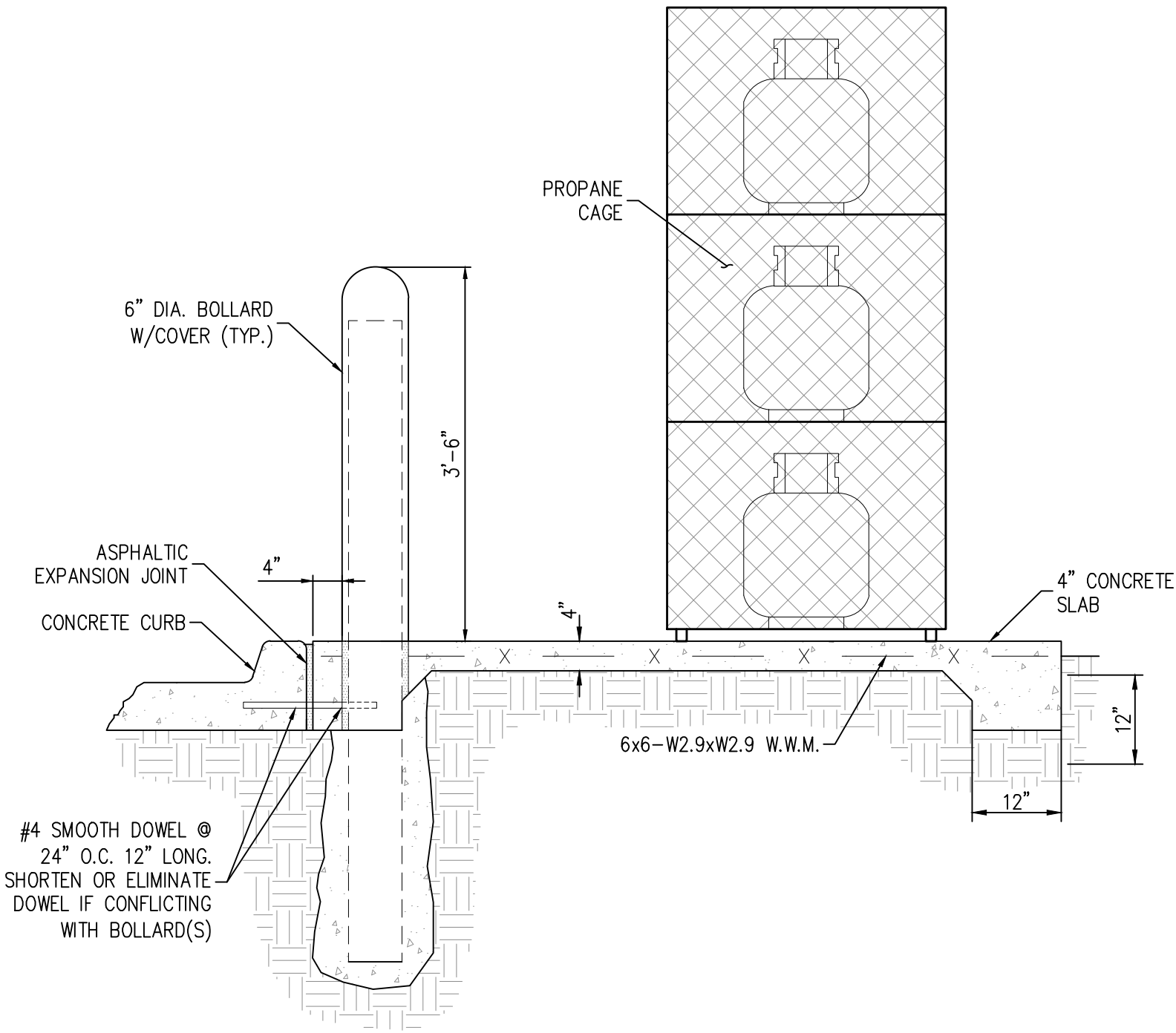
200 PEACH STREET

EL DORADO, AR 71730

MURPHY USA



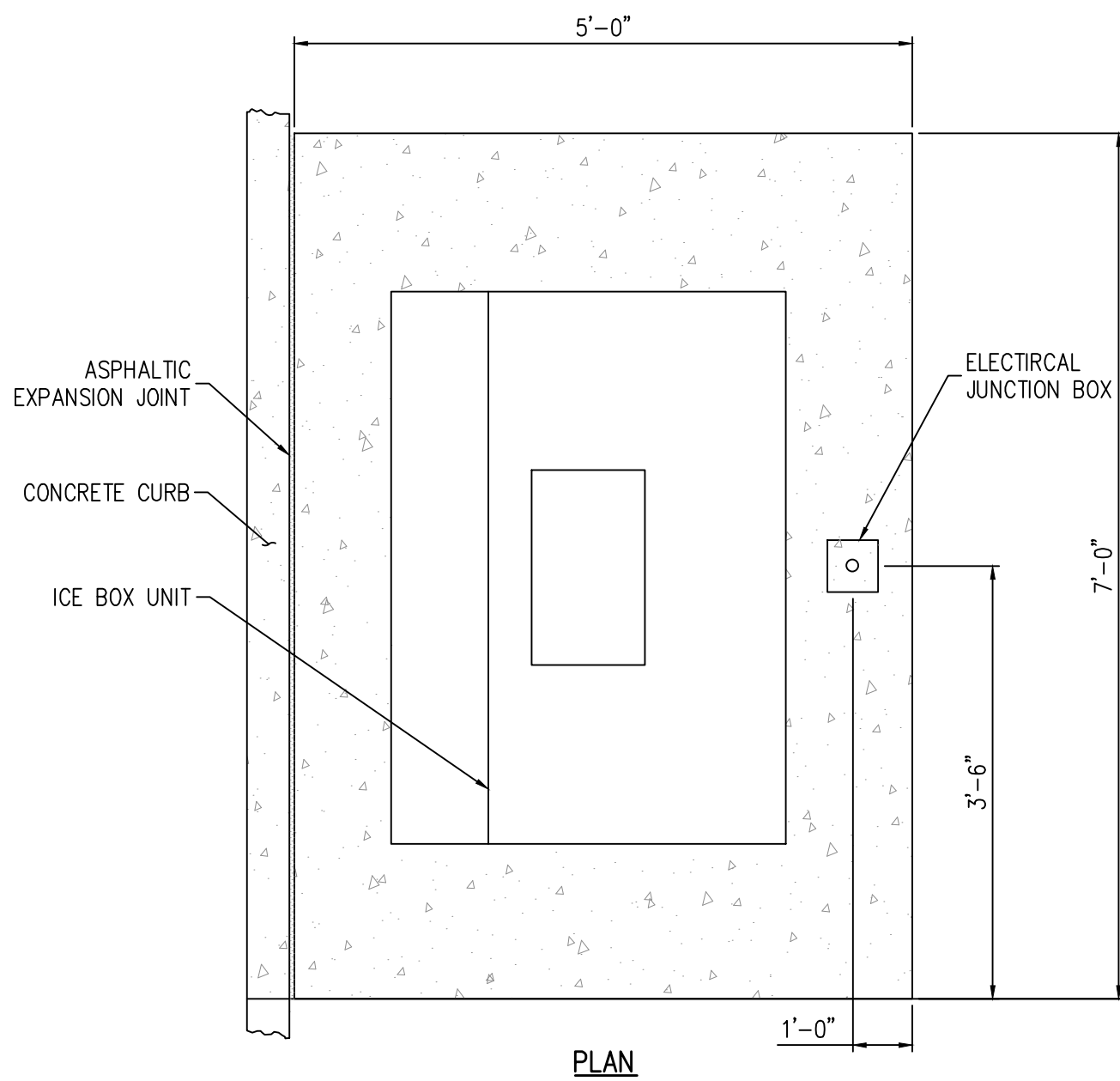
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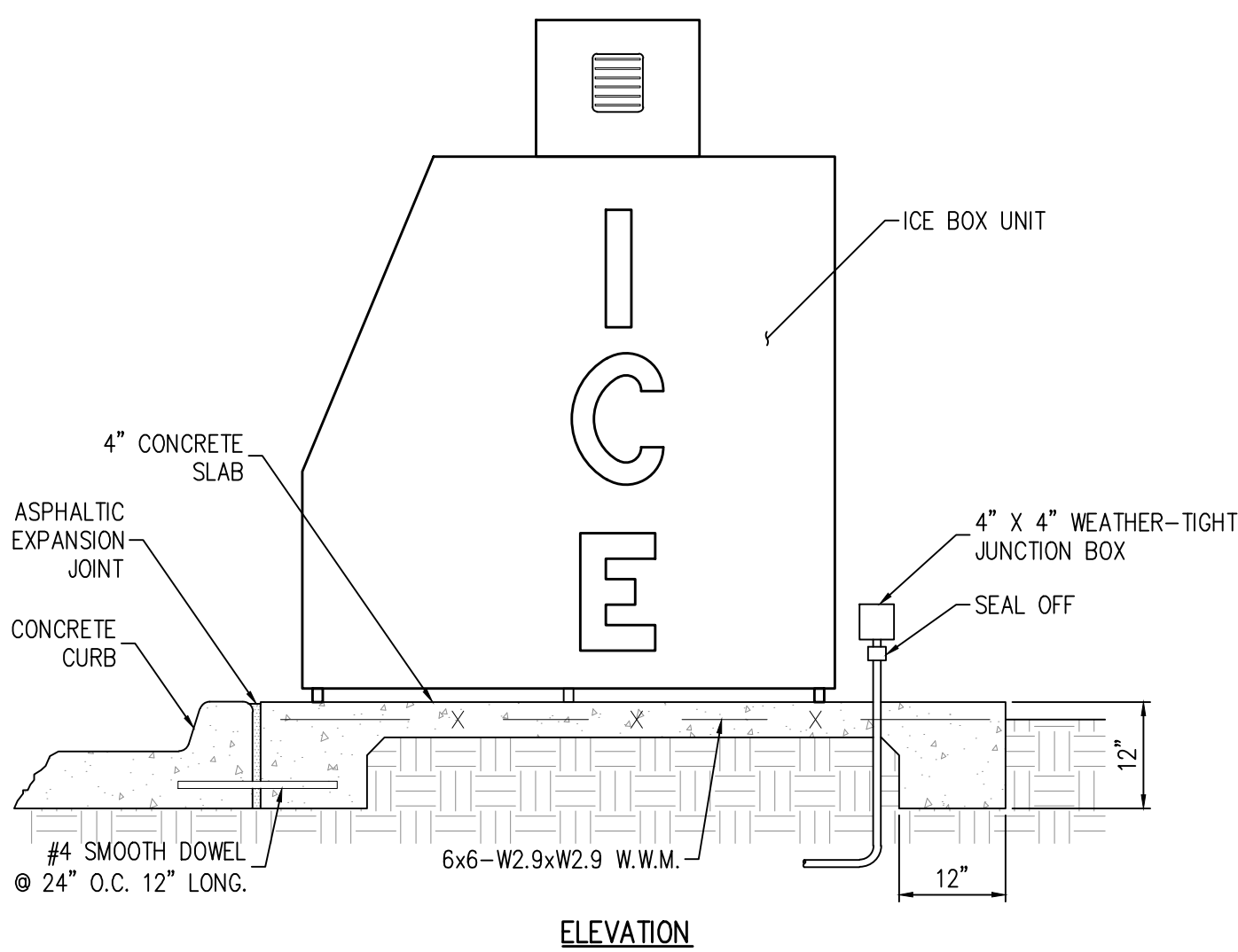
ELEVATION

NOTE:
SLOPE PAD FOR POSITIVE DRAINAGE (0.5% MIN.-1% MAX.)

PROPANE MOUNTING SLAB DETAIL
N.T.S.



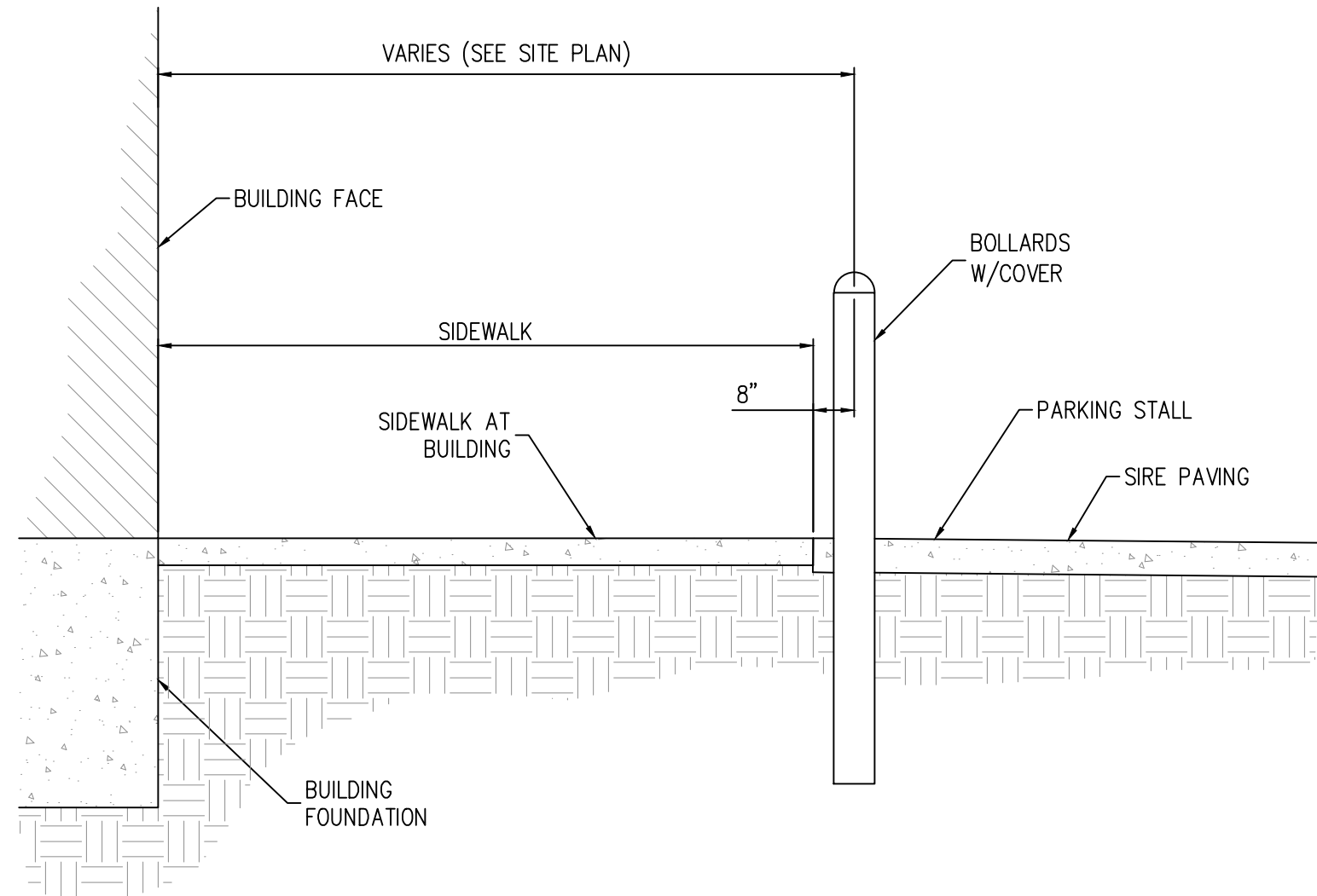
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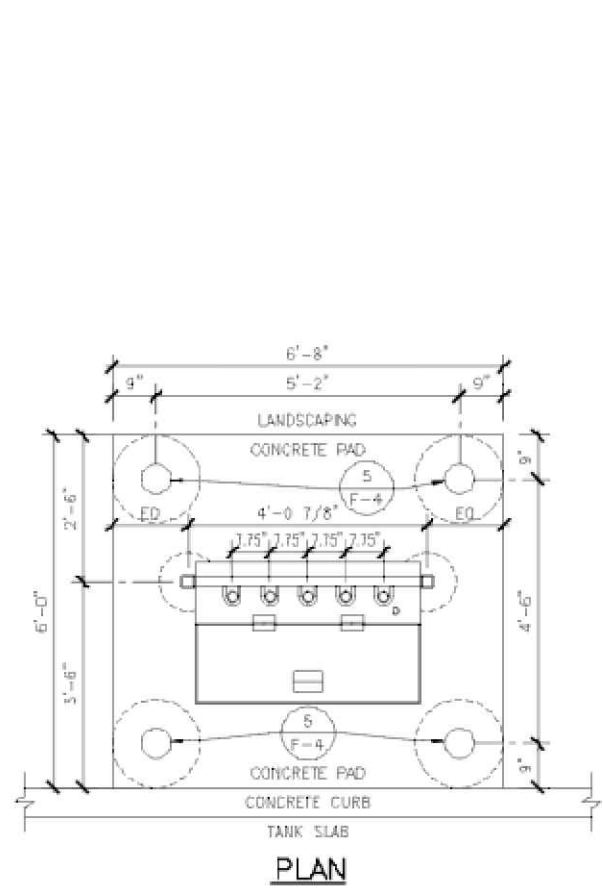
ELEVATION

NOTES:
1. SLOPE PAD FOR POSITIVE DRAINAGE (0.5% MIN.-1% MAX.)
2. SEE SITE PLAN FOR NUMBER OF ICE UNITS.

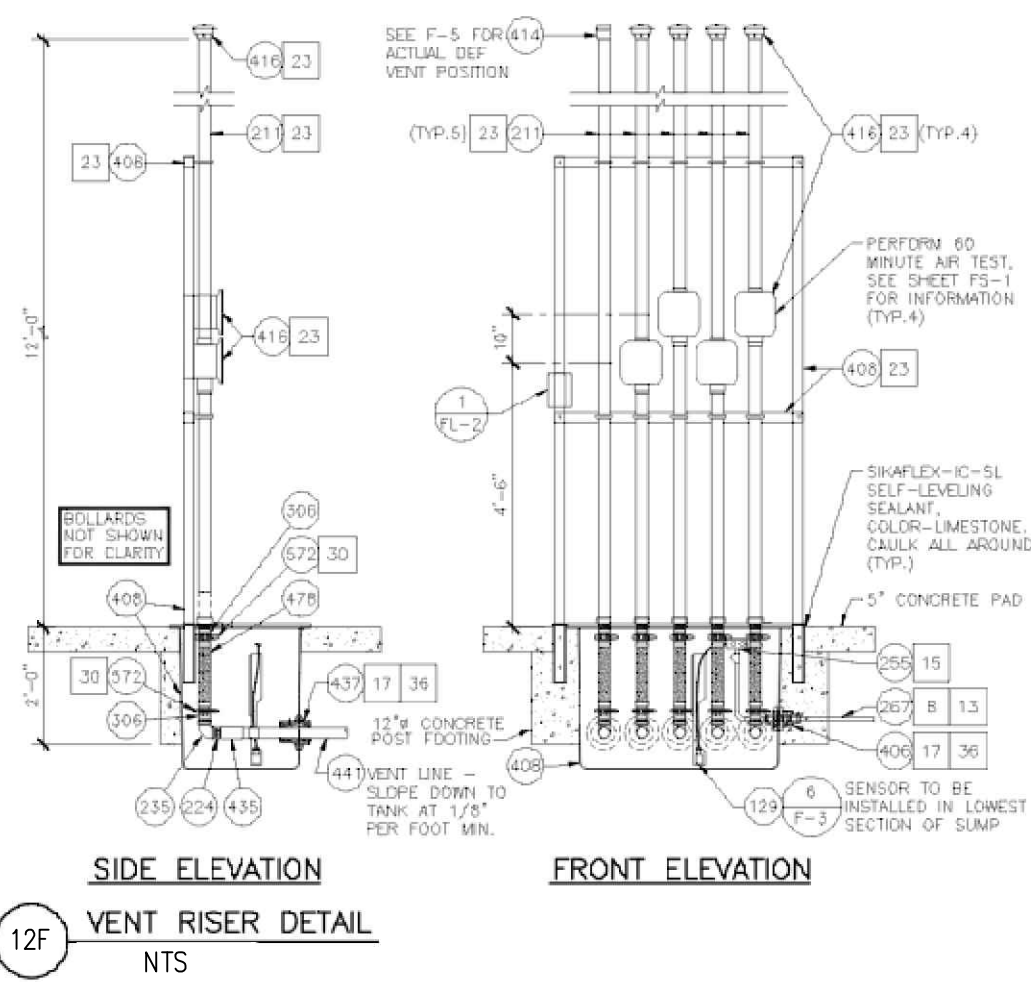
ICE BOX MOUNTING SLAB DETAIL
N.T.S.



BOLLARD LOCATION AT BUILDING
N.T.S.



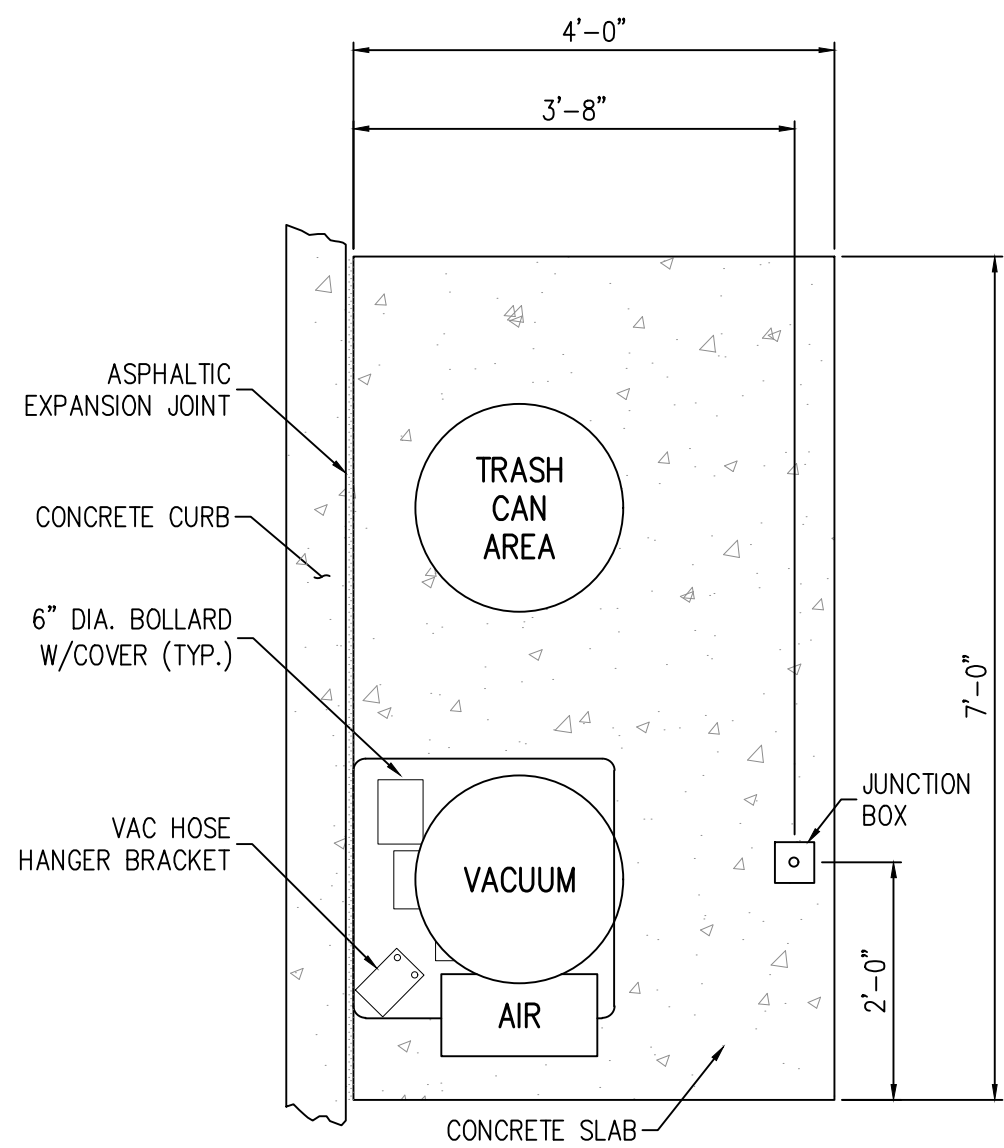
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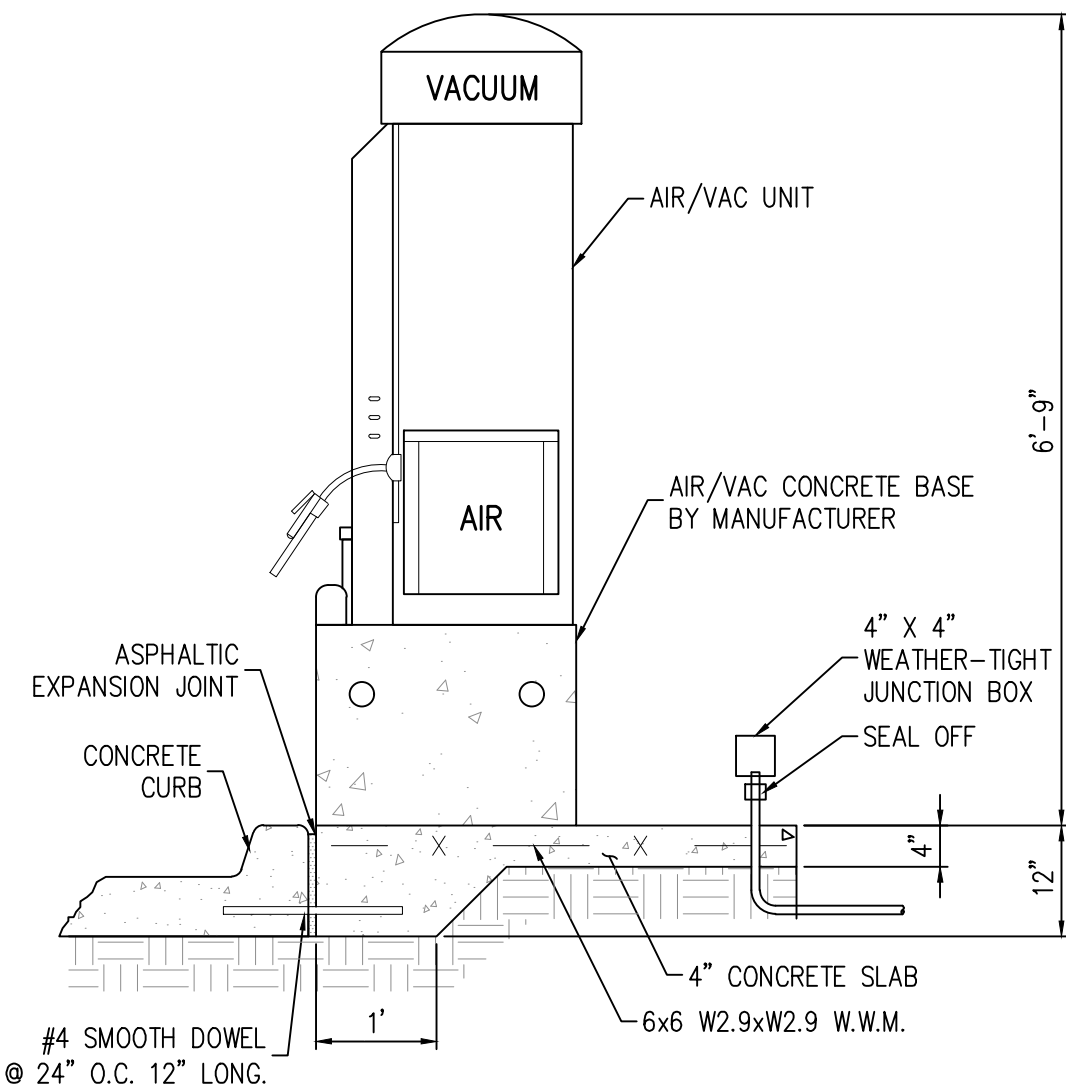
SIDE ELEVATION

FRONT ELEVATION

VENT RISER DETAIL
N.T.S.



