CIVIL CONSTRUCTION PLANS
FOR
VISTA GARDENS PH 1

Preliminary
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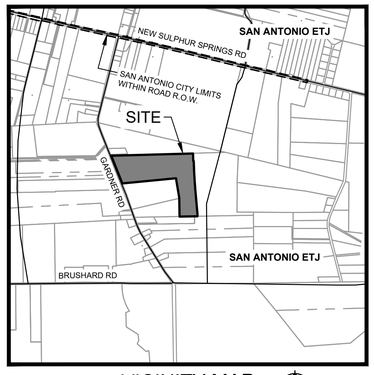
SAN ANTONIO E.T.J.
BEXAR COUNTY, TEXAS

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VICINITY MAP
SCALE: 1" = 2000'

SUBMITTAL REVIEW LOG

1ST SUBMITTAL	12/09/2024

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

CAUTION!!!
EXISTING UNDERGROUND UTILITIES IN THE AREA CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS TO EXISTING UTILITIES DUE TO DAMAGE INCURRED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES ON THE PLANS.

BENCHMARK LIST

BM #100
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 42'± FROM EAST RIGHT-OF-WAY OF BORGFIELD DRIVE AND BEING APPROXIMATELY 706' NORTHWEST FROM A POWER POLE AND APPROXIMATELY 3,025'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 547.04'

BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

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STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

COVER SHEET

VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C1.0

Plotted By:Heasley, Kara March 04, 2025 06:24:05pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlotSheet\C-COVR.dwg
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KH GENERAL NOTES

OVERALL:

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THESE PLANS, CITY (OR TOWN) STANDARD DETAILS AND SPECIFICATIONS, THE FINAL GEOTECHNICAL REPORT AND ALL ISSUED ADDENDA, AND COMMONLY ACCEPTED CONSTRUCTION STANDARDS. THE CITY SPECIFICATIONS SHALL GOVERN WHERE OTHER SPECIFICATIONS DO NOT EXIST. IN CASE OF CONFLICTING SPECIFICATIONS OR DETAILS, THE MORE RESTRICTIVE SPECIFICATION AND DETAIL SHALL BE FOLLOWED.
2. THE CONTRACTOR SHALL COMPLY WITH CITY (OR TOWN) "GENERAL NOTES" FOR CONSTRUCTION, IF EXISTING AND REQUIRED BY THE CITY. FOR INSTANCES WHERE THEY CONFLICT WITH THESE KH GENERAL NOTES, THEN THE MORE RESTRICTIVE SHALL APPLY.
3. THE CONTRACTOR SHALL FURNISH ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE AUTHORITIES' SPECIFICATIONS AND REQUIREMENTS.
4. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO DETERMINE EXISTING CONDITIONS.
5. THE EXISTING CONDITIONS SHOWN ON THESE PLANS WERE PROVIDED BY THE TOPOGRAPHIC SURVEY PREPARED BY THE PROJECT SURVEYOR, AND ARE BASED ON THE BENCHMARKS SHOWN. THE CONTRACTOR SHALL REFERENCE THE SAME BENCHMARKS.
6. THE CONTRACTOR SHALL REVIEW AND VERIFY THE EXISTING TOPOGRAPHIC SURVEY SHOWN ON THE PLANS REPRESENTS EXISTING FIELD CONDITIONS PRIOR TO CONSTRUCTION, AND SHALL REPORT ANY DISCREPANCIES FOUND TO THE OWNER AND ENGINEER IMMEDIATELY.
7. IF THE CONTRACTOR DOES NOT ACCEPT THE EXISTING TOPOGRAPHIC SURVEY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY AT THEIR OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED PROFESSIONAL LAND SURVEYOR TO THE OWNER AND ENGINEER FOR REVIEW.
8. CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SURVEYING AND STAKING.
9. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL CONTROL, INCLUDING BENCHMARKS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS. PROPERTY LINES AND CORNERS SHALL BE HELD AS THE HORIZONTAL CONTROL.
10. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS, ELEVATIONS, AND FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT, ENGINEER, AND IF APPLICABLE THE CITY AND OWNER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE CITY, ENGINEER, AND OWNER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
11. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER/ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK TO HAVE THEM LOCATE THEIR EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION.
13. CONTRACTOR SHALL CALL TEXAS 811 AN ADEQUATE AMOUNT OF TIME PRIOR TO COMMENCING CONSTRUCTION OR ANY EXCAVATION.
14. CONTRACTOR SHALL USE EXTREME CAUTION AS THE SITE CONTAINS VARIOUS KNOWN AND UNKNOWN PUBLIC AND PRIVATE UTILITIES.
15. THE LOCATIONS, ELEVATIONS, DEPTH, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE UTILITY COMPANY MAPS AND PLANS, AND ARE CONSIDERED APPROXIMATE AND INCOMPLETE. IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO VERIFY THE PRESENCE, LOCATION, ELEVATION, DEPTH, AND DIMENSION OF EXISTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION SO THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE ENGINEER SHALL BE NOTIFIED WHEN A PROPOSED IMPROVEMENT CONFLICTS WITH AN EXISTING UTILITY.
16. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY ADJUSTMENTS AND RELOCATIONS OF EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO, ADJUSTING EXISTING MANHOLES TO MATCH PROPOSED GRADE, RELOCATING EXISTING POLES AND GUY WIRES THAT ARE LOCATED IN PROPOSED DRIVEWAYS, ADJUSTING THE HORIZONTAL OR VERTICAL ALIGNMENT OF EXISTING UNDERGROUND UTILITIES TO ACCOMMODATE PROPOSED GRADE OR CROSSING WITH A PROPOSED UTILITY, AND ANY OTHERS THAT MAY BE ENCOUNTERED THAT ARE UNKNOWN AT THIS TIME AND NOT SHOWN ON THESE PLANS.
17. CONTRACTOR SHALL ARRANGE FOR OR PROVIDE, AT ITS EXPENSE, ALL GAS, TELECOMMUNICATIONS, CABLE, OVERHEAD AND UNDERGROUND POWER LINE, AND UTILITY POLE ADJUSTMENTS NEEDED.
18. CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION OF FRANCHISE UTILITIES THAT ARE NECESSARY FOR ON-SITE AND OFF-SITE CONSTRUCTION, AND SERVICE TO THE PROPOSED DEVELOPMENT.
19. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGES DUE TO THE CONTRACTORS' FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITY STRUCTURES. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR SUPPORT A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED BY THE CONTRACTOR AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
20. BRACING OF UTILITY POLES MAY BE REQUIRED BY THE UTILITY COMPANIES WHEN TRENCHING OR EXCAVATING IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR, WITH NO SEPARATE PAY ITEM FOR THIS WORK. THE COST IS INCIDENTAL TO THE PAY ITEM.
21. CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND POWER LINES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, FEDERAL AND UTILITY OWNER REGULATIONS PERTAINING TO WORK SETBACKS FROM POWER LINES.
22. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL REQUIRED CONSTRUCTION PERMITS, APPROVALS, AND BONDS PRIOR TO CONSTRUCTION.
23. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES A COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, GEOTECHNICAL REPORT AND ADDENDA, PROJECT AND CITY SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS.
24. ALL SHOP DRAWINGS AND OTHER DOCUMENTS THAT REQUIRE ENGINEER REVIEW SHALL BE SUBMITTED BY THE CONTRACTOR SUFFICIENTLY IN ADVANCE OF CONSTRUCTION OF THAT ITEM, SO THAT NO LESS THAN 10 BUSINESS DAYS FOR REVIEW AND RESPONSE IS AVAILABLE.
25. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES, AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO USE OF THE FACILITY AND THE FINAL CONNECTION OF SERVICES.
26. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
27. CONTRACTOR'S BID PRICE SHALL INCLUDE ALL INSPECTION FEES.
28. ALL SYMBOLS SHOWN ON THESE PLANS (E.G. FIRE HYDRANT, METERS, VALVES, INLETS, ETC....) ARE FOR PRESENTATION PURPOSES ONLY AND ARE NOT TO SCALE. CONTRACTOR SHALL COORDINATE FINAL SIZES AND LOCATIONS WITH APPROPRIATE CITY INSPECTOR.
29. THE SCOPE OF WORK FOR THE CIVIL IMPROVEMENTS SHOWN ON THESE PLANS TERMINATES 5-FEET FROM THE BUILDING. REFERENCE THE BUILDING PLANS (E.G. ARCHITECTURAL, STRUCTURAL, MEP) FOR AREAS WITHIN 5-FEET OF THE BUILDING AND WITHIN THE BUILDING FOOTPRINT.
30. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR ALL FINAL BUILDING DIMENSIONS.
31. THE PROPOSED BUILDING FOOTPRINT(S) SHOWN IN THESE PLANS WAS PROVIDED TO KIMLEY-HORN AND ASSOCIATES, INC. (KH) BY THE PROJECT ARCHITECT AT THE TIME THESE PLANS WERE PREPARED. IT MAY NOT BE THE FINAL CORRECT VERSION BECAUSE THE BUILDING DESIGN WAS ONGOING. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONFIRMING THE FINAL CORRECT VERSION OF THE BUILDING FOOTPRINT WITH THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO LAYOUT. ANY DISCREPANCIES BETWEEN THE BUILDINGS SHOWN ON THESE PLANS WERE BASED ON THE ABOVE STATED ARCHITECTURAL FOOTPRINT, AND ARE THEREFORE A PRELIMINARY LOCATION OF THE BUILDING. THE CONTRACTOR IS SOLELY RESPONSIBLE TO VERIFY WHAT PART OF THE BUILDING THE ARCHITECT'S FOOTPRINT REPRESENTS (E.G. SLAB, OUTSIDE WALL, MASONRY LEDGE, ETC...) AND TO CONFIRM ITS FINAL POSITION ON THE FINAL ARCHITECTURAL, STRUCTURAL, AND CIVIL FOOTPRINT, CIVIL DIMENSION CONTROL PLAN, SURVEY BOUNDARY AND/OR PLAT. ANY DIFFERENCES FOUND SHALL BE REPORTED TO KH IMMEDIATELY.
32. ALL CONSTRUCTION SHALL COMPLY WITH THE PROJECT'S FINAL GEOTECHNICAL REPORT (OR LATEST EDITION), INCLUDING SUBSEQUENT ADDENDA.
33. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIALS TESTING AND CERTIFICATION, UNLESS SPECIFIED OTHERWISE BY OWNER. ALL MATERIALS TESTING SHALL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR AND COMPLY WITH CITY STANDARD SPECIFICATIONS AND GEOTECHNICAL REPORT. TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY FOR TESTING MATERIALS. OWNER SHALL APPROVE THE AGENCY NOMINATED BY THE CONTRACTOR FOR MATERIALS TESTING.
34. ALL COPIES OF MATERIALS TEST RESULTS SHALL BE SENT TO THE OWNER, ENGINEER AND ARCHITECT DIRECTLY FROM THE TESTING AGENCY.
35. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SHOW, BY THE STANDARD TESTING PROCEDURES OF THE MATERIALS, THAT THE WORK CONSTRUCTED MEETS THE PROJECT REQUIREMENTS AND CITY SPECIFICATIONS.
36. DUE TO THE POTENTIAL FOR DIFFERENTIAL SOIL MOVEMENT ADJACENT TO THE BUILDING, THE CONTRACTOR SHALL ADHERE TO GEOTECHNICAL REPORT'S RECOMMENDATION FOR SUBGRADE PREPARATION SPECIFIC TO FLATWORK ADJACENT TO THE PROPOSED BUILDING. THE OWNER AND CONTRACTOR ARE ADVISED TO OBTAIN A GEOTECHNICAL ENGINEER RECOMMENDATION SPECIFIC TO FLATWORK ADJACENT TO THE BUILDING, IF NONE IS CURRENTLY EXISTING.
37. ALL CONTRACTORS MUST CONFINE THEIR ACTIVITIES TO THE WORK AREA. NO ENCROACHMENTS OUTSIDE OF THE WORK AREA WILL BE ALLOWED. ANY DAMAGE RESULTING THEREFROM SHALL BE CONTRACTOR'S SOLE RESPONSIBILITY TO REPAIR.
38. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, UTILITIES, MANHOLES, POLES, GUY WIRES, VALVES COVERS, VAULT LIDS, FIRE HYDRANTS, COMMUNICATION BOXES/PEDESTALS, AND OTHER FACILITIES TO REMAIN AND SHALL REPAIR ANY DAMAGES AT NO COST TO THE OWNER.
39. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PRIVATE PROPERTY OR PUBLIC IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCES, WALLS, SIGNS, PAVEMENT, CURBS, UTILITIES, SIDEWALKS, GRASS, TREES, LANDSCAPING, AND IRRIGATION OR SYSTEMS ATC... TO ORIGINAL CONDITION OR BETTER AT NO COST TO THE OWNER.
40. ALL AREAS IN EXISTING RIGHT-OF-WAY DISTURBED BY SITE CONSTRUCTION SHALL BE REPAIRED TO ORIGINAL CONDITION OR BETTER, INCLUDING AS NECESSARY GRADING, LANDSCAPING, CULVERTS, AND PAVEMENT.
41. THE CONTRACTOR SHALL SALVAGE ALL EXISTING POWER POLES, SIGNS, WATER VALVES, FIRE HYDRANTS, METERS, ETC... THAT ARE TO BE RELOCATED DURING CONSTRUCTION.
42. CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION, INCLUDING MAINTAINING EXISTING DITCHES OR CULVERTS FREE OF OBSTRUCTIONS AT ALL TIMES.
43. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY.
44. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.
45. SITE SAFETY IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
46. THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THEIR WORK. THE ENGINEER'S SEAL HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF ALL REQUIRED SAFETY PROCEDURES AND PROGRAMS.
47. SIGNS RELATED TO SITE OPERATION OR SAFETY ARE NOT INCLUDED IN THESE PLANS.
48. CONTRACTED OFFICE AND STAGING AREA SHALL BE AGREED ON BY THE OWNER AND CONTRACTOR PRIOR TO BEGINNING OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING REQUIREMENTS FOR THE CONSTRUCTION OFFICE, TRAILER, STORAGE, AND STAGING OPERATIONS AND LOCATIONS.
49. LIGHT POLES, SIGNS, AND OTHER OBSTRUCTIONS SHALL NOT BE PLACED IN ACCESSIBLE ROUTES.
50. ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
51. TOP RIM ELEVATIONS OF ALL EXISTING AND PROPOSED MANHOLES SHALL BE COORDINATED WITH TOP OF PAVEMENT OR FINISHED GRADE AND SHALL BE ADJUSTED TO BE FLUSH WITH THE ACTUAL FINISHED GRADE AT THE TIME OF PAVING.
52. CONTRACTOR SHALL ADJUST ALL EXISTING AND PROPOSED VALVES, FIRE HYDRANTS, AND OTHER UTILITY APPURTENANCES TO MATCH ACTUAL FINISHED GRADES AT THE TIME OF PAVING.
53. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION SEQUENCING AND PHASING, AND SHALL CONTACT THE APPROPRIATE CITY OFFICIALS, INCLUDING BUILDING OFFICIAL, ENGINEERING INSPECTOR, AND FIRE MARSHALL TO LEARN OF ANY REQUIREMENTS.
54. CONTRACTOR IS RESPONSIBLE FOR PREPARATION, SUBMITTAL, AND APPROVAL BY THE CITY OF A TRAFFIC CONTROL PLAN PRIOR TO THE START OF CONSTRUCTION, AND THEN THE IMPLEMENTATION OF THE PLAN.
55. CONTRACTOR SHALL KEEP A NEAT AND ACCURATE RECORD OF CONSTRUCTION, INCLUDING ANY DEVIATIONS OR VARIANCES FROM THE PLANS.
56. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT PLANS TO THE ENGINEER AND CITY IDENTIFYING ALL DEVIATIONS AND VARIATIONS FROM THESE PLANS MADE DURING CONSTRUCTION.

EROSION CONTROL:

1. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL AND WATER QUALITY REQUIREMENTS, LAWS, AND ORDINANCES THAT APPLY TO THE CONSTRUCTION SITE LAND DISTURBANCE.
2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE "TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000".
3. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF LAND DISTURBANCE.
4. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE PROJECT.
5. CONTRACTOR IS SOLELY RESPONSIBLE FOR INSTALLATION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL EROSION CONTROL DEVICES, BEST MANAGEMENT PRACTICES (BMPS), AND FOR UPDATING THE EROSION CONTROL PLAN DURING CONSTRUCTION AS FIELD CONDITIONS CHANGE.
6. CONTRACTOR SHALL DOCUMENT THE DATES OF INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL FOR EACH BMP EMPLOYED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE
7. AS STORM SEWER INLETS ARE INSTALLED ON-SITE, TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AT EACH INLET PER APPROVED DETAILS.
8. THE EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL THE AREA IT PROTECTS HAS BEEN PERMANENTLY STABILIZED.
9. CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL DEVICES NEEDED DUE TO PROJECT PHASING.
10. CONTRACTOR SHALL OBSERVE THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND MAKE FIELD ADJUSTMENTS AND MODIFICATIONS AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE. IF THE EROSION CONTROL DEVICES DO NOT EFFECTIVELY CONTROL EROSION AND PREVENT SEDIMENTATION FROM WASHING OFF THE SITE, THEN THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
11. OFF-SITE SOIL BORROW, SPOIL, AND STORAGE AREAS (IF APPLICABLE) ARE CONSIDERED AS PART OF THE PROJECT SITE AND MUST ALSO COMPLY WITH THE EROSION CONTROL REQUIREMENTS FOR THIS PROJECT. THIS INCLUDES THE INSTALLATION OF BMPS TO CONTROL EROSION AND SEDIMENTATION AND THE ESTABLISHMENT OF PERMANENT GROUND COVER ON DISTURBED AREAS PRIOR TO FINAL APPROVAL OF THE PROJECT. CONTRACTOR IS RESPONSIBLE TO MODIFY THE SWPPP AND EROSION CONTROL PLAN TO INCLUDE BMPS FOR ANY OFF-SITE THAT ARE NOT ANTICIPATED OR SHOWN ON THE EROSION CONTROL PLAN.
12. ALL STAGING, STOCKPILES, SPOIL, AND STORAGE SHALL BE LOCATED SUCH THAT THEY WILL NOT ADVERSELY AFFECT STORM WATER QUALITY. PROTECTIVE MEASURES SHALL BE PROVIDED IF NEEDED TO ACCOMPLISH THIS REQUIREMENT, SUCH AS COVERING OR ENCIRCLING THE AREA WITH AN APPROPRIATE BARRIER.
13. CONTRACTORS SHALL INSPECT ALL EROSION CONTROL DEVICES, BMPS, DISTURBED AREAS, AND VEHICLE ENTRY AND EXIT AREAS WEEKLY AND WITHIN 24 HOURS OF ALL RAINFALL EVENTS OF 0.5 INCHES OR GREATER, AND KEEP A RECORD OF THIS INSPECTION IN THE SWPPP BOOKLET IF APPLICABLE, TO VERIFY THAT THE DEVICES AND EROSION CONTROL PLAN ARE FUNCTIONING PROPERLY.
14. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS IN ACCORDANCE WITH CITY SPECIFICATIONS. CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION TRAFFIC USES THE STABILIZED ENTRANCE AT ALL TIMES FOR ALL INGRESS/EGRESS.
15. SITE ENTRY AND EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING AND FLOWING OF SEDIMENT AND DIRT ONTO OFF-SITE ROADWAYS. ALL SEDIMENT AND DIRT FROM THE SITE THAT IS DEPOSITED ONTO AN OFF-SITE ROADWAY SHALL BE REMOVED IMMEDIATELY.
16. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT AND DEBRIS FROM THE AFFECTED OFF-SITE ROADWAYS THAT ARE A RESULT OF THE CONSTRUCTION, AS REQUESTED BY OWNER AND CITY. AT A MINIMUM, THIS SHOULD OCCUR ONCE PER DAY FOR THE OFF-SITE ROADWAYS.
17. WHEN WASHING OF VEHICLES IS REQUIRED TO REMOVE SEDIMENT PRIOR TO EXITING THE SITE, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP BMP.
18. CONTRACTOR SHALL INSTALL A TEMPORARY SEDIMENT BASIN FOR ANY ON-SITE DRAINAGE AREAS THAT ARE GREATER THAN 10 ACRES, PER TCEQ AND CITY STANDARDS. IF NO ENGINEERING DESIGN HAS BEEN PROVIDED FOR A SEDIMENTATION BASIN ON THESE PLANS, THEN THE CONTRACTOR SHALL ARRANGE FOR AN APPROPRIATE DESIGN TO BE PROVIDED.
19. ALL FINES IMPOSED FOR SEDIMENT OR DIRT DISCHARGED FROM THE SITE SHALL BE PAID BY THE RESPONSIBLE CONTRACTOR.
20. WHEN SEDIMENT OR DIRT HAS CLOGGED THE CONSTRUCTION ENTRANCE, VOID SPACES BETWEEN STONES OR DIRT IS BEING TRACKED ONTO A ROADWAY, THE AGGREGATE PAD MUST BE WASHED DOWN OR REPLACED. RUNOFF FROM THE WASH-DOWN OPERATION SHALL NOT BE ALLOWED TO DRAIN DIRECTLY OFF SITE WITHOUT FIRST FLOWING THROUGH ANOTHER BMP TO CONTROL SEDIMENTATION. PERIODIC RE-GRADING OR NEW STONE MAY BE REQUIRED TO MAINTAIN THE EFFECTIVENESS OF THE CONSTRUCTION ENTRANCE.
21. TEMPORARY SEEDING OR OTHER APPROVED STABILIZATION SHALL BE INITIATED WITHIN 14 DAYS OF THE LAST DISTURBANCE OF ANY AREA, UNLESS ADDITIONAL CONSTRUCTION IN THE AREA IS EXPECTED WITHIN 21 DAYS OF THE LAST DISTURBANCE.
22. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION, ALWAYS CLEANING UP DIRT, LOOSE MATERIAL, AND TRASH AS CONSTRUCTION PROGRESSES.
23. UPON COMPLETION OF FINE GRADING, ALL SURFACES OF DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED. STABILIZATION IS ACHIEVED WHEN THERE IS EITHER SEVERE, PERMANENT IMPERVIOUS STRUCTURES, SUCH AS BUILDINGS, SIDEWALK, PAVEMENT, OR A UNIFORM PERENNIAL VEGETATIVE COVER.
24. AT THE CONCLUSION OF THE PROJECT, ALL INLETS, DRAIN PIPE, CHANNELS, DRAINAGEWAYS AND BORROW DITCHES AFFECTED BY THE CONSTRUCTION SHALL BE DREDGED, AND THE SEDIMENT GENERATED BY THE PROJECT SHALL BE REMOVED AND DISPOSED IN ACCORDANCE WITH APPLICABLE REGULATIONS.

STORM WATER DISCHARGE AUTHORIZATION:

1. CONTRACTOR SHALL COMPLY WITH ALL TCEQ AND EPA STORM WATER POLLUTION PREVENTION REQUIREMENTS.
2. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE TCEQ GENERAL PERMIT TO DISCHARGE UNDER THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM TXR 150000.
3. THE CONTRACTOR SHALL ENSURE THAT ALL PRIMARY OPERATORS SUBMIT A NOI TO TCEQ AT LEAST SEVEN DAYS PRIOR TO COMMENCING CONSTRUCTION (IF APPLICABLE), OR IF UTILIZING ELECTRONIC SUBMITTAL PRIOR TO COMMENCING CONSTRUCTION. ALL PRIMARY OPERATORS SHALL PROVIDE A COPY OF THE SIGNED NOI TO THE OPERATOR OF ANY MS4 (TYPICALLY THE CITY) RECEIVING DISCHARGE FROM THE SITE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE, INCLUDING POSTING SITE NOTICE, INSPECTIONS, DOCUMENTATION, AND SUBMISSION OF ANY INFORMATION REQUIRED BY THE TCEQ AND EPA (E.G. NOI).
5. ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN THE REQUIRED CONTRACTOR CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP.
6. A COPY OF THE SWPPP, INCLUDING NOI, SITE NOTICE, CONTRACTOR CERTIFICATIONS, AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY BY THE CONTRACTOR AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION.
7. A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO TCEQ BY ANY PRIMARY OPERATOR WITHIN 30 DAYS AFTER ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES, A TRANSFER OF OPERATIONAL CONTROL OR THE CONTRACTOR HAS OBTAINED ALTERNATIVE AUTHORIZATION UNDER A DIFFERENT PERMIT. A COPY OF THE NOT SHALL BE PROVIDED TO THE OPERATOR OF ANY MS4 RECEIVING DISCHARGE FROM THE SITE.