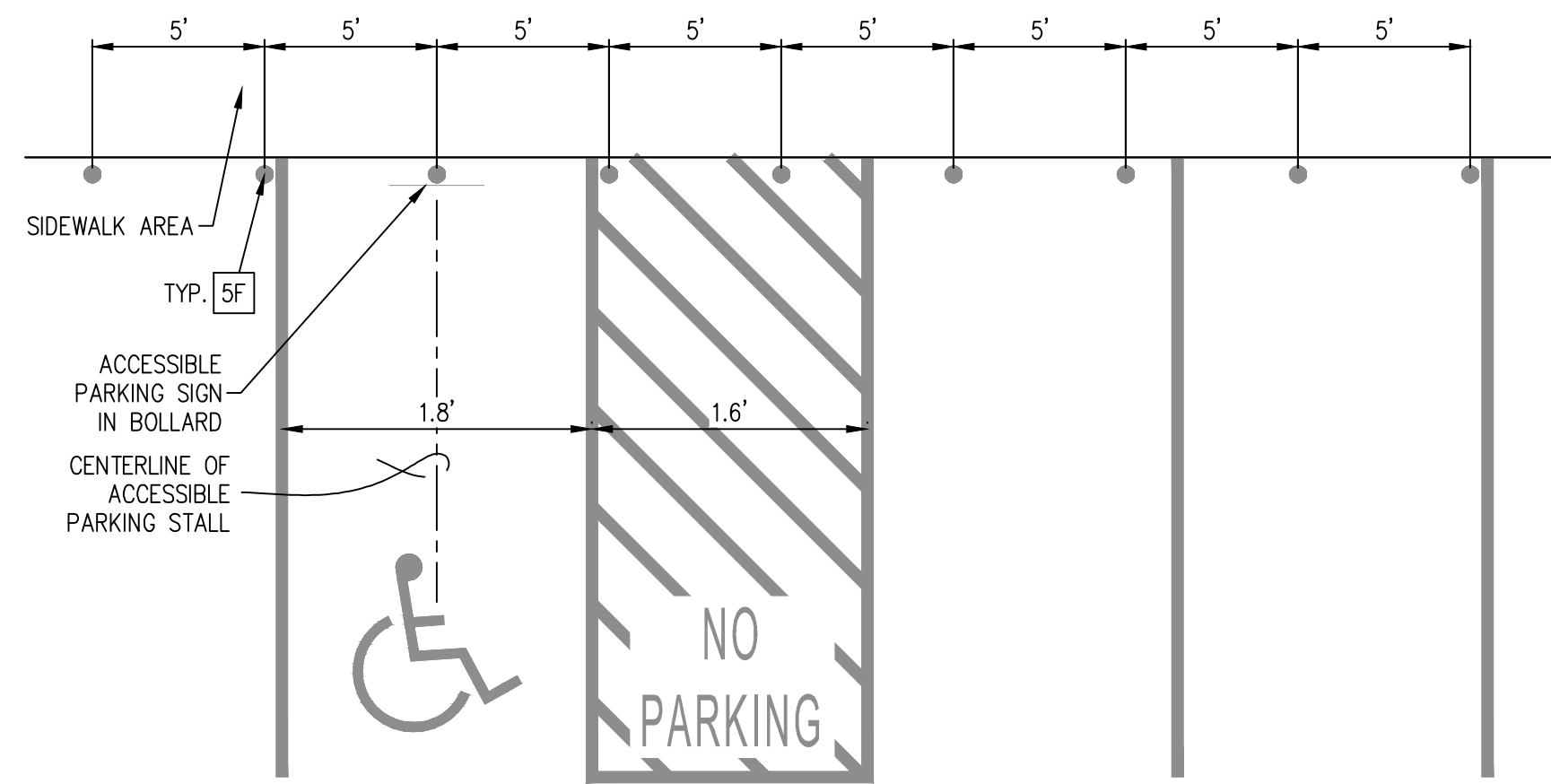
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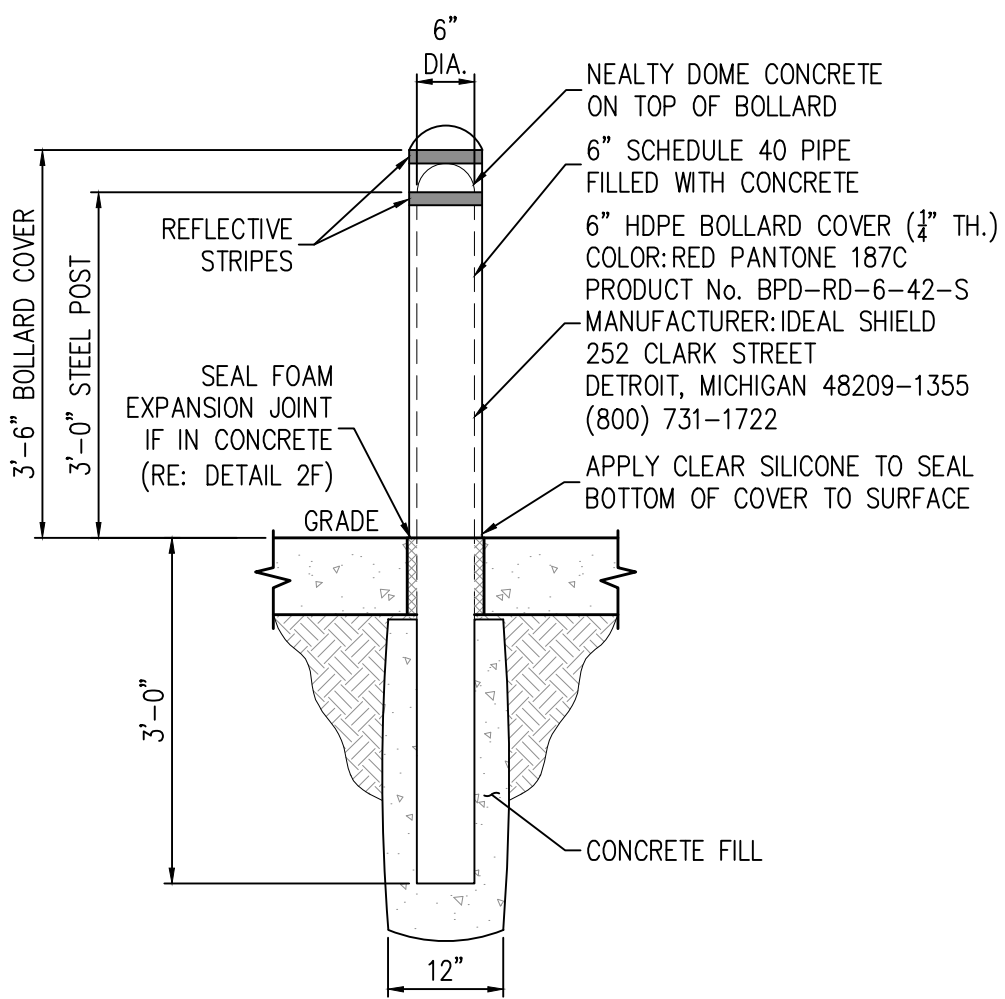
ELEVATION

NOTE:
SLOPE PAD FOR POSITIVE DRAINAGE (0.5% MIN.-1% MAX.)

AIR/VAC MOUNTING SLAB DETAIL
N.T.S.

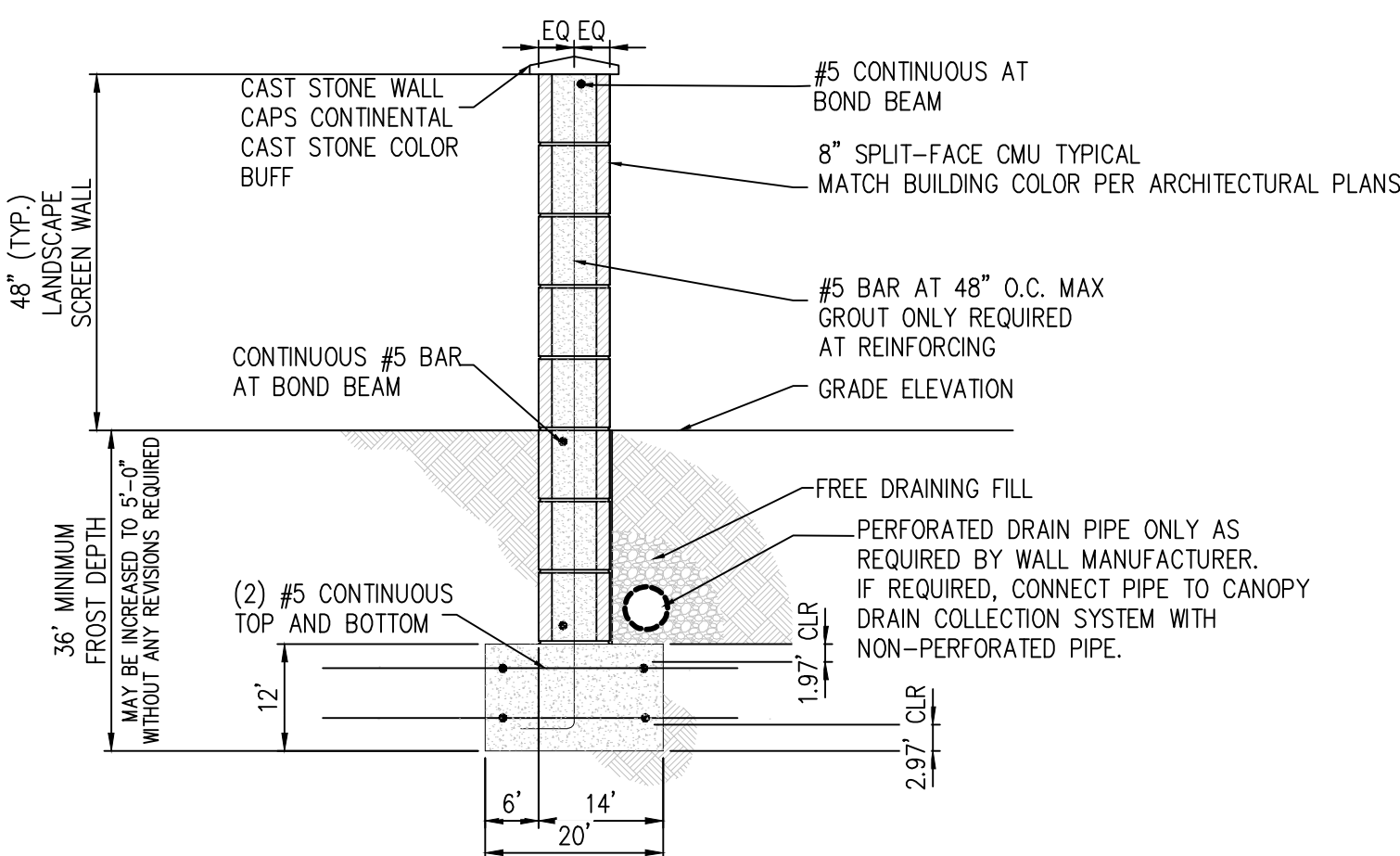


BOLLARD SPACING AT BUILDING
N.T.S.



NOTE:
1. COVER SHALL BE SECURED TO POST WITH NEOPRENE ADHESIVE TAPE PER MANUFACTURER'S RECOMMENDATIONS.

STEEL BOLLARD WITH COVER
N.T.S.



SCREEN WALL DETAIL
N.T.S.

CITY OF LONE TREE
DATE
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ENGINEERING DIVISION ACCEPTANCE BLOCK

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Sheet 18 of 29

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200 PEACH STREET
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MURPHY
USA
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CONCRETE SPECIFICATIONS

CEMENT

- 1. PROVIDE AN APPROVED STANDARD BRAND PORTLAND CEMENT CONFORMING TO ASTM C 150.
- 2. PROVIDE TYPE I NORMAL STRENGTH OR TYPE III HIGH EARLY STRENGTH.

AIR ENTRAINMENT

- 1. PROVIDE AN APPROVED STANDARD BRAND TYPE A ADMIXTURE CONFORMING TO ASTM C 494.
- 2. PROVIDE AIR ENTRAINED CONCRETE FOR ALL EXPOSED CONCRETE TO BE FINISHED INCLUDING FOUNDATIONS, WALKS, PAVEMENTS, AND RETAINING WALLS.
 - A. AIR ENTRAINED IS TO BE A MINIMUM OF FIVE PERCENT (5%) AND MAXIMUM OF SEVEN PERCENT (7%) BY VOLUME. EVALUATE CONCRETE TEMPERATURE TO DETERMINE DOSAGE OF AIR ENTRAINING ADMIXTURE
- 3. MEASURE THE AIR CONTENT AT THE POINT OF DISCHARGE INTO FORMS OR AT TRUCK.

FINE AGGREGATE

- 1. PROVIDE FINE AGGREGATES CONFORMING TO ASTM C 33 CONSISTING OF NATURAL SAND HAVING CLEAN, HARD, STRONG, DURABLE, UNCOATED GRAINS, FREE OF INJURIOUS AMOUNTS OF DUST, LUMPS, SOFT OR FLAKY PARTICLES, SHALE, ALKALI, ORGANIC MATTER, OR OTHER DELETERIOUS SUBSTANCES.
- 2. FINE AGGREGATES RANGE PASSING THROUGH A NO. 100 SIEVE (0% TO 7%).
- 3. IN ADDITION NOT MORE THAN 45 PERCENT IS TO BE RETAINED BETWEEN ANY TWO CONSECUTIVE SIEVES.

COARSE AGGREGATES

- 1. PROVIDE COARSE AGGREGATES CONFORMING TO ASTM C 33 CONSISTING OF CRUSHED STONE OR WASHED GRAVEL HAVING A CLEAN, HARD, STRONG, DURABLE, UNCOATED, PARTICLE FREE FROM INJURIOUS AMOUNTS OF SOFT OR FLAKY PIECES, ALKALI, ORGANIC MATTER, OR OTHER DELETERIOUS SUBSTANCES.
- 2. PROVIDE COARSE AGGREGATE WITH A MAXIMUM OF 1-1/2 INCHES, WITH A MINIMUM OF 95 PERCENT PASSING A 1-1/2 INCH SIEVE.
- 3. NOT MORE THAN TEN PERCENT (10%) IS TO PASS A NO. 4 SIEVE.

WATER

- 1. USE CLEAN WATER FREE OF INJURIOUS AMOUNTS OF OILS, ACIDS, ALKALI, SILTS, ORGANIC MATERIALS, OR OTHER SUBSTANCES THAT MAY BE DELETERIOUS TO CONCRETE OR STEEL.

CONCRETE MIX DESIGN

- 1. REQUIRE BATCH TICKETS TO BE FURNISHED UPON DELIVERY OF THE CONCRETE TO ENSURE CONCRETE MEETS THE SPECIFICATION. CONTRACTOR TO PROVIDE PLANT BATCH CERTIFICATIONS TO OWNER'S FIELD REPRESENTATIVE.
- 2. PROVIDE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS (3,000 PSI FOR FOOTINGS/RETAINING WALLS) WITH A MINIMUM OF SIX BAGS (564 LBS.) OF CEMENT IN EACH CUBIC YARD OF CONCRETE CONFORMING TO ASTM C 94.
- 3. DO NOT EXCEED THE MAXIMUM WATER CEMENT RATIO OF 0.53.
- 4. PROVIDE CONCRETE WITH A FOUR INCH DESIGN SLUMP WHEN TESTED WITH A STANDARD SLUMP CONE CONFORMING TO ASTM C 143. SLUMP SHALL BE 3"-5".
 - A. IF CONCRETE DEVELOPS CONSISTENCY OF DIFFICULT WORKABILITY, THEN A SUPER PLASTICIZER ADMIXTURE MAY BE USED WHEN APPROVED BY OWNER.
 - B. DO NOT ADD WATER TO INCREASE SLUMP/EXCEED WATER CEMENT RATIO.
- 5. CALCIUM CHLORIDE SHALL NOT BE USED.
- 6. FLY ASH SHALL NOT EXCEED CEMENT QUANTITY BY MORE THAN 15% BY WEIGHT.

PLACING CONCRETE

- 1. MIX AND PLACE CONCRETE FOLLOWING ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
- 2. SCHEDULE POUR THAT ONCE STARTED REMAINS A CONTINUOUS OPERATION UNTIL THE PARTICULAR SECTION OR PANEL HAS BEEN COMPLETED.
- 3. PROVIDE CONSTRUCTION JOINT TYPE/LOCATION AS INDICATED ON PAVING PLAN.
- 4. DEPOSIT CONCRETE INTO THE FINAL POSITION AT THE SPECIFIED SLUMPS WITHOUT SEGREGATION BY RE-HANDLING OR FLOWING.
 - A. DEPOSIT CONCRETE AT A RATE THAT CONCRETE REMAINS PLASTIC AND FLOWABLE INTO THE SPACES BETWEEN THE REINFORCING BARS.
 - B. DO NOT DEPOSIT FRESH CONCRETE ON CONCRETE THAT HAS HARDENED SUFFICIENTLY TO CAUSE FORMATION OF SEAMS OR PLANES OF WEAKNESS WITHIN THE SECTION OR PANEL.
 - C. DO NOT DEPOSIT PARTIALLY HARDENED CONCRETE OR CONCRETE THAT HAS BEEN CONTAMINATED BY FOREIGN MATERIALS.
 - D. DO NOT RE-TEMPER CONCRETE.
- 5. THOROUGHLY SCREED AND COMPACT CONCRETE BY MEANS OF MECHANICAL VIBRATORY POWER SCREED SUPERVISED BY EXPERIENCED PERSONNEL ON ALL FLATWORK.
 - A. PROVIDE SUFFICIENT VIBRATION INTENSITY TO CAUSE FLOW OR SETTLEMENT AROUND REINFORCEMENT, EMBEDDED ITEMS, AND CORNERS OF THE FORMS: BUT NOT LONG ENOUGH TO CAUSE SEGREGATION OF THE MIX.
 - B. SUPPLEMENT MECHANICAL VIBRATION BY HAND SPADING IN CORNERS AND ANGLES OF THE FORMS AND ALONG FROW SURFACES WHILE THE CONCRETE IS PLASTIC TO ENSURE EVEN DENSE SURFACESFREE FROM AGGREGATE POCKETS OR HONEYCOMBS.
- 6. PROTECT CONCRETE FROM EXCESSIVE HEAT AND PREMATURE DRYING BY THE USE OF KRAFT PAPER AND WATER MIST WHEN SITE CONDITIONS DEMAND.
- 7. COAT CONCRETE IMMEDIATELY AFTER FINISHING IS COMPLETE USING THE SPECIFIED CURATIVE AGENTS NO LONGER THAN 30 MINUTES FOLLOWING FINISHING IF EVAPORATION IS OCCURING.
 - A. CURING COMPOUND SHALL BE SAFECURE 1000 (WHITE PIGMENTED) BY CHEMMASTERS APPLIED PER MANUFACTURE'S SPECIFICATIONS.
- 8. IF SAW CUTTING IS EMPLOYED, IT MUST OCCUR WITHIN 6 HOURS AFTER INITIAL SET.
 - A. SPALLING DUE TO SAW CUTTING ACTIONS MAY RESULT IN REJECTION OF THE CONCRETE WORK.
- 9. PROTECT CONCRETE AREA STRUCTURALLY FROM WINDY CONDITIONS UNTIL PROPERLY CURED.

- 10. FINISH SHALL BE LIGHT BROOM.

FINISH

- 1. PAVEMENT SURFACE SHALL BE FINISHED BY EITHER MACHINE OR HAND SUITABLE FOR ACCEPTANCE BY OWNER. HAND FINISH SHALL ONLY BE ALLOWED FOR IRREGULAR DIMENSION AREAS WHERE MECHANICAL EQUIPMENT IS IMPRACTICAL OR IN CASE OF EQUIPMENT BREAKDOWN AFTER CONCRETE IS PLACED. TAKE CARE NOT TO "HARD" TROWEL OR OVER DENSIFY PAVEMENT (NO MORE THAN 2 PASSES).
- 2. AFTER STRIKING OFF AND CONSOLIDATING CONCRETE, SMOOTH SURFACE BY MECHANICAL SCREEDING AND FLOATING TO MINIMIZE OR ELIMINATE HAND FINISHING.

CONCRETE SPECIFICATIONS (CONT.)

FINISH (CONT.)

- 2. (CONT.) ADJUST FLOATING TO COMPACT SURFACE AND PRODUCE UNIFORM TEXTURE AFTER FLOATING, TEST SURFACE FOR TRUENESS WITH 10'-0" STRAIGHTEDGE. DISTRIBUTE CONCRETE AS REQUIRED TO REMOVE SURFACE IRREGULARITIES AND REFLOAT REPAIRED AREAS TO PROVIDE CONTINUOUS SMOOTH FINISH WITH MECHANICAL TROWEL.
- 3. WORK EDGES OF SLABS AND FORMED JOINTS WITH EDGING TOOL, ROUNDING EDGE TO 1/2-INCH RADIUS. ELIMINATE TOOL MARKS ON CONCRETE SURFACE. AFTER COMPLETION OF FLOATING AND TROWELLING, WHEN EXCESS MOISTURE OR SURFACE SHEEN HAS DISAPPEARED, COMPLETE SURFACE FINISHING, AS FOLLOWS:
 - A. INCLUDED SLAB SURFACES:PROVIDE COARSE, NONSLIP FINISH BY SCORING SURFACE WITH STIFF-BRISTLED BROOM PERPENDICULAR TO FLOW OF TRAFFIC SO AS TO PRODUCE REGULAR CORRUGATIONS NOT OVER 1/16 OF AN INCH DEEP.
 - B. PAVING: PROVIDE COARSE, NONSLIP FINISH BY SCORING SURFACE WITH STIFF-BRISTLED BROOM PERPENDICULAR TO FLOW OF TRAFFIC SO AS TO PRODUCE REGULAR CORRUGATIONS NOT OVER 1/16 OF AN INCH DEEP.
 - C. TINE FINISH: MAY BE UTILIZED AT EACH OF THE ENTRANCE DRIVES (SLOPE > 3%) AT THE OWNER'S DISCRETION AND SHALL PROVIDE FOR A 3/8 INCH MINIMUM SPACING AND 1 1/2 INCH MAXIMUM SPACING. GROOVES PRODUCED IN CONCRETE SHALL BE 3/16 INCH IN DEPTH WITH A MINIMUM DEPTH OF 1/8 INCH.
- 4. DO NOT REMOVE FORMS FOR 24 HOURS AFTER CONCRETE HAS BEEN PLACED. AFTER FORM REMOVAL, CLEAN ENDS OF JOINTS, BACK OF CURBS AND POINT UP MINOR HONEYCOMBED AREAS. REMOVE AND REPLACE AREAS OR SECTIONS WITH MAJOR DEFECTS, AS DIRECTED BY OWNER.

- 5. SWEEP CONCRETE PAVEMENT AND WASH FREE OF STAINS, DISCOLORATIONS, DIRT AND OTHER FOREIGN MATERIAL PRIOR TO FINAL INSPECTION.
- 6. PROTECT CONCRETE FROM DAMAGE UNTIL ACCEPTANCE OF WORK. EXCLUDE TRAFFIC FROM PAVEMENT FOR AT LEAST 14 DAYS AFTER PLACEMENT OR UNTIL 75% OF SPECIFIED STRENGTH IS ACHIEVED.

COLD WEATHER REQUIREMENTS

- 1. FOLLOW THE REQUIREMENTS OF ACI 306.1-90 AND THE FOLLOWING:
 - A. REFER TO: "RECOMMENDED PRACTICES FOR COLD WEATHER MASONRY CONSTRUCTION" AS PUBLISHED BY INTERNATIONAL MASONRY INDUSTRY ALL WEATHER COUNCIL FOR TYPICAL COLD WEATHER MASONRY PRACTICES TO BE FOLLOWED.
 - B. PROVIDE ADEQUATE EQUIPMENT FOR HEATING CONCRETE MATERIALS, AND FOR PROTECTION OF THE CONCRETE DURING FREEZING OR NEAR FREEZING WEATHER.
 - C. MAINTAIN CONCRETE MATERIALS, REINFORCEMENT, FORM WORK, FILLERS, AND GROUND TO BE IN CONTACT WITH THE CONCRETE FREE OF FROST. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE.
 - D. PROVIDE CONCRETE, DELIVERED IN COLD WEATHER, WITH THE FOLLOWING TEMPERATURES:

AIR TEMP.	MIN. CONCRETE TEMP.
30-40 °F	60 °F
0-30 °F	65 °F
BELOW 0 °F	70 °F
 - E. WHEN PRODUCING CONCRETE WITH HEATED AGGREGATES, HEATED WATER OR BOTH, DO NOT ALLOW CONCRETE TO EXCEED 90°F DURING PRODUCTION OR TRANSPORTATION.
 - F. ALL CONCRETE SLABS PLACED AT AIR TEMPERATURES FROM 20°F TO 50°F MAY HAVE AN ACCELERATING WATER REDUCING ADMIXTURE ADDITIVE ADDED TO ACCELERATE SETTING TIME AND STRENGTH ADMIXTURE COMPLYING WITH ASTM C 494, TYPE C.
 - a. ACCEPTABLE ADMIXTURES AR EUCLID CHEMICAL COMPANY'S "ACCELGAURD 90", OR EQUAL PRODUCTS BY W.R. MEADOWS, INC. OR W.R. GRACE & CO.
 - ADD ACCELGUARD 80 W./ WATER & AGGREGATE TO THE READY MIX CONCRETE TRUCK, BUT DO NOT DISPENSE ONTO DRY CONCRETE.
 - FOR TEMPERATURES 32° F - 60° F, ADD AT A RATE OF 16OZ./100 LBS. OF CONCRETE.
 - FOR TEMPERATURES BELOW 32° F, HEAT AGGREGATE AND USE WARM WATER SO THAT WHEN MIXED CONCRETE TEMPERATURE WILL BE ABOVE 60°.
 - b. FOLLOW THE MANUFACTURER'S INSTRUCTION FOR THE QUANTITY TO BE ADDED TO THE CONCRETE MIX, DEPENDING UPON THE AMBIENT TEMPERATURE, DESIRED RATE OF ACCELERATION, EARLY STRENGTH GAIN, AND STRIPPING SCHEDULE.
 - c. MAINTAIN CONCRETE ABOVE 50°F IN A MOST CONDITION FOR A MINIMUM OF SEVEN DAYS AFTER PLACEMENT FOLLOWING THE RECOMMENDATIONS OF ACI 308-92.

HOT WEATHER REQUIREMENTS

- 1. FOLLOWING THE REQUIREMENTS OF ACI 305R.
- 2. DURING HOT WEATHER, TAKE STEPS TO REDUCE CONCRETE TEMPERATURE AND WATER EVAPORATION BY PROPER ATTENTION TO INGREDIENTS, PRODUCTION METHODS, HANDLING, PLACING, PROTECTION, AND CURING.
- 3. THE PREFERRED PROTECTION IS A COVERING OF KRAFT PAPER, CONFORMING TO ASTM C 171, FOR A TWENTY FOUR HOUR PERIOD AFTER PLACEMENT - VERIFY WITH PM.

CONCRETE FORMWORK

- 1. PROVIDE DRESSED LUMBER OR MANUFACTURED FORMS CONFORMING TO THE SHAPE, LINES, AND DIMENSIONS OF CONCRETE STRUCTURES INDICATED ON THE DRAWINGS. FREE FROM DEFECTS AND SUFFICIENTLY TIGHT TO PREVENT LEAKAGE OF MORTAR.
- 2. ALL WOODEN FORMS TO BE NO LESS THAN THE SPECIFIED DEPTH OF THE SLAB TO BE POURED, AND NOT LESS THAN NOMINAL 2" X 4" SIZE.
- 3. STAKING FOR STRAIGHT SECTIONS SHALL OCCUR NOT LESS FREQUENTLY THAN EVERY FOUR FEET AND SHALL BE BOTH INSIDE AND OUTSIDE OF THE FORM.
- 4. FOR CURVES, STAKING SHALL OCCUR NOT LESS THAN EVERY FOOT, AND SHALL BE BOTH INSIDE AND OUTSIDE OF THE FORM.
- 5. STEEL FORMS SHALL BE STAKED ACCORDING TO THEIR DESIGN REQUIREMENTS.
- 6. ALL REMOVABLE FORMS SHALL BE COATED WITH FORM - RELEASE OIL PRIOR TO PLACEMENT OF CONCRETE.
- 7. CYLINDRICAL FORMS SHALL BE OF NEW SONOTUBE OR EQUIVALENT DISPOSABLE MATERIALS.
 - A. THESE MATERIALS MUST BE REMOVED COMPLETELY AFTER USE. ISLAND FORMS SHALL BE POSITIONED USING MASONRY BLOCKING AND STEEL STAKES BOTH INSIDE AND OUTSIDE OF THE FORM, TO ACHIEVE AN AVERAGE AS PER REVEAL HEIGHT AS MEASURED AT THE CENTER OF ANY LONG SIDE OF THE ISLAND.
- 8. THE SIDES OF THE ISLAND FORM SHALL BE SHIMMED AGAINST THE STAKES TO PROVIDE A PERFECTLY PLUMB FREEBOARD.
- 9. ALL EDGES CREATED BY REMOVABLE FORMS SHALL BE TOOL-RADIUSED AFTER SURFACE FINISHING TO PROVIDE A SMOOTH BORDER ON ALL SLABS.
- 10. FORMS SHALL BE REMOVED NO SOONER THAN 24 HOURS FROM THE TIME OF THE POUR.
- 11. PROPERLY BRACE OR TIE FORMS TOGETHER TO MAINTAIN SHAPE AND POSITION.
- 12. PROVIDE SQUARE EDGE WOOD OR, IF AVAILABLE, METAL FORMS FOR FLOOR SLABS.
- 13. BEFORE POURING CONCRETE, REMOVE ALL DEBRIS FROM THE FORMWORK.
- 14. WET DOWN FORMWORK PRIOR TO PLACEMENT, OR APPLY A FORM RELEASE AGENT FOLLOWING MANUFACTURER'S RECOMMENDATIONS.