DEMOLITION:

1. KH IS NOT RESPONSIBLE FOR THE MEANS AND METHODS EMPLOYED BY THE CONTRACTOR TO IMPLEMENT THIS DEMOLITION PLAN. THIS PRELIMINARY DEMOLITION PLAN SIMPLY INDICATES THE KNOWN OBJECTS ON THE SUBJECT TRACT THAT ARE TO BE DEMOLISHED AND REMOVED FROM THE SITE.
2. KH DOES NOT WARRANT OR REPRESENT THAT THE PLAN, WHICH WAS PREPARED BASED ON SURVEY AND UTILITY INFORMATION PROVIDED BY OTHERS, SHOWS ALL IMPROVEMENTS AND UTILITIES, THAT THE IMPROVEMENTS AND UTILITIES ARE SHOWN ACCURATELY, OR THAT THE UTILITIES SHOWN CAN BE REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ITS OWN SITE RECONNAISSANCE TO SCOPE ITS WORK AND TO CONFIRM WITH THE OWNERS OF IMPROVEMENTS AND UTILITIES THE EXTENT AND PROCESS FOR THE REMOVAL OF THEIR FACILITIES.
3. THIS PLAN IS INTENDED TO BE A GENERAL GUIDE TO THE CONTRACTOR, NOTHING MORE. THE GOAL OF THE DEMOLITION IS TO LEAVE THE SITE IN A STATE SUITABLE FOR THE CONSTRUCTION OF THE PROPOSED DEVELOPMENT. REMOVAL OR PRESERVATION OF IMPROVEMENTS, UTILITIES, ETC. TO ACCOMPLISH THIS GOAL ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. CONTRACTOR IS STRONGLY CAUTIONED TO REVIEW THE FOLLOWING REPORTS DESCRIBING SITE CONDITIONS PRIOR TO BIDDING AND IMPLEMENTING THE DEMOLITION PLAN:
   a. ENVIRONMENTAL SITE ASSESSMENT PROVIDED BY THE OWNER,
   b. ASBESTOS BUILDING INSPECTION REPORT(S) PROVIDED BY THE OWNER,
   c. GEOTECHNICAL REPORT PROVIDED BY THE OWNER.
   d. OTHER REPORTS THAT ARE APPLICABLE AND AVAILABLE.
5. CONTRACTOR SHALL CONTACT THE OWNER TO VERIFY WHETHER ADDITIONAL REPORTS OR AMENDMENTS TO THE ABOVE CITED REPORTS HAVE BEEN PREPARED AND TO OBTAIN/REVIEW/AND COMPLY WITH THE RECOMMENDATION OF SUCH STUDIES PRIOR TO STARTING ANY WORK ON THE SITE.
6. CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS REGARDING THE DEMOLITION OF OBJECTS ON THE SITE AND THE DISPOSAL OF THE DEMOLISHED MATERIALS OFF-SITE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVIEW THE SITE, DETERMINE THE APPLICABLE REGULATIONS, AND RECEIVE THE REQUIRED PERMITS AND AUTHORIZATIONS, AND COMPLY.
7. KH DOES NOT REPRESENT THAT THE REPORTS AND SURVEYS REFERENCED ABOVE ARE ACCURATE, COMPLETE, OR COMPREHENSIVE SHOWING ALL ITEMS THAT WILL NEED TO BE DEMOLISHED AND REMOVED.
8. SURFACE PAVEMENT INDICATED MAY OVERLAY OTHER HIDDEN STRUCTURES, SUCH AS ADDITIONAL LAYERS OF PAVEMENT, FOUNDATIONS OR WALLS, THAT ARE ALSO TO BE REMOVED.

GRADING:

1. THE CONTRACTOR AND GRADING SUBCONTRACTOR SHALL VERIFY THE SUITABILITY OF EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE START OF CONSTRUCTION. THE CIVIL ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL OBTAIN ANY REQUIRED GRADING PERMITS FROM THE CITY.
3. UNLESS OTHERWISE NOTED, PROPOSED CONTOURS AND SPOT ELEVATIONS SHOWN IN PAVED AREA REFLECT TOP OF PAVEMENT SURFACE. IN LOCATIONS ALONG A CURB LINE, ADD 6-INCHES (OR THE HEIGHT OF THE CURB) TO THE PAVING GRADE F

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT-OF-WAY

EAST CENTRAL ISD
CALLED 24.93 ACRES

LENNAR HOMES OF TEXAS LAND & CONSTRUCTION LTD
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SYMA PHILLIP MARTIN & SYMA MELONIE WRIGHT
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SLATTERY SHAWN & SANDRA
CALLED 38.39 ACRES

BOWERS STACY K & MIRIAM D
CALLED 15.00 ACRES

MEDINA ROBERT & CHRISTINA
CALLED 5.03 ACRES

TIMOTHY K. BOWERS
CALLED 17.00 ACRES
DOC. NO. 20040180591, OPRBC

BOWERS TRACY K & RACHEL I
CALLED 24.00 ACRES

TRAVIS PAWLIK AND WIFE, APRIL PAWLIK
CALLED 1.781 ACRES
DOC. NO. 20090073652, OPRBC

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTI
CALLED 173.47 ACRES
DOC. NO. 20210340817, OPRBC

MDP #21111000013

BLUE JADEITE

GARDENBLOOM LN

HANGING BASKET

SUNCREST CT

PURPLE LILAC

JUNEPINE CV

GREENBEAN PASS

GARDNER RD

10' GAS, ELEC., TELE., CATV., ESMT.

LOTS 2-5, CB 5192
SCHELL SUBDIVISION UNIT 1
VOL. 7500, PG. 116-117, DPRBC

CEDRIAL GEMBLER
CALLED 2.87 ACRES
DOC. NO. 20090054371, OPRBC

CATHERINE BITTLE
CALLED 1.00 ACRES
VOL. 1009, PG. 975, OPRBC

JAN & DOUG MORRISH
CALLED 11.00 ACRES
DOC. NO. 20120111282, OPRBC

MARGARET FRANCES SCHWARZKOPF AND HUSBAND ALLEN SCHWARKOPF
CALLED 8.857 ACRES
DOC. NO. 20150116905, OPRBC

THOMAS M. BAIRD AND WIFE, LAURIE BAIRD
CALLED 2.00 ACRES
VOL. 3443, PG. 983, DRBC

JOHN W. CHAPKO, JR.
CALLED 5.23 ACRES
DOC. NO. 20220291026, OPRBC
(VOL. 8789, PG. 1373, OPRBC)

DORIS E. TOWNSEND
CALLED 24.52 ACRES
VOL. 8716, PG. 1022, OPRBC

NORTH

GRAPHIC SCALE IN FEET
0 100 200 400

LEGEND

	PROPERTY LINE
W	PROPOSED WATER LINE
W	EXISTING WATER LINE
UGE	UNDERGROUND ELECTRIC
GAS	UNDERGROUND GAS
	PROPOSED STORM DRAIN LINE
	PROPOSED FIRE HYDRANT
	UTILITY CROSSING
	PROPOSED GATE VALVE
	PROPOSED WATER STUB
	PROPOSED SINGLE WATER SERVICE
	PROPOSED DOUBLE WATER SERVICE
	PROPOSED WATER METER
	PROPOSED STREET LIGHT

NOTES

1. REFER TO SAWS DESIGN GUIDELINES AND STANDARD CONSTRUCTION DETAILS FOR ALL UTILITY STANDARDS.
2. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTACT ENGINEER IF FIELD CONDITIONS VARY.
3. CONTRACTOR SHALL REFER AND ADHERE TO ALL TCEQ DESIGN GUIDELINES (CHAPTER 217 AND 290) FOR ALL UTILITY CROSSING REQUIREMENTS.
4. REFERENCE WATER NOTES ON SHEETS C6.0 FOR ADDITIONAL REQUIREMENTS.

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BENCHMARK LIST

BM #100
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 42'± FROM EAST RIGHT-OF-WAY OF BORGFIELD DRIVE AND BEING APPROXIMATELY 706' NORTHWEST FROM A POWER POLE AND APPROXIMATELY 3,025'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 547.04'

BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

Kimley»Horn
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10101 REUNION PLACE, SUITE 400, SAN ANTONIO TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	KJH
CHECKED BY	

VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

OVERALL UTILITY PLAN

SHEET NUMBER
C1.2

Plotted By:Heasley, Kara March 04, 2025 06:30:26pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheets\C-UTIL.dwg
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SITE DATA

TOTAL LOT AREA	7.012 AC	305,443 SF
TOTAL AREA DISTURBED *	48.29 AC	2,103,743 SF
PAVED AREA	3.248 AC	141,510 SF
ROOFED AREA	1.825 AC	79,484 SF
NEW LANDSCAPED AREA	1.575 AC	68,611 SF
PRE-DEVELOPMENT RUNOFF COEFFICIENT		0.72
POST-DEVELOPMENT RUNOFF COEFFICIENT		0.62

* DOES NOT INCLUDE ANY OFF-SITE DISPOSAL OR BORROW AREAS - CONTRACTOR TO UPDATE AS NECESSARY DURING CONSTRUCTION.

* NO SINGLE DRAINAGE AREA EXCEEDS 10 ACRES, THEREFORE SEDIMENTATION BASIN IS NOT REQUIRED.

EROSION CONTROL SCHEDULE AND SEQUENCING

I.	ROUGH GRADING/ DEMOLITION	CONSTRUCTION ENTRANCE/EXIT, TREE PROTECTION, FILTER DAMS AND SILT FENCE PROTECTION SHALL BE INSTALLED PRIOR TO THE INITIATION OF ROUGH GRADING, AS NEEDED.
II.	UTILITY INSTALLATION	ALL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS NECESSARY DURING UTILITY INSTALLATION.
III.	PAVING	ALL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS NECESSARY DURING PAVING AND THROUGHOUT THE REMAINDER OF THE PROJECT.
IV.	FINAL GRADING/ SOIL STABILIZATION/ LANDSCAPING	ALL TEMPORARY EROSION CONTROL MEASURES TO BE REMOVED AT THE CONCLUSION OF THE PROJECT AS DIRECTED BY THE CITY OR COUNTY.

NOTES

1. AREAS CONTAINED WITHIN THE PROPERTY BOUNDARIES WILL BE AREAS OF DISTURBANCE AND SOIL STABILIZATION. ALL SOILS WITHIN THESE LIMITS SHALL BE STABILIZED BY VEGETATION OR STRUCTURE.
2. REFERENCE LANDSCAPE PLANS, BY OTHERS, FOR THE TREE PRESERVATION AND MITIGATION PLAN.
3. NO CONSTRUCTION AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF EXISTING FLOODPLAIN.
4. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT-OF-WAY.

PERMANENT STABILIZATION

1. PREPARE THE SEEDBED PER MANUFACTURER'S RECOMMENDATIONS.
2. THE AREAS TO RECEIVE SEED MIXES AS DELINEATED ON THE DRAWINGS SHALL BE FROM HYDROSEED. COORDINATE HYDROSEED MIX WITH SEED SUPPLIERS CURRENT RECOMMENDATION BY APPLICATION AND SLOPE ASPECT.
3. PERMANENT STABILIZATION SEED MIX:
   FROM SEPTEMBER 1 TO MARCH 1, 1 POUND PER 1,000 SQUARE FEET OF UNHULLED BERMUDA
   FROM MARCH 2 TO AUGUST 31, 1 POUND PER 1,000 SQUARE FEET OF HULLED BERMUDA

NORTH

GRAPHIC SCALE IN FEET
0 100 200 400

LEGEND

- PROPERTY BOUNDARY
- 900 EXISTING CONTOUR
- 900 PROPOSED CONTOUR
- (LD) PROPOSED LIMITS OF DISTURBANCE
- (GF) GRAVEL FILTER BAGS (SEE DETAIL SHEET C1.4)
- DIRECTION OF OVERLAND FLOW W/GRADE
- SF (SF) SILT FENCE (SEE DETAIL SHEET C1.4)
- (CE) CONSTRUCTION ENTRANCE (SEE DETAIL SHEET C1.4)
- (RB) ROCK BERM (SEE DETAIL SHEET C1.4)
- PERMANENT STABILIZATION. SEE NOTE 1
- CONCRETE WASHOUT
- TP TREE PROTECTION (SEE DETAIL SHEET C1.4)
- EXISTING TREE TO REMAIN

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STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED
PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY KJH
CHECKED BY

EROSION CONTROL PLAN

VISTA GARDENS PH 1

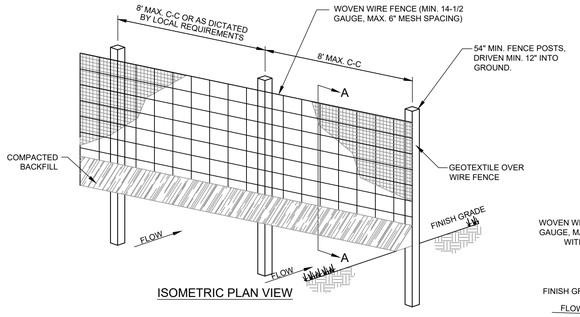
PREPARED FOR
M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ TEXAS

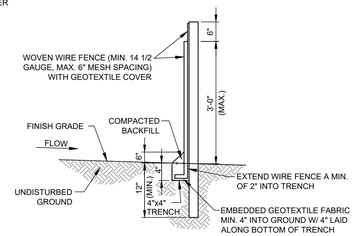
SHEET NUMBER
C1.3

Plotted By: Hartley, Kara March 04, 2025 06:36:53pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheet\LC-EROS.dwg
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SILT FENCE DETAIL — C2



ISOMETRIC PLAN VIEW



CROSS SECTION A-A

NOTE:
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES.
2. GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF GEOTEXTILE ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED TO NEXT POST. 8' MAX.
4. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE SWPPP.
5. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. ALL SILT FENCE SHALL INCLUDE WIRE SUPPORT UNLESS INDICATED OTHERWISE.
7. PROVIDE A DOUBLE ROW WHERE SHOWN ON THE PLAN. MAINTAIN 2.5' BETWEEN ROWS.

POSTS: STEEL EITHER T OR U TYPE.
FENCE: WOVEN WIRE, 14-1/2 GA. 6" MAX. MESH OPENING
FABRIC: 1. AMOCO 1198
2. BELTECH 810
3. MIRAFI 130X
4. LING GTF 190
5. SI 915 SC

CONCRETE WASHOUT — C3

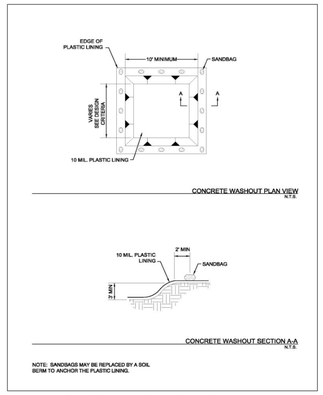
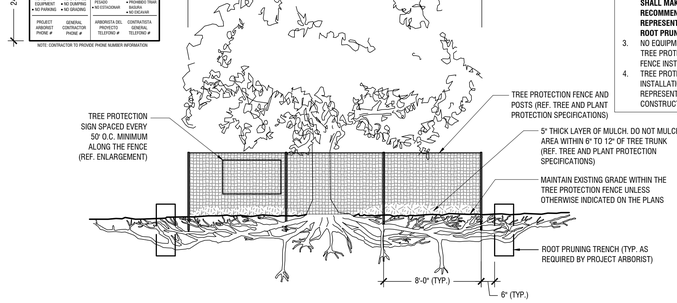


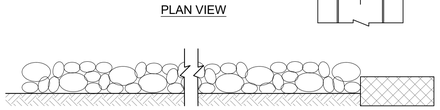
Figure 4.1 Schematics of Concrete Washout Containment

TREE PROTECTION DETAIL — B2



NOTES:
1. SEE TREE AND PLANT PROTECTION SPECIFICATIONS FOR WATERING AND OTHER ADDITIONAL REQUIREMENTS.
2. **ALL TREE AND ROOT PRUNING SHALL BE PERFORMED UNDER THE SUPERVISION OF AN I.S.A. CERTIFIED ARBORIST. ARBORIST SHALL MAKE ALL FINAL ROOT PRUNING RECOMMENDATIONS TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO ROOT PRUNING OPERATIONS.**
3. NO EQUIPMENT SHALL OPERATE INSIDE THE TREE PROTECTION FENCE INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
4. TREE PROTECTION FENCE LAYOUT AND INSTALLATION TO BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO ANY CONSTRUCTION ACTIVITY.

STABILIZED CONSTRUCTION ENTRANCE — B3



PLAN VIEW

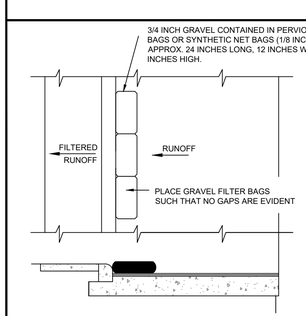
PROFILE VIEW

NOTES:
1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK OR ACCEPTABLE CRUSHED PORTLAND CEMENT CONCRETE.
2. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 20 FEET FOR LOTS WHICH ARE LESS THAN 150 FEET FROM EDGE OF PAVEMENT. THE MINIMUM DEPTH IN ALL OTHER CASES SHALL BE 50 FEET.
3. STONE LAYER THICKNESS SHALL NOT BE LESS THAN 6
4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS. INCHES.
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

Table 3.9 Minimum Exit Dimensions

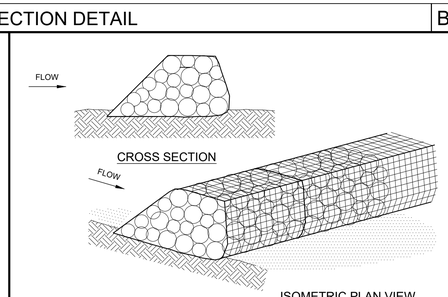
Disturbed Area	Min. Width of Exit	Min. Length of Exit
< 1 Acre	15 feet	20 feet
≥ 1 Acre but < 5 Acres	25 feet	50 feet
≥ .5 Acres	30 feet	50 feet

GRAVEL FILTER BAGS — A1



NOTES:
STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TYPE "A" FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

ROCK BERM SECTION — A3



ISOMETRIC PLAN VIEW

NOTE:
1. ROCK BERM SHALL BE A MINIMUM OF 2 FEET TALL.
2. USE ONLY OPEN GRADED ROCK 4-8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3-5 INCHES IN DIAMETER FOR OTHER CONDITIONS.
3. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.
4. THE ROCK BERM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EACH 1/2" RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTEDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
5. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.
7. ROCK BERM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.

SITE MAPS - SITE SPECIFIC NOTES

1. CONSTRUCTION ENTRANCE SHALL BE LOCATED SO AS TO PROVIDE THE LEAST AMOUNT OF DISTURBANCE TO THE FLOW OF TRAFFIC IN AND OUT OF THE SITE. ADDITIONALLY, CONSTRUCTION ENTRANCE SHALL BE LOCATED TO COINCIDE WITH THE PHASING OF THE PAVEMENT REPLACEMENT.
2. THE NATURE OF THIS SITE'S CONSTRUCTION CONSISTS OF:
   A. CLEARING AND GRUBBING
   B. PRELIMINARY GRADING
   C. UTILITY INSTALLATION
   D. PAVEMENT CONSTRUCTION
   E. BUILDING CONSTRUCTION
   F. FINAL GRADING AND STABILIZATION
3. THE SUBSURFACE CONDITIONS ON-SITE CONSIST GENERALLY OF XXXXX PER REPORT NO. XXXX, PREPARED BY XXXX ON XXXXXX.
4. STORM WATER ON-SITE WILL LEAVE THE SITE VIA SURFACE FLOW AND UNDERGROUND PIPE.
5. POST CONSTRUCTION STORM WATER POLLUTION CONTROL MEASURES INCLUDE STABILIZATION BY PERMANENT PAVING, OR LANDSCAPING.
6. VELOCITY DISSIPATION DEVICES (RIP-RAP) WILL BE USED.
7. DISTURBED PORTIONS OF SITE MUST BE STABILIZED. STABILIZATION PRACTICES MUST BE INITIATED WITHIN 14 DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION HAS BEEN EITHER TEMPORARILY OR PERMANENTLY CEASED, UNLESS EXCEPTED WITHIN THE TPDES PERMIT. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF STABILIZATION OR PERMANENT DRAINAGE FACILITIES.
8. ACCORDING TO COMMUNITY PANEL NO. 48029C0605G, DATED 7/19/2023 OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM), THE SITE IS LOCATED WITHIN UNSHADED ZONE X DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."
9. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP/SITE MAP TO INCLUDE BMP'S FOR ANY OFF-SITE MATERIAL WASTE, BORROW OR EQUIPMENT STORAGE AREAS.
10. CONTRACTOR SHALL INSPECT DISTURBED AREAS, MATERIAL STORAGE AREAS EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND VEHICLE ENTRY AND EXIT AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER.

SITE MAP - GENERAL NOTES

1. CONTRACTOR IS SOLELY RESPONSIBLE FOR SELECTION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL SWPPP CONTROLS - CONTROLS SHOWN ON THIS SITE MAP ARE SUGGESTED CONTROLS ONLY.
2. CONTRACTOR SHALL RECORD INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL DATES FOR EACH BMP EMPLOYED (WHETHER CALLED OUT ON ORIGINAL SWPPP OR NOT) DIRECTLY ON THE SITE MAP.
3. DRAINAGE PATTERNS ARE SHOWN ON THIS PLAN BY PROPOSED AND EXISTING CONTOURS, FLOW ARROWS, AND SLOPES.
4. TEMPORARY AND PERMANENT STABILIZATION PRACTICES AND BMP'S SHALL BE INSTALLED AT THE EARLIEST POSSIBLE TIME DURING THE CONSTRUCTION SEQUENCE. AS AN EXAMPLE, PERIMETER SILT FENCE SHALL BE INSTALLED BEFORE COMMENCEMENT OF ANY GRADING ACTIVITIES. OTHER BMP'S SHALL BE INSTALLED AS SOON AS PRACTICABLE AND SHALL BE MAINTAINED UNTIL FINAL SITE STABILIZATION IS ATTAINED. CONTRACTOR SHALL ALSO REFERENCE CIVIL AND LANDSCAPE PLANS SINCE PERMANENT STABILIZATION IS PROVIDED BY LANDSCAPING, THE BUILDING(S), AND SITE PAVING.
5. BMP'S HAVE BEEN LOCATED AS INDICATED ON THIS PLAN IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES IN ORDER TO MINIMIZE SEDIMENT TRANSFER. FOR EXAMPLE: SILT FENCES LOCATED AT TOE OF SLOPE AND INLET PROTECTION FOR INLETS RECEIVING SEDIMENT FROM SITE RUN-OFF.
6. SANITARY SEWER EFFLUENT IS DISPOSED OF VIA AN ONSITE SEWER SYSTEM CONNECTED TO A MUNICIPAL SEWER SYSTEM.

TEMPORARY EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.
3. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.
4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND ENVIRONMENTAL INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.
5. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST, OR ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY THE PLANNING AND DEVELOPMENT DEPARTMENT AND THE DRAINAGE UTILITY DEPARTMENT. MINOR CHANGES OR ADDITIONAL CONTROL MEASURES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.

PERMANENT EROSION CONTROL NOTES

ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW.

A. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL SHALL BE PLACED IN ALL DRAINAGE CHANNELS (EXCEPT ROCK) AND BETWEEN THE CURB AND THE RIGHT-OF-WAY LINE.

B. THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS FOLLOWS:

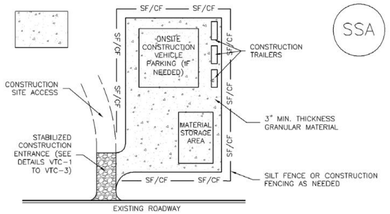
BROADCAST SEEDING:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 2 POUNDS PER 1000 SQUARE FEET OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SQUARE FOOT OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET WITH A PURITY OF 95% WITH 85% GERMINATION.
   A. FERTILIZER SHALL BE A PELLETED OR GRANULAR SLOW RELEASE WITH AN ANALYSIS OF 15-15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT THE RATE OF 1 POUND PER 1000 SQUARE FEET.
   B. MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1000 SQUARE FEET.

HYDRAULIC SEEDING:

1. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 1 POUND PER 1000 SQUARE FEET OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SQUARE FOOT OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
2. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SQUARE FEET WITH A PURITY OF 95% WITH 85% GERMINATION.
   A. FERTILIZER SHALL BE A WATER SOLUBLE FERTILIZER WITH AN ANALYSIS OF 15-15-15 AT THE RATE OF 1.5 POUNDS PER 1000 SQUARE FEET.
   B. MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1000 SQUARE FEET, WITH SOIL TACKIFIER AT A RATE OF 1.4 POUNDS PER 1000 SQUARE FEET.
   C. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX (6) INCHES. THE IRRIGATION SHALL OCCUR AT TEN-DAY INTERVALS DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF 1/2 INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK.
   D. RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1-1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST.
   E. WHEN REQUIRED, NATIVE GRASS SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE ENVIRONMENTAL CRITERIA MANUAL.

Stabilized Staging Area (SSA) SM-6



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF STAGING AREA(S).
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. §703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

Know what's below. Call before you dig.