CONCRETE SPECIFICATIONS (CONT.)

CONCRETE FORMWORK (CONT.)

- 15. DO NOT REMOVE FORMWORK AND BRACING UNTIL CONCRETE HAS GAINED SUFFICIENT STRENGTH TO CARRY ITS OWN WEIGHT, CONSTRUCTION LOADS, AND DESIGN LOADS WHICH ARE LIABLE TO BE IMPOSED ON IT.
- 16. REMOVE FORMS IN A MANNER TO ASSURE THE COMPLETE SAFETY OF THE STRUCTURE.
- 17. DO NOT PLACE ANY CONCRETE IF THE SUBGRADE HAS STANDING WATER OR IS MUDDY.

STEEL REINFORCEMENT

- 1. PROVIDE REINFORCING BARS CONFORMING TO ASTM A 615, GRADE 60 FREE OF LOOSE FLAKY RUST, MUD, OIL, OR OTHER COATINGS WHICH WILL ADVERSELY AFFECT BONDING CAPACITY.
- 2. PLACE REINFORCEMENT ACCURATELY AND ADEQUATELY SUPPORTED BY CONCRETE MASONRY UNITS OR OTHER APPROVED SPACERS.
- 3. SECURE REINFORCEMENT AGAINST DISPLACEMENT WITHIN TOLERANCES SPECIFIED IN "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
- 4. HOLD BARS IN PLACE USING A MINIMUM 18 GAUGE ANNEALED IRON WIRE.
- 5. SPLICES IN DEFORMED REINFORCING BARS WILL NOT BE PERMITTED UNLESS APPROVED BY OWNER.
- 6. REINFORCING ROD TO COMPLY WITH ASTM 615, GRADE 60.

FOUNDATIONS

- 1. PROVIDE SMOOTH FINISH AT ALL EXPOSED SURFACES.
- 2. CONSTRUCT CORNERS WITH A ONE INCH CHAMFER.
- 3. INCREASE THE DEPTH OF FOUNDATIONS, IF REQUIRED BY FROST LINE CONDITIONS OR BY LOCAL CODES.
- 4. OBTAIN OWNER APPROVAL OF ADDITIONAL DEPTH REQUIREMENTS BEFORE PLACING CONCRETE.
- 5. CONSTRUCT TOP ELEVATION OF FOUNDATIONS TO WITHIN +1/4 INCH OF THE ELEVATION INDICATED ON THE DRAWINGS.
- 6. INSTALL ANCHOR BOLTS WITH A HORIZONTAL TOLERANCE OF +1/8 INCH AND A VERTICAL ALIGNMENT OF +1/8 INCH OUT OF PLUMB.

GROUT

- 1. PROVIDE NON-METALLIC, NON-SHRINK, PREMIXED NON-STAINING GROUT CONTAINING SELECTED SILICA SANDS, ASTM C 150 TYPE I PORTLAND CEMENT, AND SHRINKAGE COMPENSATING AGENTS.
- 2. ACCEPTABLE PRODUCTS ARE "EMBECO" BY MASTER BUILDERS AND "FIVE STAR GROUT" BY U.S. GROUT CORPORATION.

FIELD QUALITY CONTROL

- 1. TESTING: OWNER WILL ENGAGE A QUALIFIED TESTING/INSPECTION AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS AND PREPARE TESTING AND INSPECTION REPORTS.
- 2. TESTING AGENCY:
 - A. TESTING AGENCY SHALL IMMEDIATELY REPORT TO OWNER ANY FAILURE OF WORK TO COMPLY WITH CONTRACT DOCUMENTS.
 - B. TESTING AGENCY SHALL REPORT RESULTS OF TESTS AND INSPECTIONS, IN WRITING, TO OWNER.
 - a. TEST REPORTS SHALL INCLUDE REPORTING REQUIREMENTS OF ASTM C31, ASTM C39, AND ACI 301, INCLUDING THE FOLLOWING AS APPLICABLE TO EACH TEST AND INSPECTION:
 - PROJECT NAME
 - NAME OF TESTING AGENCY
 - NAMES AND CERTIFICATION NUMBERS OF FIELD AND LABORATORY TECHNICIANS
 - PERFORMING INSPECTIONS AND TESTING
 - NAME OF CONCRETE MANUFACTURER
 - DATE AND TIME OF INSPECTION, SAMPLING, AND FIELD TESTING
 - LOCATION IN WORK OF CONCRETE REPRESENTED BY SAMPLES
 - DATE AND TIME SAMPLE WAS OBTAINED
 - TRUCK AND BATCH TICKET NUMBERS
 - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS
 - CONCRETE MIXTURE DESIGNATION
 - FIELD TEST RESULTS
 - TYPE OF FRACTURE AND COMPRESSIVE BREAK STRENGTHS AT SEVEN DAYS AND 28 DAYS.
- 3. CONCRETE TESTS: TESTING OF COMPOSITE SAMPLES OF FRESH CONCRETE OBTAINED IN ACCORDANCE WITH ASTM C 172 SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
 - A. TESTING FREQUENCY: OBTAIN ONE COMPOSITE SAMPLE OF EACH CONCRETE MIXTURE NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 100 CUBIC YARD OR FRACTION THEREOF FOR SLABS, PAVEMENTS, AND WALLS, AND NOT LESS THAN ONCE FOR EACH 50 CUBIC YARDS OR FRACTION THEREOF FOR FOUNDATIONS.
- 4. SLUMP: ASTM C143
 - A. ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.
 - B. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
- 5. AIR CONTENT: ASTM C231
 - A. ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.
- 6. CONCRETE TEMPERATURE: ASTM C1064
 - A. ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F AND BELOW OR 80 DEG F AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE.
- 7. CURING COMPOUND
 - A. VERIFY THAT SPECIFIED CURING COMPOUND IS BEING USED.
 - B. VISUALLY VERIFY THAT THE SPECIFIED CURING COMPOUND WAS APPLIED.
- 8. COMPRESSION TEST SPECIMENS: ASTM C31
 - A. CAST AND LABORATORY CURE ONE SET OF FOUR 6-INCH BY 12-INCH OR FIVE 4-INCH BY 8-INCH CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
- 9. COMPRESSIVE-STRENGTH TESTS: ASTM C39
 - A. TEST ONE LABORATORY SPECIMEN AT SEVEN DAYS FOR INFORMATION, ONE SET OF TWO 6-INCH BY 12-INCH OR THREE 4-INCH BY 8-INCH SPECIMENS AT 28 DAYS AND HOLD ONE CYLINDER IN RESERVE.
 - B. A COMPRESSIVE-STRENGTH TEST SHALL BE THE AVERAGE COMPRESSIVE STRENGTH FROM THE SET OF SPECIMENS OBTAINED FROM SAME COMPOSITE SAMPLE AND TESTED AT 28 DAYS.
- 10. FIELD VERIFY REINFORCING PLACEMENT, FORMWORK, GREENSTREAK LOCATIONS, AND EXPANSION MATERIAL. THESE ARE VISUAL INSPECTIONS PERFORMED PREPOUR.
- 11. SOIL TESTS SHALL RECEIVE PASSING GRADE PRIOR TO CONCRETE PLACEMENT.

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

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CONCRETE SPECIFICATIONS MURPHY USA (NTI)

9091 WESTVIEW RD

LONE TREE

COLORADO

Galloway

5500 Greenwood Plaza Blvd, Suite 200 Greenwood Village, CO 80111 303.770.8884 • GallowayUS.com

MURPHY OIL USA, INC.

200 PEACH STREET EL DORADO, AR 71730

MURPHY USA

EARTHWORK SPECIFICATIONS

GENERAL

1. REFERENCED PUBLICATIONS: THE FOLLOWING PUBLICATIONS ARE INCLUDED AS PART OF THESE EARTHWORK SPECIFICATIONS:

A. ASTM C 136 – METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES.

B. ASTM D 698 – TEST METHODS FOR MOISTURE-DENSITY RELATIONS OF SOIL AND SOIL-AGGREGATE MIXTURES, USING 5.5-LB (2.49 KG) RAMMER AND 12 INCH (305 MM) DROP.

C. ASTM D 1556 – TEST METHOD FOR DENSITY OF SOIL IN PLACE BY THE SAND-CONE METHOD.

D. ASTM D 4254 – TEST METHODS FOR MINIMUM INDEX DENSITY OF SOILS AND CALCULATION OF RELATIVE DENSITY.

E. ASTM D 1557 – TEST METHOD FOR MOISTURE-DENSITY ELEVATIONS OF SOILS AND SOIL-AGGREGATE MIXTURE USING 10 POUND (4.54 KG) RAMMER AND 18-IN. (457 MM) DROP.

F. ASTM D 2167 – TEST METHOD FOR DENSITY AND UNIT WEIGHT OF SOIL IN PLACE BY THE RUBBER BALLOON METHOD.

G. ASTM D 4253/ D4254 – STANDARD METHOD OF TEST FOR RELATIVE DENSITY OF COHESIONLESS SOILS.

2. CARE SHALL BE USED WHEN OPERATING MECHANICAL EQUIPMENT IN LOCATIONS WHERE IT MAY CAUSE DAMAGE TO TREES, BUILDINGS, CULVERTS, OR OTHER EXISTING PROPERTY, UTILITIES, OR STRUCTURES ABOVE OR BELOW GROUND.

3. PROVIDE SHORING, BARRIERS, LIGHTING, WARNING SIGNS, AND RAILINGS AS REQUIRED BY LAW OR REGULATIONS FOR THE PROTECTION OF EMPLOYEES, THE PUBLIC, AND ADJACENT PROPERTY.

4. PROPERLY BARRICADE AND PROTECT AND MAINTAIN ANY OPEN TRENCH OR EXCAVATION TO PREVENT ACCIDENTAL OR UNAUTHORIZED ENTRANCE.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UNDERGROUND PLUMBING, DRAINAGE, OR ELECTRICAL UTILITY LINES.

A. WHERE CERTAIN ON-SITE UTILITIES ARE INDICATED TO REMAIN, PROTECT AND MAINTAIN SUCH LINE, AND BE RESPONSIBLE FOR ALL DAMAGE UNTIL COMPLETION OF WORK.

B. COOPERATE WITH UTILITY COMPANIES TO MAINTAIN EXISTING UTILITY LINES IN CONTINUOUS OPERATION.

C. WHERE UNMARKED UTILITIES ARE UNCOVERED WITHIN THE WORK AREA, NOTIFY MURPHY OIL USA, INC. AND THE UTILITIES HAVING JURISDICTION, AND TAKE PRECAUTIONS TO PREVENT INTERRUPTION OF SERVICE.

D. SHOULD SUCH LINES OR SERVICES BE DAMAGED, BROKEN OR INTERRUPTED THROUGH NEGLIGENCE, REPAIR AND RESTORE IMMEDIATELY WITHOUT ADDITIONAL COST TO UTILITY OR TO MURPHY OIL USA, INC.

6. CLOSE OPEN ENDS OF ABANDONED UNDERGROUND UTILITIES WHICH ARE INDICATED TO REMAIN IN PLACE. FOLLOW PROCEDURES ESTABLISHED BY THE UTILITY COMPANY HAVING JURISDICTION.
- GRADING
1. REMOVE ALL DEBRIS FROM AREAS TO BE LANDSCAPED TO A DEPTH OF TWO FEET.

A. BACKFILL WITH CLEAN SOIL TO A DEPTH WITHIN SIX INCHES OF THE FINISHED GRADE.

B. BACKFILL TO SIX INCHES BELOW TOP OF EXISTING CURBS. UNIFORMLY COMPACT BACKFILL AND GRADE AREAS TO INDICATED SLOPE WITH A TOLERANCE OF 1/4 INCH ABOVE OR BELOW INDICATED ELEVATIONS.

2. PROTECT NEWLY GRADED AREAS FROM TRAFFIC AND EROSION.

3. REPAIR, RE-GRADED, AND RE-COMPACT GRADES IN SETTLED, ERODED, AND RUTTED AREAS TO SPECIFIED TOLERANCES.

4. LANDSCAPING WORK INCLUDING BACKFILLING LANDSCAPED AREAS TO GRADE WITH SIX INCHES OF TOPSOIL.
- EXCAVATING
1. EXCAVATION OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH OSHA GUIDELINES AND ALL APPLICABLE STATE AND LOCAL ORDINANCES.

2. EXCAVATE SUBSOIL REQUIRED FOR FOUNDATIONS, CONSTRUCTION OPERATIONS, AND OTHER WORK.

3. EXCAVATE FOUNDATIONS TO A DEPTH INDICATED ON THE DRAWINGS OR AS DEEP AS REQUIRED TO ATTAIN PROPER SOIL BEARING PRESSURE, OR MEET GOVERNING CODES.

4. DEEPER FOUNDATIONS WILL BE APPROVED, IN WRITING, BY MURPHY OIL USA, INC.

5. MACHINE SLOPE BANKS TO ANGLE OF REPOSE OR LESS UNTIL SHORED, AS REQUIRED BY ALL CURRENT OSHA STANDARDS.

6. DO NOT ALLOW EXCAVATION TO INTERFERE WITH NORMAL 45 DEGREE BEARING SPLAY OF ANY FOUNDATION.

7. HAND TRIM EXCAVATION AND LEAVE FREE OF LOOSE MATTER.

8. EXCAVATED MATERIAL SHALL BE FIELD-SCREENED BY THE ENGINEER USING AMBIENT TEMPERATURE HEADSPACE ANALYSIS (ATHA) METHODS TO SEGREGATE POTENTIALLY CONTAMINATED SOILS FROM UNCONTAMINATED SOILS.

A. EXCAVATED MATERIALS WITH OBSERVED PHOTO IONIZATION DETECTOR (PIP) READINGS GREATER THAN 20 PARTS PER MILLION (PPM) DURING THE SCREENING WILL BE CONSIDERED POTENTIALLY CONTAMINATED AND SHALL BE PLACED ON A BERMED, IMPERMEABLE LINER OF MINIMUM 6-MIL VISQUEEN AT A LOCATION DESIGNATED BY THE ENGINEER.

a. THE ENGINEER WILL COORDINATE APPROVAL FOR DISPOSAL OF THE SOIL. TRANSPORTATION OF CONTAMINATED SOIL TO AN APPROVED DISPOSAL SITE WILL BE PERFORMED BY THE CONTRACTOR UNDER THIS CONTRACT.

B. THE ENGINEER MAY COLLECT SAMPLES OF EXCAVATED MATERIAL FOR FIELD OR LABORATORY ANALYSES FOR THE PURPOSE OF VERIFYING CONTAMINANT CONCENTRATIONS.

a. THE CONTRACTOR SHALL PROVIDE SAMPLES OF EXCAVATED MATERIAL TO THE ENGINEER, AS REQUESTED.

C. EXCAVATED MATERIAL WITH OBSERVED PIP READINGS LESS THAN 20 PPM DURING ATHA TESTING WILL BE CONSIDERED UNCONTAMINATED AND SHALL BE TEMPORARILY STOCKPILED ON SITE IN A LOCATION WHICH WILL NOT INTERFERE WITH TRAFFIC OR DAILY BUSINESS OPERATIONS.

a. UNCONTAMINATED MATERIAL WILL NOT BE USED AS BACKFILL IF THE ENGINEER DETERMINES THAT EXCAVATED UNCONTAMINATED MATERIALS IS UNSUITABLE FOR USE AS BACKFILL.

D. THE EXCAVATED MATERIAL WILL BE TRANSPORTED OFF SITE BY THE CONTRACTOR FOR RE-USE OR DISPOSAL.

9. REPLACE ALL UNSATISFACTORY SOIL MATERIALS WITH AN ENGINEERED FILL CONSISTING OF ORDINARY SOIL AS EXCAVATED ON THE SITE, FREE FROM DEBRIS ROOTS, STONES LARGER THAN TWO INCHES, SILT, MUCK OR PEAT CAPABLE OF BEING COMPACTED TO THE DENSITIES SPECIFIED IN BACKFILL.

A. INSTALL FILL MATERIAL IN LAYERS NOT EXCEEDING 12 INCHES AND MOISTENED ONLY AS REQUIRED TO OBTAIN THE SPECIFIED DEGREE OF COMPACTING.

10. CORRECT UNAUTHORIZED OVER-EXCAVATION AT NO COST TO THE OWNER.

11. STOCKPILE SUFFICIENT CLEAN APPROVED SOIL MATERIALS FOR ALL BACKFILLING OR GRADING WORK.

A. STOCKPILE EXCAVATED MATERIAL IN AREA DESIGNATED ON-SITE OR WHERE DIRECTED AND REMOVE EXCESS SUBSOIL, NOT BEING REUSED, FROM SITE.

B. DO NOT USE UNTREATED OR STABILIZED TOPSOIL AS COMPACTED SUB-GRADE MATERIAL SAMPLES MAY BE COLLECTED BY THE ENGINEER TO VERIFY CONTAMINANT

EARTHWORK SPECIFICATIONS (CONT.)

EXCAVATION (CONT.)

B. (CONT.) APPROVED BY MURPHY OIL USA, INC.

12. IN THE EVENT THAT SOLID ROCK OR OTHER UNEXPECTED MATERIALS OVER ONE CUBIC YARD IN VOLUME ARE ENCOUNTERED, EXTRA COST WILL BE ALLOWED AFTER WRITTEN APPROVAL BY MURPHY OIL USA, INC. EXTRA COST WILL FOLLOW UNIT PRICES QUOTED IN THE CONTRACTOR'S BID, WITH QUANTITIES TO BE APPROVED BY MURPHY OIL USA, INC.

13. FILL OVER-EXCAVATED AREAS UNDER STRUCTURE BEARING SURFACES BY EXTENDING INDICATED BOTTOM ELEVATION OF FOOTING OR BASE TO EXCAVATION BOTTOM WITHOUT CHANGING TOP ELEVATION OR BY FILLING UNAUTHORIZED EXCAVATION WITH 3000 PSI CONCRETE.

14. TRENCHING

A. COMPLY WITH OSHA AND OTHER LOCAL REGULATIONS FOR TRENCHING REQUIREMENTS.

B. CONFORM EXCAVATIONS FOR PIPING TO LIMITS, DEPTHS, AND MATERIALS INDICATED ON THE DRAWINGS, AND TO APPLICABLE CODES AND REGULATIONS.

C. MECHANICAL EQUIPMENT SHALL BE DESIGNED AND OPERATED IN SUCH A MANNER THAT THE BOTTOM ELEVATION OF THE TRENCH CAN BE CONTROLLED WITH UNIFORM TRENCH WIDTHS AND VERTICAL SIDEWALLS WHICH EXTEND FROM THE BOTTOM OF THE TRENCH TO AN ELEVATION 1 FOOT ABOVE THE TOP OF THE INSTALLED PIPE.

D. TRENCHES SHALL BE EXCAVATED BY HAND IN LOCATION WHERE UNDERGROUND UTILITIES ARE KNOWN OR SUSPECTED.

E. DESIGN AND PROVIDE SHEETING, SHORING, OR BRACING AT ANY OPEN TRENCH.

F. EXCAVATE SUBSOIL REQUIRED TO INSTALL UNDERGROUND PIPING AND UTILITIES.

G. TRENCHES SHALL BE EXCAVATED BY OPEN-CUT METHODS, EXCEPT WHEN BORING OR TUNNELING IS INDICATED ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

H. TRENCHES SHALL BE EXCAVATED TO A WIDTH NECESSARY TO PROVIDE A 1-PIPE DIAMETER MINIMUM WORKING SPACE BETWEEN THE PIPE AND THE TRENCH WALLS FOR PROPER PIPE INSTALLATION, JOINING, AND BEDDING.

I. TRENCH WIDTH SHALL BE MAINTAINED TO WITHIN THREE (3) INCHES OF THAT SPECIFIED ON PLANS.

a. TRENCH ALIGNMENT SHALL BE SUFFICIENTLY ACCURATE TO PERMIT PIPE TO BE ALIGNED PROPERLY WITH A 6-INCH MINIMUM CLEARANCE BETWEEN THE PIPE AND THE SIDEWALLS OF THE TRENCH.

– THE TRENCH SIDEWALL SHALL NOT BE UNDERCUT IN ORDER TO OBTAIN CLEARANCE.

J. CONTRACTOR SHALL OVER-EXCAVATE A MINIMUM OF SIX (6) INCHES BELOW THE BOTTOM OF THE PIPE WHEREVER THE TRENCH BOTTOM IS CONSIDERED TO BE BEDROCK OR OTHER UNSUITABLE MATERIAL.

a. OVER-EXCAVATED SHALL BE BACKFILLED AND COMPACTED WITH ACCEPTABLE STABILIZATION MATERIAL.

K. WHERE INSTALLING PIPE OR CONDUIT, EXCAVATE OR REMOVE ROCK TO SIX INCHES BELOW THE REQUIRED ELEVATION.

a. BACKFILL WITH CRUSHED STONE OR GRAVEL.

b. HAND TRIM FOR BELL AND SPIGOT PIPE JOINTS.

c. SUPPORT PIPE DURING PLACEMENT.

L. BACKFILL SYSTEMATICALLY, AS EARLY AS POSSIBLE, TO ALLOW MAXIMUM TIME FOR NATURAL SETTLEMENT.

M. DO NOT BACKFILL TRENCHES UNTIL TESTING THAT IS REQUIRED BY APPLICABLE CODES HAS BEEN CONDUCTED AND APPROVED.

N. STOCKPILING EXCAVATED MATERIALS:

a. SUITABLE MATERIAL FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER, AND A MINIMUM OF TWO (2) FEET FROM THE EDGE OF THE TRENCH.

b. EXCESS EXCAVATED MATERIALS NOT SUITABLE OR NOT REQUIRED FOR BACKFILLING SHALL BE REMOVED AND DISPOSE OF OFFSITE BY THE CONTRACTOR.

c. EXCAVATED MATERIAL SHALL NOT BE STOCKPILED AGAINST EXISTING STRUCTURES OR APPURTENANCES.

O. PREPARATION OF TRENCH BOTTOM.

a. TRENCH BOTTOMS SHALL BE GRADED UNIFORMLY TO PROVIDE CLEARANCE FOR EACH SECTION OF PIPE.

b. LOOSE MATERIAL, WATER, AND FOREIGN OBJECTS SHALL BE REMOVED FROM THE TRENCH.

c. THE CONTRACTOR SHALL PROVIDE A FIRM SUB GRADE, WHICH IS SUITABLE FOR APPLICATION OF BEDDING MATERIAL.

d. WHEREVER UNSTABLE MATERIAL IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SAID MATERIAL SHALL BE OVER-EXCAVATED TO A DEPTH SUITABLE FOR CONSTRUCTION OF A STABLE SUB-GRADE.

– THE DEPTH SUITABLE FOR CONSTRUCTION OF A STABLE SUB GRADE SHALL BE DETERMINED BY THE ENGINEER.

– THE OVER-EXCAVATION SHALL BE BACKFILLED WITH STABILIZATION MATERIAL AND COMPACTED AS REQUIRED BY THE ENGINEER.

DEWATERING

1. PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM FLOWING INTO EXCAVATIONS AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA.

2. AT NO TIME WILL PERSONNEL BE ALLOWED IN THE TRENCH UNLESS SUCH ENTRY COMPLIES WITH OSHA GUIDELINES AND WITH APPLICABLE STATE AND LOCAL REGULATIONS.

3. DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS.

4. ANY WATER SUSPECTED OF BEING CONTAMINATED IS TO BE BROUGHT TO THE ATTENTION OF MURPHY OIL USA, INC.

5. REMOVE WATER TO PREVENT SOIL CHANGES DETRIMENTAL TO THE STABILITY OF SUB-GRADES.

6. PROVIDE AND MAINTAIN PUMPS, WELL POINTS, SLUMPS, SUCTION AND DISCHARGE LINE, AND OTHER DEWATERING SYSTEM COMPONENTS NECESSARY TO CONVEY WATER AWAY FROM EXCAVATIONS.

7. ESTABLISH AND MAINTAIN TEMPORARY DRAINAGE DITCHES AND OTHER DIVERSIONS OUTSIDE EXCAVATION LIMITS TO CONVEY RAIN WATER AND REMOVED FROM EXCAVATIONS TO COLLECTION OR RUN-OFF AREAS.

8. DO NOT USE TRENCH EXCAVATIONS AS TEMPORARY DRAINAGE DITCHES.

9. MAINTAIN WATER ON SITE, IF REQUIRED BY THE LOCAL AUTHORITY.

10. TRENCHING

A. ALTHOUGH IT IS NOT ANTICIPATED THAT PIPING TRENCHES WILL BE EXCAVATED BELOW THE WATER TABLE, ALL TRENCHES SHOULD BE KEPT FREE FROM EXCESS GROUNDWATER DURING CONSTRUCTION.

B. ANY WATER WHICH IS ENCOUNTERED IN THE TRENCH SHALL BE REMOVED TO THE EXTENT NECESSARY TO PROVIDE A FIRM SUB GRADE, TO PERMIT JOINTS TO BE MADE IN THE FRY, AND TO PREVENT THE ENTRANCE OF WATER INTO THE PIPELINE.

C. SURFACE RUNOFF SHALL BE DIVERTED TO KEEP TRENCHES FREE FROM WATER, AS NECESSARY.

D. WATER SHALL NOT BE DISCHARGED FROM A TRENCH WITHOUT THE APPROVAL OF THE ENGINEER.

E. WATER SHALL BE PUMPED FROM THE TRENCH TO A HOLDING TANK FOR FUTURE TREATMENT, IF NECESSARY.

F. THE CONTRACTOR SHALL TREAT THE DISCHARGED WATER TO REMOVE VOLATILE CONTAMINANTS TO CONCENTRATIONS WITHIN LIMITS PRESCRIBED BY REGULATORY AUTHORITIES PRIOR TO DISPOSAL OF THE WATER.

G. THE CONTRACTOR MUST DISCHARGE TREATED WATER IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND ORDINANCES IN A MANNER WHICH PREVENTS DAMAGE TO PERSONAL PROPERTY.

H. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS PRIOR TO HIS INTENT TO DISCHARGE WATER.

I. WATER SAMPLES MAY BE COLLECTED BY THE ENGINEER TO VERIFY CONTAMINANT

EARTHWORK SPECIFICATIONS (CONT.)

DEWATERING (CONT.)

J. CONCENTRATIONS.

K. THE CONTRACTOR SHALL PROVIDE DISCHARGE SAMPLES TO THE ENGINEER AS REQUESTED.

L. THE CONTRACTOR IS RESPONSIBLE FOR SECURING AND COMPLYING WITH ALL PERMITS AS REQUIRED BY "F" ABOVE.

BACKFILL

1. BEFORE COMPACTING, MOISTEN OR AERATE EACH LAYER OF BACKFILL AS REQUIRED TO OBTAIN OPTIMUM MOISTURE CONTENT TO ATTAIN REQUIRED COMPACTING DENSITY.

A. CINDERS, ASHES, ORGANIC MATTER, RUBBISH, OR OTHER DELETERIOUS MATERIALS WILL NOT BE PERMITTED.

B. PLACE FILL IN LAYERS NOT MORE THAN EIGHT INCHES IN LOOSE DEPTH.

2. ROLL AREAS WITH SOILS CONTAINING CLAY OR SILT (COHESIVE SOILS) UNDER PAVING AND BUILDINGS WITH A SHEEP'S FOOT ROLLER.

A. COMPACT FILL WITH COHESIVE MATERIALS TO A DENSITY EQUAL TO 95 PERCENT OF RELATIVE DENSITY AS DETERMINED BY ASTM D 698.

B. DETERMINE FIELD DENSITY FOR COHESIVE SOILS BY THE SAND CONE METHOD FOLLOWING ASTM D 1556.

3. ROLL AREAS WITH SOILS CONTAINING SAND AND GRAVEL (COHESION-LESS SOILS) UNDER PAVING AND BUILDINGS WITH EITHER A THREE WHEEL TEN TON VIBRATOR ROLLER OR SEVEN TON TRACTOR.

A. COMPACT FILL WITH COHESION-LESS SOILS TO A DENSITY EQUAL TO 65 PERCENT OF RELATIVE DENSITY AS DETERMINED BY ASTM D 4254.

B. DETERMINE FIELD DENSITY FOR COHESION-LESS SOILS BY THE RUBBER BALLOON METHOD FOLLOWING ASTM D 2167.

4. THE OWNER MAY EMPLOY AND PAY FOR AN INDEPENDENT TESTING LABORATORY TO PERFORM ANY TEST OR INSPECTION TO SHOW COMPLIANCE WITH THESE SPECIFICATIONS.