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BENCHMARK LIST

BM #100
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BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

No.	REVISIONS	DATE	BY

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10101 REUNION PLACE, SUITE 400, SAN ANTONIO TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

EROSION CONTROL DETAILS

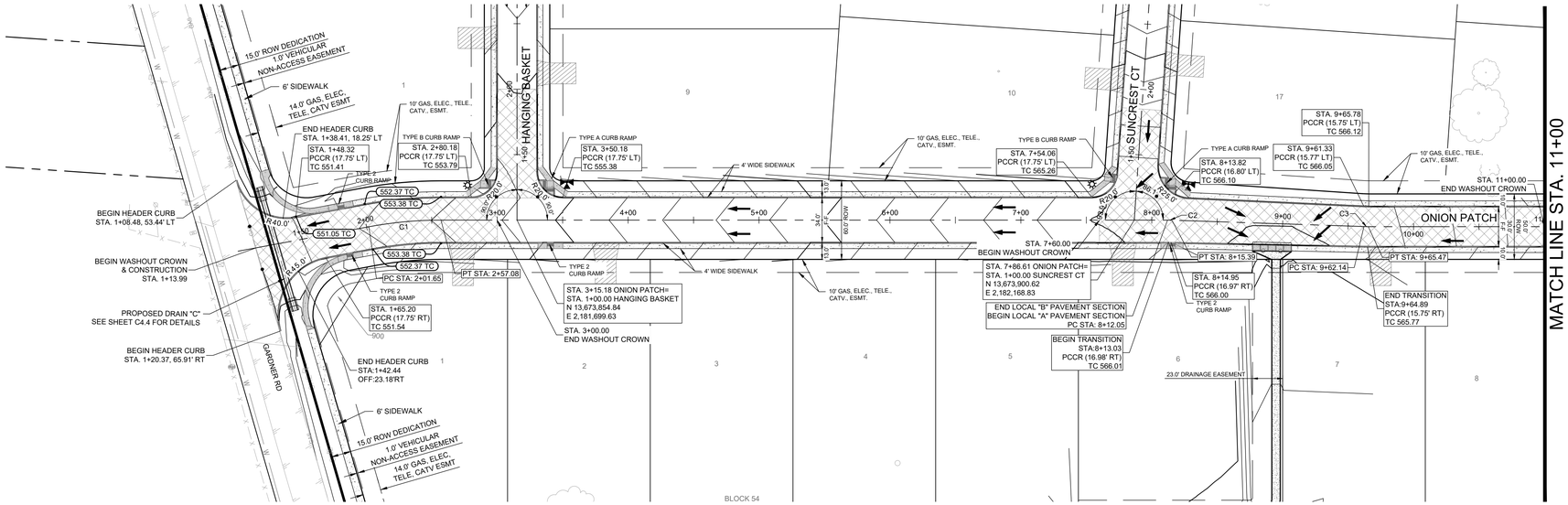
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C1.4

LAND-PLAT-24-11800462

Plotted By:Hensley, Kara March 04, 2025 06:38:32pm K:\SNA_Civil\068687804-MI Homes- Vista Gardens (Gardner) Phase 1\CAD\PlanSheet\C-EROS_DETAILS.dwg
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CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C1	300.00'	55.42'	N79°08'05"E	55.35'	10°35'07"	27.79'
C2	990.32'	4.16'	N85°11'29"E	4.16'	0°14'27"	2.08'
C3	100.00'	3.33'	N85°22'55"E	3.33'	1°54'33"	1.67'



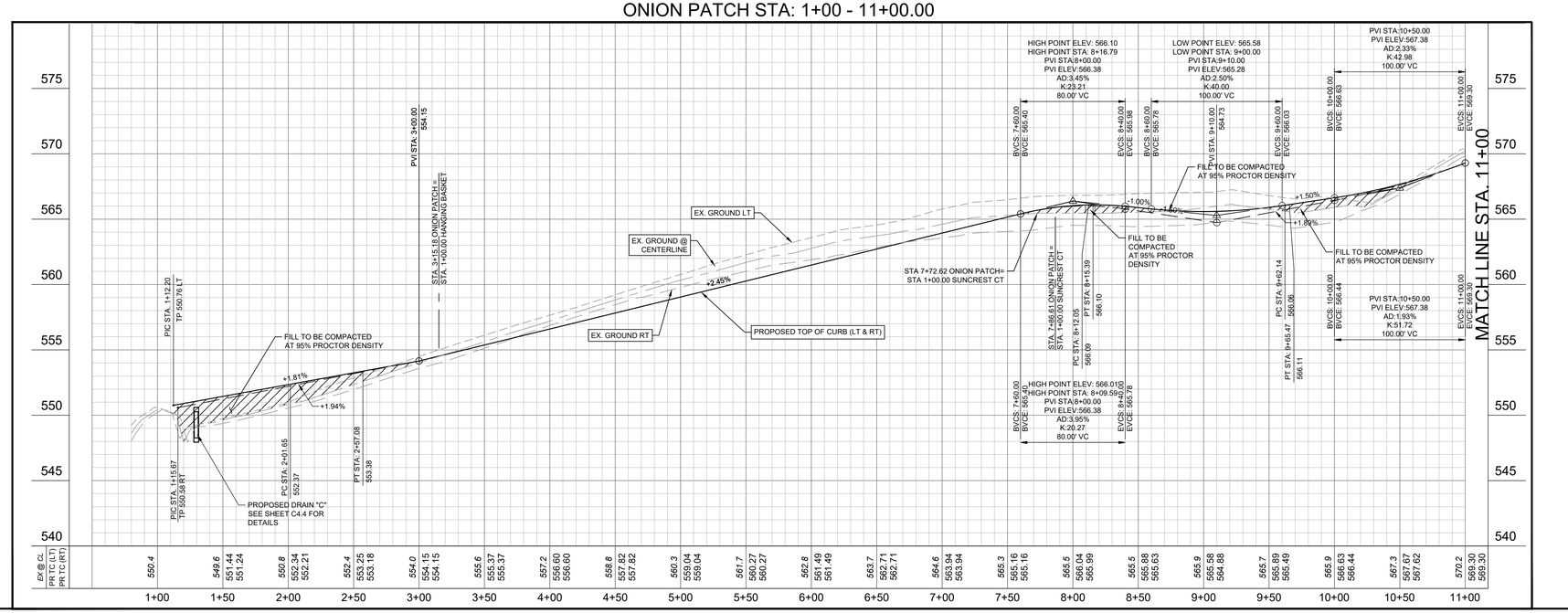
NORTH

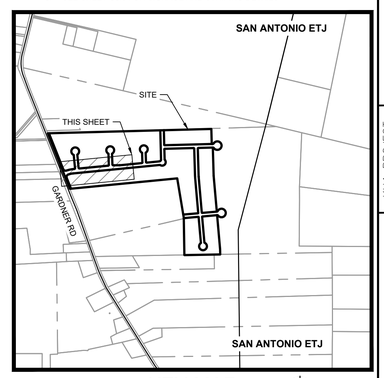
GRAPHIC SCALE IN FEET
0 25 50 100

LEGEND

- RIGHT-OF-WAY LINE
- CENTER LINE
- WASHOUT CROWN SECTION
- SIDEWALK TO BE BUILT BY DEVELOPER
- STREET DRAINAGE FLOW DIRECTION
- (1370.00) PAVEMENT SPOT ELEVATION
- PC — POINT OF CURVATURE
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KEY MAP
SCALE: 1" = 1000'

PROFILE SCALE
1" = 50' HORIZONTAL
1" = 5' VERTICAL

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

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STATE OF TEXAS
KARA J. HEASLEY
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LICENSED PROFESSIONAL ENGINEER
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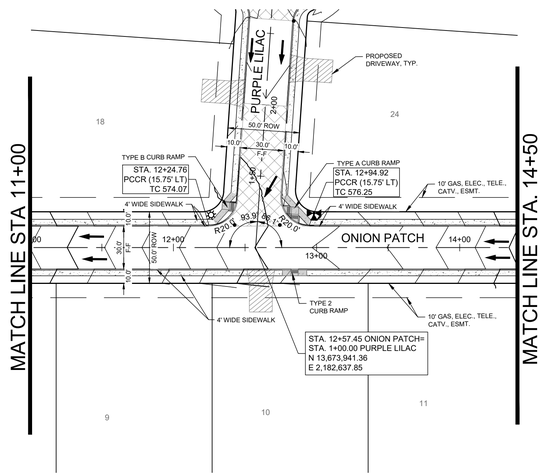
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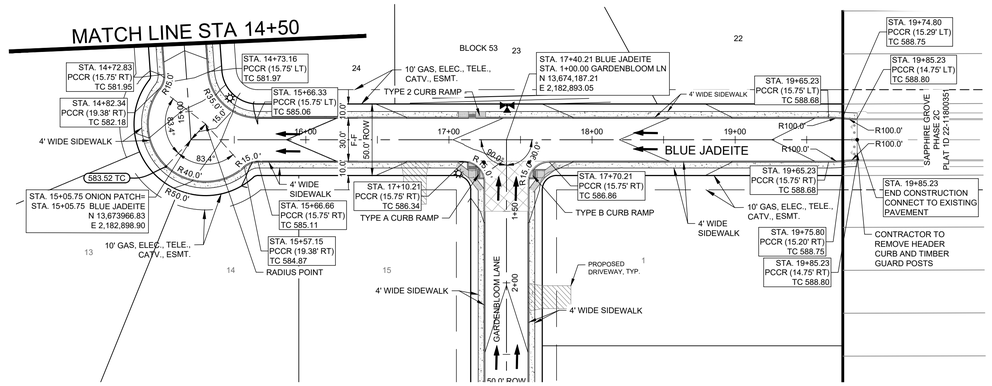
ONION PATCH PLAN & PROFILE (1+00 TO 11+00)

SHEET NUMBER
C2.1

Plotted By:Hensley, Kara March 04, 2025 06:48:43pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlotSheet\C-ROAD.dwg
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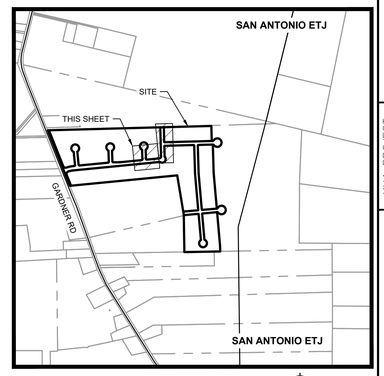


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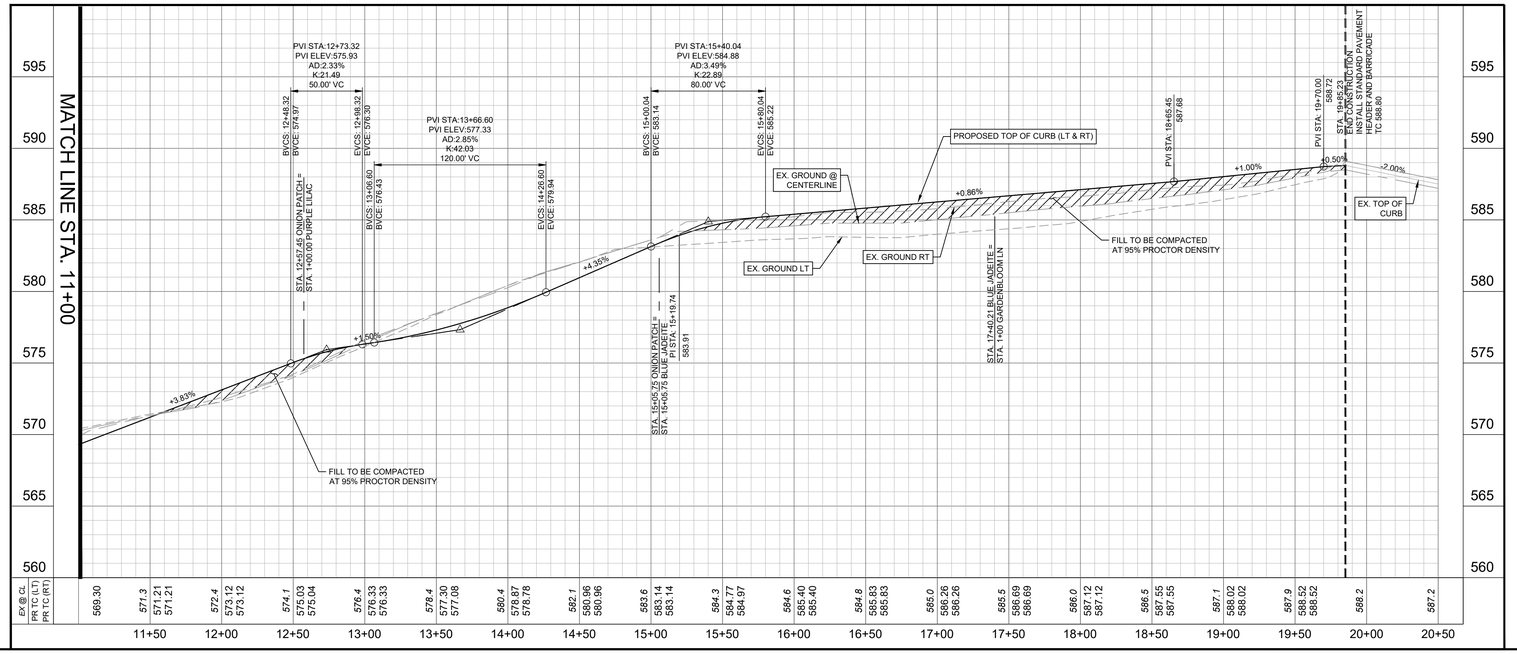
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ONION PATCH & BLUE JADEITE 11+00.00 - END



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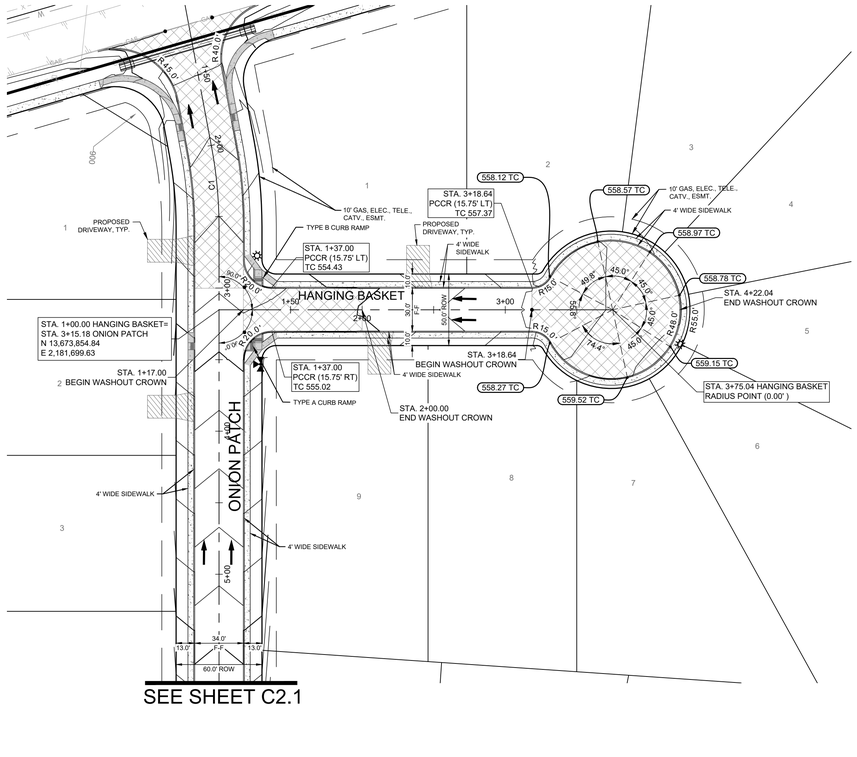
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DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

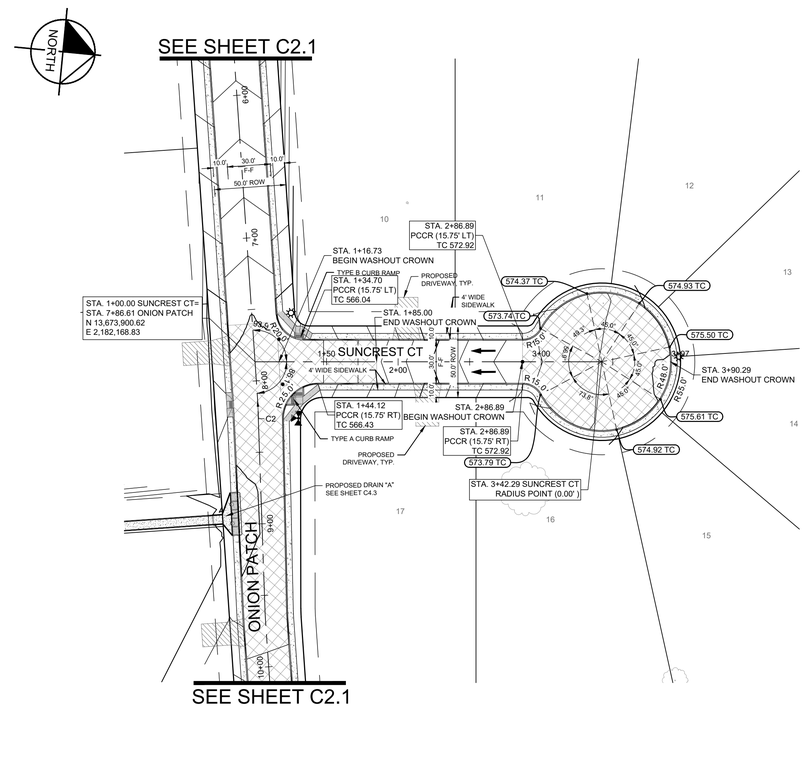
No.	REVISIONS	DATE	BY

VISTA GARDENS PH 1
PREPARED FOR
MI HOMES OF
SAN ANTONIO
SAN ANTONIO ETJ TEXAS

ONION PATCH & BLUE JADEITE PLAN & PROFILE (11+00 TO END)

SHEET NUMBER
C2.2



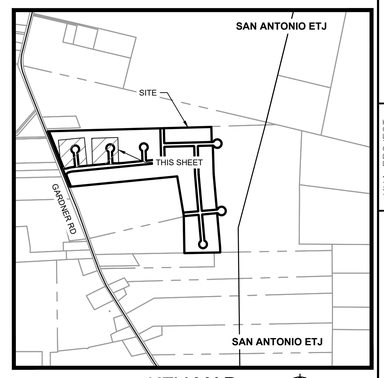


GRAPHIC SCALE IN FEET
0 25 50 100

LEGEND

- RIGHT-OF-WAY LINE
- CENTER LINE
- WASHOUT CROWN SECTION
- SIDEWALK TO BE BUILT BY DEVELOPER
- STREET DRAINAGE FLOW DIRECTION
- (1370.00) PAVEMENT SPOT ELEVATION
- PC POINT OF CURVATURE
- PT POINT OF TANGENCY
- PI POINT OF INTERSECTION
- CR CURB RETURN
- (xxx' TC) TOP OF CURB

NOTES:
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KEY MAP
SCALE: 1" = 1000'

PROFILE SCALE
1" = 50' HORIZONTAL
1" = 5' VERTICAL

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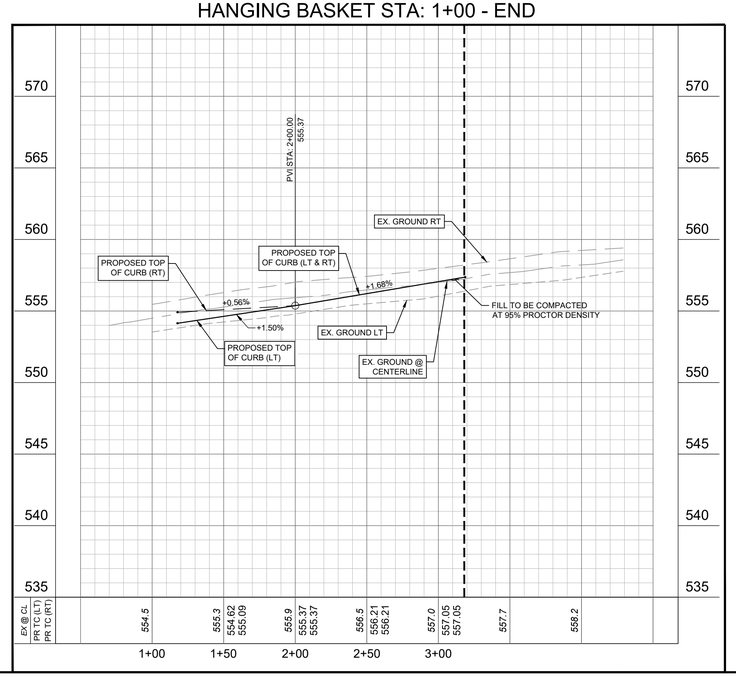
BENCHMARK LIST

BM #100
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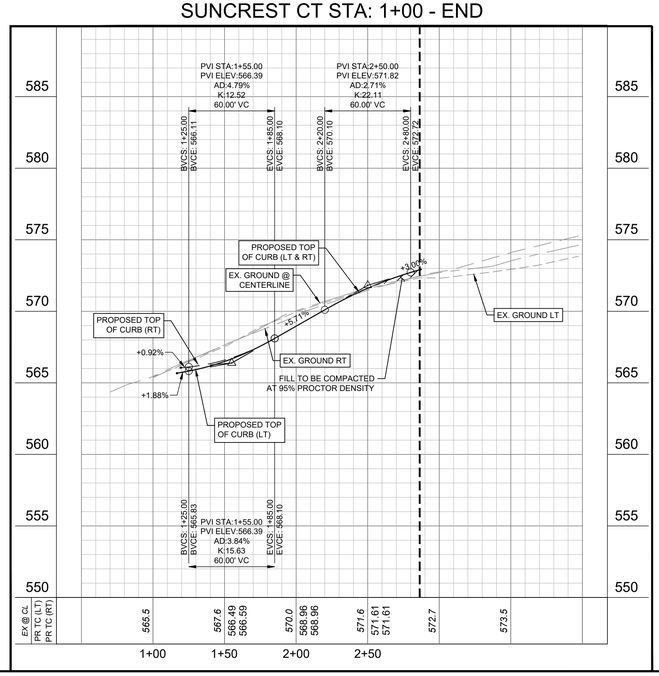
BM #101
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LAND-PLAT-24-11800462

HANGING BASKET STA: 1+00 - END



SUNCREST CT STA: 1+00 - END



Kimley»Horn
10101 REUNION PLACE, SUITE 400, SAN ANTONIO TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

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STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

No.	REVISIONS	DATE	BY

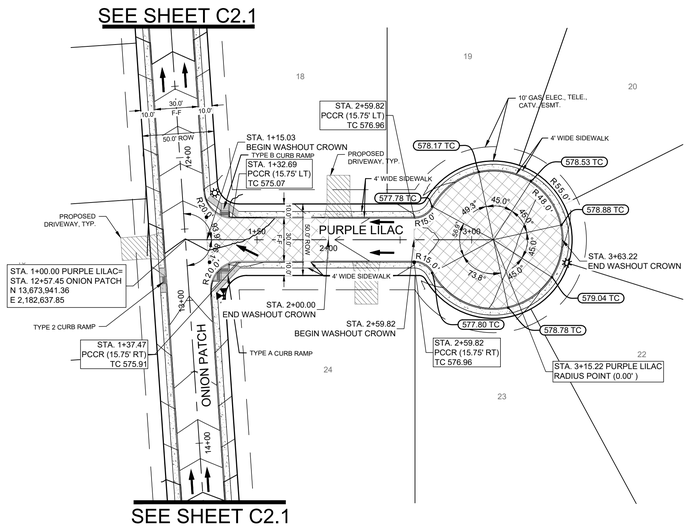
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DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

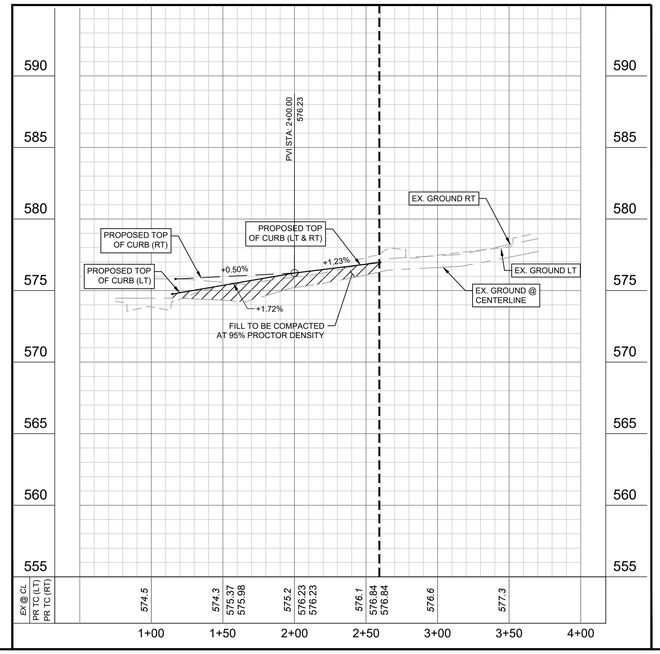
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

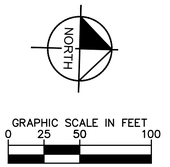
HANGING BASKET & SUNCREST CT PLAN & PROFILE

SHEET NUMBER
C2.3

Plotted By: Hensley, Kara March 04, 2025 06:49:56pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\C4D\PlotSheets\C-ROAD.dwg
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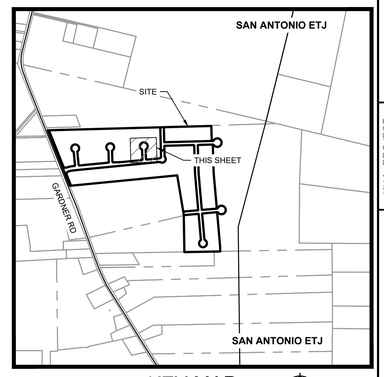


GRAPHIC SCALE IN FEET
0 25 50 100

LEGEND

	RIGHT-OF-WAY LINE
	CENTER LINE
	WASHOUT CROWN SECTION
	SIDEWALK TO BE BUILT BY DEVELOPER
	STREET DRAINAGE FLOW DIRECTION
1370.00	PAVEMENT SPOT ELEVATION
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PI	POINT OF INTERSECTION
CR	CURB RETURN
xxx' TC	TOP OF CURB

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LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

Kimley»Horn
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PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

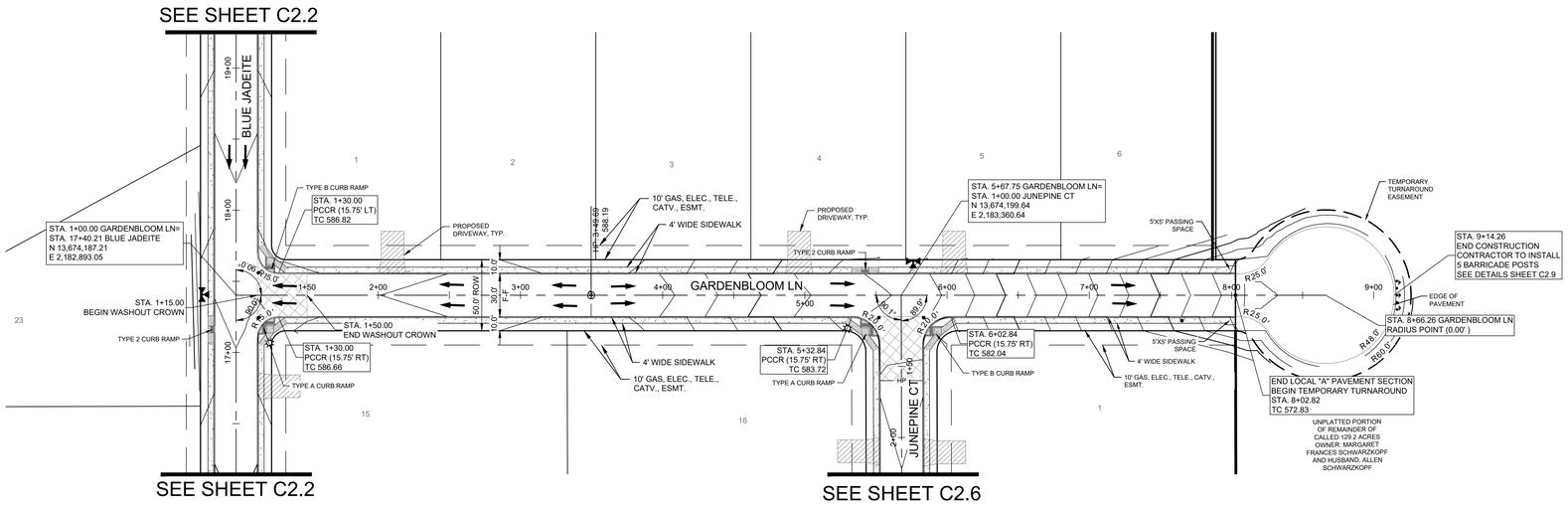
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

PURPLE LILAC PLAN & PROFILE

SHEET NUMBER
C2.4

Plotted By:Hensley, Kara March 04, 2025 06:50:13pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\C4D\PlotSheets\C-ROAD.dwg
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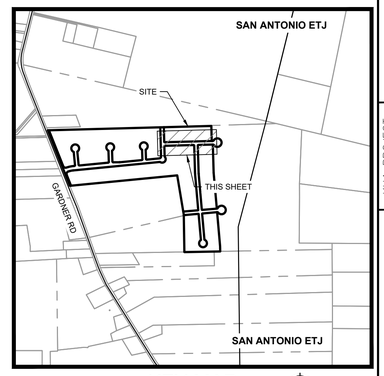


GRAPHIC SCALE IN FEET
0 25 50 100

LEGEND

- RIGHT-OF-WAY LINE
- CENTER LINE
- WASHOUT CROWN SECTION
- SIDEWALK TO BE BUILT BY DEVELOPER
- STREET DRAINAGE FLOW DIRECTION
- (1370.00) PAVEMENT SPOT ELEVATION
- PC — POINT OF CURVATURE
- PT — POINT OF TANGENCY
- PI — POINT OF INTERSECTION
- CR — CURB RETURN
- (xxx' TC) TOP OF CURB

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KEY MAP
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PROFILE SCALE
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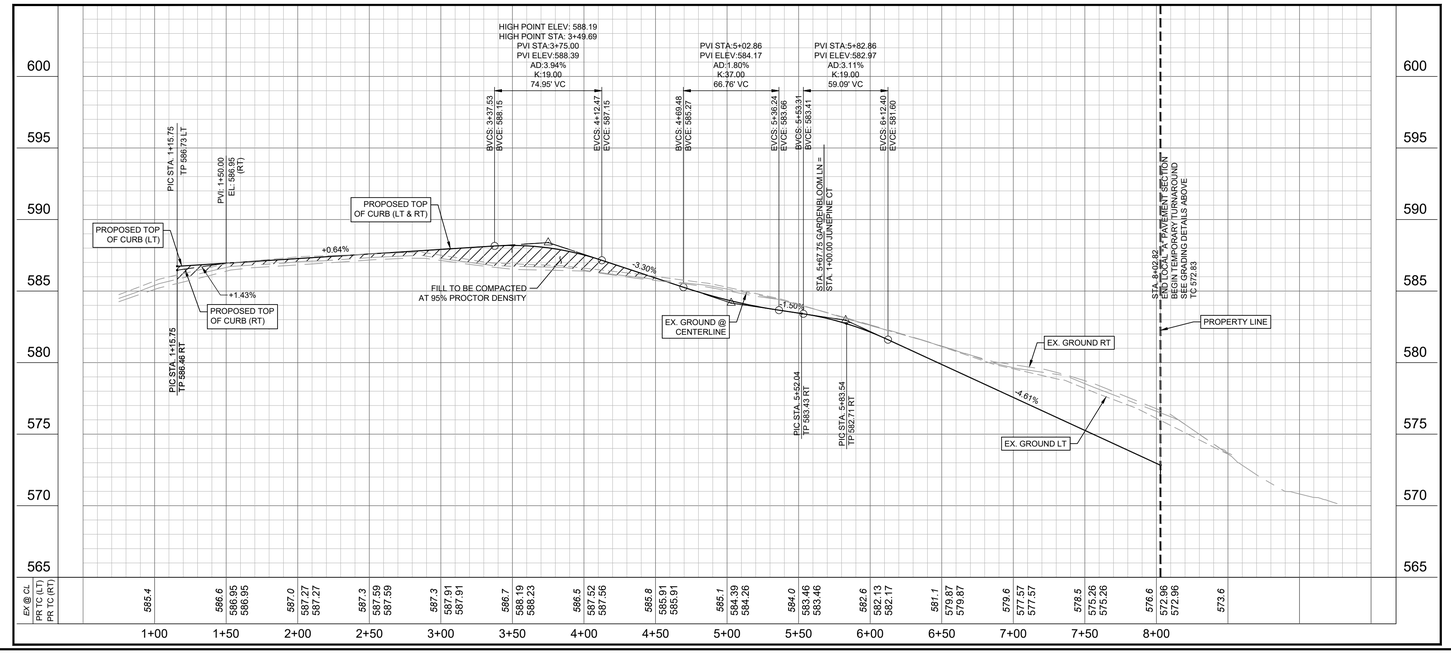
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GARDENBLOOM LN STA: 1+00 - END



LAND-PLAT-24-11800462

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WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

No.	REVISIONS	DATE	BY

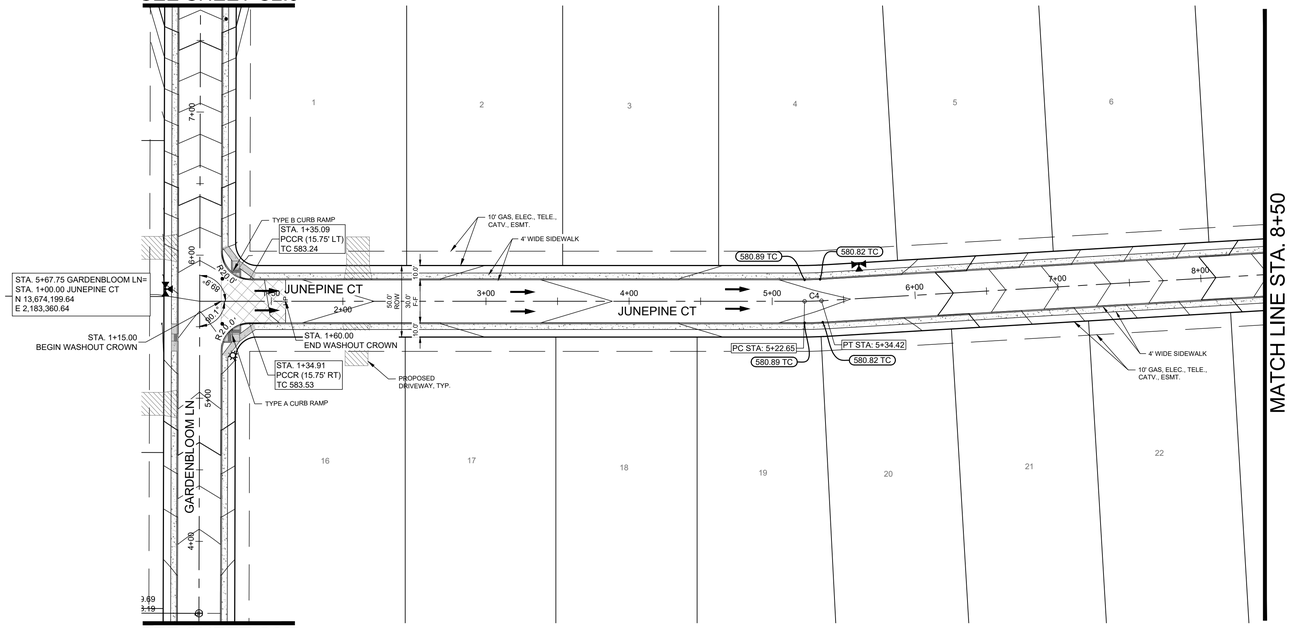
KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY KJH
CHECKED BY

VISTA GARDENS PH 1
PREPARED FOR
MI HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

GARDENBLOOM LN PLAN & PROFILE

SHEET NUMBER
C2.5

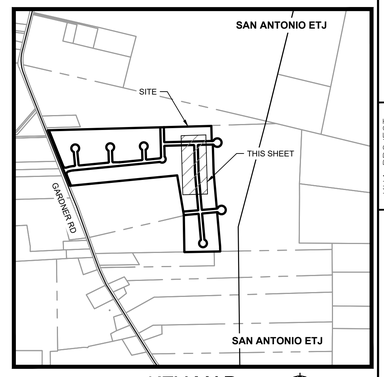
CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C4	200.00'	11.77'	S3°21'12"E	11.77'	3°22'19"	5.89'



LEGEND

- RIGHT-OF-WAY LINE
- CENTER LINE
- WASHOUT CROWN SECTION
- SIDEWALK TO BE BUILT BY DEVELOPER
- STREET DRAINAGE FLOW DIRECTION
- (1370.00) PAVEMENT SPOT ELEVATION
- PC — POINT OF CURVATURE
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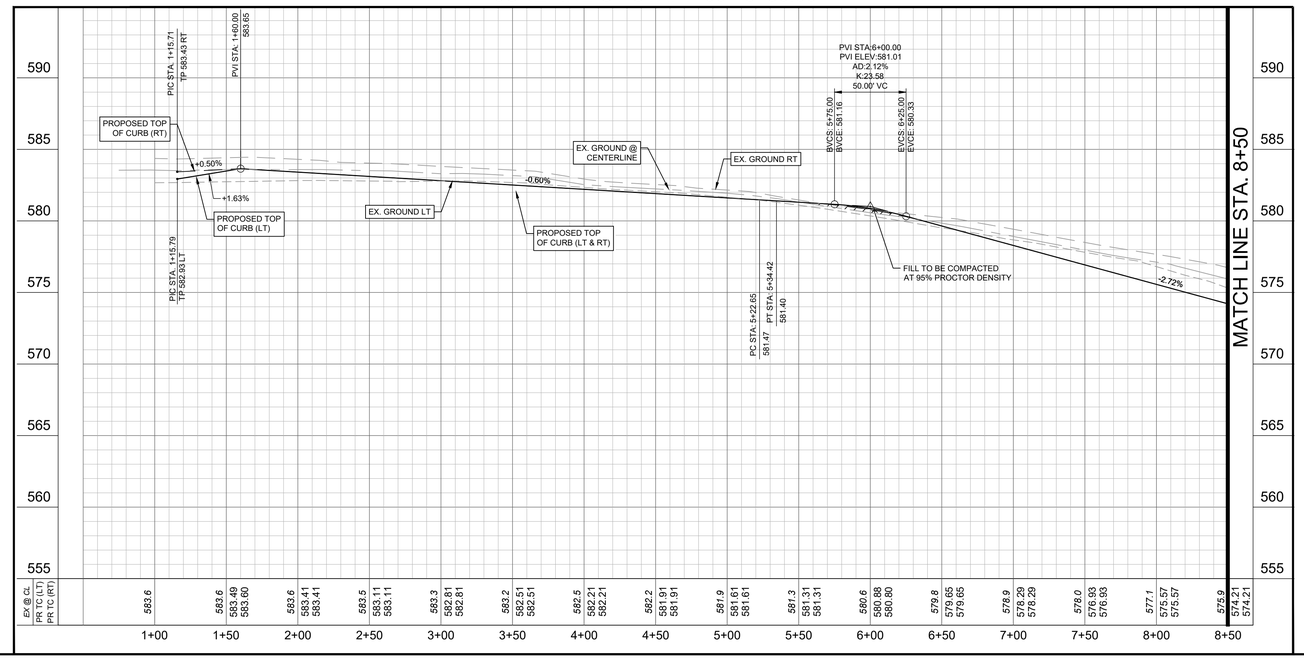
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LAND-PLAT-24-11800462

JUNEPINE CT STA: 1+00 - 8+50.00



Plotted By:Hensley, Kara March 04, 2025 08:51:39pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheets\C-ROAD.dwg
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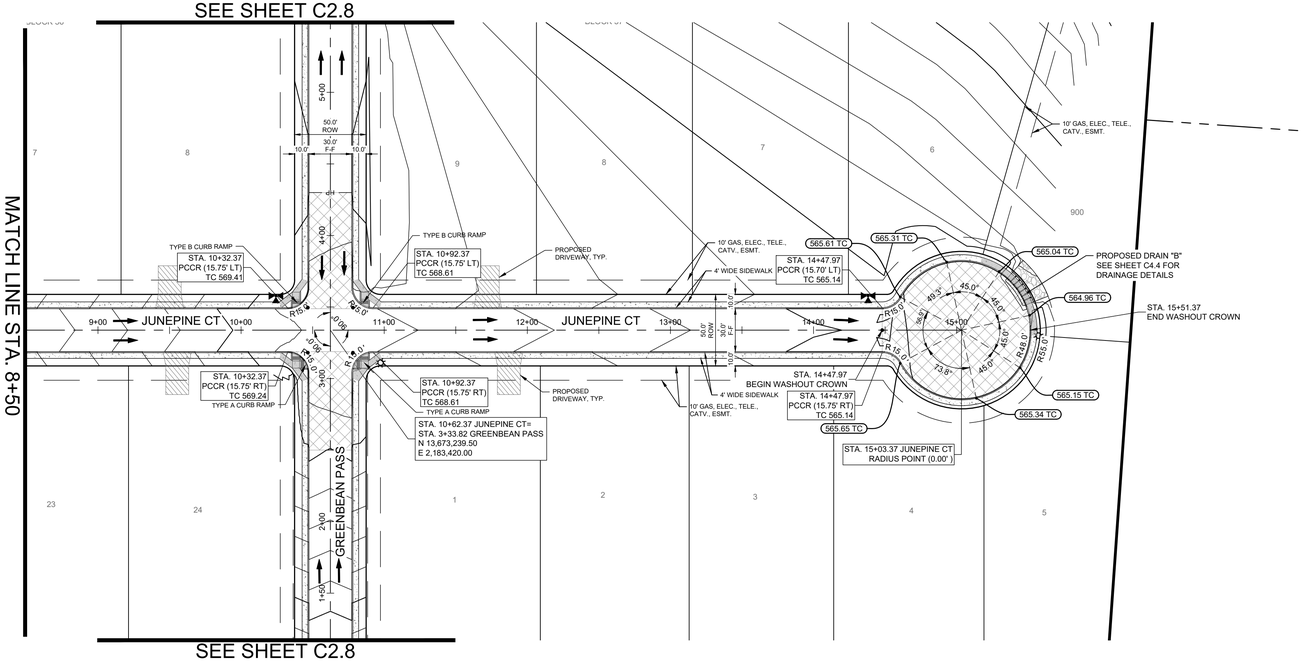
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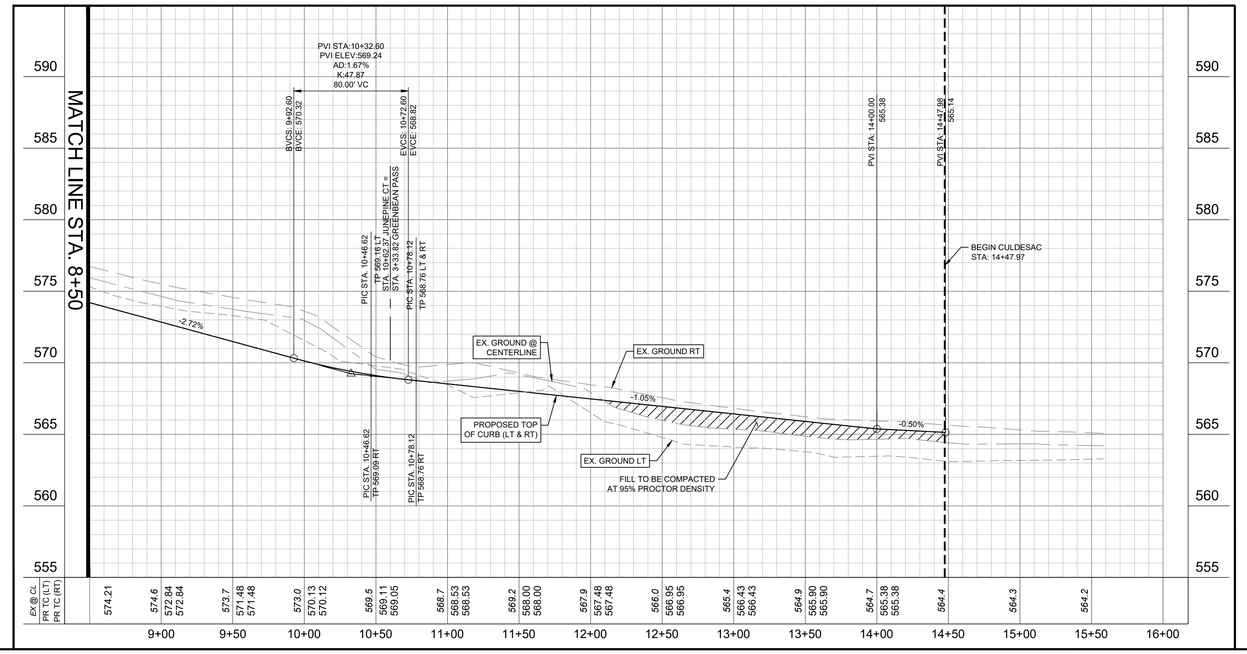
KHA PROJECT	068687804
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SCALE	AS SHOWN
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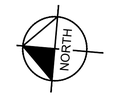
VISTA GARDENS PH 1
PREPARED FOR
MI HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

JUNEPINE CT PLAN & PROFILE (START TO 8+50)

SHEET NUMBER
C2.6





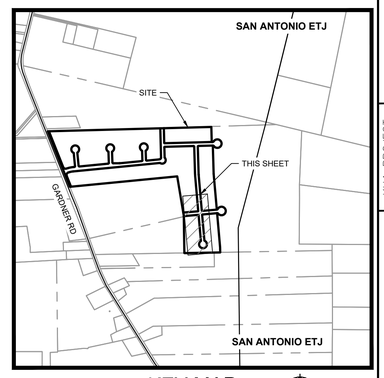


GRAPHIC SCALE IN FEET
0 25 50 100

LEGEND

	RIGHT-OF-WAY LINE
	CENTER LINE
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	SIDEWALK TO BE BUILT BY DEVELOPER
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7. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS
8. SEE SHEET C3.0 FOR SIGNAGE AND STRIPING DETAILS



KEY MAP
SCALE: 1" = 1000'

PROFILE SCALE
1" = 50' HORIZONTAL
1" = 5' VERTICAL

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

CAUTION!!
EXISTING UNDERGROUND UTILITIES IN THE AREA CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS TO EXISTING UTILITIES DUE TO DAMAGE INCURRED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES ON THE PLANS.

BENCHMARK LIST

BM #100
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 42'± FROM EAST RIGHT-OF-WAY OF BORGFIELD DRIVE AND BEING APPROXIMATELY 706' NORTHWEST FROM A POWER POLE AND APPROXIMATELY 3,025'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 547.04'

BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,786'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

Kimley»Horn
10101 REUNION PLACE, SUITE 400, SAN ANTONIO TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

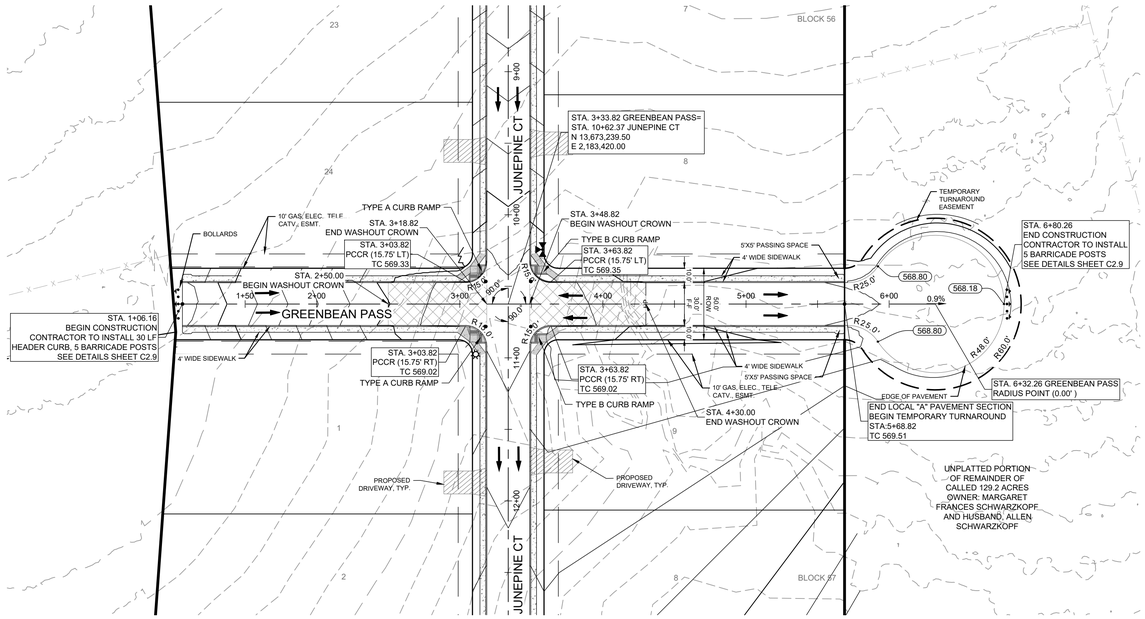
KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

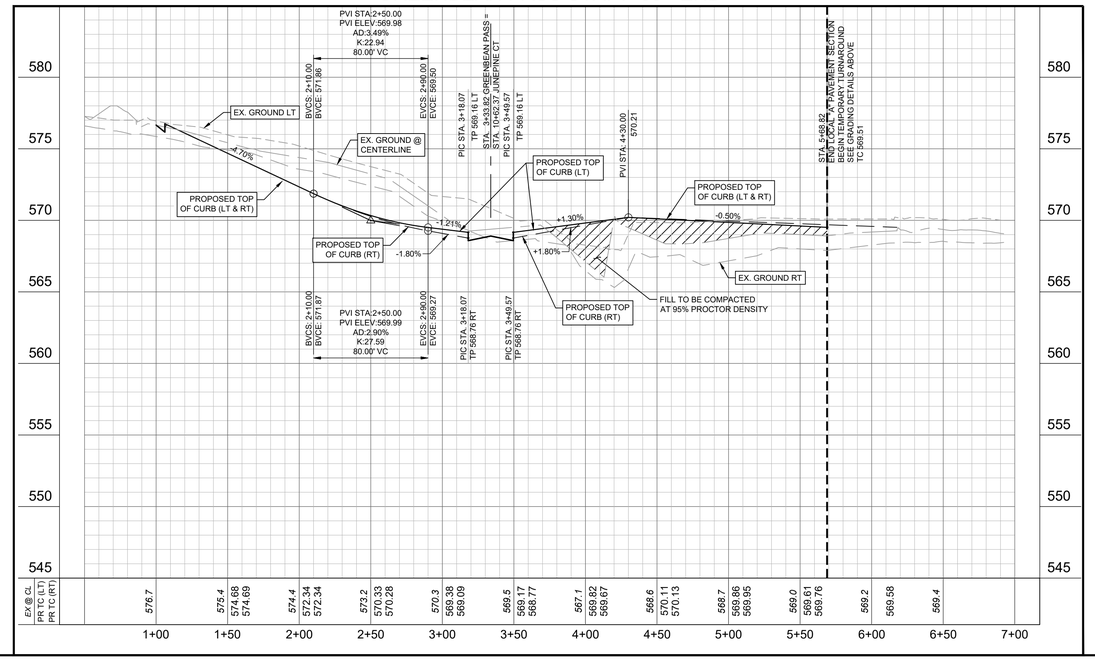
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

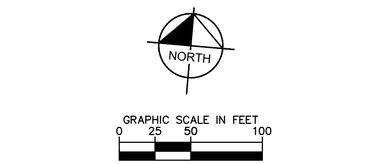
JUNEPINE CT PLAN & PROFILE (8+50 TO END)

SHEET NUMBER
C2.7

Plotted By:Hensley, Kara March 04, 2025 08:51:57am K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheets\C-ROAD.dwg
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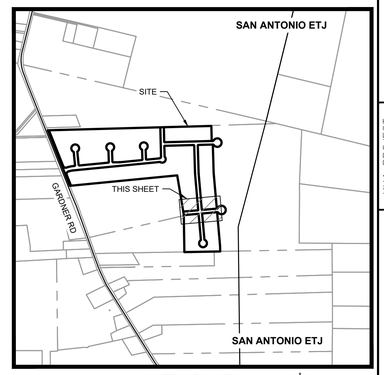




LEGEND

- RIGHT-OF-WAY LINE
- CENTER LINE
- WASHOUT CROWN SECTION
- SIDEWALK TO BE BUILT BY DEVELOPER
- STREET DRAINAGE FLOW DIRECTION
- (1370.00) PAVEMENT SPOT ELEVATION
- PC POINT OF CURVATURE
- PT POINT OF TANGENCY
- PI POINT OF INTERSECTION
- CR CURB RETURN
- (xxx' TC) TOP OF CURB

NOTES:
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT IS NOT CONSTRUCTED BY THE DEVELOPER SHALL BE CONSTRUCTED BY THE HOME BUILDER
3. REFER TO STORM SEWER PLAN FOR INLET SIZES. STORM STRUCTURES SHALL BE BUILT BASED ON STORM PLAN SPECIFICATIONS.
4. SEE SHEET C2.9 FOR TYPICAL PAVEMENT SECTION AND DETAILS.
5. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT-OF-WAY.
6. ALL DEVELOPER RAMPS ARE TYPE1, TYPE 2, TYPE A OR TYPE B PER DETAILS (SEE SHEET C2.9 & C2.10) AND ARE ADA COMPLIANT.
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STATE OF TEXAS
KARA J. HEASLEY
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LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
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DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

GREENBEAN PASS PLAN & PROFILE

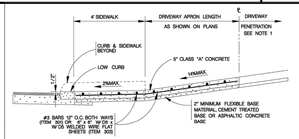
VISTA GARDENS PH 1

PREPARED FOR
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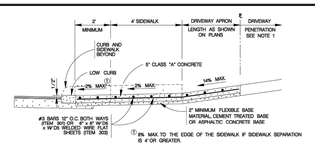
SHEET NUMBER
C2.8

Plotted By:Hensley, Kara March 04, 2025 - 06:52:36pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\C4D\PlotSheet\C-ROAD.dwg
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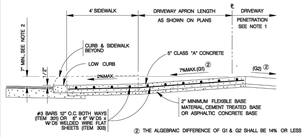
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.1



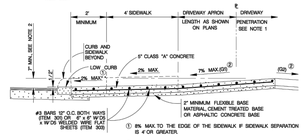
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1



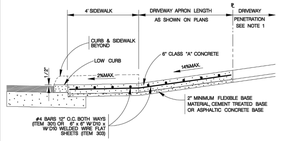
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB
ITEM 503.1



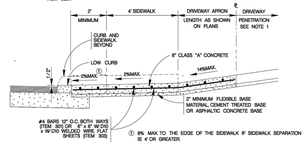
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB
ITEM 503.1



TYPICAL COMMERCIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB
ITEM 503.2



TYPICAL COMMERCIAL DRIVEWAY SECTION

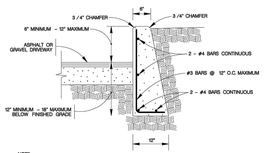
WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.2

CONCRETE DRIVEWAY NOTES

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
   A.) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO.503.1 OR 503.2.
   B.) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO.503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
   C.) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO.503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER,THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL – ONE WAY	12'	20'
COMMERCIAL – TWO WAY	24'	30'

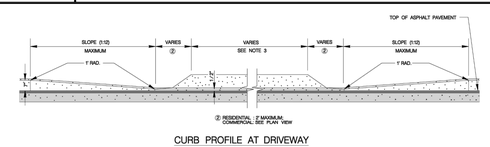
4. FOR LOCAL TYPE "A" STREETS,SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB,THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS,THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 2' FROM THE BACK OF CURB OR,AS AN OPTION,THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 8' WHEN LOCATED AT THE BACK OF CURB.
6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB,AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS,SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3.4Ø IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



NOTE:
1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

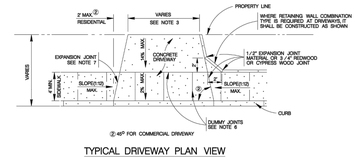
DRIVEWAY – CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE
ITEM 307.1



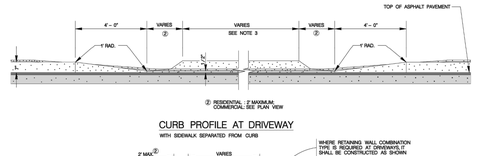
CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB



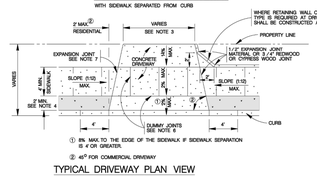
TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB



CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB



TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB

MAY 2009

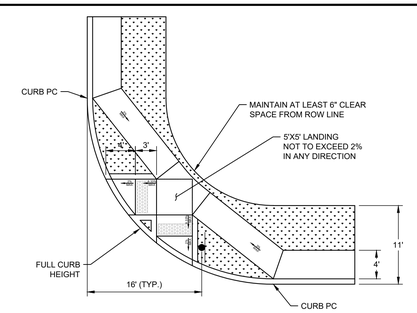
CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CONCRETE DRIVEWAY STANDARDS

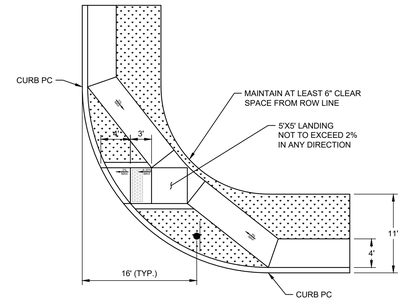
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DRWN. BY: L.VASQUEZ DSGN. BY: CHKD. BY: R.S. HOSSEINI, P.E. SHEET NO.: OF



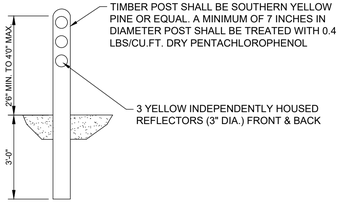
TYPE A CURB RAMP

N.T.S.