5. IF TESTS INDICATE WORK DOES NOT MEET SPECIFIED REQUIREMENTS, REMOVE WORK, REPLACE, AND RETEST WITHOUT ADDITIONAL COST TO THE OWNER.

6. BACKFILL FOR UNDERGROUND STORAGE TANKS IS SPECIFIED ON THE TANK INSTALLATION DRAWING.

7. TRENCHING

A. BACKFILLING WITH SAND OR PEA GRAVEL TO A DEPTH OF FOUR INCHES ABOVE THE TOP OF THE CONDUIT.

a. DO NOT USE SAND IN CONJUNCTION WITH FILTER FABRIC.

b. VOIDS BETWEEN CONDUITS WILL NOT BE PERMITTED.

c. CLEAN EARTH MAY BE SUBSTITUTED FOR SAND WHEN THE TRENCH CONTAINS ONLY ONE CONDUIT.

B. COMPRESSED AIR AND POTABLE WATER PIPING

a. LAY PIPING ON A FOUR INCH COMPACTED BEDDING OF CLEAN SAND OR PEA GRAVEL.

b. CONTINUE SAND BACKFILL TO A DEPTH OF FOUR INCHES ABOVE THE TOP OF THE PIPE.

C. SEWER PIPING

a. LAY SEWER PIPING SUPPORTED CONTINUOUSLY ON A SIX INCH COMPACTEDBEDDING OF GRAVEL OR CRUSHED STONE OF WHICH 100 PERCENT WILL PASS THROUGH A 1/2 INCH SIEVE.

b. SHAPE BEDDING FOR CLEARANCE OF ALL JOINTS AND FITTINGS, TAMPED IN PLACE, AND GRADED EVENLY TO ENSURE A UNIFORM BEARING FOR THE FULL LENGTH OF THE PIPE.

c. DO NOT SUPPORT PIPING BY BLOCKS, PLANKS, OR MOUNDS OF BEDDING MATERIAL.

D. BACKFILL ONLY AFTER PIPING AND APPURTENANCES HAVE BEEN INSPECTED, TESTED, AND APPROVED.

a. PROVIDE GRANULAR BACKFILL MATERIAL FREE OF STONES LARGER THAN THREE INCHES IN DIAMETER, NON-CORROSIVE, AND NON-ORGANIC IN NATURE.

b. DO NOT USE MATERIAL WITH CINDERS, BUILDING MATERIALS, WASTE, OR RUBBISH.

c. DO NOT USE FROZEN OR SEMI-FROZEN BACKFILL MATERIALS.

d. BACKFILL AROUND PIPE TO A DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE IN LAYERS.

e. USE GRAVEL OR CRUSHED STONE OF WHICH 100 PERCENT WILL PASS THROUGH A 1/2 INCH SIEVE.

f. INSTALL IN LAYERS NOT TO EXCEED SIX INCHES IN DEPTH.

g. TAKE CARE NOT TO DISTURB THE PIPE OR DAMAGE ANY PIPE COATING.

CONTRACTOR SHALL REVIEW THE GEOTECHNICAL REPORT AND ALL CIVIL DOCUMENTS. THE GEOTECHNICAL REPORT AND CIVIL DOCUMENTS SUPERCEDE ANY OF THE STANDARD SPECIFICATIONS ON THIS SHEET.

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

C-13.1

Sheet 20 of 29

ENGINEERING STAMP

EARTHWORK SPECIFICATIONS
MURPHY USA (NTI)
9091 WESTVIEW RD
LONE TREE
COLORADO

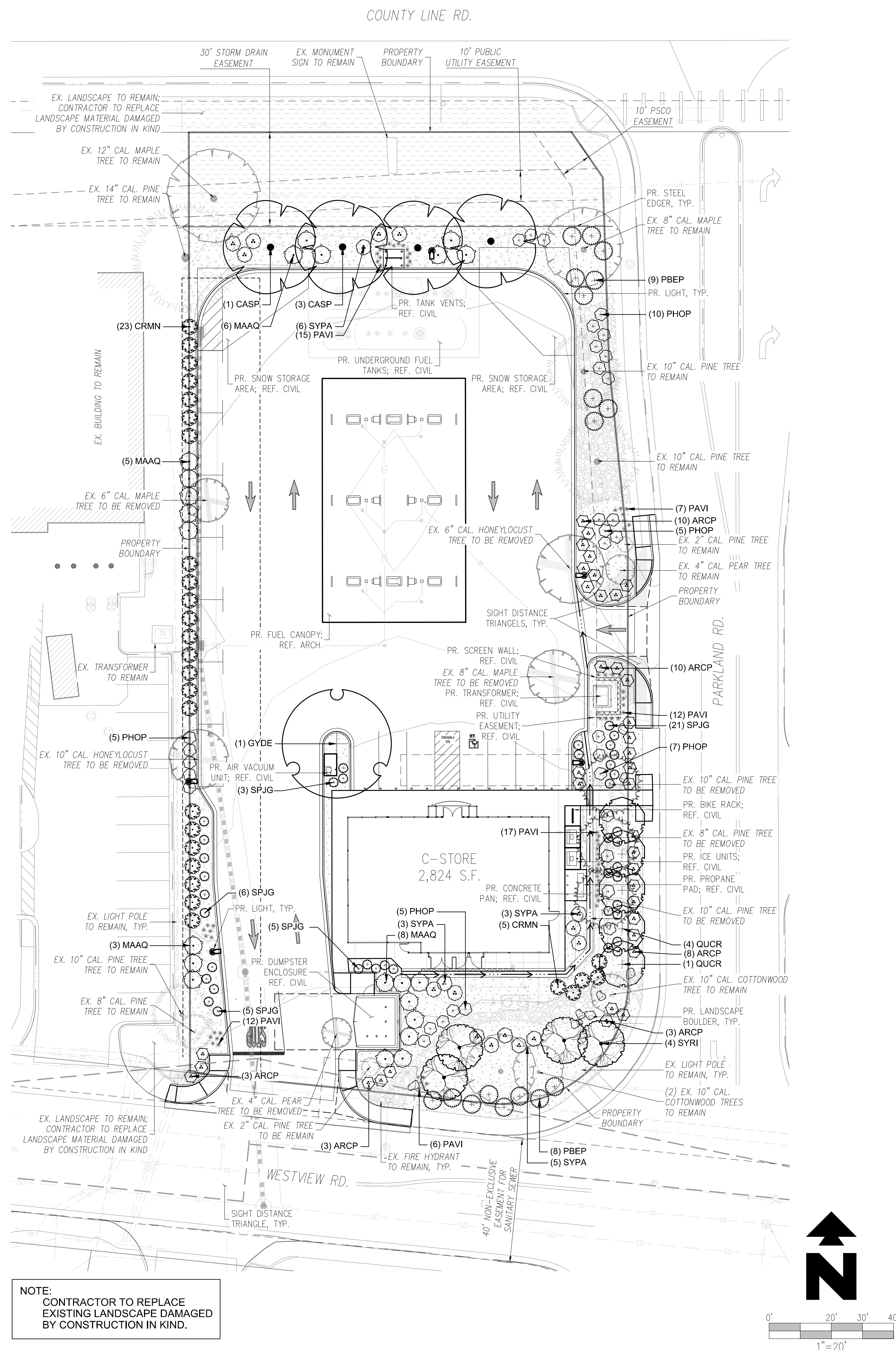
Galloway

5500 Greenwood Plaza Blvd, Suite 200
Greenwood Village, CO 80111
303.770.8884 • GallowayUS.com

MURPHY OIL USA, INC.

200 PEACH STREET
EL DORADO, AR 71730

MURPHY USA



1. ALL PLANTS INSTALLED SHALL FOLLOW THE PLANT SCHEDULE, INSTALLATION INSTRUCTIONS AND THE LANDSCAPE DRAWINGS ON THE APPROVED LANDSCAPE PLAN INCLUDED IN THIS SITE IMPROVEMENT PLAN. ANY CHANGES TO THE APPROVED LANDSCAPE PLAN, TO INCLUDE SUBSTITUTIONS, MUST BE APPROVED BY THE CITY IN ADVANCE OF INSTALLATION.
2. ALL MULCH AND/OR ROCK COBBLE SHALL BE INSTALLED AND MAINTAINED TO THE DEPTH(S) PROVIDED ON THE APPROVED LANDSCAPE PLAN INCLUDED IN THIS SITE IMPROVEMENT PLAN. ORGANIC MULCH SHALL NOT BE PLACED WITHIN SIX (6) FEET OF STORM INLETS.
3. THE USE OF IMPERMEABLE SHEET PLASTIC AS A WEED BARRIER IS PROHIBITED.

SYMBOL	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT.	CAL. / SIZE	HT. X SPD.	WATER USE
<u>DECIDUOUS TREES</u>								
	CASP	4	NORTHERN CATALPA	CATALPA SPECIOSA	B&B	2" CAL	50' X30'	LOW
	GYDE	1	KENTUCKY COFFEETREE 'ESPRESSO'	GYMNOCLADUS DIOICA 'ESPRESSO'	B&B	2" CAL	50' X35'	LOW
	QUCR	5	CRIMSON SPIRE OAK	QUERCUS X 'CRIMSCHMIDT' TM	B&B	2" CAL	45' X15'	MODERATE

<u>SYMBOL</u>	<u>QTY</u>	<u>TYPE</u>
MULCH		
	3.198 SF	1'-2" BLUE-GRAY RIVER ROCK, MATCH EX ORGANIC WOOD MULCH RING AROUND ALL PLANT MATERIAL WITHIN ROCK BEDS
	1.505 SF	2'-4" ARKANSAS TAN ROCK MULCH ORGANIC WOOD MULCH RING AROUND ALL PLANT MATERIAL WITHIN ROCK BEDS
	5.994 SF	3/4" DESERT SAND RIVER ROCK MULCH ORGANIC WOOD MULCH RING AROUND ALL PLANT MATERIAL WITHIN ROCK BEDS
SOD/SEED		
	5.533 SF	EXISTING SOD TO REMAIN

ALL PROPOSED SEED MIXES AVAILABLE THROUGH:
ARKANSAS VALLEY SEED
4300 N. MONACO ST. PKWY
DENVER, CO
(303)320-7500

LOW GROW NATIVE SEED MIX
30% CRESTED WHEATGRASS
25% HARD FESCUE
20% PERENNIAL RYEGRASS
15% FINE FESCUE
10% CANADA BLUEGRASS

DECIDUOUS SHRUBS							
	PHOP	32	LITTLE DEVIL DWARF NINEBARK	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY' TM	#5 CONT.	4' X4'	LOW
	PBEP	17	PANWEE BUTTES SAND CHERRY	PRUNUS BESSEYI P0119'S TM	#5 CONT.	1.5'X6'	VERY LOW
	SPJG	40	GOLDFLAME JAPANESE SPIREA	SPRAEA JAPONICA 'GOLDFLAME'	#5 CONT.	3' X3'	LOW
	SYPA	17	MISS KIM KOREAN LILAC	SYRINGA PATULA 'MISS KIM'	#5 CONT.	5' X5'	LOW
EVERGREEN SHRUBS							
	ARCP	37	PANCHITO MANZANITA	ARCTOSTAPHYLOS X COLORADENSIS 'PANCHITO'	#5 CONT.	2' X4'	LOW
	CRMN	28	MOUNTAIN MAHOGANY	CERCOCARPUS MONTANUS	#5 CONT.	8' X6'	VERY LOW
	MAAQ	22	OREGON GRAPE HOLLY	MAHONIA AQUIFOLIUM	#5 CONT.	6' X6'	VERY LOW
ORNAMENTAL GRASSES							
	PAVI	69	HEAVY METAL SWITCH GRASS	PANICUM VIRGATUM 'HEAVY METAL'	#1 CONT.	4' X1.5'	LOW

<u>SYMBOL</u>	<u>DESCRIPTION</u>
	STEEL EDGER
	2'-3' SILOAM STONE BOULDER

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2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY. EITHER THROUGH ROTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

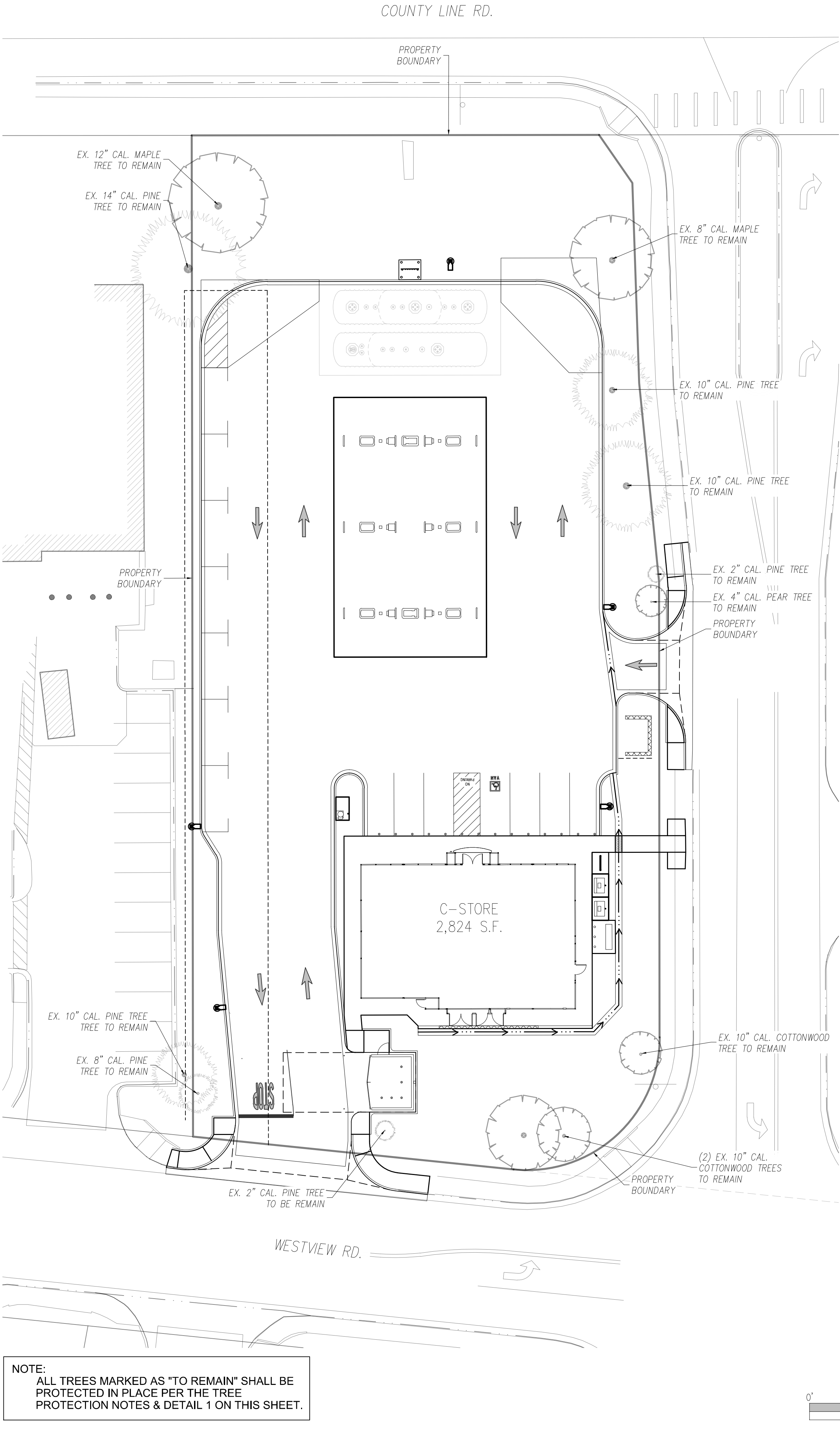


Know what's **below**.
Call before you dig

DATE _____

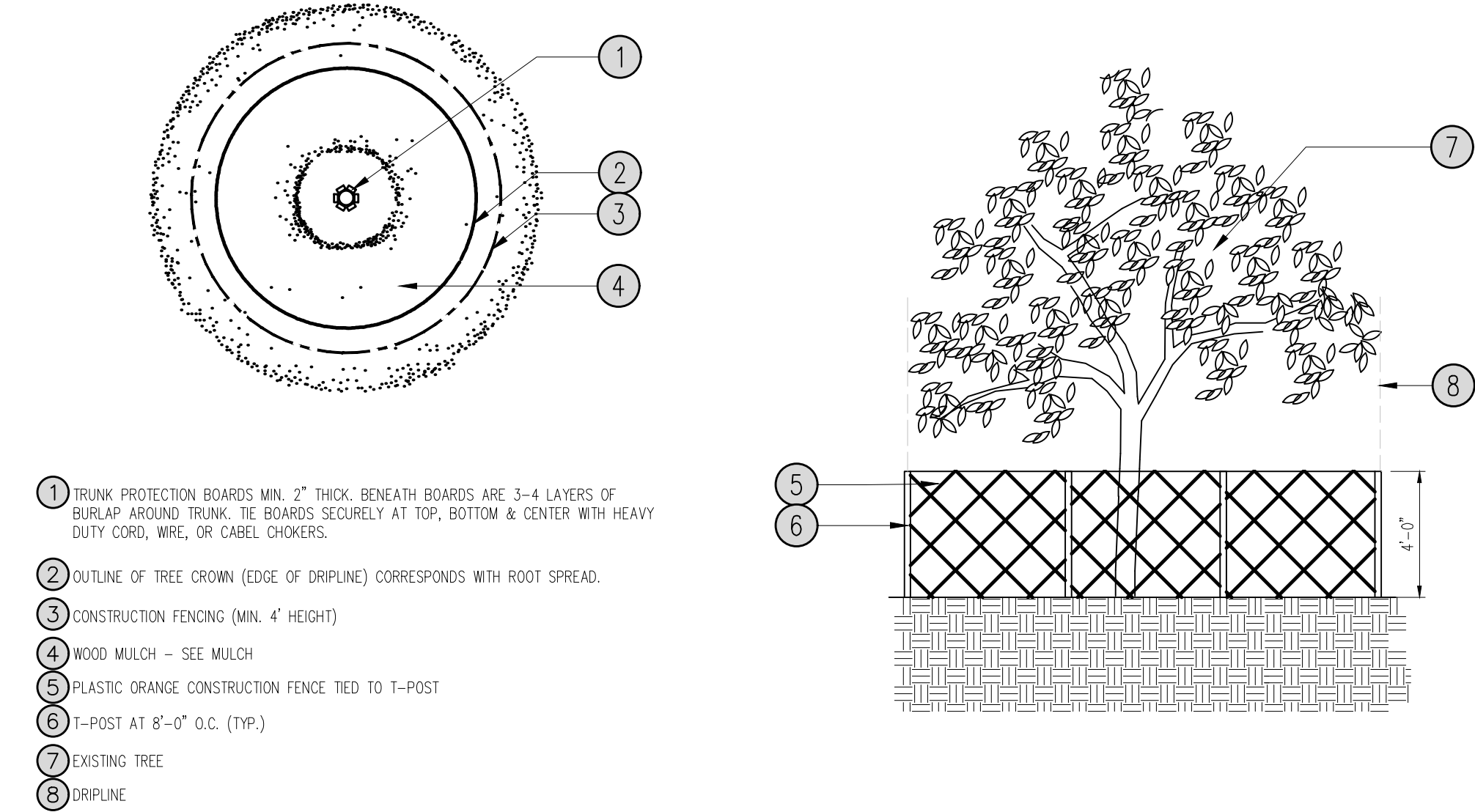
THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK



TREE PROTECTION NOTES:

1. USE CITY OF LONE TREE TREE PROTECTION NOTES (IF AVAILABLE). TREE PROTECTION NOTES BELOW SHALL BE USED FOR FURTHER INTEGRATION.
2. "PROTECTED ZONE" FOR EXISTING TREES: BEFORE BEGINNING ANY DEMOTION OR CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING AROUND ALL EXISTING TREES WITHIN THE CONSTRUCTION ZONE THAT ARE TO BE SAVED. THE FENCE SHALL BE INSTALLED NO CLOSER TO THE TREE THAN THE EDGE OF THE TREE'S PROTECTED ZONE, GENERALLY DEFINED AS THE AREA BEGINNING FIVE FEET OUTSIDE OF THE TREE'S DRIPLINE AND EXTENDING TOWARDS THE TREE (OR AS FAR AWAY FROM THE TRUNK AS PRACTICABLE). THE FENCING SHALL BE OF A MATERIAL AND HEIGHT ACCEPTABLE TO THE LANDSCAPE ARCHITECT. ALL CONTRACTORS AND THEIR CREWS SHALL NOT BE ALLOWED INSIDE THIS "PROTECTED ZONE" NOR SHALL THEY BE ALLOWED TO STORE OR DUMP FOREIGN MATERIALS WITHIN THIS AREA. NO WORK OF ANY KIND, INCLUDING TRENCHING, SHALL BE ALLOWED WITHIN THE PROTECTED ZONE EXCEPT AS DESCRIBED BELOW. THE FENCING SHALL REMAIN AROUND EACH TREE TO BE SAVED UNTIL THE COMPLETION OF CONSTRUCTION OPERATIONS.
3. "TEMPORARY MULCH": TO ALLEVIATE SOIL COMPACTION IN ANTICIPATED AREAS OF HIGH CONSTRUCTION TRAFFIC, AND ONLY WHERE FENCING CANNOT BE SET FIVE FEET OUTSIDE OF THE DRIPLINE, THE CONTRACTOR SHALL INSTALL A LAYER OF MULCH, 9"-12" THICK, OVER ALL EXPOSED EARTH FROM THE TREE TRUNK TO 5' OUTSIDE OF THE DRIPLINE. THIS LAYER SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. WHEN PLANTING OPERATIONS ARE COMPLETED, THE MULCH SHALL BE REDISTRIBUTED THROUGHOUT ALL PLANTING AREAS IN A 3" THICK "PERMANENT" MULCH LAYER.
4. NECESSARY WORK: WHEN IT BECOMES NECESSARY TO ENTER THE "PROTECTED ZONE", SUCH AS FOR FINE GRADING, IRRIGATION INSTALLATION, AND PLANTING OPERATIONS, THE CONTRACTOR SHALL STRICTLY ADHERE TO THE FOLLOWING RULES:
 - EVERY EFFORT SHALL BE MADE TO PRESERVE THE EXISTING GRADE AROUND PROTECTED TREES IN AS WIDE AN AREA AS POSSIBLE.
 - TRENCHING WITHIN THE PROTECTED ZONE OF EXISTING TREES SHALL BE PERFORMED BY HAND, AND WITH EXTREME CARE NOT TO SEVER ROOTS 1-1/2" IN DIAMETER AND LARGER. WHERE ROOTS 1-1/2" IN DIAMETER AND LARGER ARE ENCOUNTERED, THE CONTRACTOR SHALL TUNNEL UNDER SAID ROOTS. EXPOSED ROOTS THAT HAVE BEEN TUNNELED UNDER SHALL BE WRAPPED IN WET BURLAP AND KEPT MOIST WHILE THE TRENCH IS OPEN.
 - WHERE ROOTS 1-1/2" IN DIAMETER OR LARGER MUST BE CUT DUE TO EXTENSIVE GRADE CHANGES, THOSE ROOTS MUST BE EXPOSED BY HAND DIGGING AND CUT CLEANLY. RAGGED CUTS GENERALLY DO NOT HEAL PROPERLY, AND MAY LEAVE THE TREE OPEN TO PESTS AND PATHOGENS.
 - WHERE TRENCHING NEAR TREES HAS ALREADY OCCURRED FROM PREVIOUS CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL MAKE EVERY EFFORT TO CONFINED HIS TRENCHING OPERATIONS TO THE PREVIOUSLY-CREATED TRENCHES, WHILE ADHERING TO THE CONDITIONS SET FORTH IN 3B.
5. POTENTIAL CONFLICTS: THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARBORIST SHOULD ANY POTENTIAL CONFLICTS ARISE BETWEEN THESE SPECIFICATIONS AND/OR LARGE ROOTS ENCOUNTERED IN THE FIELD, AND CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL NOT TAKE ANY ACTION IN SUCH CONFLICTS WITHOUT THE ARBORIST'S WRITTEN APPROVAL. THE ARBORIST SHALL HAVE FINAL AUTHORITY OVER ALL METHODS NECESSARY TO HELP ENSURE THE PROTECTION AND SURVIVAL OF EXISTING TREES.
6. PRUNING: PRUNE ONLY THE TREES THAT ARE INDICATED ON THE PLANS AS REQUIRING PRUNING. PRUNE TREES ACCORDING TO INTERNATIONAL SOCIETY OF ARBORICULTURE / ANSI A300 STANDARDS:
 - REMOVE ALL DEAD WOOD.
 - PRUNE LIVE WOOD FOR HEALTH OR STRUCTURAL REASONS ONLY, INCLUDING THE NEED TO ELIMINATE DISEASED OR DAMAGED GROWTH, ELIMINATE STRUCTURALLY UNSOUND GROWTH, REDUCE THE POTENTIAL FOR WIND TOPPLING OR WIND DAMAGE, OR TO MAINTAIN GROWTH WITHIN LIMITED SPACE. DO NOT REMOVE MORE THAN 25% OF ANY TREE'S LIVE FOLIAGE IN ANY ONE GROWING SEASON. PRUNE ONLY TO INTERNATIONAL SOCIETY OF ARBORICULTURE/ANSI A300 STANDARDS, AND ONLY UNDER THE DIRECT SUPERVISION OF A CERTIFIED ARBORIST.
 - FINAL CUTS SHALL BE MADE JUST OUTSIDE THE SHOULDER RING AREA. EXTREMELY FLUSHED CUTS WHICH PRODUCE LARGE WOUNDS SHALL NOT BE MADE.
 - ALL TRIMMING CUTS SHALL BE PERFORMED IN SUCH A MANNER AS TO PROMOTE THE NATURAL GROWTH AND SHAPE OF EACH TREE SPECIES.
 - IMPROPER PRUNING METHODS INCLUDING, BUT NOT LIMITED TO, "TOPPING", "TIPPING", "HEADING BACK", "DEHORNING", AND "LIONTAILING" WILL NOT BE ALLOWED. THE CONTRACTOR SHALL PAY FOR ALL WORK NECESSARY TO CORRECT SUCH PRUNING WHEN PERFORMED BY HIS CREWS OR SUBCONTRACTORS.
 - SHOULD THE CONTRACTOR REQUIRE MORE INFORMATION, THE CONTRACTOR SHALL CONTACT THE ISA AT (217) 355-9411 FOR A COPY OF THE ANSI A300 PRUNING STANDARDS. CONTRACTOR SHALL ADHERE TO THE METHODS AND PRACTICES SET FORTH IN THIS DOCUMENT.
7. LANDSCAPE AND IRRIGATION (NATIVE TREES ONLY): ANY FUTURE LANDSCAPE AND IRRIGATION SHOULD ADHERE TO THE FOLLOWING GUIDELINES:
 - NO IRRIGATION OR PLANTING SHOULD OCCUR CLOSER THAN 8'-10' FROM THE TRUNK.
 - WHERE IRRIGATION DOES OCCUR WITHIN THE PROTECTED ZONE, DRIP IRRIGATION SHOULD BE USED WHEREVER POSSIBLE. ADDITIONALLY, ONLY PLANTS WITH LOW WATER NEEDS SHOULD BE PLANTED WITHIN THE PROTECTED ZONE, SPACED FAR APART WHERE CLOSE TO THE TREE. PLANTS MAY BE SPACED CLOSER TOGETHER NEAR THE EDGE OF THE PROTECTED ZONE.



1 TREE PROTECTION DETAIL
N.T.S.

CAUTION - NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

LP-2

ENGINEERING
STAMP

CD 3RD SUBMITTAL 09/04/26 MOC148 DATE PRN JDP PM DES TUR DRW

TREE PRESERVATION PLAN
MURPHY USA (NT)
9091 WESTVIEW RD
LONE TREE COLORADO

Galloway

5500 Greenwood Plaza Blvd, Suite 200
Greenwood Village, CO 80111
303.770.8884 • GallowayUS.com

MURPHY OIL USA, INC.