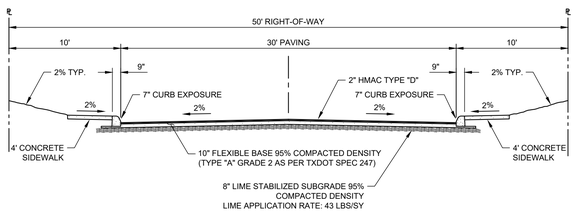
TYPE B CURB RAMP

N.T.S.



TIMBER POST DETAIL

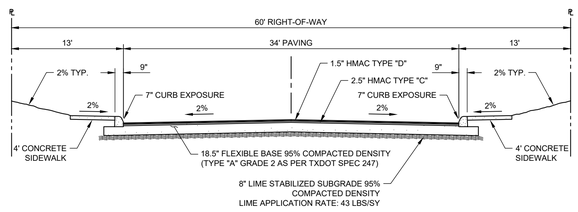
N.T.S.



ONION PATCH	STA 7+97.23 - 14+68.78
HANGING BASKET	STA 1+20.70 - 3+27.85
SUNCREST CT	STA 1+21.29 - 2+94.45
PURPLE LILAC	STA 1+15.94 - 2+63.52
GARDENBLOOM LN	STA 1+14.84 - 8+02.81
JUNEPINE CT	STA 1+17.35 - 14+52.23
GREEN BEAN PASS	STA 1+00 - 5+68.89
BLUE JADEITE	STA 15+50.72 - 19+60.64

LOCAL TYPE "A" STREET SECTION 50' ROW

N.T.S.



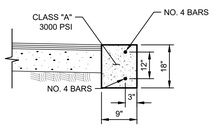
ONION PATCH STA 1+00 - 7+97.23

LOCAL TYPE "B" STREET SECTION 60' ROW

N.T.S.

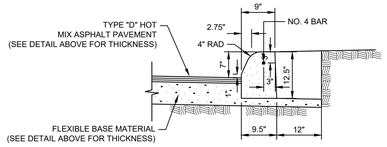
PAVEMENT NOTES

1. CONTRACTOR TO REFER TO GEOTECH REPORT PREPARED BY INTEC, INC (REPORT #S241319) DATED DECEMBER 12, 2024.
2. PAVEMENT SECTION RECOMMENDATIONS ARE BASED ON A SUBGRADE CBR VALUE OF 2.0.
3. SUBGRADE PLASTICITY INDEX VALUES ARE ANTICIPATED TO BE GREATER THAN 20, THEREFORE SUBGRADE STABILIZATION IS RECOMMENDED.
   3.1 THE SUBGRADE SHOULD BE STABILIZED TO A DEPTH OF 8 INCHES USING 7 PERCENT LIME CONTENT.
   3.1.1 THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION. IF THE SOIL SULFATE CONTENT IS HIGH, AN ALTERNATE PROCEDURE WILL BE REQUIRED.
   3.1.2 LIME APPLICATION RATE OF 43 LBS PER SQ YARD FOR 8-INCH DEPTH OF STABILIZATION IS RECOMMENDED.
4. FILL MATERIAL USED TO RAISE THE GRADE SHOULD HAVE A MINIMUM CBR VALUE OF 2.0 AND A MAXIMUM PLASTICITY INDEX VALUE OF 50. LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL.



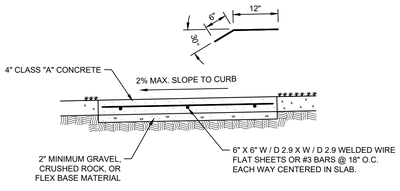
HEADER CURB

N.T.S.



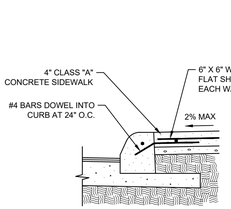
CONCRETE CURB

N.T.S.



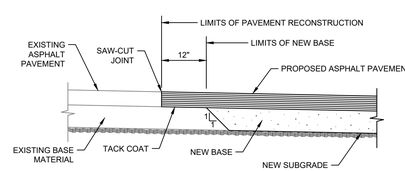
CONCRETE SIDEWALK

N.T.S.



CONCRETE SIDEWALK ABUTTING CURB

N.T.S.



PAVEMENT JUNCTION DETAIL

N.T.S.

Kimley»Horn
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PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

NO.	REVISIONS	DATE	BY

KHA PROJECT 068678004
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

PAVING DETAILS

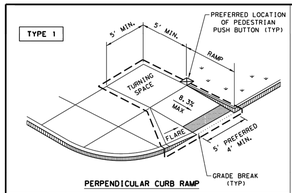
VISTA GARDENS PH 1
PREPARED FOR
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SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C2.9

Plotted By:Heather, Kora March 04, 2025 06:55:30pm K:\SNA_Civil\068678004-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheets\C-DETAILS.dwg
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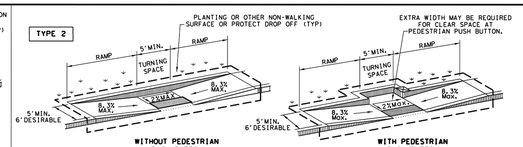
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TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

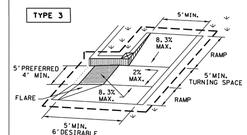


WITHOUT PEDESTRIAN PUSH BUTTON

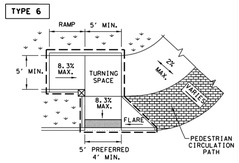
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

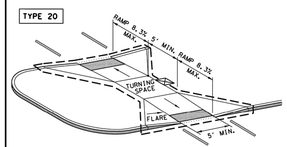


TYPE 6



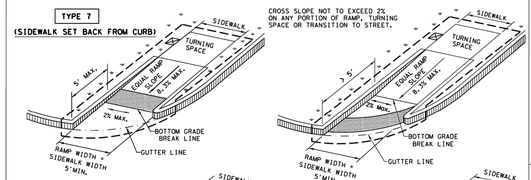
COMBINATION CURB RAMPS

TYPE 20

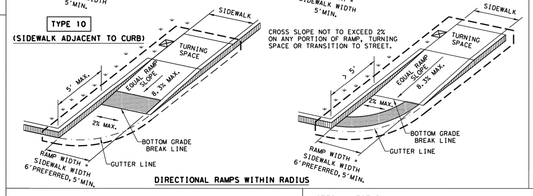


CURB RAMPS AT MEDIAN ISLANDS

TYPE 7
(SIDEWALK SET BACK FROM CURB)

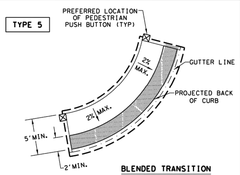


TYPE 10
(SIDEWALK ADJACENT TO CURB)



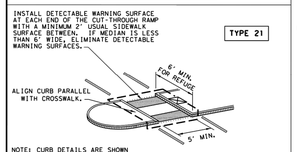
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



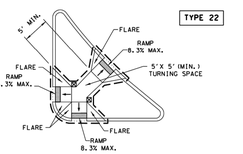
BLENDED TRANSITION
(FLUSH LANDING)

TYPE 21

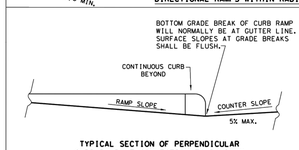


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN:TxDOT	CK:	CK:
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REVISIONS			
REVISED 05.2010	DIST	COUNTY	SHEET NO.
REVISED 05.2012			
REVISED 05.2014			

DATE:
FILE:

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

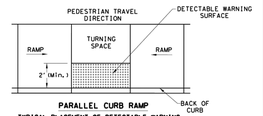
DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

SIDEWALKS

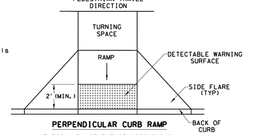
27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

DETECTABLE WARNING SURFACE DETAILS



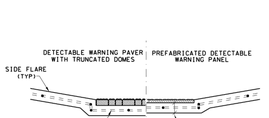
PARALLEL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.

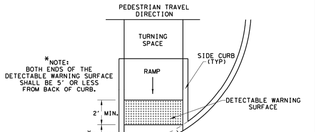


PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS



*NOTE: BOTH ENDS OF THE DETECTABLE WARNING SURFACE SHALL BE 5' OR LESS FROM BACK OF CURB.

DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

SHEET 2 OF 4

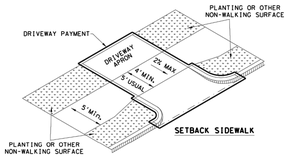
Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

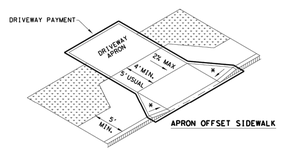
PED-18

FILE: ped18	DN:TxDOT	CK:	CK:
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REVISIONS			
REVISED 05.2010	DIST	COUNTY	SHEET NO.
REVISED 05.2012			
REVISED 05.2014			

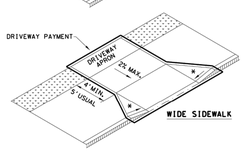
SIDEWALK TREATMENT AT DRIVEWAYS



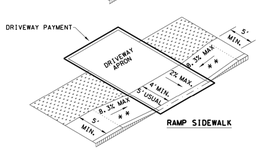
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



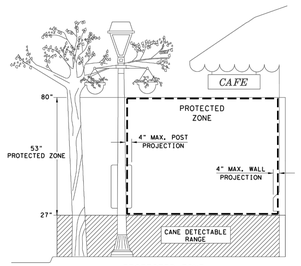
WIDE SIDEWALK



RAMP SIDEWALK

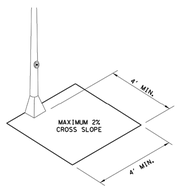
NOTES:
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

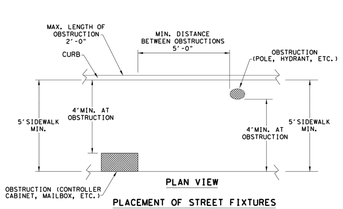


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



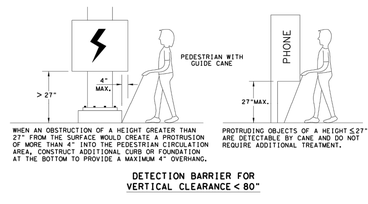
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW

PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE, MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

PROTRUDING OBJECTS OF A HEIGHT ≤27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

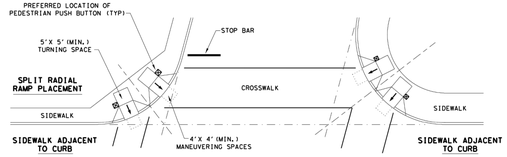
Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

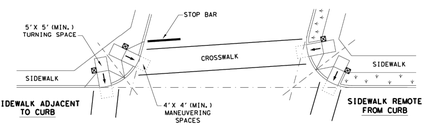
PED-18

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REVISED 05.2010	DIST	COUNTY	SHEET NO.
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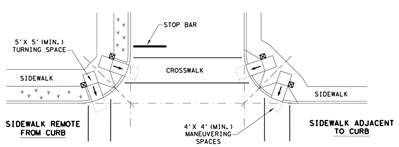
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



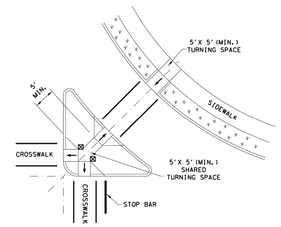
SKEWED INTERSECTION WITH "LARGE" RADIUS



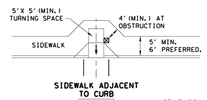
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION W/FREE RIGHT TURN & ISLAND





MID-BLOCK PLACEMENT PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE).

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN:TxDOT	CK:	CK:
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Kimley»Horn
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WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

CURB RAMP DETAILS

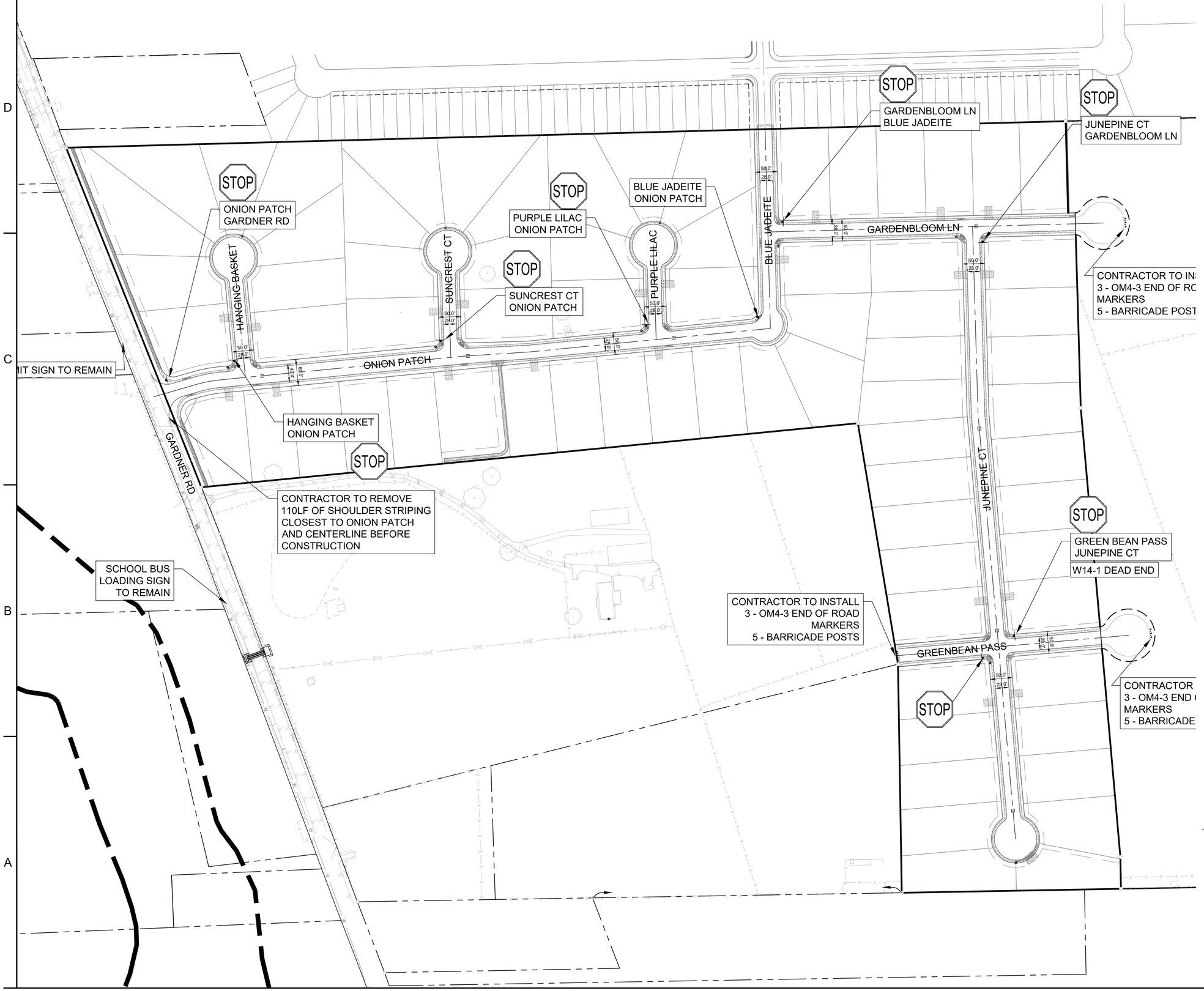
VISTA GARDENS PH 1

PREPARED FOR
M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C2.10

Plotted By:Heatley, Kara March 04, 2025 06:55:40pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheets\C-DETAILS.dwg
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NORTH

GRAPHIC SCALE IN FEET
0 50 100 200

SYMBOL	DESC.	COSA ITEM NO.
	RIGHT OF WAY	
STREET / STREET	STANDARD STREET NAME SIGN	531.57
STOP	STOP SIGN (30")(HIGH INTENSITY) (R1-1)	531.3
	BLUE RAISED PAVEMENT MARKER AT FIRE HYDRANTS (TYPE II BLUE)	
	PROPOSED STREET LIGHT	

NOTES:

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY AND WARNING SIGNS, STREETS NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CITY WILL INSPECT ALL SIGNS AT FINAL INSPECTION.
2. THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE INSTALLATION OF ALL SEALER AND FINAL MARKINGS. THE CITY WILL INSPECT ALL MARKINGS AT FINAL APPLICATION.
3. CONTRACTOR TO COMPLY WITH MUTCD STANDARD ON EXACT SIGNAGE LOCATIONS (I.E. OFFSET STATION AND DISTANCES).
4. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT-OF-WAY.
5. DEVELOPER RESPONSIBLE FOR SIDEWALK ALONG 900 LOTS AND ALONG GARDNER ROAD.

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

CAUTION!!
EXISTING UNDERGROUND UTILITIES IN THE AREA CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS TO EXISTING UTILITIES DUE TO DAMAGE INCURRED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES ON THE PLANS.

BENCHMARK LIST

BM #100
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 42'± FROM EAST RIGHT-OF-WAY OF BORGFIELD DRIVE AND BEING APPROXIMATELY 706' NORTHWEST FROM A POWER POLE AND APPROXIMATELY 3,025'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 547.04'

BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

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STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED
PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	KJH
CHECKED BY	

SIGNAGE PLAN

VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF
SAN ANTONIO
SAN ANTONIO ETJ
TEXAS

SHEET NUMBER
C3.0

Plotted By:Hensley, Kara March 04, 2025 06:58:17pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheets\C-SIGN.dwg
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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
SBD = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

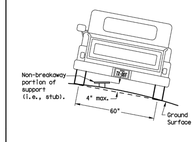
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted Down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
TEXT or ZEXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Mind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 W/Ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

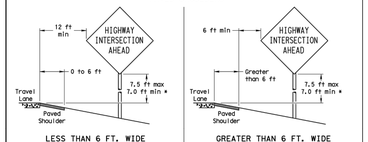
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

SIGN LOCATION

PAVED SHOULDERS



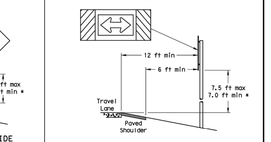
LESS THAN 6 FT. WIDE

When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.

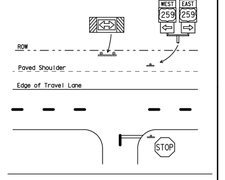
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

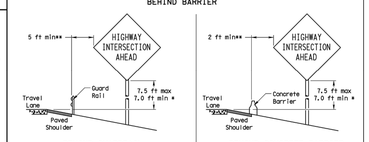
T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL

BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

* Signs shall be mounted using the following condition that results in the greatest sign elevations

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

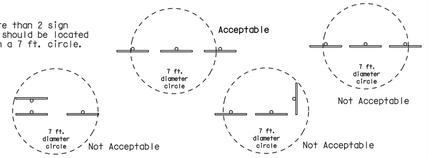
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

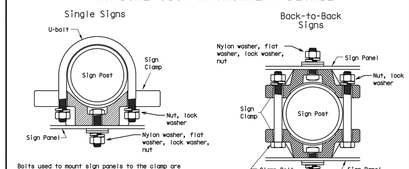
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

No more than 2 sign posts shall be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL



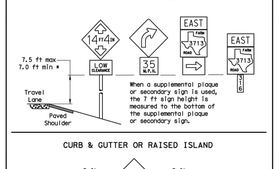
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

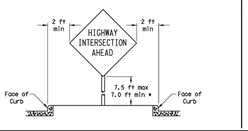
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



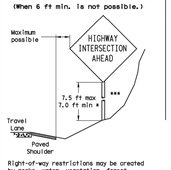
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

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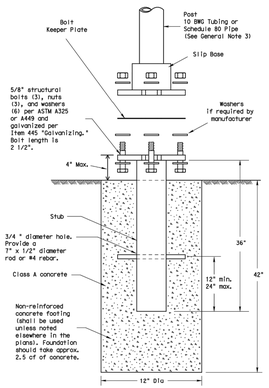
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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS

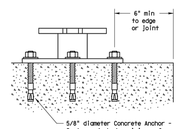


SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end, heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per SMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least 1diam with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer, Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210. For preformed steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation

1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support

1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the traveway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the traveway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

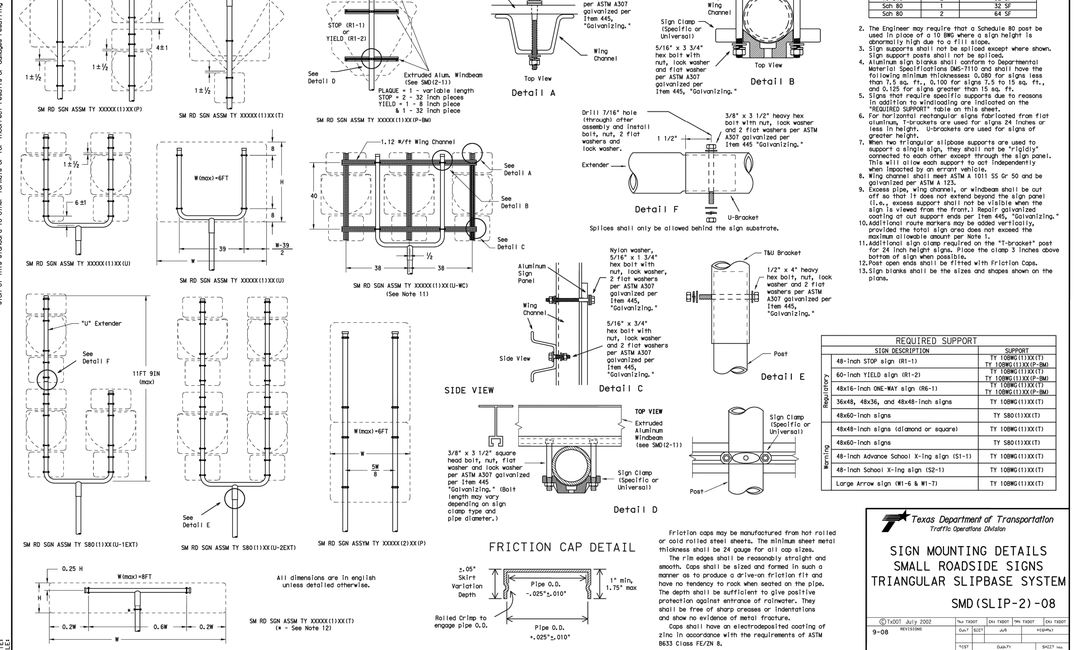
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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26B



GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

FRICTION CAP DETAIL

Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

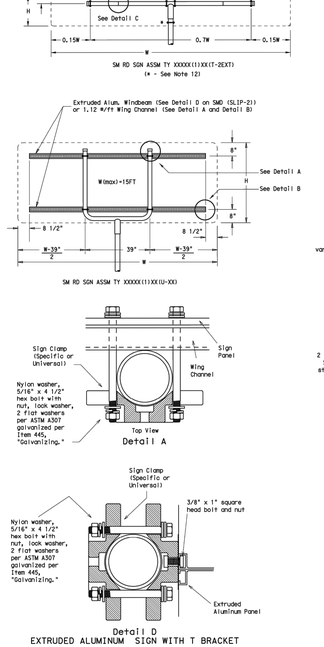
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8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
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	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
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	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

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Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

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NO.	REVISIONS	DATE	BY

KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
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KHA PROJECT 068687804
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SIGNAGE DETAILS (1 OF 2)

VISTA GARDENS PH 1

PREPARED FOR
M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ TEXAS

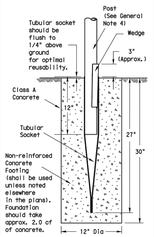
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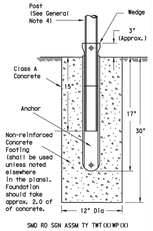
DATE REVISED

Wedge Anchor Steel System



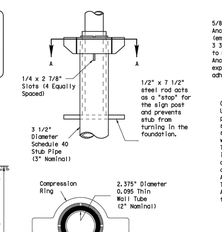
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

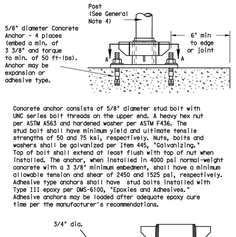


SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



SM RD SGN ASSM TY TWT(X)UA(P)

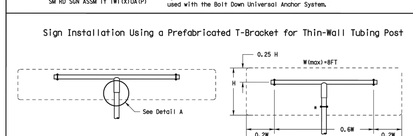


Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

SM RD SGN ASSM TY TWT(X)UB(P)

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



SM RD SGN ASSM TY TWT(X)XX(T)
(* - See General Note 6)

NOTE
The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:
1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer, method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts 113 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the followings
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanized per ASTM 123 or ASTM A653 G210. For prequalified steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be slotted except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: https://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximately 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in foundation hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert ground bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

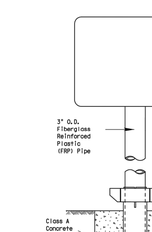
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST SMD(TWT)-08

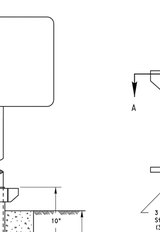
© TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

2GE

Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post

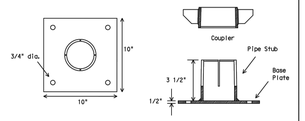


SM RD SGN ASSM TY FRP(X)UA(P)



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS



SM RD SGN ASSM TY FRP(X)UB(P)

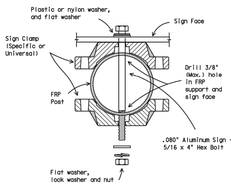
GENERAL NOTES:
1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS
1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

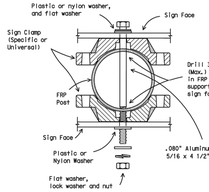
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

BOLT DOWN SIGN SUPPORT
1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



Texas Department of Transportation
Traffic Operations Division

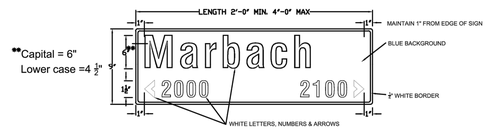
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST SMD(FRP)-08

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9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

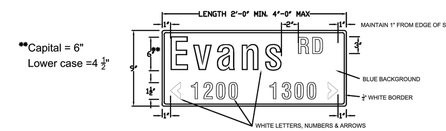
2GF

DATE REVISED

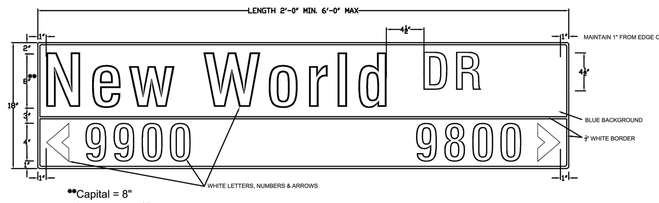
9" GROUND MOUNT STREET NAME SIGNS



9" GROUND MOUNT STREET NAME SIGNS WITH STREET DESIGNATION

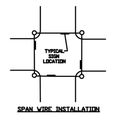


18" OVERHEAD STREET NAME SIGNS

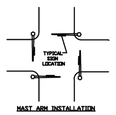


	18" OVERHEAD SIGN	9" GROUND MOUNT SIGNS
HEIGHT	18" (381 mm)	9" (228 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH	24" (600 mm) MIN. 48" (1200 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3 mm)	
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209 GOLD CHROMATE FINISH	
SIGN FACE MATERIALS	BLUE FILM ✱ OVER DIAMOND GRADE - ASTM Type XI Non-Fluorescent	BLUE FILM ✱ OVER HIGH INTENSITY PRISMATIC- ASTM Type IV
LEGENDS AND SYMBOLS	SERIES D, B OR C IF NAME OTHERWISE EXCEEDS MAXIMUM SIGN LENGTH	
COLOR	WHITE LEGEND ON BLUE BACKGROUND	
LETTER TRACKING	17% (USUAL) 10% (MIN.)	10%

✱ ACRYLIC ELECTRONIC CUTTABLE FILM



SPAN WIRE INSTALLATION



MAST ARM INSTALLATION

SIGN FACE MATERIALS SHALL CONFORM TO:
1. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS & BRIDGES ON FEDERAL HIGHWAY PROJECTS - FP-03 U.S. CUSTOMARY UNITS SECTION 718
2. GENERAL SERVICES ADMINISTRATION FEDERAL SPECIFICATIONS L-S-300C
3. ASTM D 4956 - 09e1

Bexar County Public Works

Street Name Sign Details

SHEET 1

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
10101 REUNION PLACE, SUITE 400, SAN ANTONIO TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

	BY
	DATE
	REVISIONS
	No.

KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY KJH
CHECKED BY

SIGNAGE DETAILS (2 OF 2)

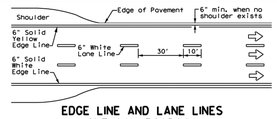
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C3.2

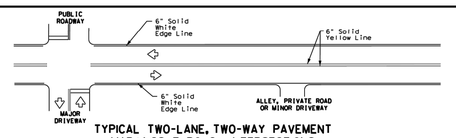
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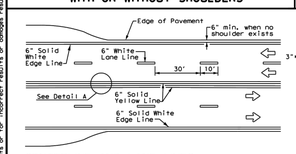
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



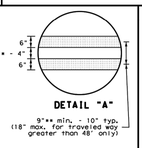
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



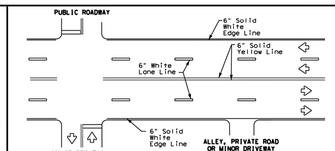
DETAIL "A"



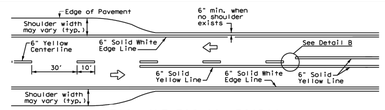
9"** min. - 10" typ. (18" max. for traveled way greater than 48" only)

* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.

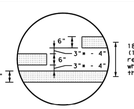
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

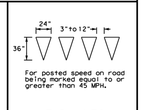


DETAIL "B"



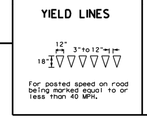
18" min. - 20" max. (16" minimum for restripe projects when approved by the Engineer.)

* 2" minimum for restripe projects when approved by the Engineer.



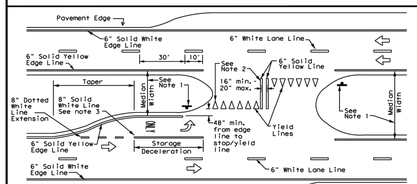
For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.

FOUR LANE DIVIDED ROADWAY CROSSOVERS



NOTES

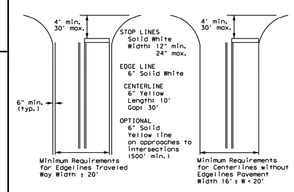
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

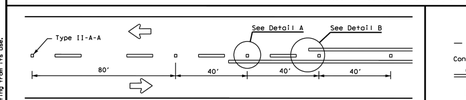
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

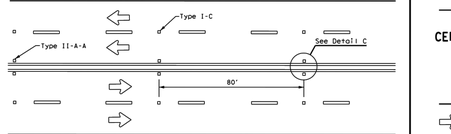
FILE:	pm1-22.dgn	DN:	CK:	DW:	CK:
©TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS					
11-78 8-00 6-20					
8-95 3-03 12-22					
8-00 2-12		DIST	COUNTY		SHEET NO.

7.A

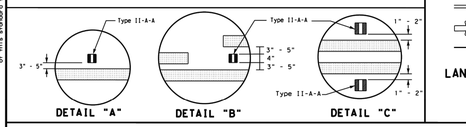
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



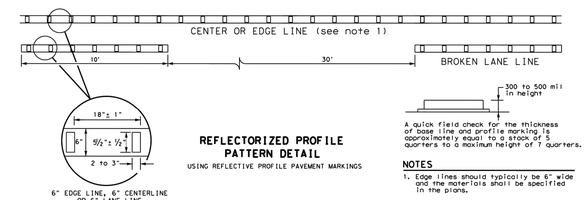
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS



DETAIL "A" — DETAIL "B" — DETAIL "C"



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

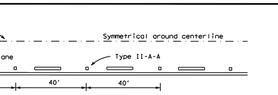
REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKERS

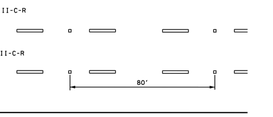
A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

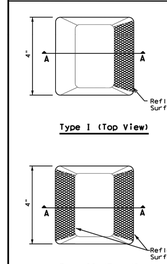
See Note 3.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians, and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



RAISED PAVEMENT MARKERS

Texas Department of Transportation — Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS

PM(2)-22

FILE:	pm2-22.dgn	DN:	CK:	DW:	CK:
©TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS					
4-77 8-00 6-20					
4-90 2-10 12-22					
8-00 2-12		DIST	COUNTY		SHEET NO.

7.B

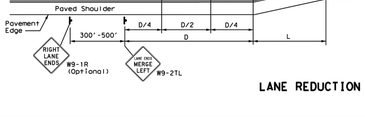
TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE:	pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS					
4-98 3-03 6-20					
8-00 2-10 12-22					
8-00 2-12		DIST	COUNTY		SHEET NO.

7.C

LANE REDUCTION



NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

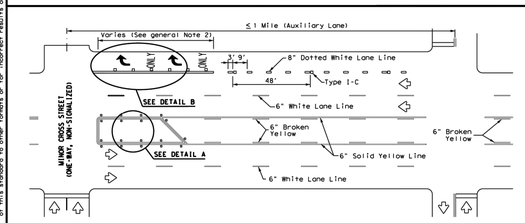
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	
50 MPH	885	
55 MPH	990	L=WS
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

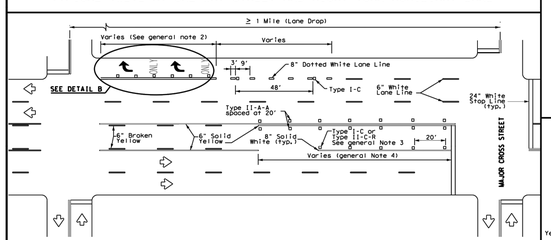
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

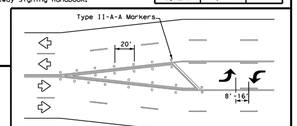
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE

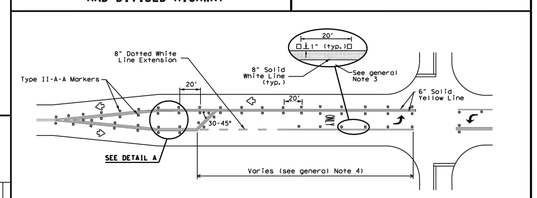


TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP

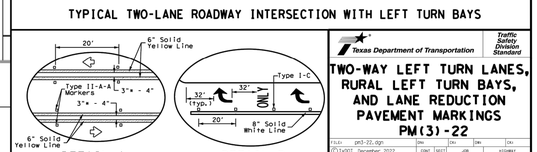


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

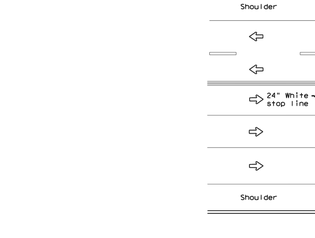
Texas Department of Transportation — Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE:	pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS					
4-98 3-03 6-20					
8-00 2-10 12-22					
8-00 2-12		DIST	COUNTY		SHEET NO.

7.C



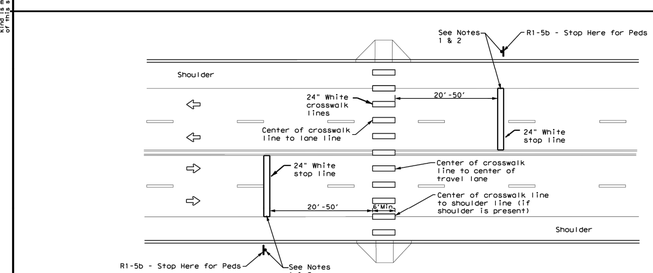
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with "Stop Here for Pedestrians" signs at unsignalized mid block cross walks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation — Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22

FILE:	pm4-22.dgn	DN:	CK:	DW:	CK:
©TxDOT	June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS					
5-22					
		DIST	COUNTY		SHEET NO.

7.D

Kimley»Horn
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10101 REUNION PLACE, SUITE 400, SAN ANTONIO, TX 78216
PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

No.	REVISIONS	DATE	BY

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

STRIPING DETAILS

VISTA GARDENS PH 1

PREPARED FOR M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C3.3

Plotted By: Heasley, Kara March 04, 2025 07:01:04pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gayden) Phase 1\CAD\PlanSheets\C-DETAILS.dwg
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LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.
CALLED 173.27 ACRES
DOC. NO. 20210349817, OPRBC

TRAVIS PAWLIK AND WIFE, APRIL PAWLIK
CALLED 1.781 ACRES
DOC. NO. 20090073652, OPRBC

PORTION OF REMAINDER OF CALLED 129.2 ACRES
MARGARET FRANCES SCHWARZKOPF AND HUSBAND, ALLEN SCHWARZKOPF
DOC. NO. 20090016296, OPRBC

LOTS 2-5, CB 5192
SCHELL SUBDIVISION UNIT 1
VOL. 7500, PG. 116-117, DPRBC

GARDNER RD.

CECILIA L. GEMBLER
CALLED 2.873 ACRES
DOC. NO. 20090054571, OPRBC

MARGARET FRANCES SCHWARZKOPF AND HUSBAND ALLEN SCHWARKOPF
CALLED 8.857 ACRES
DOC. NO. 20150116905, OPRBC

JAN & DOUG MORRISH
REMAINDER OF
CALLED 11.00 ACRES
DOC. NO. 20120111282,
OPRBC

CATHERINE BITTLE
CALLED 1.00 ACRES
VOL. 1009, PG. 975, OPRBC

THOMAS M. BAIRD AND WIFE, LAURIE BAIRD
CALLED 2.00 ACRES
VOL. 3443, PG. 983, DRBC

JOHN W. CHAPKO, JR.
CALLED 5.23 ACRES
DOC. NO. 20220291026, OPRBC
(VOL. 8789, PG. 1373, OPRBC)

EX 1
14.73

EX 2
24.36

EX 3
6.92

EX 4
17.10

EX 5
6.88

PROPERTY LINE

IRSC

IRFC
"ALLIANCE
6500"

1/2" IRF BENT

1/2" IRF

1

2

3

NORTH

GRAPHIC SCALE IN FEET
0 50 100 200

1
0.26
AREA DESIGNATION
AREA (ACRES)
DRAINAGE BOUNDARY
FLOW DIRECTION
A
ANALYSIS POINT

NOTES:
1. REFERENCE THE STORM WATER MANAGEMENT PLAN (SWMP) "VISTA GARDENS" DATED XXX FOR ADDITIONAL HYDROLOGY CALCULATIONS OF THE EXISTING FLOODPLAIN AND CREEK ADJACENT TO THE SITE.
2. DRAINAGE CRITERIA FOR THIS DRAINAGE AREA MAP IS BASED ON CITY OF SAN ANTONIO DRAINAGE REQUIREMENTS. MULTIPLE TIME OF CONCENTRATION PATHS WERE EXAMINED THROUGHOUT THE DEVELOPMENT AND WERE SUMMARIZED FOR CONSISTENCY AND PLANNING PURPOSES. BELOW IS A SUMMARY BASED ON LAND USE.

PEAK FLOW CALCULATIONS

Basin	Tc (min)	A (ac)	C	I-1 (in/hr)	I-5 (in/hr)	I-25 (in/hr)	I-100 (in/hr)	Q-1 (cfs)	Q-5 (cfs)	Q-25 (cfs)	Q-100 (cfs)	Collection Point
DA-EX 1	18.1	14.73	0.72	3.30	4.76	6.55	8.15	34.98	50.43	69.44	86.40	1
DA-EX 2	18.9	24.36	0.72	3.22	4.64	6.39	7.95	56.53	81.45	112.05	139.35	1
DA-EX 3	13.5	6.92	0.72	3.79	5.51	7.67	9.57	18.89	27.48	38.20	47.68	2
DA-EX 4	14.0	51.22	0.72	3.73	5.42	7.52	9.38	137.62	199.75	277.18	345.81	3
DA-EX 5	15.4	74.41	0.72	3.58	5.17	7.14	8.90	191.57	276.87	382.34	476.59	1

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

CAUTION!!!
EXISTING UNDERGROUND UTILITIES IN THE AREA CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS TO EXISTING UTILITIES DUE TO DAMAGE INCURRED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES ON THE PLANS.

BENCHMARK LIST

BM #100
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 42'± FROM EAST RIGHT-OF-WAY OF BORGFIELD DRIVE AND BEING APPROXIMATELY 706' NORTHWEST FROM A POWER POLE AND APPROXIMATELY 3,025'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 547.04'

BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

Kimley»Horn

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STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY KJH
CHECKED BY

EXISTING DRAINAGE AREA MAP

VISTA GARDENS PH 1

PREPARED FOR
M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C4.0

Plotted By: Hensley, Kara March 04, 2025 07:04:38pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlotSheets\C-DMAP-EXISTING.dwg
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DOC. NO. 20210349817, OPRBC

TRAVIS PAWLIK AND WIFE, APRIL PAWLIK
CALLED 1.781 ACRES
DOC. NO. 20090073652, OPRBC

BLUE JADEITE

GARDENBLOOM LN

HANGING BASKET

PURPLE LILAC

SUNCREST CT

PORTION OF REMAINDER OF 129.2 ACRES
MARGARET FRANCES SCHWARZKOPF AND HUSBAND, ALLEN SCHWARZKOPF
DOC. NO. 20090016296, OPRBC

JUNEPINE CT

ONION PATCH

PROPERTY LINE

LOTS 2-5, CB 5192
SCHELL SUBDIVISION UNIT 1
VOL. 7500, PG. 116-117, DPRBC

GREENBEAN PASS

GARDNER RD.

PORTION OF REMAINDER OF CALLED 129.2 ACRES
MARGARET FRANCES SCHWARZKOPF AND HUSBAND, ALLEN SCHWARZKOPF
DOC. NO. 20090016296, OPRBC

CECILIA L. GEMBLER
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MARGARET FRANCES SCHWARZKOPF AND HUSBAND ALLEN SCHWARKOPF
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DOC. NO. 20150116905, OPRBC

JOHN W. CHAPKO, JR.
CALLED 5.23 ACRES
DOC. NO. 20220291026, OPRBC
(VOL. 8789, PG. 1373, OPRBC)

1/2" IRF BENT

IRSC

NORTH

GRAPHIC SCALE IN FEET
0 50 100 200

1 / 0.26 — AREA DESIGNATION / AREA (ACRES)
DRAINAGE BOUNDARY
FLOW DIRECTION
1 — ANALYSIS POINT

NOTES:
1. REFERENCE THE STORM WATER MANAGEMENT PLAN (SWMP) "VISTA GARDENS" DATED XXX FOR ADDITIONAL HYDROLOGY CALCULATIONS OF THE EXISTING FLOODPLAIN AND CREEK ADJACENT TO THE SITE.
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PEAK FLOW CALCULATIONS

Basin	Tc (min)	A (ac)	C	I-1 (in/hr)	I-5 (in/hr)	I-25 (in/hr)	I-100 (in/hr)	Q-1 (cfs)	Q-5 (cfs)	Q-25 (cfs)	Q-100 (cfs)	Collection Point
DA-1	19.7	3.60	0.62	3.16	4.55	6.25	7.77	7.05	10.15	13.96	17.35	1
DA-2	17.2	7.30	0.62	3.38	4.88	6.72	8.37	15.30	22.08	30.42	37.87	2
DA-3	15.7	3.31	0.62	3.54	5.11	7.06	8.79	7.26	10.49	14.48	18.05	3
DA-4	23.4	12.99	0.61	2.90	4.17	5.73	7.11	22.90	32.93	45.17	56.07	4
DA-5	20.8	3.07	0.54	3.07	4.43	6.08	7.56	5.06	7.29	10.01	12.44	4,5
DA-6	25.9	14.68	0.62	2.76	3.96	5.43	6.74	25.10	36.07	49.44	61.33	1-6
DA-7	19.0	3.76	0.57	3.22	4.64	6.38	7.93	6.90	9.94	13.67	17.00	7
DA-8	14.7	4.36	0.57	3.65	5.29	7.31	9.12	9.08	13.14	18.17	22.66	8
DA-9	25.9	11.69	0.62	2.76	3.97	5.43	6.74	19.99	28.74	39.39	48.87	9
DA-10	5.0	0.18	0.62	5.34	7.85	10.92	13.65	0.60	0.88	1.22	1.52	10
DA-11	5.0	2.15	0.62	5.34	7.85	10.92	13.65	7.12	10.46	14.56	18.20	11
DA-12	16.8	1.56	0.62	3.42	4.94	6.81	8.48	3.31	4.78	6.58	8.20	9+12

Analysis Point Flow Computation Summary

Analysis Point	Contributing Drainage Area	Time of Concentration (Min.)	Area (Ac.)	Composite C-Value	1-yr Intensity (in/hr)	5-yr Intensity (in/hr)	25-yr Intensity (in/hr)	100-yr Intensity (in/hr)	Total Q (1-yr) (cfs)	Total Q (5-yr) (cfs)	Total Q (25-yr) (cfs)	Total Q (100-yr) (cfs)
1	1	19.7	3.6	0.62	3.16	4.55	6.25	7.77	7.05	10.15	13.96	17.35
2	2	17.2	7.3	0.62	3.38	4.88	6.72	8.37	15.30	22.08	30.42	37.87
3	1-3	20.8	14.21	0.62	3.08	4.43	6.08	7.56	27.09	39.00	53.57	66.57
4	4	23.4	12.99	0.61	2.90	4.17	5.73	7.11	22.90	32.93	45.17	56.07
5	4+5	23.7	16.06	0.60	2.89	4.15	5.69	7.06	27.64	39.75	54.52	67.68
6	1-6	17.5	44.95	0.61	3.35	4.84	6.67	8.30	92.23	133.04	183.28	228.13
7	7	19.0	3.76	0.57	3.22	4.64	6.38	7.93	6.90	9.94	13.67	17.00
8	8	14.7	4.36	0.57	3.65	5.29	7.31	9.12	9.08	13.14	18.17	22.66
9	9	25.9	11.69	0.62	2.76	3.97	5.43	6.74	19.99	28.74	39.39	48.87
10	10	5.0	0.18	0.62	5.34	7.85	10.92	13.65	0.60	0.88	1.22	1.52
11	11	5.0	2.15	0.62	5.34	7.85	10.92	13.65	7.12	10.46	14.56	18.20
12	9+12	26.4	13.25	0.62	2.73	3.93	5.38	8.48	22.44	32.26	44.20	54.83

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BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

Kimley»Horn
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PHONE: 210-541-9166 FAX: 210-541-8699
WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

PROPOSED DRAINAGE AREA MAP

VISTA GARDENS PH 1

PREPARED FOR
M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C4.1

Plotted By: Heasley, Kara March 04, 2026 07:10:15pm K:\SNA_Civil\068687804-Mi Homes-Vista Gardens (Gardner) Phase 1\C4D\PlanSheets\C-DMAP- PROPOSED.dwg
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LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.
CALLED 173.27 ACRES
DOC. NO. 20210349817, OPRBC

TRAVIS PAWLIK AND WIFE, APRIL PAWLIK
CALLED 1.781 ACRES
DOC. NO. 20090073652, OPRBC

BLUE JADEITE

GARDENBLOOM LN

HANGING BASKET

PURPLE LILAC

SUNCREST CT

PORTION OF REMAINDER OF CALLED 129.2 ACRES
MARGARET FRANCES SCHWARZKOPF AND HUSBAND, ALLEN SCHWARZKOPF
DOC. NO. 20090016296, OPRBC

JUNEPINE CT

ONION PATCH

PROPERTY LINE

GREENBEAN PASS

LOTS 2-5, CB 5192
SCHELL SUBDIVISION UNIT 1
VOL. 7500, PG. 116-117, DPRBC

PORTION OF REMAINDER OF CALLED 129.2 ACRES
MARGARET FRANCES SCHWARZKOPF AND HUSBAND, ALLEN SCHWARZKOPF
DOC. NO. 20090016296, OPRBC

GARDNER RD.

CECILIA L. GEMBLER
CALLED 2.873 ACRES
DOC. NO. 20090054571, OPRBC

MARGARET FRANCES SCHWARZKOPF AND HUSBAND ALLEN SCHWARKOPF
CALLED 8.857 ACRES
DOC. NO. 20150116905, OPRBC

JOHN W. CHAPKO, JR.
CALLED 5.23 ACRES
DOC. NO. 20220291026, OPRBC
(VOL. 8789, PG. 1373, OPRBC)

1/2" IRF BENT

IRSC

1 3.60 · 2 7.30 · 3 3.31 · 4 12.99 · 5 3.07 · 6 14.68 · 7 3.76 · 8 4.36 · 9 11.69 · 10 0.18 · 11 2.15 · 12 1.56

NORTH

GRAPHIC SCALE IN FEET
0 50 100 200

1 / 0.26 — AREA DESIGNATION / AREA (ACRES)
DRAINAGE BOUNDARY
FLOW DIRECTION
1 — ANALYSIS POINT

NOTES:
1. REFERENCE THE STORM WATER MANAGEMENT PLAN (SWMP) "VISTA GARDENS" DATED XXX FOR ADDITIONAL HYDROLOGY CALCULATIONS OF THE EXISTING FLOODPLAIN AND CREEK ADJACENT TO THE SITE.
2. DRAINAGE CRITERIA FOR THIS DRAINAGE AREA MAP IS BASED ON CITY OF SAN ANTONIO DRAINAGE REQUIREMENTS. MULTIPLE TIME OF CONCENTRATION PATHS WERE EXAMINED THROUGHOUT THE DEVELOPMENT AND WERE SUMMARIZED FOR CONSISTENCY AND PLANNING PURPOSES. BELOW IS A SUMMARY BASED ON LAND USE.