200 PEACH STREET
EL DORADO, AR 71730

MURPHY
USA

CONSTRUCTION SPECIFICATIONS

- GENERAL
- THE LANDSCAPE CONTRACTOR IS TO: PHYSICALLY LOCATE, AS NECESSARY, AND IDENTIFY EXISTING UNDERGROUND UTILITY AREAS; PROVIDE ADEQUATE MEANS OF PROTECTION OF UTILITIES AND SERVICES; - REPAIR UTILITIES DAMAGED DURING SITE WORK OPERATIONS AT CONTRACTOR'S EXPENSE; WHEN UNCHARTED OR INCORRECTLY CHARTED UNDERGROUND PIPING OR OTHER UTILITIES AND SERVICES ARE ENCOUNTERED DURING SITE WORK OPERATIONS, NOTIFY THE APPLICABLE UTILITY COMPANY. OWNER AND LANDSCAPE ARCHITECT IMMEDIATELY TO OBTAIN PROCEDURE DIRECTIONS, AND COOPERATE WITH THE APPLICABLE UTILITY COMPANY IN MAINTAINING ACTIVE SERVICES IN OPERATION.
 - THE LANDSCAPE CONTRACTOR IS TO PROTECT EXISTING BUILDINGS, PAVING, AND OTHER SERVICES OR FACILITIES ON SITE AND ADJACENT TO THE SITE FROM DAMAGE CAUSED BY SITE WORK OPERATIONS. COST OF REPAIR AND RESTORATION OF DAMAGED ITEMS IS AT CONTRACTOR'S EXPENSE. THIS PARTICULARLY APPLIES TO DAMAGE CAUSED TO CONCRETE AND BRICK WALKS, ROOF DRAIN DOWNSPOUTS (LEFT IN DOWNDRAINING POSITION) AND CURBS BY EDGING EQUIPMENT AND SNOW REMOVAL EQUIPMENT. THE OWNER/OWNER'S REPRESENTATIVE SHALL DETERMINE WHEN REPLACEMENT/REPAIR IS NECESSARY. THE LANDSCAPE CONTRACTOR IS NOTIFY THE OWNER OF ANY DAMAGE IMMEDIATELY.
 - CONTRACTOR TO VERIFY ALL SITE CONDITIONS AND ASSOCIATED DESIGN PLAN DIMENSIONS AND GENERAL IMPROVEMENT AREAS PRIOR TO CONSTRUCTION AND NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES ON THE PLAN SET PRIOR TO COMMENCEMENT OF WORK.
 - FIELD CONDITIONS RESULTING IN CHANGES TO PROJECT SCOPE SHOULD BE COORDINATED WITH LANDSCAPE ARCHITECT AND OWNER PRIOR TO ANY WORK BEING COMPLETED.
 - CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR PLANT MATERIAL OR TURF THAT IS DAMAGED OR STRESSED IN ANY WAY AS A RESULT OF POOR MAINTENANCE. CONTRACTOR WILL ASSUME ALL COST ASSOCIATED WITH REPLACEMENT OF DAMAGED PLANT MATERIAL.
 - CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR DAMAGE TO THE IRRIGATION SYSTEM AS A RESULT OF ACTIONS OR NEGLIGENCE ON THEIR PART. CONTRACTOR WILL ASSUME ALL COSTS ASSOCIATED WITH THE REPLACEMENT DAMAGES.
 - CONTRACTOR TO ENSURE POSITIVE DRAINAGE IN ALL LANDSCAPE AREAS TO INCLUDE DRAINAGE FROM ALL STRUCTURES AND FOUNDATIONS. MAINTAIN SLOPE AWAY FROM FOUNDATIONS PER THE GEOTECHNICAL REPORT RECOMMENDATIONS AND/OR CIVIL ENGINEER. ALL LANDSCAPE AREAS BETWEEN WALKS AND CURBS SHALL DRAIN FREELY TO THE CURB UNLESS OTHERWISE IDENTIFIED ON THE GRADING PLAN. IN NO CASE SHALL THE GRADE, TURF THATCH, EDGER, OR OTHER LANDSCAPE MATERIALS DAM WATER. MINIMUM SLOPE SHALL BE 2% AWAY FROM FOUNDATIONS. MINIMUM SLOPE SHALL BE 2% UNLESS SPECIFICALLY IDENTIFIED ON THE PLANS OR APPROVED BY THE OWNER'S REPRESENTATIVE.
 - THE OWNER/CONTRACTOR WILL RETAIN A QUALIFIED TESTING LABORATORY TO PROVIDE QUALITY CONTROL TESTING FOR THIS CONSTRUCTION. TESTING FREQUENCY AND INTERVAL SHALL BE IN ACCORDANCE WITH SPECIFICATIONS. ANY RETESTING REQUIRED AS A RESULT OF INITIAL TESTS NOT MEETING SPECIFICATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE LABORATORY AND FURNISH A COPY OF THE TEST RESULTS TO THE DESIGN PROFESSIONAL FOR HIS USE IN CERTIFYING.
 - PRIOR TO INSTALLATION, SOIL TESTING TO BE PROVIDED BY TAKING ONE SOIL SAMPLE IN EACH OF THE FOLLOWING PLAN AREA: STREETSCAPE PLANTING, RESCUE SOD/ALTERNATIVE TURF AREA, INTERNAL PLANTING BED AREA, AND SEEDED AREA. SUBMIT SOIL ANALYSIS TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLING LANDSCAPE.

- PLANT WARRANTY AND REPLACEMENT
- WARRANTY: PLANTS INCLUDING SEED(S)/SOD SHALL BE WARRANTED FOR THE DURATION OF ONE FULL YEAR AND SHALL BE ALIVE, AND IN SATISFACTORY GROWTH AT THE END OF THE WARRANTY PERIOD.
 - REPLACEMENT: PRIOR TO THE END OF THE WARRANTY PERIOD, INSPECTION WILL BE MADE BY THE OWNER/ARCHITECT. ANY PLANT REQUIRED UNDER THIS CONTRACT THAT IS DEAD OR NOT IN SATISFACTORY GROWTH AS DETERMINED BY THE OWNER/ARCHITECT SHALL BE REMOVED FROM THE SITE. THESE AND ANY PLANTS MISSING, DUE TO THE CONTRACTOR'S NEGLIGENCE, SHALL BE REPLACED AS SOON AS CONDITIONS PERMIT, YET DURING THE NORMAL PLANTING SEASON. ALL REPLACEMENTS PLANTED, AS SPECIFIED IN THE PLANT LIST, SHALL BE PLANTS OF THE SAME KIND AND SIZE AS SPECIFIED AND SHALL BE FURNISHED AND PLANTED AS ORIGINALLY SPECIFIED HEREIN. COST OF SUCH REPLACEMENT SHALL BE BORNE BY THE CONTRACTOR, EXCEPT FOR POSSIBLE REPLACEMENT RESULTING FROM VANDALISM, STORMS, OR OTHER UNUSUAL WEATHER CONDITIONS. THIS IS NOT A ONE-TIME REPLACEMENT OF PLANT MATERIAL THAT DOES NOT LIVE THROUGH THE ONE YEAR WARRANTY PERIOD. PLANTS SHALL BE REPLACED AS OWNER/ARCHITECT FINDS THEM. THE CONTRACTOR SHALL DEVELOP A UNSATISFACTORY CONDITION ON SITE IF THE WARRANTY PERIOD ENDS DURING THE DORMANT SEASON. THE CONTRACTOR SHALL EXTEND THE WARRANTY UNTIL PLANTS COME OUT OF DORMANCY AND ARE "BUDDING OUT." (TYPICALLY MAY 1) AND CAN BE REVIEWED BY THE OWNER/OWNER REP.
 - SEED: ALL SEED SHALL BE WARRANTED FOR ONE FULL YEAR AND BE IN SATISFACTORY CONDITION AT THE END OF THE WARRANTY PERIOD. FULL ESTABLISHMENT OF SEEDED AREAS SHOULD BE GIVEN A MINIMUM OF 2-3 YEARS. BY END OF THE ONE YEAR WARRANTY PERIOD, THE INITIAL STAND SHALL DEMONSTRATE A MINIMUM OF 80% COVERAGE.

- MATERIALS
- ANY REPLACEMENT LANDSCAPE MATERIALS SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS FOR ORIGINAL INSTALLATION.
 - QUANTITIES: QUANTITIES NECESSARY TO COMPLETE THE PLANTING AS SHOWN AND LOCATED ON THE DRAWINGS SHALL BE FURNISHED PER THE CONTRACT DOCUMENTS. IN CASE OF DISCREPANCIES WITH THE PLAN DOCUMENTS QUANTITIES AND LABELS, THE PLAN GRAPHIC WILL PREVAIL. DIMENSIONS FOR GROUND COVER BEDS HAVE IN MANY INSTANCES BEEN ESTABLISHED FROM SCALED DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK DIMENSIONS ON THE SITE AND ALLOW FOR QUANTITY OF PLANTS ACCORDINGLY.
 - QUALITY AND SIZE: PROVIDE PLANTS TYPICAL OF THEIR SPECIES OR VARIETY WITH NORMAL, DENSELY-DEVELOPED BRANCHES AND VIGOROUS, FIBROUS ROOT SYSTEMS. PROVIDE ONLY SOUND, HEALTHY, VIGOROUS PLANTS FREE FROM DEFECTS, DISFIGURING INJURIES, SUNSCALD AND INJURIES FROM SPLIT CRACKS, ABRASIONS OF THE BARK, PLANT DISEASES, INSECT EGGS, BORERS, AND ALL FORMS OF INFESTATION. ALL PLANTS SHALL HAVE A FULLY DEVELOPED FORM WITHOUT VOIDS AND OPEN SPACES. PLANTS HELD IN STORAGE WILL BE REJECTED IF THEY SHOW SIGNS OF GROWTH DURING STORAGE.
 - AT THE OWNERS DISCRETION ALL TREES SHALL BE TAGGED AT THE NURSERY BY THE OWNER/OWNER REP PRIOR TO PURCHASING/DELIVERY TO THE SITE.

- EXECUTION
- TIME OF PLANTING: PLANTING OPERATIONS SHALL BE CONDUCTED UNDER FAVORABLE WEATHER CONDITIONS DURING THE SEASONS WHICH ARE NORMAL FOR SUCH WORK AS DETERMINED BY ACCEPTED PRACTICE IN THE LOCALITY. AT THE OPTION OF AND ON THE FULL RESPONSIBILITY OF THE CONTRACTOR, PLANTING OPERATIONS MAY BE CONDUCTED UNDER UNSEASONABLE CONDITIONS WITHOUT ANY ADDITIONAL COMPENSATION TO THE CONTRACTOR.
 - SOIL AMENDMENTS: A MINIMUM 4 CUBIC YARDS PER 1,000 SF OF PREMIUM 3 ORGANIC COMPOST, OR APPROVED EQUAL, SHALL BE DISTRIBUTED ACROSS THE SOIL SURFACE OF ALL LANDSCAPE AREAS IN A UNIFORM MANNER AND INCORPORATED INTO THE TOP 6-8 INCHES OF SOIL WITH A ROTOTILLER CAPABLE OF TILLING TO 8-8 INCHES IN DEPTH. SHRUB BEDS SHALL BE AMENDED THROUGHOUT THE ENTIRE BED PRIOR TO PLANTING, NOT JUST THE PLANTING HOLE. NO ANIMAL-BASED OR MANURE PRODUCTS MAY BE USED FOR ORGANIC AMENDMENTS.
 - WEED CONTROL: CONTRACTOR TO APPLY PRE-EMERGENT HERBICIDE TO SHRUB BEDS PER MANUFACTURER'S SPECIFICATIONS. SUBMIT A MANUFACTURER'S SPEC SHEET TO LANDSCAPE ARCHITECT PRIOR TO APPLICATION OF HERBICIDE.
 - SETTING PLANTS:
 - GENERAL: ALL PLANTS SHALL BE SET AT SUCH LEVEL THAT, AFTER SETTLEMENT, THEY BEAR THE SAME RELATION TO THE FINISHED GRADE OF THE SURROUNDING SOIL THAT THEY BORE TO THE GRADE OF THE SOIL FROM WHICH THEY WERE REMOVED.
 - BALLED PLANTS AND CONTAINER GROWN PLANTS: AFTER PITS HAVE BEEN DUG AS IS NEEDED TO ALLOW THE BALL TO REST FIRMLY AT THE PROPER LEVEL, PLANTS SHALL BE PLACED IN THE BOTTOM OF THE PIT. PREPARED SOIL SHALL THEN BE PLACED AROUND THE BALL AND COMPACTED CAREFULLY TO AVOID INJURY TO ROOTS AND TO FILL ALL VOIDS. BURLAP, ROPE, WIRE, AND OTHER WRAPPING MATERIALS SHALL BE CUT AWAY FROM THE TOP OF THE BALL AND REMOVED FROM THE PIT, BUT NO BURLAP SHALL BE PULLED FROM UNDER THE BALL OR FROM THE SIDES. ALL BROKEN OR FRAYED ROOTS SHALL BE CUT OFF CLEAN. WHEN THE PIT IS NEARLY FILLED WITH SOIL, ADD WATER AND ALLOW IT TO SOAK AWAY. FILL HOLE 1/3 WITH SOIL MIX, SOAK, FILL TO 2/3, SOAK, FILL TO FINISHED GRADE, SOAK. AFTER THE GROUND SETTLES, ADDITIONAL SOIL SHALL BE FILLED IN TO THE LEVEL OF THE FINISHED GRADE AND AGAIN WATERED. CONTAINER GROWN PLANTS SHALL BE SET IN SIMILAR MANNER AND SHALL REMAIN IN THEIR CONTAINERS UNTIL JUST BEFORE SETTING IN PLACE.
 - SEEDING: SEEDING SHALL BE HYDROMULCHED UNLESS OTHERWISE SPECIFIED ON PLAN AFTER SOIL HAS BEEN AMENDED AND FINE GRADING IS COMPLETE. SEED SHALL BE APPLIED AT RATE PER MANUFACTURER'S SPECIFICATIONS.
 - SOD: SOD SHALL BE LAID ON A FIRM BED WITH TIGHT JOINTS WITHOUT VOIDS IN BETWEEN ROLLS. ANY MOUNDS OR DEPRESSIONS OCCURRING AFTER INSTALLATION SHALL BE CORRECTED PRIOR TO ACCEPTANCE. SOD TO BE FERTILIZED ACCORDING TO GROWER'S RECOMMENDATION. SUBMIT PRODUCT INFORMATION TO LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

CITY OF LONE TREE LANDSCAPE PLAN NOTES

- GENERAL
- THE PROPERTY HEREIN IS SUBJECT TO ALL APPLICABLE REQUIREMENTS OF LONE TREE MUNICIPAL CODE, EXCEPT AS MAY OTHERWISE BE ADDRESSED IN AN APPROVED PLANNED DEVELOPMENT OR SUB-AREA PLAN, SITE IMPROVEMENT PLAN, PRELIMINARY PLAN, FINAL PLAN, OR OTHER IMPROVEMENTS AND/OR MAINTENANCE AGREEMENTS, AS APPLICABLE.
 - THE APPLICANT ASSUMES RESPONSIBILITY TO ENSURE THE PROJECT IS COMPLETED IN ACCORDANCE WITH THE APPROVED LANDSCAPE AND/OR IRRIGATION PLAN AND FURTHER ASSUMES THE RISK ASSOCIATED WITH ANY CHANGES OR OMISSIONS MADE WITHOUT PRIOR CITY APPROVAL. MODIFICATIONS TO THE LANDSCAPE PLAN MAY REQUIRE A LANDSCAPE PLAN AMENDMENT AS DETERMINED BY THE DIRECTOR. UNLAWFUL CHANGES OR OMISSIONS MAY RESULT IN CORRECTIVE ACTIONS, DELAY OF PERMITS, OR CITATIONS FOR ZONING VIOLATIONS WITH ASSOCIATED FINES AND LEGAL MEASURES.
- ACCESS
- THE CITY OF LONE TREE REQUIRES THAT MAINTENANCE ACCESS BE PROVIDED TO ALL STORM DRAINAGE FACILITIES TO ENSURE THE CONTINUOUS OPERATIONAL CAPABILITIES OF THE SYSTEM. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL DRAINAGE FACILITIES, INCLUDING INLETS, PIPES, CULVERTS, CHANNELS, DITCHES, HYDRAULIC STRUCTURES AND DETENTION BASINS LOCATED ON THEIR LAND, UNLESS MODIFIED BY AN IMPROVEMENTS AGREEMENT. SHOULD THE OWNER FAIL TO ADEQUATELY MAINTAIN SAID FACILITIES, THE CITY OF LONE TREE SHALL HAVE THE RIGHT TO ENTER SAID LAND FOR THE PURPOSES OF OPERATIONS AND MAINTENANCE. ALL SUCH MAINTENANCE COSTS WILL BE ASSESSED TO THE PROPERTY OWNER.
- MAINTENANCE RESPONSIBILITIES
- IT SHALL BE THE RESPONSIBILITY OF THE OWNER (OR RESPONSIBLE ASSOCIATION OR DISTRICT, AS MAY BE IDENTIFIED BY MAINTENANCE AGREEMENTS) TO MAINTAIN ALL IMPROVEMENTS ON THE PROPERTY IN A STATE OF GOOD REPAIR, TO ENSURE ALL IRRIGATION IS FUNCTIONAL, AND TO ENSURE ALL PLANTINGS ARE ALIVE, CONSISTENT WITH THE APPROVED LANDSCAPE AND IRRIGATION PLAN AND LONE TREE MUNICIPAL CODE.
 - WITHIN SIGHT TRIANGLES AND SIGHT EASEMENTS, AS SHOWN, LIMITED LANDSCAPING SHALL BE ALLOWED WITH NO SOLID STRUCTURES PERMITTED, AS STATED IN THE CITY OF LONE TREE'S LANDSCAPE DESIGN GUIDELINES AND STANDARDS. LANDSCAPING WITHIN THE SIGHT TRIANGLE SHALL BE MAINTAINED BY THE PROPERTY OWNER OR RESPONSIBLE ASSOCIATION OR DISTRICT, AS MAY BE IDENTIFIED BY MAINTENANCE AGREEMENTS.

- FINISH GRADING AND SOIL PREPARATION
- CONTRACTOR SHALL CONSTRUCT AND MAINTAIN FINISH GRADES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING IMMEDIATELY TO OBTAIN PROCEEDURE DIRECTIONS, AND COOPERATE WITH THE APPLICABLE UTILITY COMPANY. OWNER AND LANDSCAPE ARCHITECT IMMEDIATELY TO OBTAIN PROCEDURE DIRECTIONS, AND COOPERATE WITH THE APPLICABLE UTILITY COMPANY IN MAINTAINING ACTIVE SERVICES IN OPERATION.
 - AFTER FINISH GRADES HAVE BEEN ESTABLISHED, THE CONTRACTOR SHALL HAVE SOIL SAMPLES TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY FOR THE FOLLOWING: GENERAL SOIL FERTILITY, PH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ABSORPTION RATIO (SAR) AND BORON CONTENT. EACH SAMPLE SUBMITTED SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL. CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): GENERAL SOIL PREPARATION AND BACKFILL MIXES, PRE-PLANT FERTILIZER APPLICATIONS, AND ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
 - ALL PARKING ISLAND SOIL TO BE TILLED OR AMENDED TO A MINIMUM DEPTH OF 30".
- SETTING, STAKING, GUYING, AND WRAPPING OF TREES:
- GENERAL: TREES SHALL BE SAT PLUMB AND RIGIDLY BRACED IN POSITION UNTIL THE SOIL HAS BEEN TAMPED SOLIDLY AROUND THE BALL AND ROOTS. STAKE ALL DECIDUOUS TREES, EVERGREEN TREES, AND UPRIGHT JUMPERS. STAKE DECIDUOUS CLUMP TREES AS NEEDED OR DIRECTED BY THE LANDSCAPE ARCHITECT. REFER TO DRAWINGS FOR STAKING INSTRUCTIONS WITHIN PLANTING DETAILS.
 - STAKING: THREE STAKES SHALL BE DRIVEN, 2 FT. INTO THE GROUND, OR AS NECESSARY TO SECURE THEM FIRMLY INTO THE UNDISTURBED SUBSOIL. THEY SHALL BE LOCATED AS CLOSE TO THE TREES AS POSSIBLE WITHOUT INJURING THE BALL OR ROOTS. STAKES SHALL REMAIN IN PLACE FOR A MINIMUM OF 18 MONTHS ONCE TREE IS ESTABLISHED.
 - GUYING: TREES SHALL BE SECURED TO THE STAKES WITH TWO PLY REINFORCED 10 GALVANIZED IRON WIRE AND NYLON STRAPS. UNDER NO CIRCUMSTANCES SHALL A TREE BE PLUMBED WITH EXTREME TAUTNESS OF WIRES. PLUMBING SHALL BE ACCOMPLISHED BY ADJUSTING THE ROOT BALL. TAKE CARE NOT TO STAKE PLANTS TOO TIGHTLY TO AVOID DAMAGE TO TREE TRUNKS.
 - MARK ALL GUYING WIRE WITH YELLOW SURVEYOR'S RIBBON 6" LONG, 2" FROM STAKE.
 - WRAPPING: WRAP TRUNKS OF ALL DECIDUOUS TREES UP TO 4" CALIPER TO PREVENT SUNSCALD. WRAP FROM THE GROUND TO THE FIRST MAJOR BRANCH. SECURE BY STAPLING OR USING JUTE. DO NOT USE ELECTRICAL TAPE OR DUCT TAPE. WRAP TREES BETWEEN NOVEMBER 15 AND APRIL 15. REMOVE WRAP DURING THE GROWING SEASON, FROM APRIL 15 TO NOVEMBER 15. USE A COMMERCIALLY AVAILABLE TREE WRAP. TREES UNDER 4" CALIPER SHALL BE WRAPPED UNTIL THEY DEVELOP A CORKY BARK THAT WILL PREVENT WINTER SUNSCALD INJURY. TYPICALLY 5-6 YEARS AFTER INSTALLATION (FOR A 2.5" CALIPER DECIDUOUS TREE).

- MULCHING:
- ROCK MULCH SHALL BE INSTALLED AT A MINIMUM 4" DEPTH.
 - INSTALL DEWITT PRO-S WEED BARRIER/FILTER FABRIC IN ROCK MULCH AREAS UNLESS OTHERWISE INDICATED. WEED BARRIER/FILTER FABRIC SHALL NOT BE USED IN AREAS WHERE LIVING GROUND COVERS ARE SPECIFIED. FABRIC SHALL NOT BE USED UNDER WOOD MULCH OR DECOMPOSED GRASS/CRUSHER FINES/BREEZE UNLESS OTHERWISE NOTED ON PLANS. PLANT BEDS SHALL BE CONTAINED WITH STEEL EDGER PER PLAN. STEEL EDGER IS NOT REQUIRED ALONG CURBS, WALKS OR BUILDING FOUNDATIONS. ALL EDGING SHALL OVERLAP AT JOINTS A MINIMUM OF 6-INCHES, AND SHALL BE FASTENED WITH A MINIMUM OF 4 PINS PER EACH 10 FOOT SECTION. THE TOP OF ALL EDGING MATERIAL SHALL BE A MINIMUM 1/4 GAUGE ROLLED TOP AND 1/2 INCH ABOVE THE FINISHED GRADE OF ADJACENT LAWN OR MULCH AREAS. COLOR: DARK GREEN.
 - MULCH TREE AND SHRUB PLANTING PITS AND SHRUB BEDS WITH REQUIRED MULCHING MATERIAL. NATURAL COLOR DOUBLE SHREDDED CEDARWOOD, 3" DEEP IMMEDIATELY AFTER PLANTING. THOROUGHLY WATER MULCHED AREAS. AFTER WATERING, RAKE MULCH TO PROVIDE A UNIFORM FINISHED SURFACE.
 - PROVIDE A 3" MULCH RING FOR ALL TREES (UNLESS OTHERWISE NOTED), 18" DIAMETER MULCH RING FOR ALL SHRUBS, AND 12" DIAMETER MULCH RING FOR ALL PLANTINGS NOT IN PLANTING BEDS. REFER TO PLANT DETAILS ON PLANS FOR SIZE OF MULCH RINGS. WHERE TREES ARE LOCATED IN CRUSHER FINES WOOD MULCH IS NOT REQUIRED. CRUSHER FINES SHOULD BE LOCATED UP TO THE TRUNK AND FUNCTION AS MULCH.

- MAINTENANCE
- MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS PLANTED AND SHALL CONTINUE AS FOLLOWS:
 - ALL NEW PLANTINGS SHALL BE MAINTAINED DURING CONSTRUCTION UNTIL COMPLETION OF THE PROJECT AND FOR A PERIOD OF 1 YEAR AFTER FINAL ACCEPTANCE OF THE ENTIRE PROJECT (SEE WARRANTY).
 - THE LANDSCAPE SHALL BE MAINTAINED IN ACCORDANCE WITH JURISDICTIONAL WATER DEPARTMENT DESIGN GUIDELINES. MAINTENANCE SPECIFICATIONS.
 - MAINTENANCE SHALL INCLUDE:
 - WATERING, WEEDING, CULTIVATING, MULCHING, TIGHTENING AND REPAIRING OF GUYS, REMOVAL OF DEAD MATERIALS, RESETTling PLANTS TO PROPER GRADES OR UPRIGHT POSITION, AND OTHER NECESSARY OPERATIONS, AS DIRECTED BY THE RELEVANT COMMUNITY DESIGN GUIDELINES AND BY OWNER/ARCHITECT.
 - CONTRACTOR SHALL INSPECT LANDSCAPE ONCE PER WEEK AND PERFORM NECESSARY MAINTENANCE TASKS ON A TIMELY BASIS.
 - MAINTAIN IRRIGATION SYSTEM FOR A DURATION OF ONE YEAR FROM FORMAL WRITTEN ACCEPTANCE BY OWNER'S REPRESENTATIVE. MAKE PERIODIC EXAMINATIONS AND ADJUSTMENTS TO IRRIGATION SYSTEM COMPONENTS IN ORDER TO ACHIEVE THE MOST DESIRABLE APPLICATION OF WATER CONSUMPTION FOR SHUTDOWN AND START UP OF THE IRRIGATION SYSTEM IF THE WARRANTY PERIOD FALLS OVER THE WINTER MONTHS.
 - DURING THE LANDSCAPE MAINTENANCE PERIOD, THE LANDSCAPE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM STRUCTURES IN ALL LANDSCAPE AREAS AT THE MINIMUM SLOPE SPECIFIED IN THE GEOTECHNICAL REPORT. LANDSCAPE AREAS WHICH SETTLE AND CREATE THE POTENTIAL FOR PONDING SHALL BE REPAIRED TO ELIMINATE PONDING POTENTIAL AND BLEND IN WITH THE SURROUNDING GRADES. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GEOTECHNICAL REPORT, THE GRADING NOTES, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND OWNER.

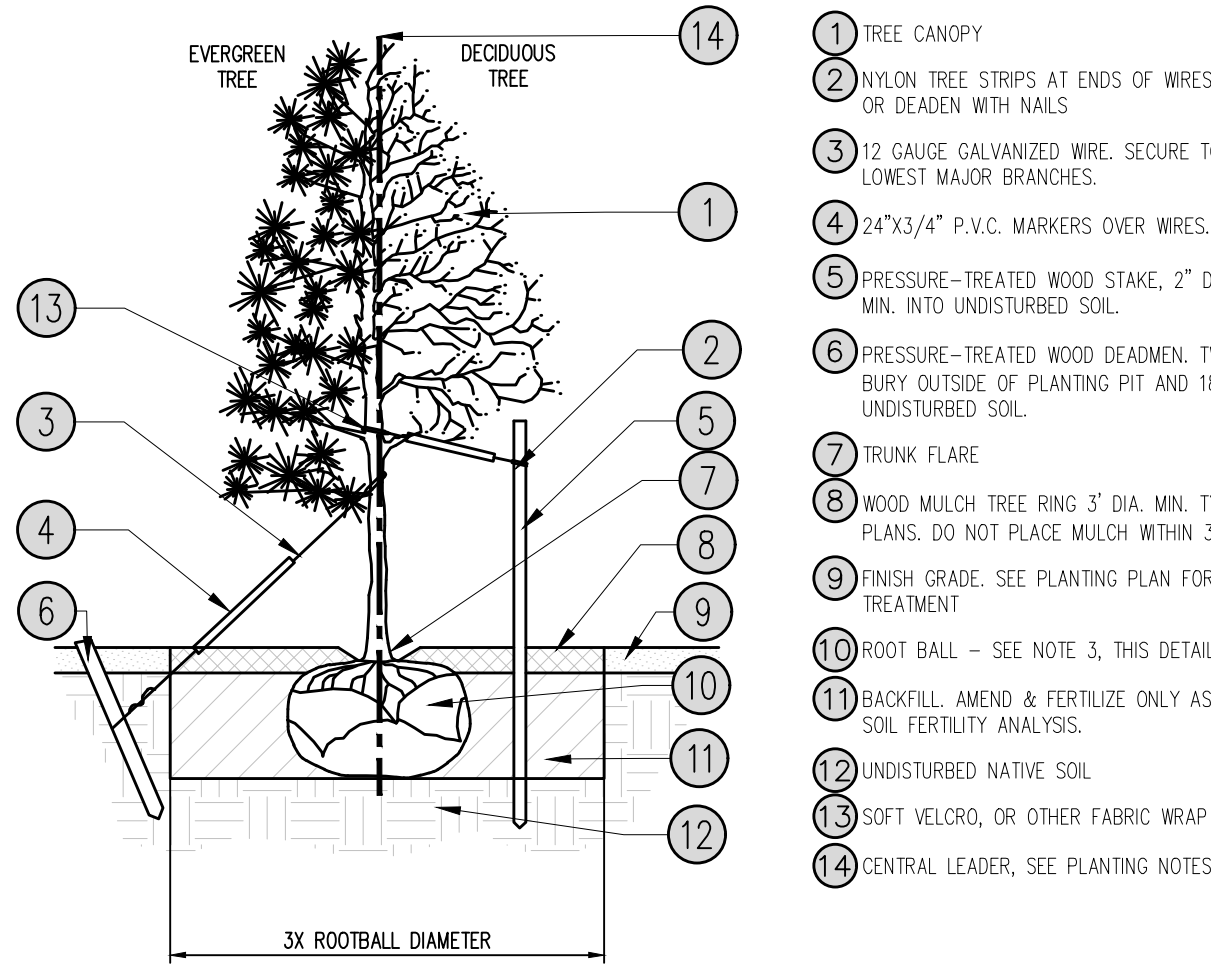
- COMPLETION SERVICES
- FINAL ACCEPTANCE INSPECTION FOR BEGINNING THE WARRANTY PERIOD: INSPECTION OF THE WORK TO DETERMINE ITS COMPLETION FOR BEGINNING THE WARRANTY PERIOD. WILL BE MADE BY THE LANDSCAPE ARCHITECT UPON NOTICE REQUESTING SUCH INSPECTION BY THE OWNER AT LEAST 7 DAYS PRIOR TO THE ANTICIPATED DATE. ALL PLANTING MUST BE ALIVE AND HEALTHY IN ORDER TO BE CONSIDERED COMPLETE.
 - FINAL ACCEPTANCE: ALL PLANTING TASKS AND INSPECTION PUNCH LIST ITEMS SHALL BE COMPLETE BEFORE FINAL ACCEPTANCE WHICH SHALL ESTABLISH THE DATE FOR BEGINNING THE WARRANTY PERIOD.
 - ALL TREE STAKES AND PLANT TAGS SHALL BE REMOVED AT THE END OF THE WARRANTY PERIOD.