PEAK FLOW CALCULATIONS

Basin	Tc (min)	A (ac)	C	I-1 (in/hr)	I-5 (in/hr)	I-25 (in/hr)	I-100 (in/hr)	Q-1 (cfs)	Q-5 (cfs)	Q-25 (cfs)	Q-100 (cfs)	Collection Point
DA-1	19.7	3.60	0.62	3.16	4.55	6.25	7.77	7.05	10.15	13.96	17.35	1
DA-2	17.2	7.30	0.62	3.38	4.88	6.72	8.37	15.30	22.08	30.42	37.87	2
DA-3	15.7	3.31	0.62	3.54	5.11	7.06	8.79	7.26	10.49	14.48	18.05	3
DA-4	23.4	12.99	0.61	2.90	4.17	5.73	7.11	22.90	32.93	45.17	56.07	4
DA-5	20.8	3.07	0.54	3.07	4.43	6.08	7.56	5.06	7.29	10.01	12.44	4,5
DA-6	25.9	14.68	0.62	2.76	3.96	5.43	6.74	25.10	36.07	49.44	61.33	1-6
DA-7	19.0	3.76	0.57	3.22	4.64	6.38	7.93	6.90	9.94	13.67	17.00	7
DA-8	14.7	4.36	0.57	3.65	5.29	7.31	9.12	9.08	13.14	18.17	22.66	8
DA-9	25.9	11.69	0.62	2.76	3.97	5.43	6.74	19.99	28.74	39.39	48.87	9
DA-10	5.0	0.18	0.62	5.34	7.85	10.92	13.65	0.60	0.88	1.22	1.52	10
DA-11	5.0	2.15	0.62	5.34	7.85	10.92	13.65	7.12	10.46	14.56	18.20	11
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Analysis Point Flow Computation Summary

Analysis Point	Contributing Drainage Area	Time of Concentration (Min.)	Area (Ac.)	Composite C-Value	1-yr Intensity (in/hr)	5-yr Intensity (in/hr)	25-yr Intensity (in/hr)	100-yr Intensity (in/hr)	Total Q (1-yr) (cfs)	Total Q (5-yr) (cfs)	Total Q (25-yr) (cfs)	Total Q (100-yr) (cfs)
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4	4	23.4	12.99	0.61	2.90	4.17	5.73	7.11	22.90	32.93	45.17	56.07
5	4+5	23.7	16.06	0.60	2.89	4.15	5.69	7.06	27.64	39.75	54.52	67.68
6	1-6	17.5	44.95	0.61	3.35	4.84	6.67	8.30	92.23	133.04	183.28	228.13
7	7	19.0	3.76	0.57	3.22	4.64	6.38	7.93	6.90	9.94	13.67	17.00
8	8	14.7	4.36	0.57	3.65	5.29	7.31	9.12	9.08	13.14	18.17	22.66
9	9	25.9	11.69	0.62	2.76	3.97	5.43	6.74	19.99	28.74	39.39	48.87
10	10	5.0	0.18	0.62	5.34	7.85	10.92	13.65	0.60	0.88	1.22	1.52
11	11	5.0	2.15	0.62	5.34	7.85	10.92	13.65	7.12	10.46	14.56	18.20
12	9+12	26.4	13.25	0.62	2.73	3.93	5.38	8.48	22.44	32.26	44.20	54.83

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Kimley»Horn
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WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

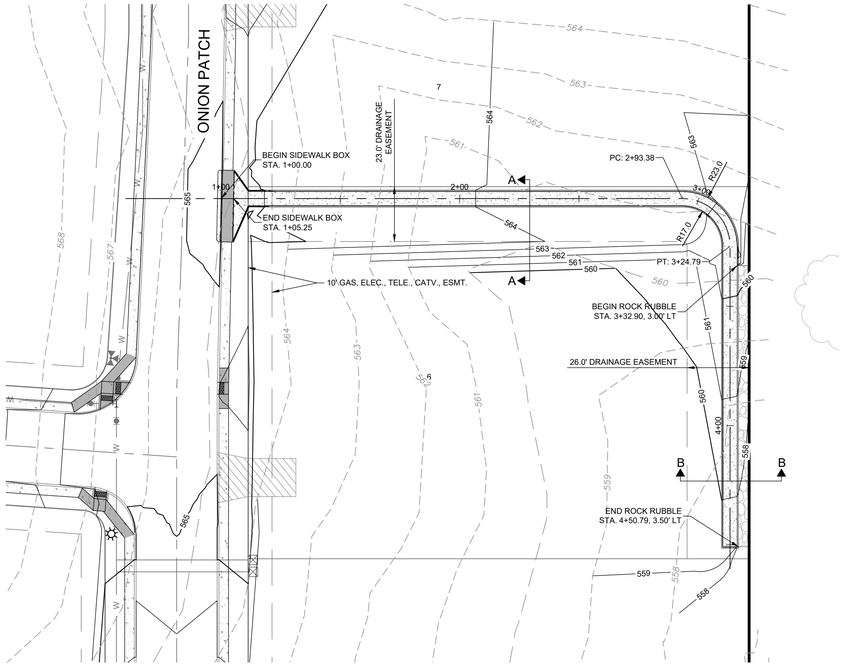
KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

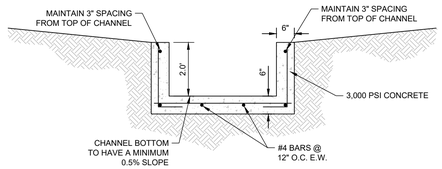
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

ULTIMATE DRAINAGE AREA MAP

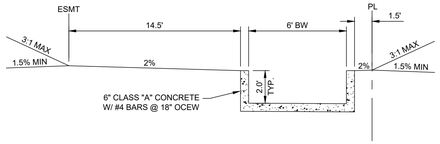
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C4.2

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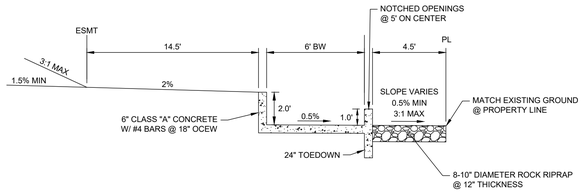




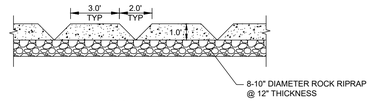
CONCRETE RECTANGULAR CHANNEL
N.T.S.



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.



SAWTOOTH CURB
STA. 3+32.90 - STA. 4+50.79
N.T.S.

LEGEND

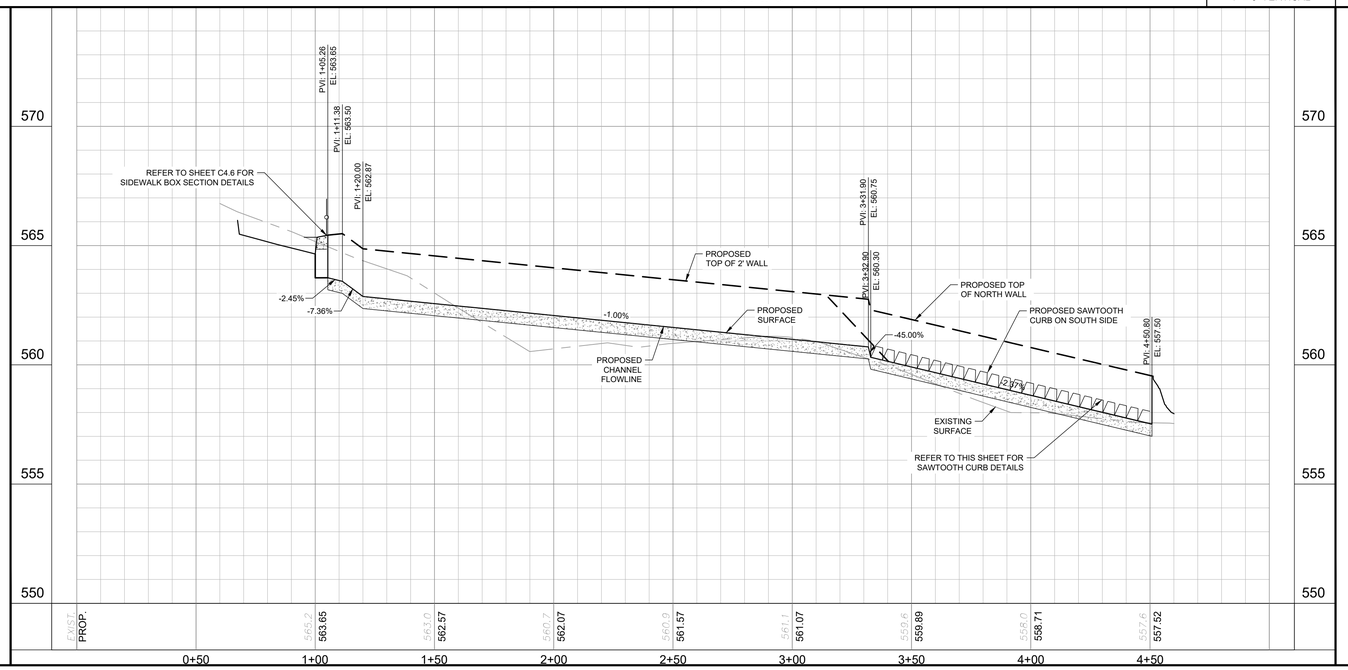
	PROPERTY LINE
SS	EXISTING SANITARY SEWER LINE
SS	PROPOSED SANITARY SEWER LINE
W	PROPOSED WATER LINE
W	EXISTING WATER LINE
UGE	UNDERGROUND ELECTRIC
GAS	UNDERGROUND GAS
	PROPOSED STORM DRAIN LINE
	PROPOSED SANITARY SEWER MANHOLE WITH FLOW ARROWS
S	EXISTING SANITARY SEWER MANHOLE
	PROPOSED JUNCTION BOX MANHOLE
	PROPOSED TYPE 1 CURB INLET
	PROPOSED FIRE HYDRANT
	UTILITY CROSSING
	PROPOSED GATE VALVE
	PROPOSED SEWER LATERAL
	PROPOSED WATER SERVICE
	PROPOSED WATER METER

GRAPHIC SCALE IN FEET
0 15 30 60

NORTH

DRAIN A STA. 1+00 - STA. 5+10

PROFILE SCALE
1" = 30' HORIZONTAL
1" = 3' VERTICAL



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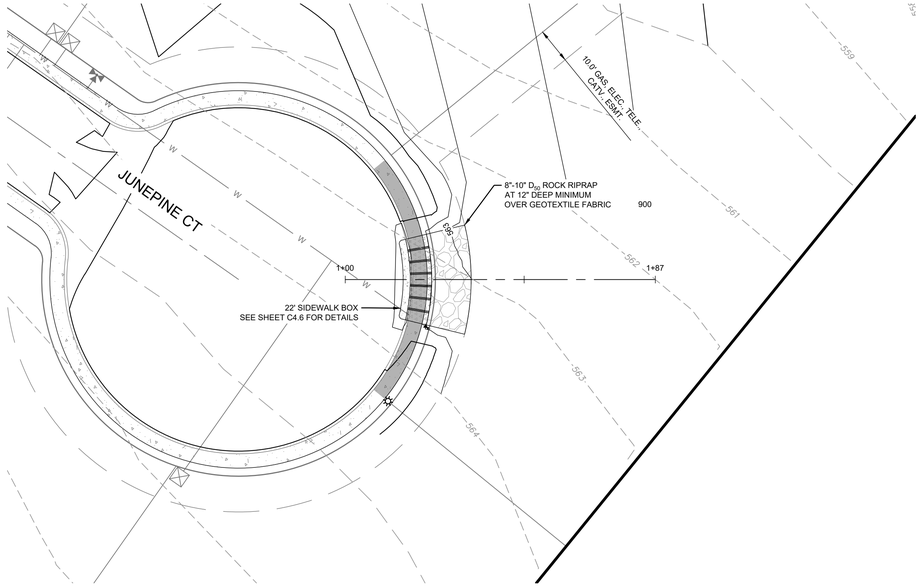
KHA PROJECT	068687804
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SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	KJH
CHECKED BY	

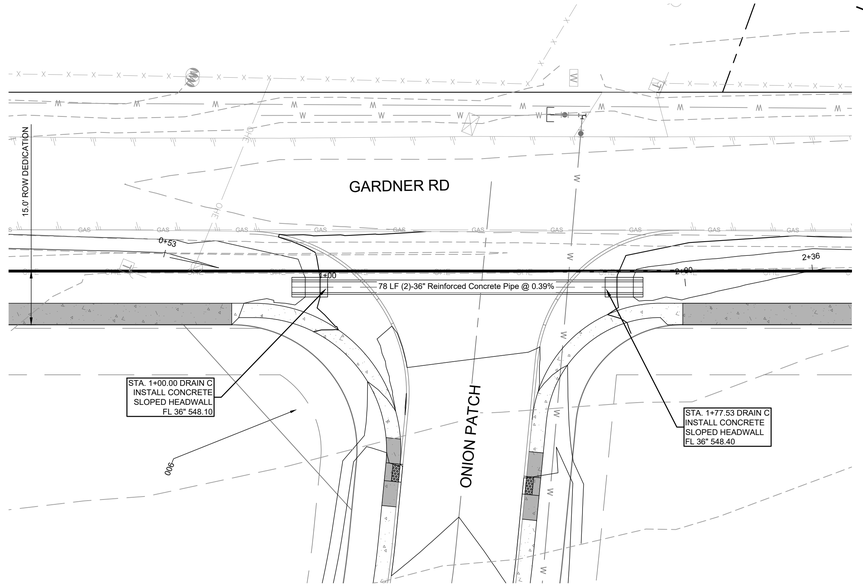
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF
SAN ANTONIO
SAN ANTONIO ETJ TEXAS

DRAINAGE PLAN
(1 OF 3)

SHEET NUMBER
C4.3

Plotted By:Heasley, Kara March 04, 2025 07:16:24pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\C4D\PlanSheets\C-STRM.dwg
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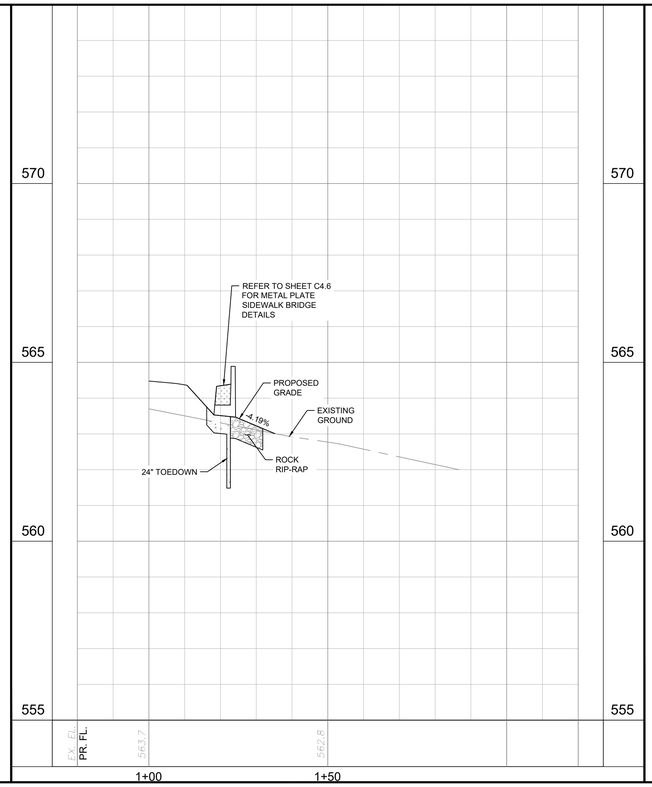
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LEGEND

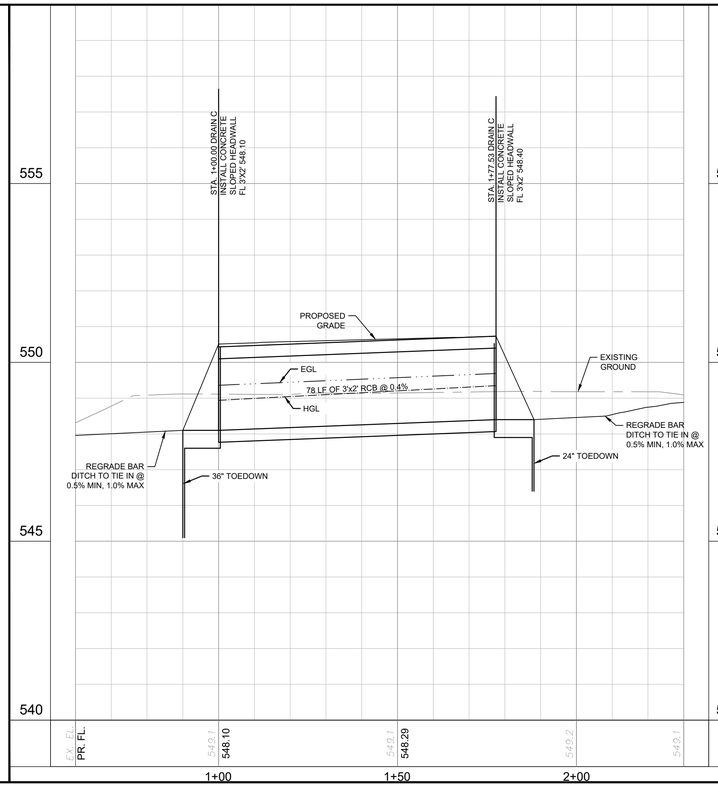
	PROPERTY LINE
SS	EXISTING SANITARY SEWER LINE
SS	PROPOSED SANITARY SEWER LINE
W	PROPOSED WATER LINE
W	EXISTING WATER LINE
UGE	UNDERGROUND ELECTRIC
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	PROPOSED TYPE 1 CURB INLET
	PROPOSED FIRE HYDRANT
	UTILITY CROSSING
	PROPOSED GATE VALVE
	PROPOSED SEWER LATERAL
	PROPOSED WATER SERVICE
	PROPOSED WATER METER

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

DRAIN B



DRAIN C



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WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED
PROFESSIONAL ENGINEER
3/4/2025

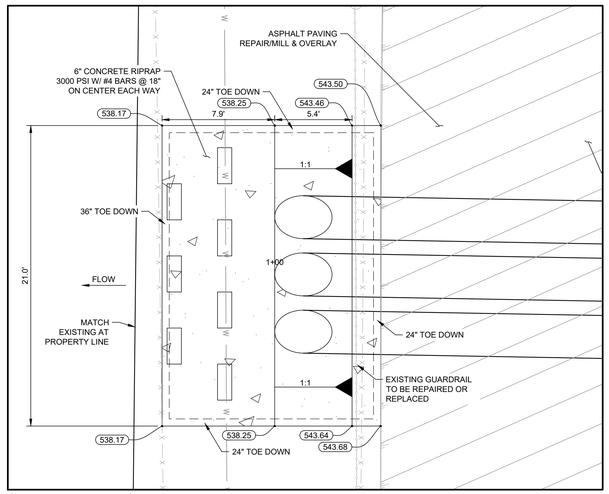
KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

DRAINAGE PLAN (2 OF 3)

VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

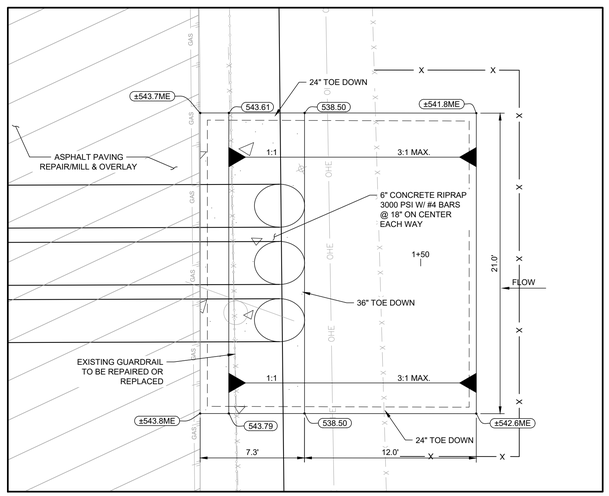
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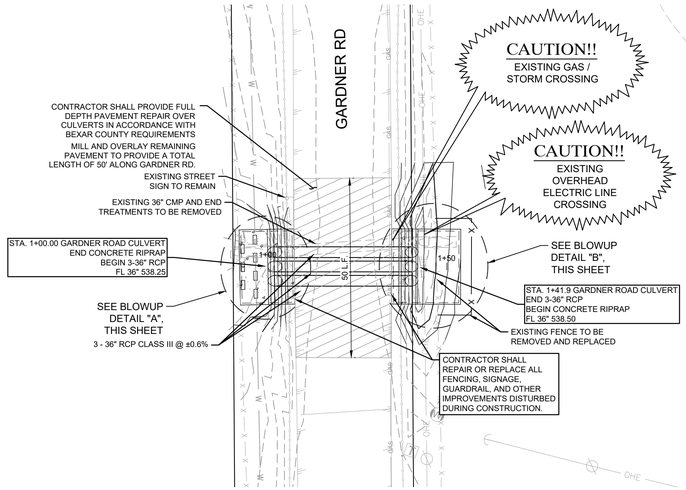
BLOWUP DETAIL "A"

SCALE: 1" = 5'

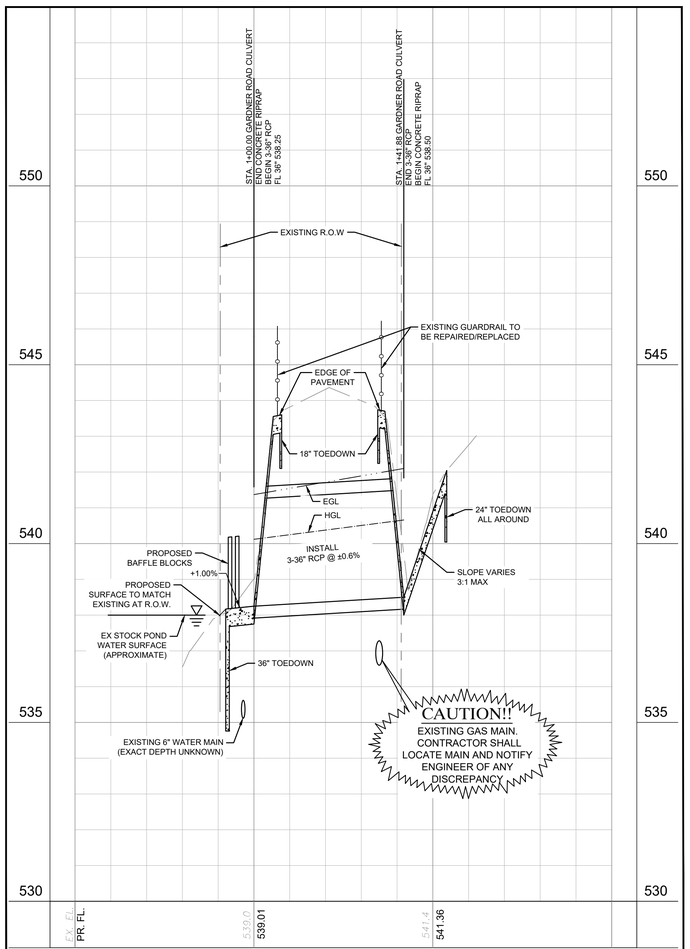


BLOWUP DETAIL "B"

SCALE: 1" = 5'



GARDNER ROAD CULVERT





GRAPHIC SCALE IN FEET
0 10 20 40

LEGEND

	PROPERTY LINE
SS	EXISTING SANITARY SEWER LINE
SS	PROPOSED SANITARY SEWER LINE
W	PROPOSED WATER LINE
W	EXISTING WATER LINE
UGE	UNDERGROUND ELECTRIC
GAS	UNDERGROUND GAS
	PROPOSED STORM DRAIN LINE
	PROPOSED SANITARY SEWER MANHOLE WITH FLOW ARROWS
Ⓢ	EXISTING SANITARY SEWER MANHOLE
	PROPOSED JUNCTION BOX MANHOLE
	PROPOSED TYPE 1 CURB INLET
	PROPOSED FIRE HYDRANT
	UTILITY CROSSING
	PROPOSED GATE VALVE
	PROPOSED SEWER LATERAL
	PROPOSED WATER SERVICE
⊠	PROPOSED WATER METER

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

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BENCHMARK LIST

BM #100
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 42'± FROM EAST RIGHT-OF-WAY OF BORGFIELD DRIVE AND BEING APPROXIMATELY 706' NORTHWEST FROM A POWER POLE AND APPROXIMATELY 3,025'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 547.04'

BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

Kimley»Horn
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3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

VISTA GARDENS PH 1

PREPARED FOR
M/I HOMES OF
SAN ANTONIO

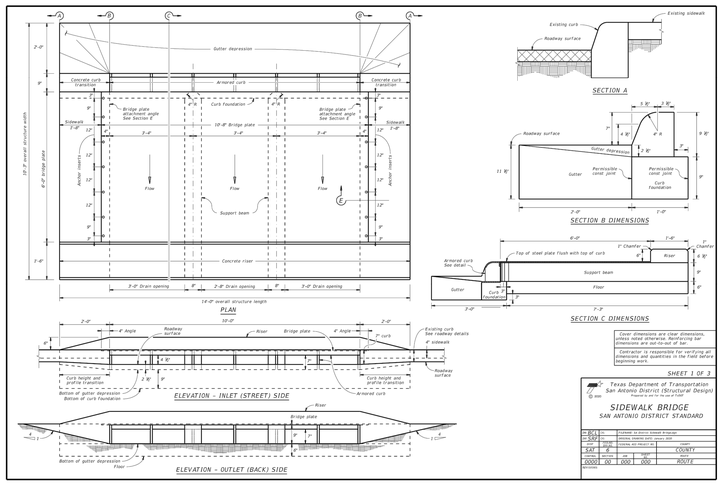
SAN ANTONIO ETJ TEXAS

DRAINAGE PLAN (3 OF 3)

(FOR BEXAR COUNTY R.O.W. PERMIT REVIEW)

SHEET NUMBER
C4.5

Plotted By:Heasley, Kara March 04, 2025 07:17:50am K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\CAD\PlanSheets\C-STRM.dwg
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Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions are out-to-out of bar.