LANDSCAPE NOTES

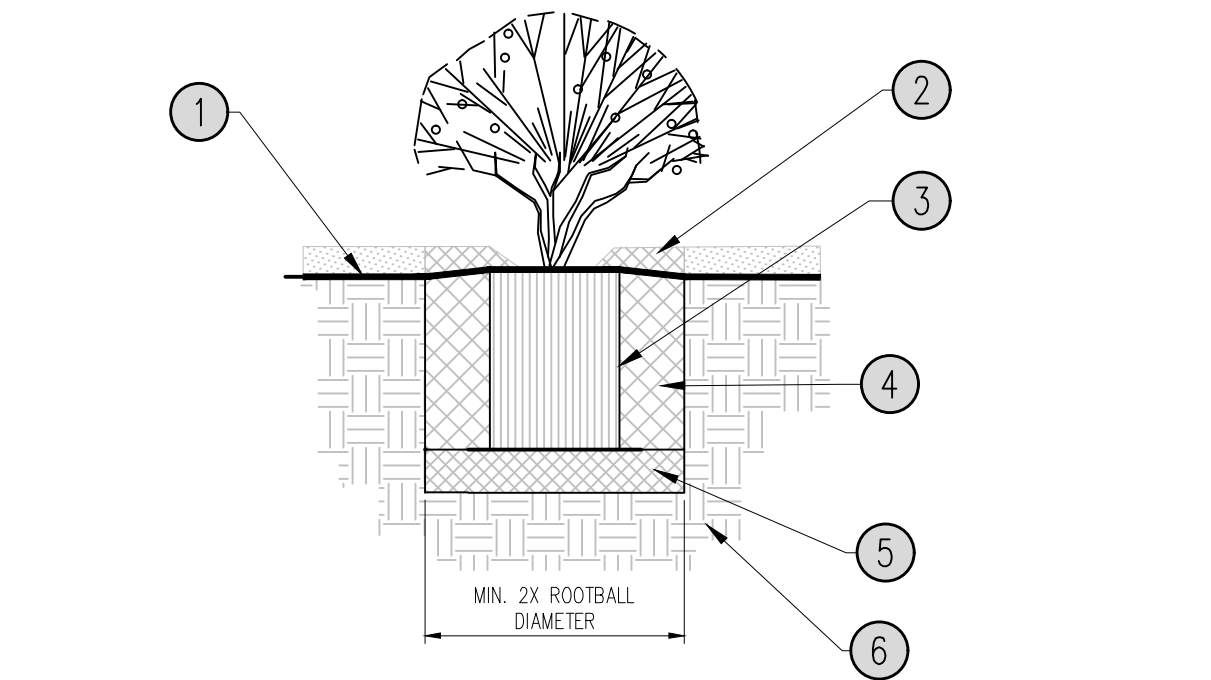
- GENERAL
- ALL WORK SHALL CONFORM TO ALL APPLICABLE STATE AND LOCAL CODES, STANDARDS, AND SPECIFICATIONS.
 - ANY FIELD CHANGES OR DEVIATIONS TO THESE PLANS WITHOUT PRIOR APPROVAL OF AN AMENDED PLAN MAY RESULT IN A DELAY OF FINAL APPROVAL AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
 - ALL UTILITY EASEMENTS SHALL REMAIN UNOBSTRUCTED AND FULLY ACCESSIBLE ALONG THEIR ENTIRE LENGTH FOR MAINTENANCE EQUIPMENT.
 - LANDSCAPE CONTRACTOR SHALL EXAMINE THE SITE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND NOTIFY THE GENERAL CONTRACTOR IN WRITING OF UNSATISFACTORY CONDITIONS. IF SITE CONDITIONS OR PLANT AVAILABILITY REQUIRE CHANGES TO THE PLAN, THEN AN APPROVAL WILL BE OBTAINED FROM THE CITY. DO NOT PROCEED UNTIL CONDITIONS HAVE BEEN CORRECTED.
 - ALL CONSTRUCTION DEBRIS AND MATERIAL SHALL BE REMOVED AND CLEANED OUT PRIOR TO INSTALLATION OF TOPSOIL, TREES, SHRUBS, AND TURF.
 - FOR ALL INFORMATION ON SURFACE MATERIAL OF WALKS, DRIVES, AND PARKING LOTS, SEE THE SITE PLAN. FOR GRADING INFORMATION REFER TO THE CIVIL ENGINEER'S DRAWINGS. SEE PHOTOMETRIC PLAN FOR FREE STANDARD LIGHTING AND LOCATION INFORMATION.
 - THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT ONE WEEK PRIOR TO BEGINNING CONSTRUCTION.
 - WINTER WATERING SHALL BE AT THE EXPENSE OF THE CONTRACTOR UNTIL SUCH TIME AS FINAL ACCEPTANCE IS RECEIVED.
 - ALL LANDSCAPE CONSTRUCTION PRACTICES, WORKMANSHIP, AND ETHICS SHALL BE IN ACCORDANCE WITH INDUSTRY STANDARDS SET FORTH IN THE CONTRACTORS HANDBOOK PUBLISHED BY THE COLORADO LANDSCAPE CONTRACTORS ASSOCIATION.
 - LANDSCAPE AND IRRIGATION WORK SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF THE FINAL CERTIFICATE OF OCCUPANCY.

INSPECTION NOTES

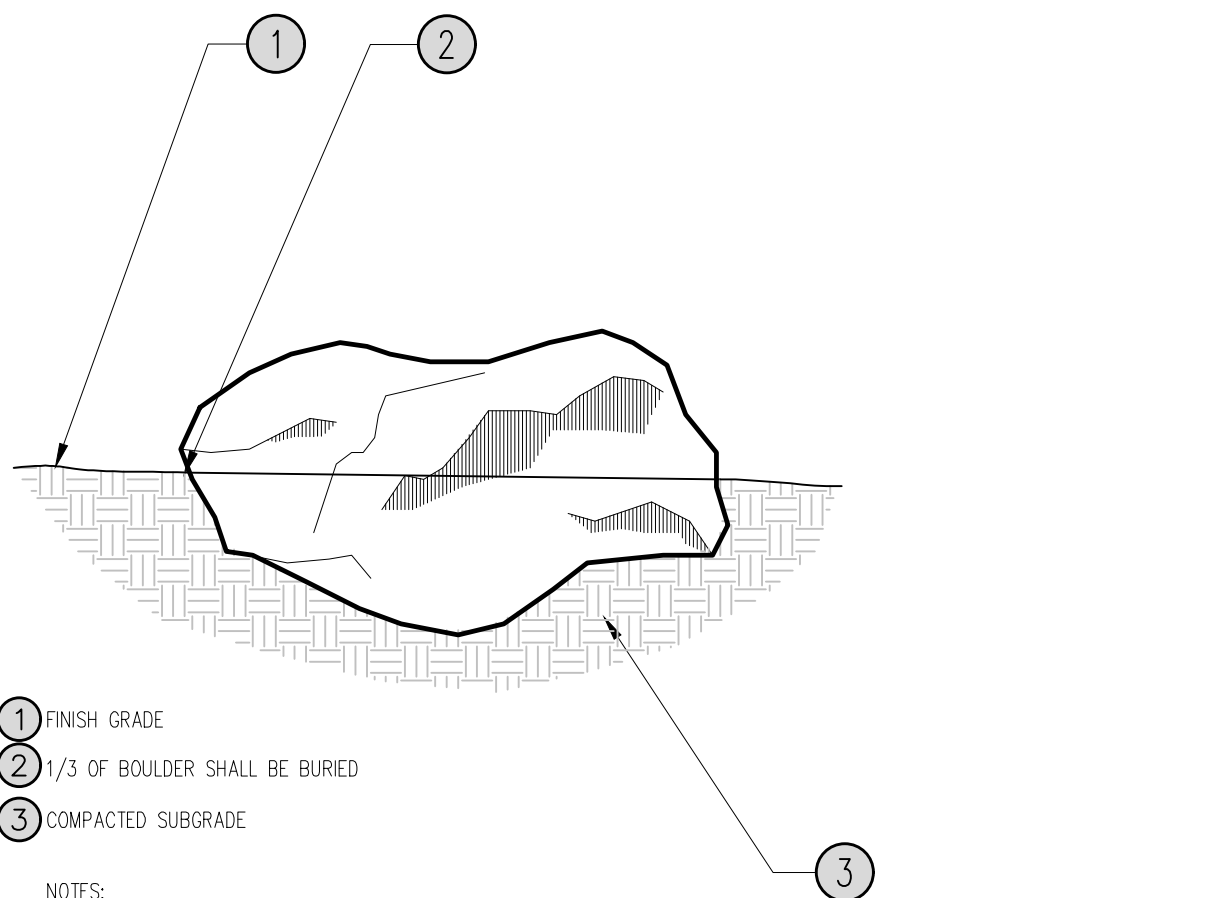
- INSPECTIONS WILL INCLUDE:
 - REVIEW OF SPECIFIED LANDSCAPE/IRRIGATION SUBMITTALS FOR APPROVAL BY LANDSCAPE ARCHITECT AND IRRIGATION ENGINEER.
 - PRE-CONSTRUCTION MEETING / SELECTION OF SPECIMEN PLANT MATERIALS AT CONTRACTOR'S NURSERY OR WHOLESALE.
 - IRRIGATION 25% PUNCH INSPECTION FOR MAINLINE, PRESSURE TEST.
 - IRRIGATION 95% PUNCH INSPECTION.
 - IRRIGATION FINAL ACCEPTANCE INSPECTION.
 - LANDSCAPE 95% PUNCH LIST SITE INSPECTION.
 - LANDSCAPE FINAL ACCEPTANCE INSPECTION.
- ANY ADDITIONAL VISITS CAUSED BY INCOMPLETE LANDSCAPE CONTRACTOR WORK WILL BE CHARGED TO THE LANDSCAPE CONTRACTOR AT LANDSCAPE ARCHITECT'S HOURLY RATE.



1 TREE PLANTING N.T.S.

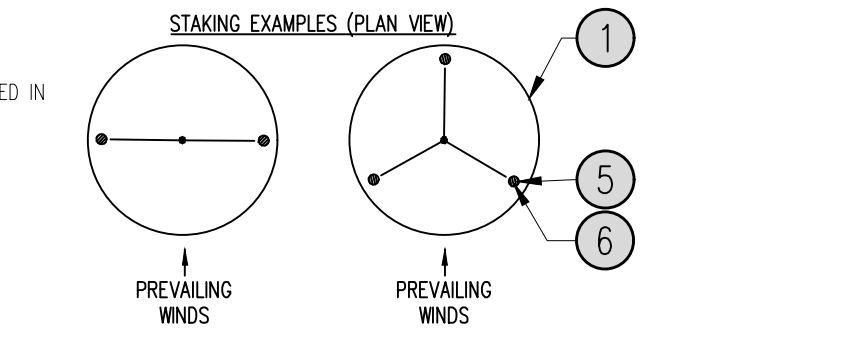


2 SHRUB / PERENNIAL PLANTING N.T.S.



4 LANDSCAPE BOULDER N.T.S.

- NOTES:
- SCAFFRY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
 - REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 3"-5" ABOVE FINISH GRADE.
 - CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE, CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE ALL BURLAP FROM AROUND ROOTBALL.
 - TREE WRAP IS NOT TO BE USED ON ANY NEW PLANTINGS, EXCEPT IN LATE FALL PLANTING SITUATIONS, AND ONLY THEN AFTER CONSULTATION WITH THE LANDSCAPE ARCHITECT. WHEN WRAPPING TREE, WRAP FROM TRUNK FLARE TO LOWEST MAJOR BRANCH.
 - REMOVE ALL NURSERY STAKES AFTER PLANTING.
 - FOR TREES OVER 3" CALIPER, USE THREE STAKES OR DEADEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
 - DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.



- 14-GAUGE x 4" STEEL EDGING OR APPROVED EQUAL.
- FINISH GRADE.
- 16" STAKES AT 30" O.C.
- 4" DEPTH MULCH.

3 STEEL EDGE N.T.S.

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

LP-3

ENGINEERING STAMP

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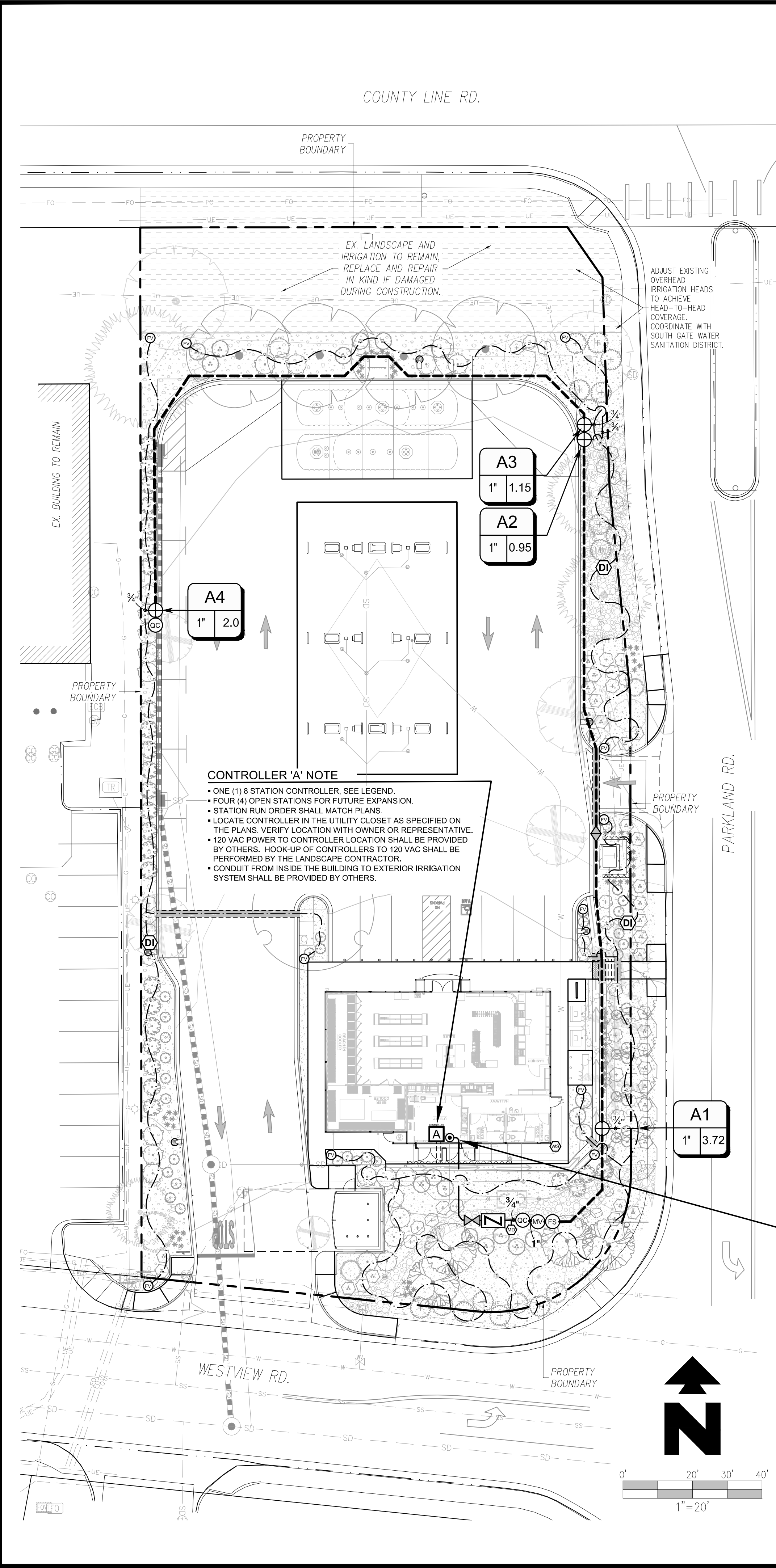
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DES



IRRIGATION SCHEDULE

⊕	HUNTER ICZ-101-25-LF 1" DRIP CONTROL ZONE KIT. 1IN. ICV GLOBE VALVE WITH 1IN. HY100 FILTER SYSTEM. PRESSURE REGULATION: 25 PSI. FLOW RANGE: .5 GPM - 15 GPM. 150 MESH STAINLESS STEEL SCREEN.	SHEET IR-2 / 15 DETAIL 1
⊙	NIBCO 4660-T 3/4" SCHEDULE 40 MANUAL FLUSH VALVE. CONNECT TO DRIP POLYTUBING FOR WINTERIZATION/BLOWOUT.	SHEET IR-2 / 15 DETAIL 2
⊕	HUNTER ECO-ID-12 ECO-ID: 1/2IN. FPT CONNECTION WITH 15 PSI - 100 PSI OPERATING PRESSURE.	SHEET IR-2 / 15 DETAIL 3
	AREA TO RECEIVE DRIP EMITTERS HUNTER HE-B POINT SOURCE DRIP EMITTER WITH SELF PIERCING BARB. COLOR CODED EMITTERS FOR FLOW RATES OF 0.5 GPH, 1.0 GPH, 2.0 GPH, 4.0 GPH, AND 6.0 GPH. CAN BE INSERTED INTO 1/2IN. AND 3/4IN. TUBING AND HAVE PRESSURE COMPENSATING FROM 15 PSI-60 PSI. OPTIONAL DIFFUSER CAP (HE) AVAILABLE.	
	EMITTER SCHEDULE: -1 GALLON AND SMALLER: 2, HEB-5-B EMITTER PER PLANT (1 GPH TOTAL) -5 GALLON: 2, HEB-10-B EMITTERS PER PLANT (2 GPH TOTAL) -10-15 GALLONS & UPRIGHT JUNIPERS: 3, HEB-10-B EMITTERS PER PLANT (3 GPH TOTAL) -1" TO 2-1/2" CALIPER TREES: 4, HEB-10-B EMITTERS PER PLANT (4 GPH TOTAL) -3" TO 4" CALIPER TREES: 6, HEB-10-B EMITTERS PER PLANT (6 GPH TOTAL)	SHEET IR-2 / 15 DETAIL 4
⊙	MANUFACTURER/MODEL/DESCRIPTION HUNTER HQ-44LRC 1" QUICK COUPLER VALVE, YELLOW RUBBER LOCKING COVER, RED BRASS AND STAINLESS STEEL, WITH 1IN. NPT INLET, 2-PIECE BODY.	SHEET IR-2 / 15 DETAIL 5
⬅	NIBCO 4660-S SCHEDULE 40 MANUAL BALL VALVE, SAME SIZE AS MAINLINE PIPE DIAMETER AT VALVE LOCATION. SIZE RANGE - 3/4" - 3".	SHEET IR-2 / 15 DETAIL 6
⌘	NIBCO T-113-K CLASS 125 BRONZE GATE SHUT OFF VALVE WITH CROSS HANDLE. SAME SIZE AS MAINLINE PIPE DIAMETER AT VALVE LOCATION. SIZE RANGE - 1/4IN. - 3IN.	SHEET IR-2 / 15 DETAIL 7
⊕	HUNTER IBV-FS 1" 1IN., 1-1/2IN., 2IN., AND 3IN. BRASS ELECTRIC MASTER VALVE, GLOBE CONFIGURATION, WITH NPT THREADED INLET/OUTLET, FOR COMMERCIAL/MUNICIPAL USE. WITH FILTER SENTRY FACTORY INSTALLED OPTION.	SHEET IR-2 / 15 DETAIL 8
⊕	1" NIBCO T-113-K 1" CLASS 125 BRONZE MANUAL DRAIN VALVE WITH CROSS HANDLE	SHEET IR-2 / 15 DETAIL 9
⌘	FEBCO 825Y 1" REDUCED PRESSURE BACKFLOW PREVENTER	SHEET IR-2 / 15 DETAIL 10
A	HUNTER I2C-0800-M 8 STATION INDOOR/OUTDOOR MODULAR CONTROLLER. NO MODULE REQUIRED. COMMERCIAL USE. METAL CABINET.	SHEET IR-3 / 16 DETAIL 11
⊕	HUNTER WSS WIRELESS SOLAR, RAIN FREEZE SENSOR WITH OUTDOOR INTERFACE. INSTALL ON CORNER OF BUILDING, PAINT MODEL TO MATCH BUILDING/FLASHING COLOR. INCLUDES GUTTER MOUNT BRACKET.	SHEET IR-3 / 16 DETAIL 12
⊕	HUNTER HFS-100 FLOW SENSOR FOR USE WITH ICC2 CONTROLLER, 1IN. SCHEDULE 40 SENSOR BODY, 24 VAC, 2 AMP.	SHEET IR-3 / 16 DETAIL 13
⊕	POINT OF CONNECTION 1" USE 1" DEDICATED IRRIGATION TAP INTO THE DOMESTIC WATERLINE DOWNSTREAM FROM THE BUILDING METER.	N/A
---	IRRIGATION LATERAL LINE: POLYETHYLENE PIPE SDR-7 SIZE: 3/4"	SHEET IR-3 / 16 DETAIL 14
---	IRRIGATION MAINLINE: PVC CLASS 200 SDR-21 SIZE: 1"	SHEET IR-3 / 16 DETAIL 14
---	IRRIGATION SERVICE LINE: TYPE K COPPER PIPE SIZE: 1" UNLESS OTHERWISE NOTED ON THE PLAN	SHEET IR-3 / 16 DETAIL 14
---	WIRE SLEEVE: PVC SCHEDULE 40 SIZE: 2"	SHEET IR-3 / 16 DETAIL 14
---	PIPE SLEEVE: PVC SCHEDULE 40 SIZE: DOUBLE THE SIZE OF PIPE INSERTED	SHEET IR-3 / 16 DETAIL 14
#	VALVE CALLOUT # VALVE NUMBER # VALVE FLOW # VALVE SIZE	

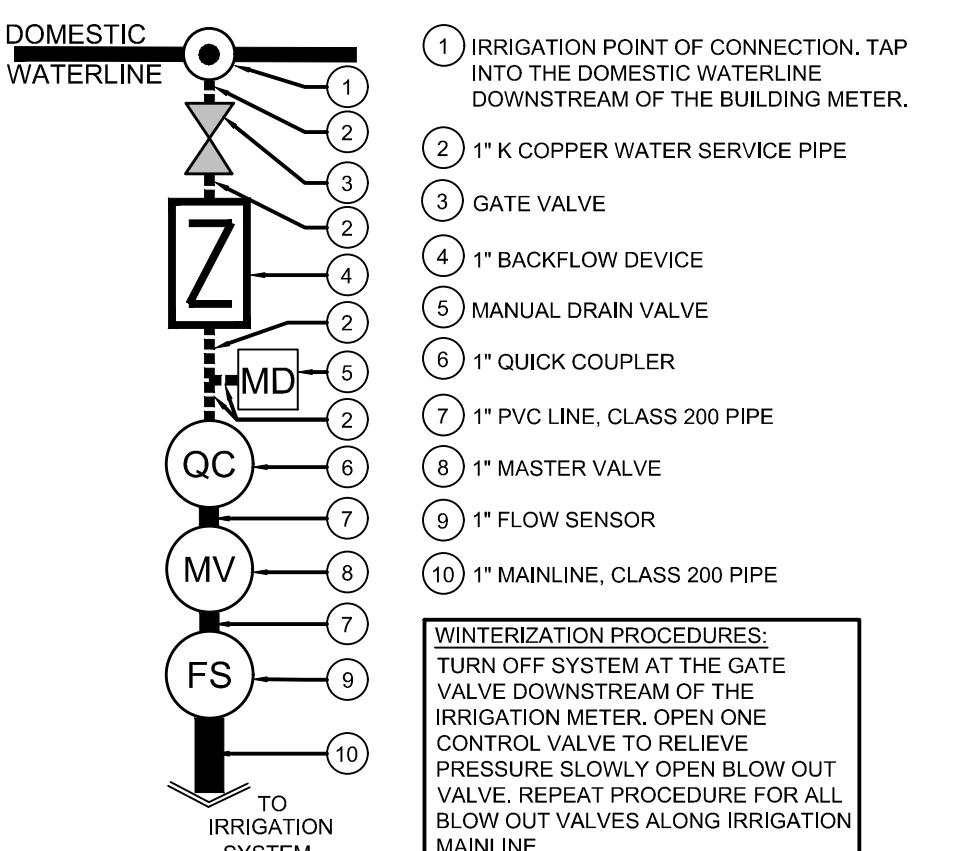
WIRING/SLEEVING NOTES

IN ADDITION TO PROVIDING SLEEVES FOR ALL PIPING UNDER ROADWAYS AND WALKWAYS, PROVIDE AND INSTALL SCH. 40 PVC SLEEVES FOR ALL CONTROLLER WIRES OCCURRING UNDER ALL ROADWAYS AND WALKWAYS. SLEEVES FOR CONTROLLER WIRES SHALL BE 2" DIA. AND CONTAIN NO MORE THAN 25 WIRES.

POINT OF CONNECTION 'A'

STATIC PRESSURE: +/- 80 PSI DESIGNED SIZE OF TAP: 1"
• USE 1" TAP AND INTO THE DOMESTIC WATER LINE AFTER THE METER.
• 1" TYPE K COPPER SERVICE FROM THE TAP THROUGH THE IRRIGATION BACKFLOW, TO THE QUICK COUPLER.
• CONTRACTOR SHALL VERIFY LOCATION OF THE EQUIPMENT, IN FIELD WITH OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE AND/OR LANDSCAPE ARCHITECT.
• SEE POINT OF CONNECTION DIAGRAM, THIS SHEET, FOR THE IRRIGATION SYSTEM EQUIPMENT CONFIGURATION.
• THE IRRIGATION CONTRACTOR SHALL FIELD VERIFY THE STATIC & OPERATING WATER PRESSURE SHOWN ABOVE PRIOR TO CONSTRUCTION. IF PRESSURE IS UNKNOWN, THE CONTRACTOR MUST TEST WATER PRESSURE AND CONTACT THE LANDSCAPE ARCHITECT WITH THE RESULTS TO ENSURE SYSTEM WILL BE OPERATIONAL. SEE GENERAL IRRIGATION NOTES.
• WHEN WATER PRESSURE TO THE IRRIGATION SYSTEM EXCEEDS 100 PSI, THE IRRIGATION CONTRACTOR SHALL INSTALL A PRESSURE REDUCING / REGULATING VALVE (PRV) TO LIMIT THE WATER TO 80 PSI MAXIMUM. WHEN PRESSURE DROPS BELOW 65 PSI, THE IRRIGATION CONTRACTOR SHALL INSTALL A BOOSTER PUMP TO A MINIMUM PRESSURE OF 80 PSI.

TYPICAL POINT OF CONNECTION SCHEMATIC DIAGRAM



GENERAL IRRIGATION NOTES

- IRRIGATION DESIGN IS BASED ON THEORIES, ASSUMPTIONS, AND/OR INFORMATION PROVIDED BY CIVIL MODELS/UTILITIES/MUNICIPAL ENTITIES AND THUS, IS DIAGRAMMATIC IN NATURE. ALL PIPING, VALVES, AND OTHER EQUIPMENT SHOWN WITHIN PAVED AREAS OR OUT OF PROPERTY BOUNDARIES ARE FOR GRAPHIC CLARIFICATION ONLY, AND SHALL BE INSTALLED IN PLANTING AREAS WITHIN THE PROPERTY LINES OR LIMITS INDICATED ON PLAN. THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL ABOVE-GRADE IRRIGATION EQUIPMENT WITH THE OWNERS AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION, OR IRRIGATION CONTRACTOR MAY BE REQUIRED TO MOVE SUCH ITEMS AT HIS OWN COST.
- REFER TO SPECIFICATIONS (AS APPROPRIATE) FOR SUBMITTALS, INSPECTIONS AND OTHER APPLICABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A COPY OF THE PROJECT SPECIFICATIONS PRIOR TO BIDDING. THE PROJECT SPECIFICATIONS ARE A PART OF THESE PLANS AND SHALL BE CONSULTED BY THE IRRIGATION CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING WORK AS SPECIFIED IN THE PROJECT SPECIFICATIONS AND ON THE PLANS.
- THE IRRIGATION CONTRACTOR SHALL MEET WITH THE OWNERS REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK, AND SHALL OBTAIN ALL ENGINEERING, LANDSCAPE, AND OTHER APPLICABLE PLANS & DOCUMENTS. CONTRACTOR SHALL THOROUGHLY REVIEW PLANS & REPORT ANY CONFLICTS OR DISCREPANCIES TO OWNERS REPRESENTATIVE IMMEDIATELY.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, EQUIPMENT QUANTITIES, AND UTILITY LOCATIONS PRIOR TO BEGINNING WORK. DO NOT INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS, GRADE DIFFERENCES, OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE EXISTED AT THE TIME OF THE IRRIGATION DESIGN PREPARATION. SUCH OBSTRUCTIONS OR DIFFERENCES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNERS AUTHORIZED REPRESENTATIVE AND LANDSCAPE ARCHITECT. IN THE EVENT THIS NOTIFICATION IS NOT GIVEN, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY TO BRING THE SYSTEM TO A PROPER WORKING CONDITION, AND TO THE OWNER'S SATISFACTION.
- IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL GRADE DIFFERENCES, LOCATIONS OF WALLS, RETAINING WALLS, ETC. THE IRRIGATION CONTRACTOR SHALL COORDINATE HIS WORK WITH THE GENERAL CONTRACTOR AND OTHER SUBCONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE SLEEVES THROUGH WALL, UNDER ROADWAY PAVING, ETC.
- THE CONTRACTOR SHALL MAKE NO SUBSTITUTIONS, DELETIONS, OR ADDITIONS TO THIS PLAN WITHOUT APPROVAL OF THE LANDSCAPE ARCHITECT.
- SEE CIVIL ENGINEERS DRAWINGS FOR IRRIGATION POINT OF CONNECTION (TAP) AND DOMESTIC WATER SUPPLY.
- ALL CONSTRUCTION SHALL CONFORM TO CITY, COUNTY, STATE, AND FEDERAL REQUIREMENTS. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO ENSURE THAT ALL IRRIGATION EQUIPMENT MEETS GOVERNMENT REGULATIONS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS OR APPROVALS.
- THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE AND THE MAXIMUM FLOW DEMAND SHOWN ON THE POINT OF CONNECTION NOTE TAG(S) ON THE DRAWINGS. THE IRRIGATION CONTRACTOR SHALL FIELD VERIFY THE STATIC & OPERATING WATER PRESSURE PRIOR TO CONSTRUCTION, AND SHALL REPORT ANY DIFFERENCES BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE AND LANDSCAPE ARCHITECT. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED OR PRESSURES HAVE GREATLY CHANGED PRIOR TO THE START OF THE IRRIGATION SYSTEM CONSTRUCTION, THE IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR RECOMMENDING A SOLUTION AND PROVIDING AN ADD ALTERNATE BID FOR IRRIGATION COSTS.
- CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IF AVAILABLE WATER PRESSURE EXCEEDS 5 PSI HIGHER OR LOWER THAN AVAILABLE WATER PRESSURE.
- NO MORE THAN 90% OF AVAILABLE MINIMUM STATIC WATER PRESSURE WAS USED IN PREPARATION OF THESE PLANS, FURTHERMORE, THE MAXIMUM FLOW THROUGH THE METER SHOULD NOT EXCEED 75% OF THE MAXIMUM SAFE FLOW.
- SUPPLY LINE AND METER TO BE PROVIDED BY GENERAL CONTRACTOR. BACKFLOW PREVENTER TO BE PROVIDED BY IRRIGATION CONTRACTOR. IRRIGATION CONTRACTOR'S POINT OF CONNECTION TO BEGIN AFTER THE IRRIGATION WATER METER.
- INSTALL ALL MATERIALS AND EQUIPMENT AS SHOWN ON THE PLANS AND DETAILS. NO SUBSTITUTIONS OF EQUIPMENT WILL BE ACCEPTABLE WITHOUT PRIOR WRITTEN APPROVAL BY THE LANDSCAPE ARCHITECT OR THE OWNERS REPRESENTATIVE. THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE ALL UNAPPROVED SUBSTITUTED EQUIPMENT AT HIS OWN COST IF SO DIRECTED BY THE OWNER.
- WHEN INSTALLING IRRIGATION PIPE AND EQUIPMENT NEXT TO HARDSCAPE (SUCH AS WALLS, CURBS, OR WALKS), PLACE PIPE AS CLOSE AS POSSIBLE TO HARDSCAPE TO AVOID CONFLICTS WITH PLANTING. REFER TO MAINLINE TRENCHING DETAILS FOR ADDITIONAL INFORMATION.
- THE IRRIGATION CONTRACTOR SHALL COORDINATE 120 V.A.C. ELECTRICAL POWER TO CONTROLLERS AND DEDICATE ONE (1) 20-AMP BREAKER FOR EACH CONTROLLER. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO MAKE THE FINAL HOOK-UP FROM THE ELECTRICAL SOURCE TO THE CONTROLLER UNIT ONLY.
- THE RAIN SENSOR SHALL BE LOCATED NEAR THE IRRIGATION CONTROLLER, AND SHALL BE MOUNTED AS SHOWN ON THE DETAIL AND/OR LEGEND, LOCATE SENSOR AWAY FROM TALL TREES, SHRUBS, AND OTHER POTENTIAL OBSTRUCTIONS.
- CONTRACTOR SHALL PROVIDE #10 COMMON WIRE, DIRECT BURIAL, TO ALL REMOTE CONTROL VALVES.
- CONNECT ALL DIRECT BURIAL WIRES TO VALVES USING 3MS "DBY-DIRECT BURIAL SPLICE KIT" (UNLESS OTHERWISE SPECIFIED).
- PROVIDE ADDITIONAL IRRIGATION CONTROL WIRES TO THE AMOUNT OF OPEN ZONES ON THE CONTROLLER ALONG EACH BRANCH OF MAINLINE FOR FUTURE EXPANSION. STUB ADDITIONAL CONTROL WIRES INTO BACK OF IRRIGATION CONTROLLERS.
- THE IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL CONTROL WIRE SLEEVES AND PIPE SLEEVES UNDER PAVED AREAS PRIOR TO PAVING. ELECTRICAL WIRES FOR IRRIGATION VALVES AND IRRIGATION LINES ARE TO BE PLACED IN SEPARATE SLEEVES. ALL SLEEVING SHALL BE PVC SCHEDULE 40 PIPE. SLEEVES FOR MAINLINE AND LATERAL LINES SHALL BE A MINIMUM TWICE THE DIAMETER OF THE ENCLOSED PIPE. SLEEVES FOR CONTROL WIRES SHALL BE AS PER THE SLEEVING / WIRING NOTE AND THE WIRING SLEEVE LEGEND ITEM AS SHOWN ON THESE DRAWINGS.
- TRENCH BACKFILL MATERIAL SHALL BE FREE OF ROCKS, GLASS, AND OTHER EXTRANEOUS MATERIALS LARGER THAN 1" IN DIAMETER. BACKFILL SHALL BE COMPACTED TO 90% MAXIMUM DRY DENSITY.
- WHERE VALVES ARE LOCATED IN CLOSE PROXIMITY TO EACH OTHER, CLUSTER VALVES INTO MANIFOLDS. INSTALL NO MORE THAN ONE VALVE PER VALVE BOX.
- MANUAL DRAIN VALVE, FOR FREEZE PROTECTION, ARE TO BE LOCATED AT ALL LOW POINTS OF IRRIGATION LATERAL LINES. WHERE THE LOW POINT IS AT THE END OF THE LINE, LOCATE DRAIN VALVE A MINIMUM OF 12" DOWNSTREAM FROM THE LAST SPRINKLER HEAD. SEE DETAIL FOR VALVE ORIENTATION.
- USE TEFLON TAPE ON ALL PVC MALE PIPE THREADS ON ALL SWING JOINT AND VALVE ASSEMBLIES.
- ALL IRRIGATION HEADS, INCLUDING FIXED-SPRAY AND DRIP DEVICES, SHALL BE SET PERPENDICULAR TO THE FINISH GRADE OF THE AREA TO BE IRRIGATED.
- ALL PRESSURIZED MAINLINES, VALVES, DRIP, AND ROTOR AND SPRAY HEADS SHALL BE INSTALLED A MINIMUM OF 3' AWAY FROM ANY BUILDING FOUNDATION. IF THIS EQUIPMENT IS SHOWN WITHIN THE 3' OFFSET ON THESE PLANS, IT IS FOR THE PURPOSE OF GRAPHIC CLARITY ONLY.
- EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE, IT IS THE INTENT OF THE IRRIGATION DESIGN TO INDICATE ALL SPRAY HEADS AS "POP-UPS". IN THE EVENT THAT POP-UP HEADS HAVE NOT BEEN SPECIFIED IN TURF AREAS, IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO BRING THIS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BIDDING AND CONSTRUCTION.
- ALL SPRAY AND ROTOR HEAD LOCATIONS SHALL BE STAKED, FLAGGED AND/OR OTHERWISE CLEARLY MARKED ON THE GROUND PRIOR TO INSTALLATION. SPRINKLER HEAD STAKING SHALL BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE OR THE LANDSCAPE ARCHITECT BEFORE INSTALLATION. STAKED LOCATIONS SHALL BE SPACED TO PROVIDE HEAD-TO-HEAD COVERAGE. RECOMMENDED SETBACK DISTANCE OF ALL PROPOSED IRRIGATION HEADS IS 12" FROM BACK OF CURB AND EDGE OF PAVEMENT.
- FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVERSPRAY ONTO WALKS, ROADWAYS, AND/OR BUILDINGS AS MUCH AS POSSIBLE. THIS SHALL INCLUDE SELECTING THE BEST NOZZLE ARC AND RADIUS TO FIT THE EXISTING SITE CONDITIONS.
- ALL POP-UP TYPE SPRINKLER HEADS INSTALLED IN TURF AREAS SHALL BE INSTALLED SO THE TOP OF THE SPRINKLER HEAD IS FLUSH WITH THE ADJACENT SIDEWALK, OR PAVING. ALL POP-UP HEADS AWAY FROM HARDSCAPE EDGES IN TURF SHALL BE 1" ABOVE THE FINISH GRADE TO PREVENT CONTACT WITH MOWERS.
- EXISTING TREES TO REMAIN ARE TO BE PROTECTED FROM DAMAGE. DO NOT TRENCH OR EXCAVATE WITHIN THE CRITICAL ROOT ZONE OF ANY TREE.
- ALL PLANT MATERIAL IN TREE HOLDING AREAS SHALL BE MANUALLY WATERED/IRRIGATED TO KEEP MOIST UNTIL PLANTED.
- UPON COMPLETION OF INSTALLATION OF IRRIGATION SYSTEM, IRRIGATION CONTRACTOR SHALL PROVIDE THE FOLLOWING:
A. ACCURATE AND COMPLETE PLANS OF IRRIGATION SYSTEM INCLUDING 1/2" X 11" ZONE MAP TO BE PLACED INSIDE EACH CONTROLLER BOX.
B. LOG ON ALL WATER WINDINGS, RUN SCHEDULE TIMES, AND OTHER CHANGES AND/OR MODIFICATIONS TO THE IRRIGATION SYSTEM SINCE INSTALLATION.
C. ONE HOUR OF TRAINING TO OWNER ON IRRIGATION SYSTEM AND CONTROLLER OPERATION.
D. THREE OF EACH TYPE OF HEAD AND EMITTER INSTALLED.
E. ONE OF EACH TYPE OF VALVE INSTALLED.
F. REVIEW WINTERIZATION PROCEDURES FOR IRRIGATION SYSTEM WITH OWNERS REPRESENTATIVE.
- PRIOR TO ACCEPTANCE OF IRRIGATION SYSTEM AT THE END OF THE MAINTENANCE PERIOD, THE IRRIGATION CONTRACTOR SHALL PROVIDE THE FOLLOWING: CURRENT SCHEDULE RUN TIME AND WATER WINDOW LOG, ALONG WITH NOTING ANY OTHER PERTINENT INFORMATION.
- UNLESS OTHERWISE SPECIFIED, THE IRRIGATION CONTRACTOR SHALL REPAIR OR REPLACE ANYTHING DAMAGED BY HIS WORK AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL INSTALL MAINLINES ±12" FROM PAVEMENT EDGE IN PLANTING AREAS. ALL PIPING, VALVES, AND OTHER EQUIPMENT SHOWN WITHIN PAVED AREAS OR OUT OF PROPERTY BOUNDARIES ARE FOR DESIGN CLARIFICATION ONLY, AND SHALL BE INSTALLED IN PLANTING AREAS WITHIN THE PROPERTY LINES OR LIMITS AS INDICATED ON THESE PLANS.
- IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND SPECIFICATIONS, THE PLAN SHALL TAKE PRECEDENCE.
- THE IRRIGATION SYSTEM SHALL BE INSTALLED BY A QUALIFIED IRRIGATION CONTRACTOR.

UTILITY NOTES

- THE LANDSCAPE CONTRACTOR IS REQUIRED TO CONTACT THE COUNTY PUBLIC WORKS DEPARTMENT, AND ANY OTHER PUBLIC OR PRIVATE AGENCY NECESSARY FOR UTILITY LOCATION PRIOR TO ANY CONSTRUCTION.
- THIS DRAWING IS A PART OF A COMPLETE SET OF BID DOCUMENTS, SPECIFICATIONS, ADDITIONAL DRAWINGS, AND EXHIBITS. UNDER NO CIRCUMSTANCES SHOULD THESE PLANS BE USED FOR CONSTRUCTION PURPOSES WITHOUT EXAMINING ACTUAL LOCATIONS OF UTILITIES ON SITE, AND REVIEWING ALL RELATED DOCUMENTS.
- THE LOCATION OF THE ALL UNDERGROUND UTILITIES ARE LOCATED ON THE ENGINEERING DRAWINGS FOR THIS PROJECT. THE MOST CURRENT REVISION IS HERE IN MADE PART OF THIS DOCUMENT. UNDERGROUND UTILITIES EXIST THROUGHOUT THIS SITE AND MUST BE LOCATED PRIOR TO ANY CONSTRUCTION ACTIVITY. WHERE UNDERGROUND UTILITIES EXIST, FIELD ADJUSTMENT MAY BE NECESSARY AND MUST BE APPROVED BY A REPRESENTATIVE OF THE OWNER. NEITHER THE OWNER NOR THE LANDSCAPE ARCHITECT ASSUMES ANY RESPONSIBILITY WHATSOEVER, IN RESPECT TO THE CONTRACTORS ACCURACY IN LOCATING THE INDICATED PLANT MATERIAL, AND UNDER NO CIRCUMSTANCES SHOULD THESE PLANS BE USED WITHOUT REFERENCE TO THE ABOVE MENTIONED DOCUMENTS.

CAUTION - NOTICE TO CONTRACTOR

- ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POTHOLES OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

SHEET NO.

IR-1

ENGINEERING STAMP

CD 3RD SUBMITTAL

09/04/26

MOC148

JDP

PM

DATE

JAC

SRM

DES

DRW

IRRIGATION PLAN

MURPHY USA (NT)

9091 WESTVIEW RD

LOVE TREE

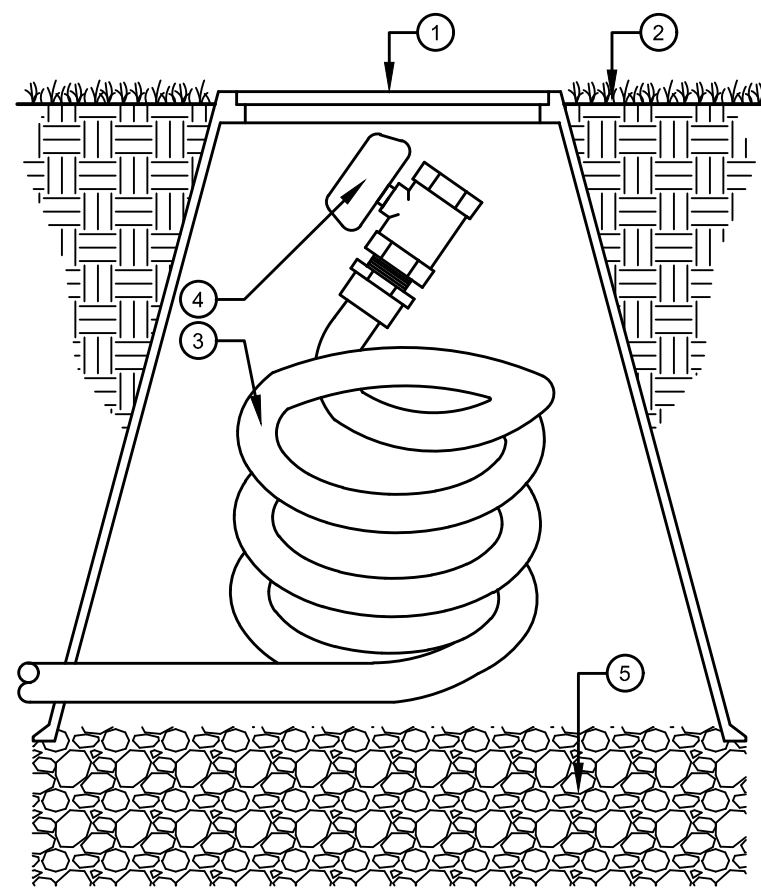
COLORADO

MURPHY OIL USA, INC.

200 PEACH STREET

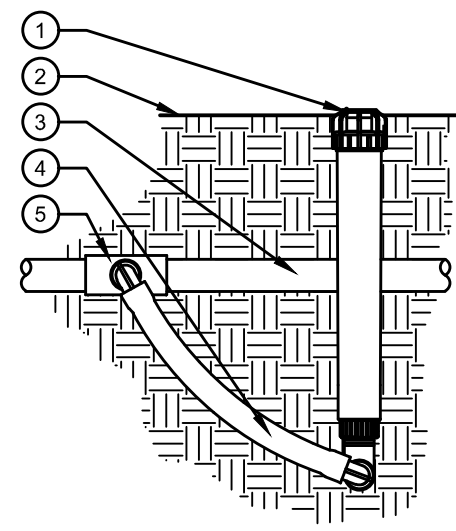
EL DORADO, AR 71730

MURPHY USA

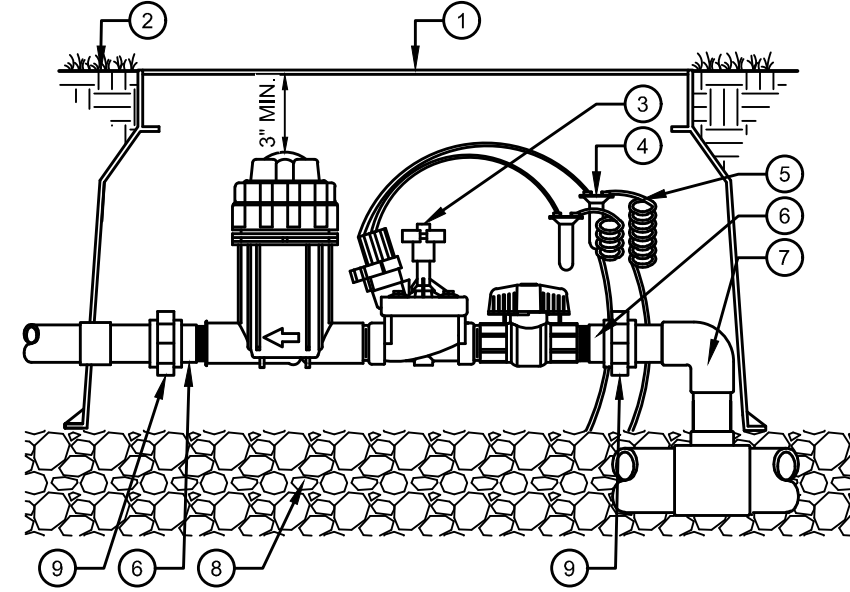


- 1 CARSON VALVE BOX OR APPROVED EQUAL, "FV" BRAND ON LID.
- 2 FINISH GRADE
- 3 POLYPIPE DRIP LINE, COIL AN ADDITIONAL 36" WITHIN BOX
- 4 MANUAL FLUSH BALL VALVE PER IRRIGATION SCHEDULE
- 5 3" MINIMUM LAYER OF 3/4" MINUS WASHED GRAVEL

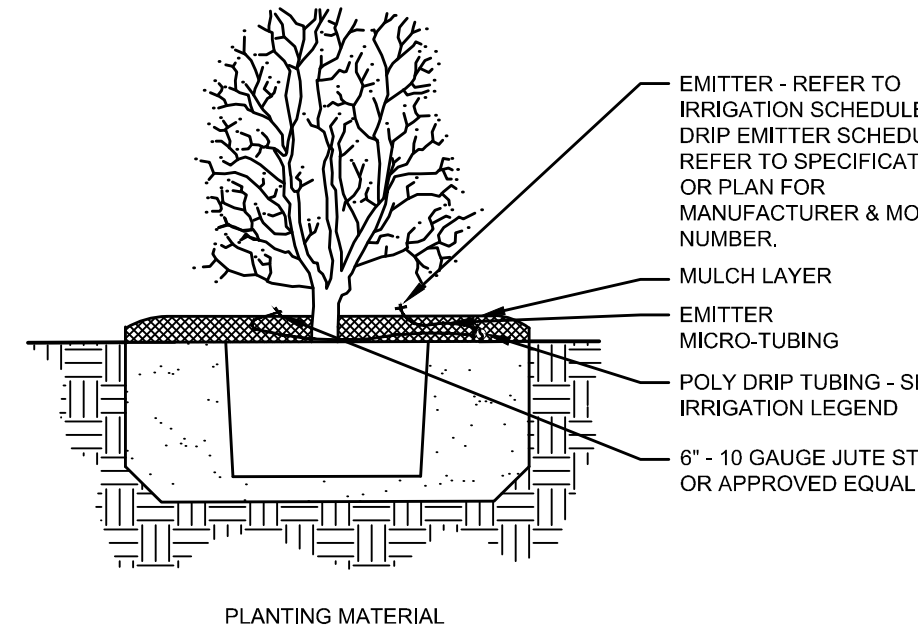
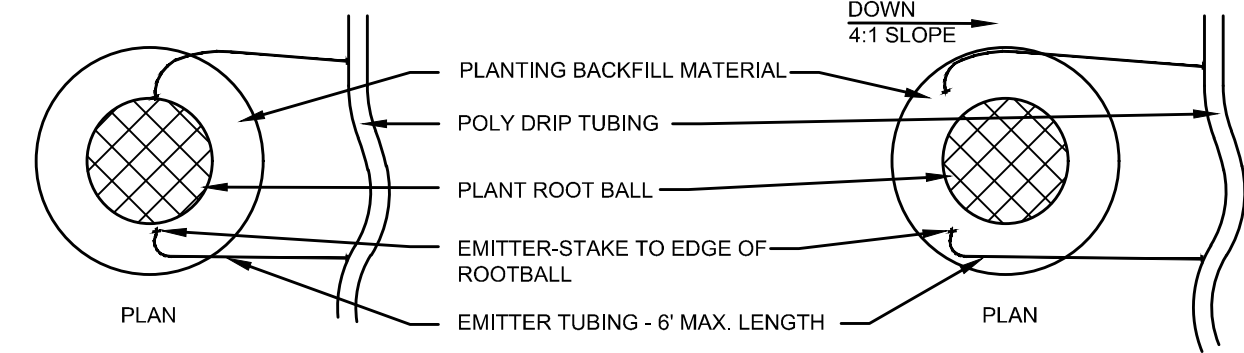
NOTE: KINKED PINCHED, OR OTHERWISE DAMAGED POLYPIPE WILL NOT BE ACCEPTED.



- 1 PRESSURE INDICATOR PER IRRIGATION SCHEDULE
- 2 FINISHED GRADE
- 3 DRIPPER LINE
- 4 FLEX TUBING
- 5 SLIP X SLIP X FPT REDUCING TEE. USE MARLEX STREET ELBOWS FOR SWING JOINTS.



- 1 CARSON VALVE BOX OR APPROVED EQUAL, STATION NUMBER BRAND ON LID.
- 2 FINISH GRADE
- 3 DRIP ZONE KIT PER PLAN
- 4 WATERPROOF CONNECTORS (2)
- 5 24" COILED WIRE
- 6 SCH 80 T.O.E. NIPPLE
- 7 MAIN LINE PIPE & FITTINGS
- 8 3" MINIMUM LAYER OF 3/4" MINUS WASHED GRAVEL
- 9 PVC SLIP UNIONS



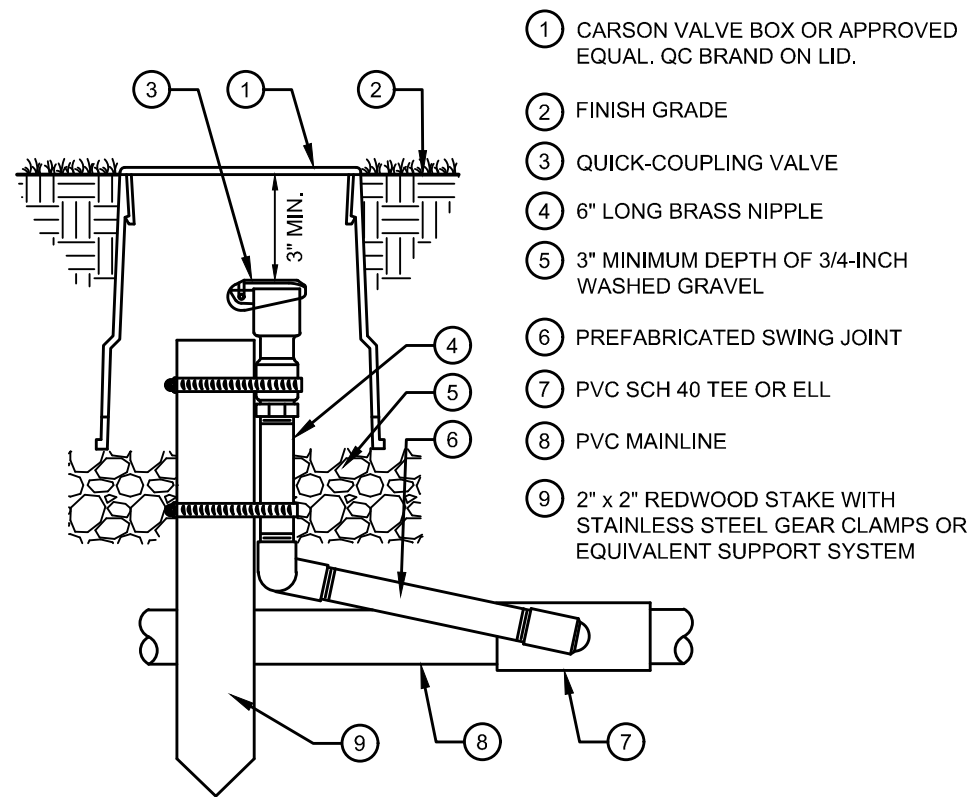
- NOTES:
1. INSTALL EMITTERS ON OPPOSING SIDES OF THE ROOT BALL, THREE OR MORE EMITTERS SHALL BE EQUALLY SPACED AROUND ROOT BALL.
 2. EMITTERS ARE TO BE INSTALLED TO CLEAR MULCH SURFACE BY A MINIMUM OF 1" AND A MAXIMUM 2".
 3. FLUSH ALL LINES THOROUGHLY, INCLUDING EMITTER MICRO-TUBING PRIOR TO EMITTER INSTALLATION.
 4. IF PLANTING ON A 4:1 SLOPE OR STEEPER, INSTALL BOTH EMITTERS ON UPHILL SIDE OF ROOT BALL.
 5. EMITTERS SHALL BE SELF-FLUSHING, PRESSURE COMPENSATING-TYPE UNLESS NOTED OTHERWISE WITHIN TECHNICAL SPECIFICATIONS.

1 MANUAL FLUSH DRAIN VALVE
N.T.S.

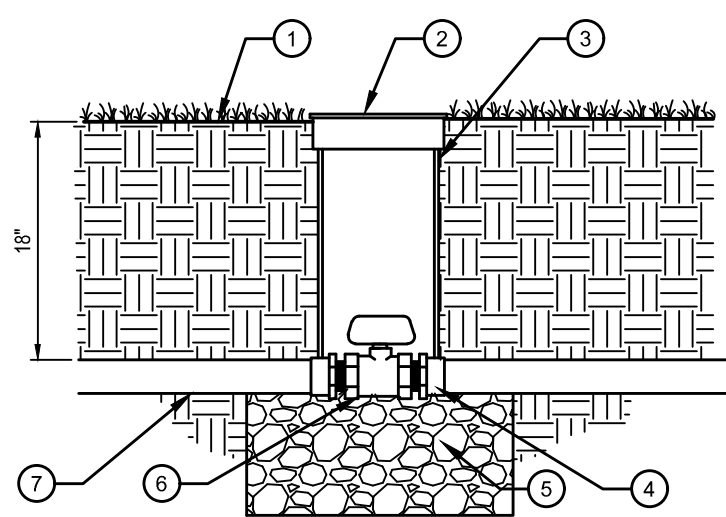
2 DRIPLINE PRESSURE INDICATOR
N.T.S.

3 REMOTE DRIP CONTROL VALVE
N.T.S.

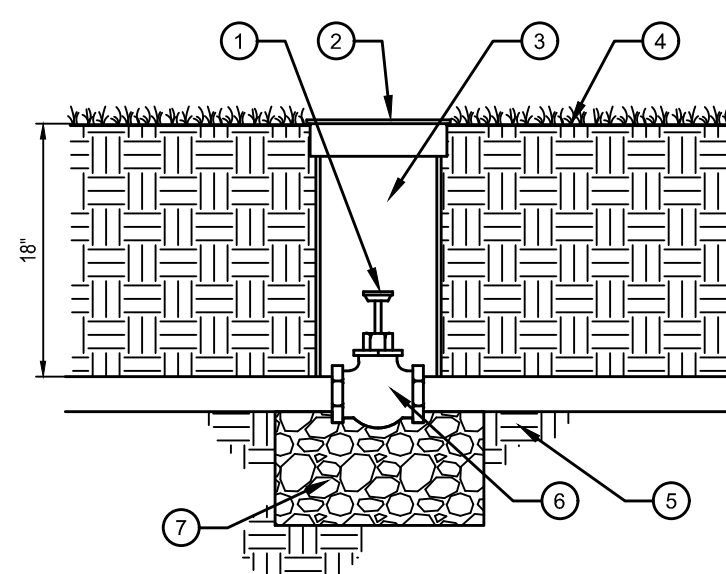
4 DRIP EMITTERS LAYOUT
N.T.S.



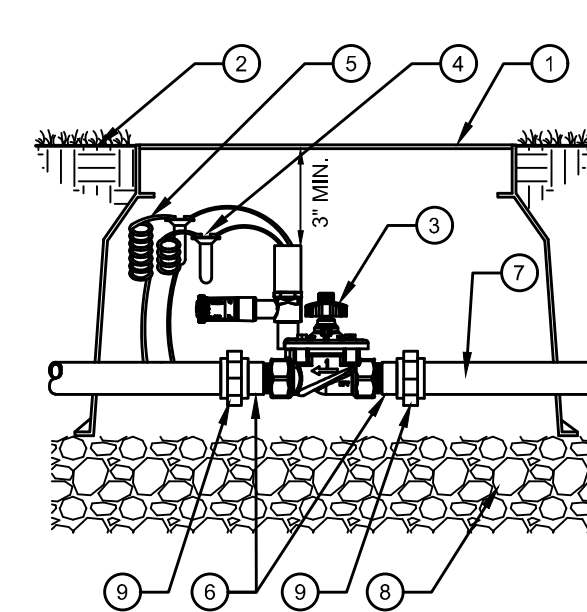
- 1 CARSON VALVE BOX OR APPROVED EQUAL, QC BRAND ON LID.
- 2 FINISH GRADE
- 3 QUICK-COUPLING VALVE
- 4 6" LONG BRASS NIPPLE
- 5 3" MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
- 6 PREFABRICATED SWING JOINT
- 7 PVC SCH 40 TEE OR ELL
- 8 PVC MAINLINE
- 9 2" x 2" REDWOOD STAKE WITH STAINLESS STEEL GEAR CLAMPS OR EQUIVALENT SUPPORT SYSTEM



- 1 FINISH GRADE AT 1" BELOW TOP OF BOX IN TURF AREAS, 2" BELOW TOP OF BOX IN SHRUB/GROUNDCOVER AREAS
- 2 CARSON VALVE BOX OR APPROVED EQUAL, BV BRAND ON LID.
- 3 EXTENSION SECTION AS NECESSARY TO MEET GRADE
- 4 PVC MALE ADAPTER
- 5 3" MINIMUM LAYER OF 3/4" MINUS WASHED GRAVEL
- 6 PLASTIC BALL VALVE (SIZED PER MAINLINE)
- 7 IRRIGATION MAINLINE



- 1 KEY HEAD PER HEAD
- 2 CARSON VALVE BOX OR APPROVED EQUAL.
- 3 4" PVC SLEEVE
- 4 FINISH GRADE AT 1" BELOW TOP OF BOX IN TURF AREAS; 2" BELOW TOP OF BOX IN SHRUB/GROUNDCOVER AREAS
- 5 IRRIGATION MAINLINE
- 6 GATE VALVE (SIZED PER MAINLINE)
- 7 3" MINIMUM LAYER OF 3/4" MINUS WASHED GRAVEL



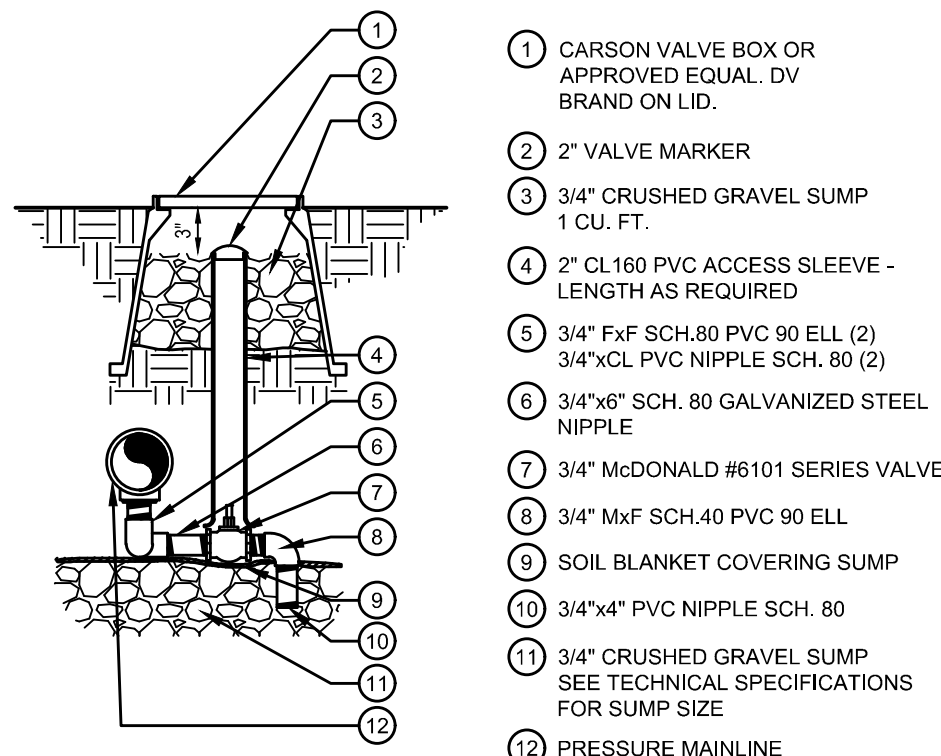
- 1 CARSON VALVE BOX OR APPROVED EQUAL, MV BRAND ON LID.
- 2 FINISH GRADE
- 3 REMOTE CONTROL VALVE
- 4 WATERPROOF CONNECTORS (2)
- 5 24" COILED WIRE
- 6 SCH 80 T.O.E. NIPPLE
- 7 MAINLINE PIPE & FITTINGS
- 8 3/4" MINUS WASHED GRAVEL
- 9 PVC SLIP UNIONS

5 QUICK COUPLER
N.T.S.

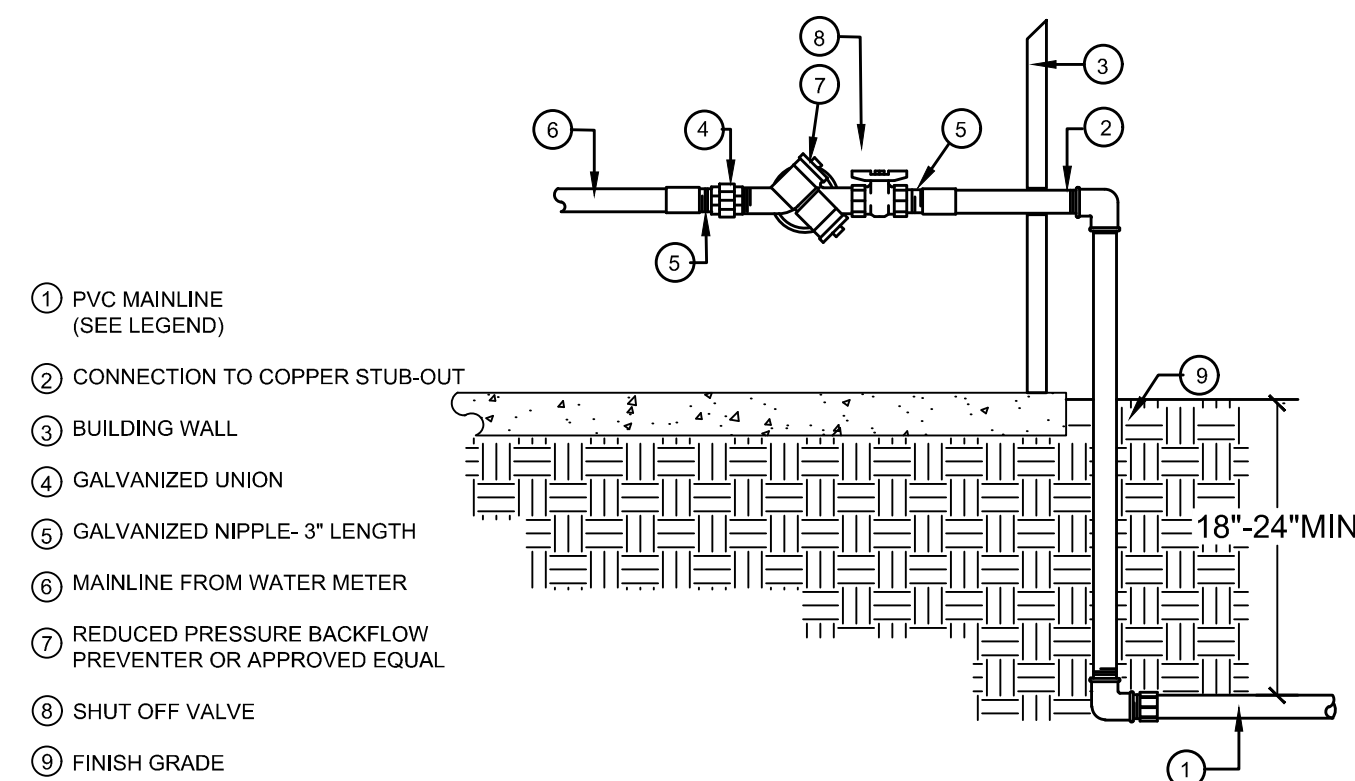
6 BALL VALVE
N.T.S.

7 GATE VALVE
N.T.S.

8 MASTER VALVE
N.T.S.



- 1 CARSON VALVE BOX OR APPROVED EQUAL, DV BRAND ON LID.
- 2 2" VALVE MARKER
- 3 3/4" CRUSHED GRAVEL SUMP 1 CU. FT.
- 4 2" CL160 PVC ACCESS SLEEVE - LENGTH AS REQUIRED
- 5 3/4" Fx F SCH.80 PVC 90 ELL (2)
- 6 3/4"xCL PVC NIPPLE SCH. 80 (2)
- 7 3/4"x6" SCH. 80 GALVANIZED STEEL NIPPLE
- 8 3/4" McDonald #6101 SERIES VALVE
- 9 3/4" Mx F SCH.40 PVC 90 ELL
- 10 SOIL BLANKET COVERING SUMP
- 11 3/4"x4" PVC NIPPLE SCH. 80
- 12 3/4" CRUSHED GRAVEL SUMP SEE TECHNICAL SPECIFICATIONS FOR SUMP SIZE
- 13 PRESSURE MAINLINE



- 1 PVC MAINLINE (SEE LEGEND)
- 2 CONNECTION TO COPPER STUB-OUT
- 3 BUILDING WALL
- 4 GALVANIZED UNION
- 5 GALVANIZED NIPPLE- 3" LENGTH
- 6 MAINLINE FROM WATER METER
- 7 REDUCED PRESSURE BACKFLOW PREVENTER OR APPROVED EQUAL
- 8 SHUT OFF VALVE
- 9 FINISH GRADE

9 MANUAL DRAIN VALVE
N.T.S.

10 INDOOR R.P. BACKFLOW DEVICE
N.T.S.

SHEET NO.

IR-2

Sheet 25 of 26

ENGINEERING
STAMP

JAC
SRM
DES
DRW

IRRIGATION NOTES & DETAILS

MURPHY USA (NTI)

9091 WESTVIEW RD

LOVE TREE

COLORADO

Galloway

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MURPHY OIL USA, INC.

200 PEACH STREET

EL DORADO, AR 71730

MURPHY
USA

CITY OF LOVE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE
CITY OF LOVE TREE FOR SITE IMPROVEMENTS, STORM SEWER,
GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

IRRIGATION DISCLAIMER

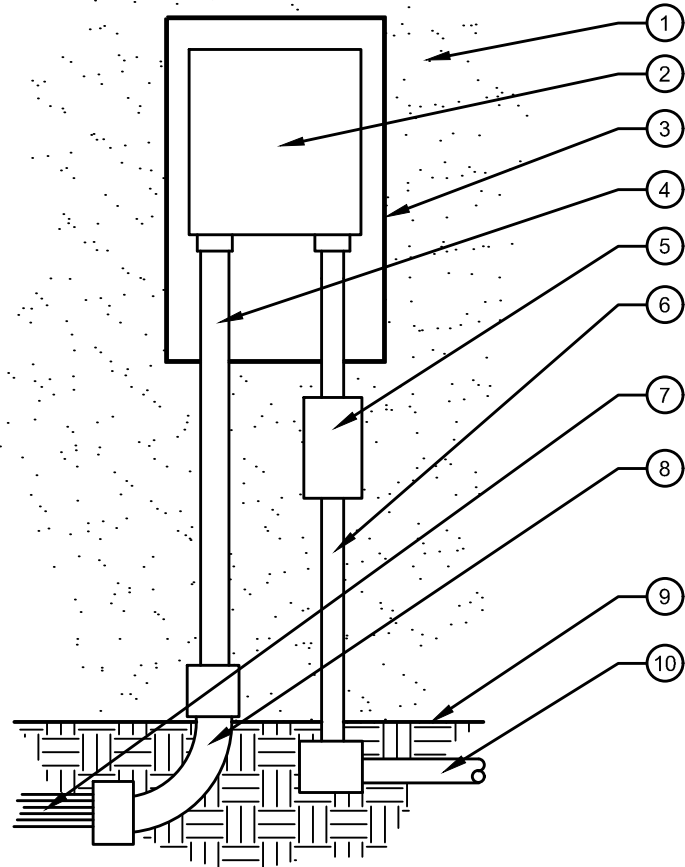
1. DRAWINGS ARE DIAGRAMMATIC. IRRIGATION COMPONENTS MAY BE SHOWN OUTSIDE OF PLANTING AREAS FOR CLARITY ONLY. CONTRACTOR SHALL AVOID CONFLICTS WITH PLANT MATERIALS AND ARCHITECTURAL FEATURES. ALL PIPING AND WIRING SHALL BE INSTALLED IN PLANTING AREA OR IN SLEEVES. NO PIPING UNDER TREES OR SHRUBS WILL BE ACCEPTED.
2. CONTRACTOR SHALL INSTALL MAINLINES ±12" FROM PAVEMENT EDGE IN PLANTING AREAS. ALL PIPING, VALVES, AND OTHER EQUIPMENT SHOWN WITHIN PAVED AREAS OR OUT OF PROPERTY BOUNDARIES ARE FOR DESIGN CLARIFICATION ONLY, AND SHALL BE INSTALLED IN PLANTING AREAS WITHIN THE PROPERTY LINES OR LIMITS AS INDICATED ON THESE PLANS.
3. THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL ABOVE-GRADE AND VISIBLE IRRIGATION EQUIPMENT (CONTROLLERS, BACKFLOW PREVENTERS, METER PITS, ETC.) WITH THE OWNER'S AUTHORIZED REPRESENTATIVE AND / OR LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. THE INSTALLATION OF THESE ITEMS SHALL BE INTEGRATED WITHIN DESIGNATED LANDSCAPE AREAS. FAILURE TO LOCATE THIS EQUIPMENT IN AN APPROVED LOCATION MAY RESULT IN THE IRRIGATION CONTRACTOR BEING REQUIRED TO MOVE SUCH ITEMS AT HIS OWN COST.
4. THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE AND THE MAXIMUM FLOW DEMAND SHOWN ON THE DRAWINGS. THE IRRIGATION CONTRACTOR SHALL FIELD VERIFY THE STATIC & OPERATING WATER PRESSURE PRIOR TO CONSTRUCTION OF ANY COMPONENT OF THE IRRIGATION SYSTEM. AFTER FIELD VERIFICATION, THE IRRIGATION CONTRACTOR SHALL NOTIFY THE OWNER, OWNER'S REPRESENTATIVE, LANDSCAPE ARCHITECT, & IRRIGATION DESIGNER OF THE PRESSURE READING FOR THE TAP.
5. ALL PRESSURIZED MAINLINES, VALVES, DRIP, AND ROTOR AND SPRAY HEADS SHALL BE INSTALLED A MINIMUM OF 5' AWAY FROM ANY BUILDING FOUNDATION. ADDITIONAL REQUIREMENTS MAY BE LISTED IN THE GEOTECHNICAL REPORT REGARDING IRRIGATION NEAR BUILDING FOUNDATIONS. CONTRACTOR IS RESPONSIBLE TO ABIDE BY THE 5' MINIMUM DISTANCE AND/OR THE GEOTECHNICAL REPORT REQUIREMENTS. IF THIS EQUIPMENT IS SHOWN WITHIN THE 5' OFFSET ON THESE PLANS, IT IS FOR THE PURPOSE OF GRAPHIC CLARITY ONLY.
6. REFER TO THIS SHEET, IR-1, AND IR-2 FOR IRRIGATION NOTES AND IRRIGATION DETAILS.

CRITICAL ANALYSIS

Water Source Information:	Use 1" dedicated irrigation tap into the domestic waterline downstream from the building meter.
FLOW AVAILABLE	
Point of Connection Size:	1"
Flow Available:	18.2 GPM
PRESSURE AVAILABLE	
Static Pressure at POC:	80 PSI
Pressure Available:	80 PSI
DESIGN ANALYSIS	
Flow Velocity:	5 Ft./sec.
Maximum Station Flow:	3.72 GPM
Flow Available at POC:	18.2 GPM
Residual Flow Available:	14.48 GPM
Critical Station:	A1
Design Pressure:	30 PSI
Friction Loss:	0.07 PSI
Fittings Loss:	0.01 PSI
Elevation Loss:	0 PSI
Loss through Valve:	4.15 PSI
Pressure Req. at Critical Station:	34.2 PSI
Loss for Fittings:	0.08 PSI
Loss for Main Line:	0.85 PSI
Loss for POC to Valve Elevation:	0 PSI
Loss for Backflow:	11.8 PSI
Loss for Master Valve:	2.34 PSI
Critical Station Pressure at POC:	49.3 PSI
Pressure Available:	80 PSI
Residual Pressure Available:	30.7 PSI

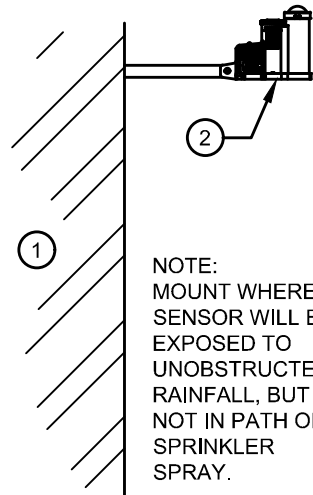
VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM
A1	HUNTER ICZ-101-25-LF	1"	AREA FOR DRIP EMITTERS	3.72
A2	HUNTER ICZ-101-25-LF	1"	AREA FOR DRIP EMITTERS	0.95
A3	HUNTER ICZ-101-25-LF	1"	AREA FOR DRIP EMITTERS	1.15
A4	HUNTER ICZ-101-25-LF	1"	AREA FOR DRIP EMITTERS	2.0



- NOTE: VERIFY FINAL LOCATION WITH OWNER PRIOR TO INSTALLATION.
- 1 EXTERIOR WALL.
 - 2 CONTROLLER PER SCHEDULE.
 - 3 LOCKING VANDAL-RESISTANT ENCLOSURE. ATTACH TO WALL PER MANUFACTURER'S SPECIFICATIONS.
 - 4 PVC CONDUIT FOR CONTROL WIRES.
 - 5 LOCKABLE ELECTRIC DISCONNECT BOX PER APPLICABLE CODES.
 - 6 120 VOLT POWER WIRES IN CONDUIT. INSTALL PER APPLICABLE CODES.
 - 7 CONTROL WIRES.
 - 8 INSTALL PVC SWEEP 1' - 6" BELOW FINISH GRADE. WIRES SHALL SHARE MAINLINE TRENCHING WHEREVER POSSIBLE.
 - 9 FINISH GRADE.
 - 10 ELECTRICAL SOURCE PER APPLICABLE ELECTRICAL CODES.

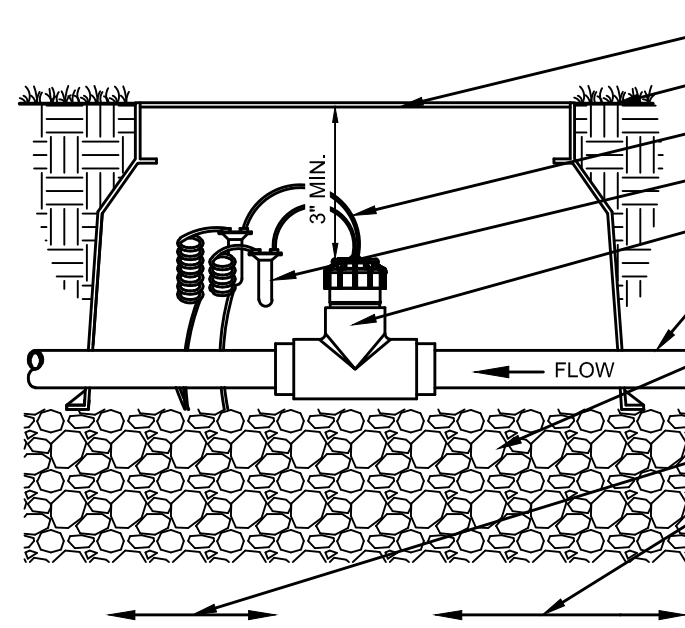
NOTE: CONTRACTOR SHALL PROVIDE AND INSTALL AN EIGHT FOOT LONG COPPER GROUNDING ROD INTO THE GROUND FOR THE CONTROLLER. PROVIDE PROPER INSTALLATION FOR CONTROLLER PER NEC REQUIREMENTS, MANUFACTURER RECOMMENDATIONS, AND LOCAL BUILDING CODES. ALL ELECTRICAL EQUIPMENT TO BE INSTALLED BY A CERTIFIED ELECTRICIAN.



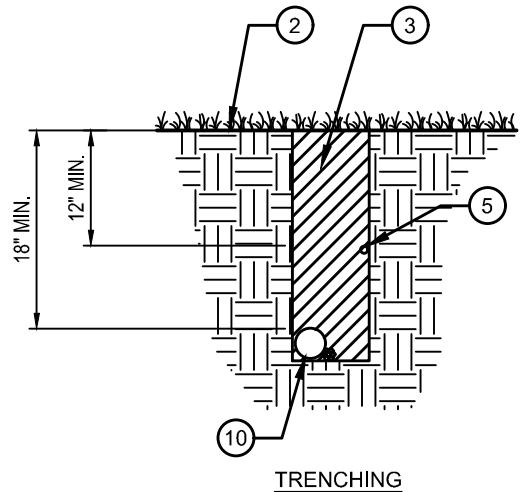
- 1 EXTERIOR WALL OR POLE
2 WEATHER SENSOR

11 WALL MOUNT CONTROLLER
N.T.S.

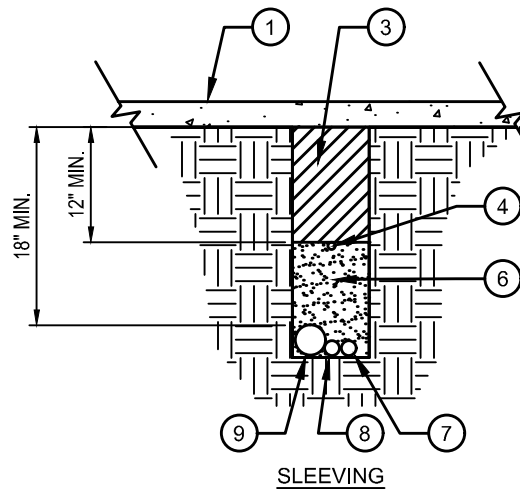
12 WEATHER SENSOR
N.T.S.



- 1 CARSON VALVE BOX OR APPROVED EQUAL, FS BRAND ON LID.
- 2 FINISH GRADE
- 3 MIN. 18/2 WIRE TO CONTROLLER. MAX WIRE DISTANCE RUN OF 1,000'
- 4 DBRY-6 WIRE CONNECTORS (2)
- 5 FLOW SENSOR AS REFERENCED IN IRRIGATION LEGEND
- 6 PVC MAINLINE PIPE
- 7 3" MINIMUM LAYER OF 3/4" MINUS WASHED GRAVEL
- 8 ALLOW MINIMUM DISTANCE OF 10X FLOW SENSOR SIZE FROM NEAREST UPSTREAM VALVE, FITTING, OR REDUCING COUPLER FROM EDGE OF FLOW SENSOR
- 9 ALLOW MINIMUM DISTANCE OF 5X FLOW SENSOR SIZE FROM NEAREST DOWNSTREAM VALVE, FITTING OR REDUCING COUPLER FROM EDGE OF FLOW SENSOR



- 1 PAVEMENT SURFACE
- 2 FINISH GRADE
- 3 TRENCH BACKFILL
- 4 LOCATOR WIRE WITH BURIED CAUTION TAPE IF SPECIFIED
- 5 PVC IRRIGATION LATERAL - BURIED MIN. 12" BELOW GRADE
- 6 SAND BACKFILL
- 7 PVC LATERAL SLEEVE SEE PLANS FOR SIZE
- 8 2" MIN. PVC WIRE SLEEVE FOR CONTROL WIRES
- 9 PVC MAINLINE SLEEVE SEE PLANS FOR SIZE
- 10 PVC IRRIGATION MAINLINE



NOTE: EXTEND SLEEVES INTO LANDSCAPE AREAS 12" BEYOND EDGE OF HARDSCAPE

13 FLOW SENSOR
N.T.S.

14 PIPE & SLEEVE INSTALLATION
N.T.S.

CITY OF LONE TREE

DATE

THE CONSTRUCTION PLANS HAVE BEEN REVIEWED BY THE CITY OF LONE TREE FOR SITE IMPROVEMENTS, STORM SEWER, GRADING AND EROSION CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

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IRRIGATION NOTES & DETAILS
MURPHY USA (NTI)

9091 WESTVIEW RD

LONE TREE

COLORADO

CD 3RD SUBMITTAL

09/04/26

MOCL48

DATE

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PM

DES

DRW

JAC

SRM

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SHEET NO.

IR-3

Sheet 26 of 26

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