Contractor is responsible for verifying all dimensions and quantities in the field before beginning work.

SHEET 1 OF 3

Texas Department of Transportation
San Antonio District (Structural Design)
Prepared to work for the use of CSJ#

SIDEWALK BRIDGE
SAN ANTONIO DISTRICT STANDARD

no.	date	by	revision
no. 1	2-21	TxDOT	Published for District Consult Bridge(s)
no. 2	8-21	TxDOT	Editorial, Drawing split, Layout, Add
no. 3	8-24	TxDOT	Editorial, Add Precast #5

DIST	COUNTY
SAT	

CONTROL	SECTION	JOB	HIGHWAY
0000	00	000	000

ROUTE

REVISIONS

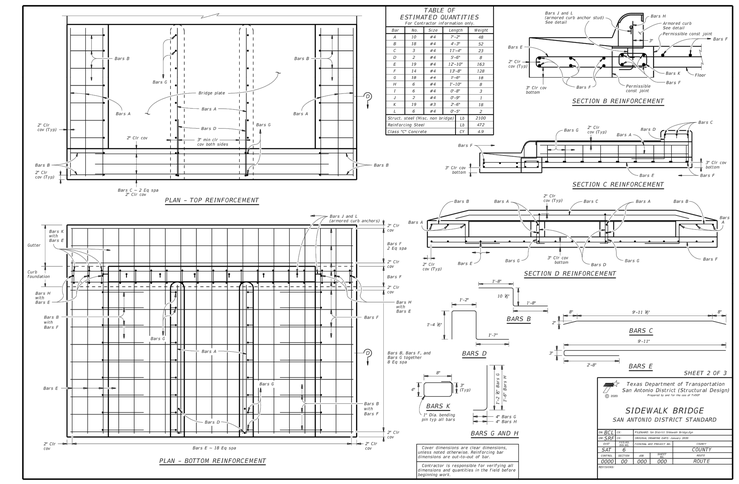


TABLE OF ESTIMATED QUANTITIES
Per Contractor information only

Bar	No.	Size	Length	Weight
A	14	#4	10'-0"	93
B	18	#4	4'-3"	52
C	2	#4	11'-0"	22
D	2	#4	9'-8"	8
E	18	#4	12'-10"	163
F	14	#4	13'-8"	128
G	16	#4	7'-8"	16
H	6	#4	1'-10"	8
I	6	#4	3'-8"	3
J	2	#4	0'-9"	1
K	14	#3	2'-6"	18
L	6	#4	0'-3"	2
Struct. steel (thru, non bridge)			LS	2100
Reinforcing Steel			LB	472
Class "C" Concrete			CY	69

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SHEET 2 OF 3

Texas Department of Transportation
San Antonio District (Structural Design)
Prepared to work for the use of CSJ#

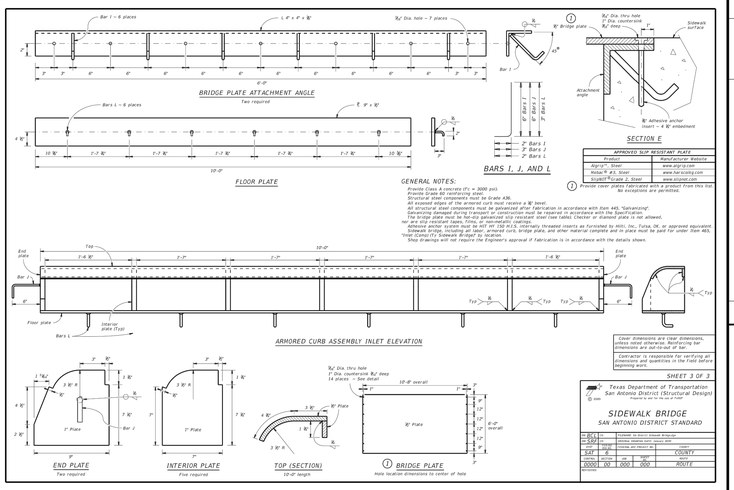
SIDEWALK BRIDGE
SAN ANTONIO DISTRICT STANDARD

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DIST	COUNTY
SAT	

CONTROL	SECTION	JOB	HIGHWAY
0000	00	000	000

ROUTE



APPROVED SLIP RESISTANT PLATE

Product	Manufacturer
Rig-U™ Steel	www.rigu-grip.com
Hiclad ® #1, Steel	www.hiraisteel.com
Slipnot® Grade 2, Steel	www.mcmaster.com

2 Provide cover plates fabricated with a product from this list. No exceptions are permitted.

GENERAL NOTES:
Provide Class A concrete (f'c = 3000 psi).
All steel is to be reinforcing steel.
Structural steel components must be Grade A36.
All exposed edges of the armored curb must receive a ¾" bevel.
All structural steel components must be galvanized after fabrication in accordance with item 445, 'Galvanizing'.
Welding must be in accordance with the latest edition of the AWS D1.1 Structural Welding Code – Steel.
The bridge plate must be hot-dip galvanized ala rainstall steel (see table). Checker or diamond plate is not allowed.
Do not weld to galvanized steel.
Adhesive anchor system must be HIT HY 150 RX-S, internally threaded inserts as furnished by Hilti, Inc., Tulsa, OK, or approved equivalent.
Install adhesive anchors in accordance with manufacturer's recommendations. Install armored curb, bridge plate, and other material complete and in place must be paid for under Item 465, 'Inlet (Curb (7)) Sidewalk Bridge(s)' by 'each'.
Shop drawings will not require the Engineer's approval if fabrication is in accordance with the details shown.

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SHEET 3 OF 3

Texas Department of Transportation
San Antonio District (Structural Design)
Prepared to work for the use of CSJ#

SIDEWALK BRIDGE
SAN ANTONIO DISTRICT STANDARD

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SAT	

CONTROL	SECTION	JOB	HIGHWAY
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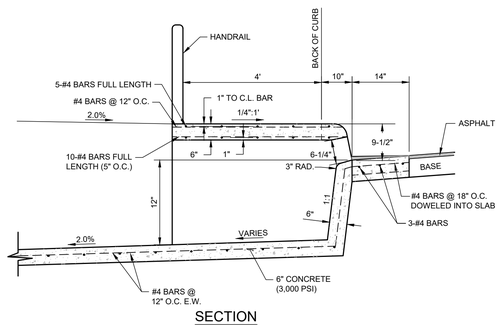
ROUTE

GENERAL NOTES:

1. A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.

TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION

N.T.S.



SECTION

Plotted By:Hedrey Kora March 04, 2025 07:19:26am K:\SNA_Civil\06868780-MI Homes-Vista Gardens (Cordova) Phase 1\CAD\PlanSheets\C-DRAINAGE DETAILS.dwg
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KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT	068687804
DATE	3/4/2025
SCALE	AS SHOWN
DESIGNED BY	
DRAWN BY	
CHECKED BY	KJH

VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ
TEXAS

DRAINAGE DETAILS

SHEET NUMBER
C4.6



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LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
3/4/2025

KHA PROJECT 068687804
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SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

OVERALL GRADING PLAN

SHEET NUMBER
C5.0

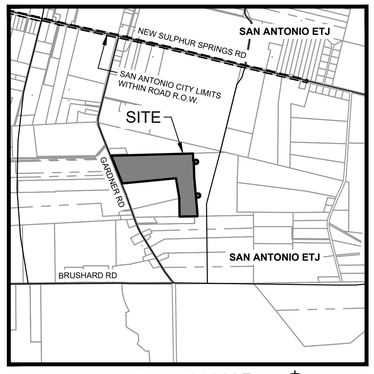
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WATER CONSTRUCTION PLANS
FOR
VISTA GARDENS PH 1

SAN ANTONIO E.T.J.
BEXAR COUNTY, TEXAS

GENERAL NOTES

1. ALL VALVES SHALL REMAIN CLOSED UNTIL MAINS HAVE BEEN DISINFECTED, FLUSHED, AND RELEASED FOR PUBLIC USE BY THE ENGINEER.
2. EXISTING UTILITIES SHOWN ARE TAKEN FROM VARIOUS UTILITY COMPANY RECORDS. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO BEGINNING CONSTRUCTION. CONTRACTORS SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING UTILITIES AND DRAINAGE STRUCTURES DURING CONSTRUCTION.
3. ALL EXCAVATION SHALL BE UNCLASSIFIED REGARDLESS OF MATERIAL ENCOUNTERED.
4. BIDDERS ARE NOTIFIED TO MAKE SUBSURFACE INVESTIGATIONS AS THEY DEEM NECESSARY. NO ADDITIONAL PAYMENT WILL BE MADE FOR WATER, SAND, GRAVEL, OR OTHER UNSTABLE CONDITIONS ENCOUNTERED IN EXCAVATIONS.
5. DETOUR OF TRAFFIC AROUND WORK ACTIVITIES, MAINTENANCE OF TRAFFIC CONTROL SIGNS, AND FLAGMEN ARE THE CONTRACTOR'S RESPONSIBILITY. NO SEPARATE PAYMENT WILL BE MADE.
6. THE CONTRACTOR SHALL PROTECT ALL OPEN EXCAVATIONS AND EQUIPMENT FROM CHILDREN, PEDESTRIANS, AND VEHICLES IN THE AREA.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ALL FENCES IN THE WORK AREA TO THEIR ORIGINAL CONDITION PRIOR TO COMPLETION OF THE CONTRACT. THIS SHALL APPLY TO ALL FENCES IN THE WORK AREA WHETHER THEY ARE SHOWN ON THE PLANS OR NOT.
8. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. ANY CONSTRUCTION STAKES, MARKS, ETC. DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
9. THE CONTRACTOR SHALL CONFER WITH EACH INDIVIDUAL PROPERTY OWNER AS TO THE LOCATION OF EACH INDIVIDUAL METER BOX.
10. CONTRACTOR SHALL DISINFECT ALL NEW WATER MAINS BEFORE TYING INTO EXISTING WATER MAINS.
11. ALL VALVES SHALL BE PERMANENTLY MARKED BY THE USE OF A VALVE MARKER. NO SEPARATE PAY ITEM.
12. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
13. CONTRACTOR SHALL MAINTAIN FENCING FOR THE CONTAINMENT OF LIVESTOCK DURING CONSTRUCTION. ALL FENCES REMOVED FOR CONSTRUCTION SHALL BE REPLACED. ALL REQUIRED FENCING SHALL BE INCIDENTAL TO CONSTRUCTION AND NOT A SEPARATE PAY ITEM.
14. ALL DRIVEWAYS, INCLUDING DRAIN PIPES, CULVERTS AND HEADWALLS, DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR TO EQUAL OR BETTER THEN PRECONSTRUCTION CONDITION. ASPHALT DRIVES ARE NOT ALLOWED TO BE CUT WITHOUT OWNERS PERMISSION. INSTALLATION OF WATER MAINS CROSSING CONCRETE DRIVEWAY WITH BE BORED. ALL DRAIN PIPE, CULVERT AND HEADWALL REPAIR SHALL BE INCIDENTAL TO CONSTRUCTION AND NOT A SEPARATE PAY ITEM. DRIVEWAY PAVEMENT REPAIR SHALL BE PAID FOR AS PER ITEM NO. 02950, "CUTTING AND PATCHING ASPHALT PAVEMENT, ASPHALT DRIVES, CONCRETE DRIVES, OR GRAVEL ROADS AND DRIVES". PAYMENT FOR BORES UNDER CONCRETE DRIVES SHALL BE PAID FOR AS PER ITEM 02445 "BORING AND CASING PIPE UNDER HIGHWAYS, RAILROADS, OR OTHER AREAS".
15. LOCATIONS OF COMBINATION AIR VALVES WHERE SHOWN ON PLANS ARE APPROXIMATE. FINAL LOCATIONS TO BE ADJUSTED IN FIELD AT TIME OF CONSTRUCTION AT THE DIRECTION OF THE ENGINEER.
16. ALL WORK SHALL BE SCHEDULED TO TAKE PLACE ON MONDAY THROUGH FRIDAY, DURING NORMAL WORK HOURS. CONTRACTOR SHALL NOTIFY ECSUD 48 HOURS PRIOR TO SERVICE SHUT OFF AFFECTING CUSTOMERS. SERVICE SHALL NOT BE SHUT OFF FOR MORE THAN EIGHT (8) HOURS AT A TIME.
17. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PROPERTY, INCLUDING, BUT NOT LIMITED TO, FENCES, PAVEMENT, DRIVEWAYS, LAWNS, CULVERTS, AND TREES, AT NO COST TO THE OWNER.
18. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL AT ALL CULVERT, STREAM AND DRAINAGE SWALE CROSSINGS. EROSION CONTROL MEASURES SHALL INCLUDE AS A MINIMUM SILT FENCES. SILT FENCES SHALL BE INSTALLED PRIOR TO DISTURBANCE OF THE WORK AREAS AND SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION OF THE DISTURBED AREAS UPSTREAM. EROSION CONTROL SHALL BE COORDINATED WITH THE ENGINEER.
19. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY MAILBOXES, TRAFFIC OR ROAD SIGNS ENCOUNTERED. NO SEPARATE PAY ITEM.
20. CONTRACTOR SHALL SUBMIT TO ENGINEER PROPOSED CONSTRUCTION SEQUENCE PRIOR TO BEGINNING CONSTRUCTION.
21. ALL FITTINGS ARE TO BE DUCTILE IRON, MECHANICAL JOINT TYPE, UNLESS OTHERWISE NOTED ON PLANS.
22. ALL THRUST BLOCKS SHALL BE INSPECTED BY OWNER AND/OR ENGINEER PRIOR TO BACKFILLING.
23. ALL EXISTING VALVES SHOWN ON PLANS TO BE ABANDONED, SHALL HAVE BOXES REMOVED AND SHALL BE BACKFILLED ACCORDING TO SPECIFICATIONS. NO SEPARATE PAY ITEM.
24. CONTRACTOR SHALL CONTAIN ALL CONSTRUCTION AND STAGING WITHIN EXISTING UTILITY EASEMENTS, UNLESS OTHER ARRANGEMENTS ARE MADE WITH OWNER AND/OR TXDOT.
25. WHERE THE NEW WATER MAIN SHOWN ON THE PLANS REQUIRES CROSSING AN EXISTING WATER MAIN OR OTHER UTILITY, THE CONTRACTOR SHALL VERTICALLY DEFLECT THE PROPOSED WATER MAIN. DEFLECTION SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. FITTINGS ARE NOT PERMISSIBLE, UNLESS OTHERWISE SHOWN ON THE PLANS. NO SEPARATE PAY ITEM.
26. WATER MAINS SHALL BE INSTALLED WITH 48" MINIMUM COVER OVER THE TOP OF THE PIPE, WITH A MAXIMUM PIPE DEPTH OF 5', UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.
27. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL CONCRETE FOUNDATIONS, VAULT BOXES AND OVERFLOW BOXES THROUGHOUT THE PROJECT SITE.
28. CONTRACTOR TO INSTALL DIRECT BURIAL ELECTRICALLY CONTINUOUS TRACER WIRE WITH ACCESS POINTS, ADJACENT TO ALL WATER MAINS. N.S.P.I.
29. ALL GATE VALVES SHALL OPEN RIGHT.



VICINITY MAP
SCALE: 1" = 2000'

INDEX OF SHEETS

SHEET NO	SHEET TITLE	REVISION
C6.0	WATER COVER SHEET	
C6.1	OFFSITE WATER PLAN & PROFILE	
C6.2	ONSITE WATERLINE PLAN (1 OF 2)	
C6.3	ONSITE WATERLINE PLAN (2 OF 2)	
C6.4	WATER DETAILS (1 OF 2)	
C6.5	WATER DETAIL (2 OF 2)	

SUBMITTAL REVIEW LOG

1ST SUBMITTAL	12/09/2024
2ND SUBMITTAL	02/25/2025

PROJECT TEAM:

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M/I HOMES OF SAN ANTONIO, LLC.
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SUITE 220
SAN ANTONIO, TEXAS 78249
PH. (210) 721-6020
CONTACT: DAVE McGOWEN

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A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 42'± FROM EAST RIGHT-OF-WAY OF BORGFIELD DRIVE AND BEING APPROXIMATELY 706' NORTHWEST FROM A POWER POLE AND APPROXIMATELY 3,025'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 547.04'

BM #101
A 5/8" IRON ROD SET IN CONCRETE APPROXIMATELY 54'± FROM EAST RIGHT-OF-WAY OF GARDNER ROAD AND BEING APPROXIMATELY 574' SOUTHWEST FROM A POWER POLE AND BEING APPROXIMATELY 1,766'± NORTHWEST FROM THE INTERSECTION OF GARDNER ROAD AND BURSHARD ROAD. ELEV. = 541.41'

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
10101 REUNION PLACE, SUITE 400, SAN ANTONIO TX 78216
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STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

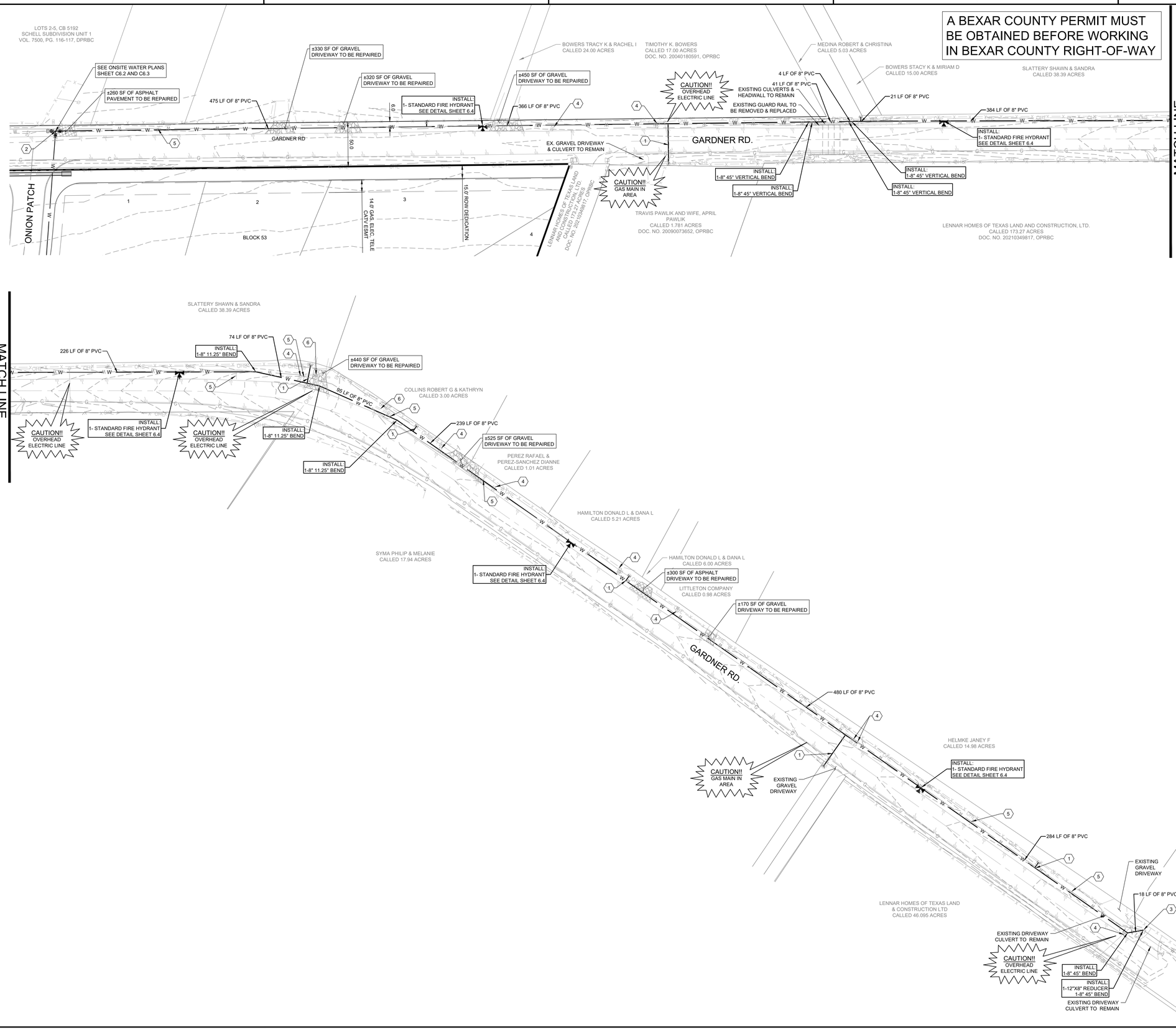
KHA PROJECT 068687804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

WATER COVER SHEET

VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C6.0

Plotted By:Hoskey, Kora March 04, 2025 07:25:32pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardner) Phase 1\C40\PlanSheets\C-WCOVR.dwg
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CHECKED BY	KJH

OFFSITE WATERLINE PLAN

VISTA GARDENS PH 1

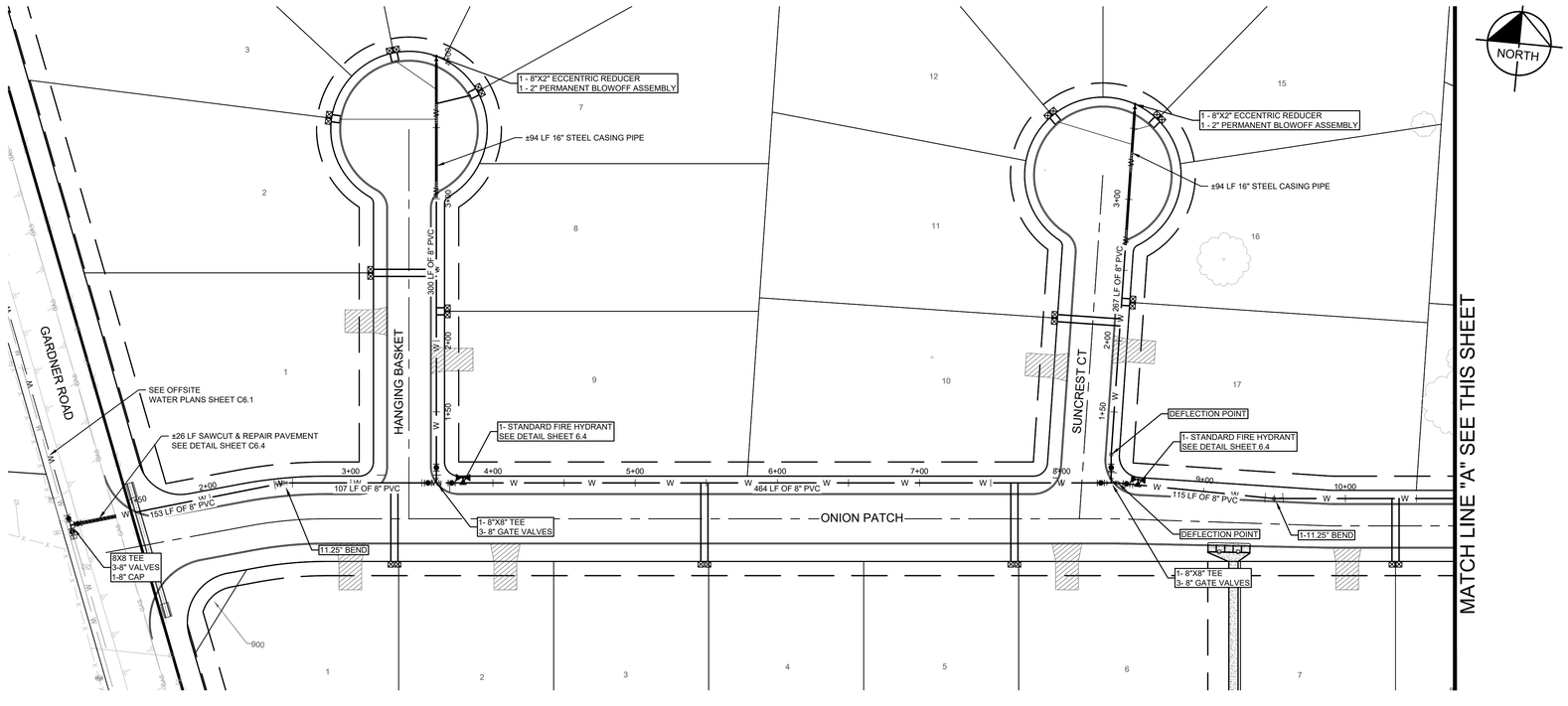
PREPARED FOR
M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C6.1

LAND-PLAT-24-11800462

Plotted By: Hastay, Kora March 04, 2026 07:31:52pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Gardens) Phase 1\CAD\PlanSheets\C-UTIL-OFFSITE.dwg
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NORTH

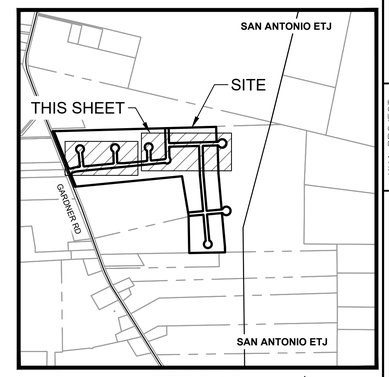
GRAPHIC SCALE IN FEET
0 25 50 100

LEGEND

- RIGHT-OF-WAY LINE
- W — PROPOSED WATERLINE
- W — EXISTING WATERLINE
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- PROPOSED SINGLE WATER SERVICE
- PROPOSED WATER METER
- PROPOSED DUAL WATER SERVICE
- PROPOSED BLOW OFF

NOTES

1. REFER TO ECUSD DESIGN GUIDELINES AND STANDARD CONSTRUCTION DETAILS FOR ALL UTILITY STANDARDS.
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5. ALL DISTRIBUTION MAINS SHALL BE DR18 C-900 PVC PIPE UNLESS OTHERWISE NOTED.



KEY MAP
SCALE: 1" = 1000'

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

CAUTION!!
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BENCHMARK LIST

BM #100
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LAND-PLAT-24-11800462

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STATE OF TEXAS
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KHA PROJECT 068687804
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CHECKED BY

ONSITE WATERLINE PLAN (1 OF 2)

VISTA GARDENS PH 1

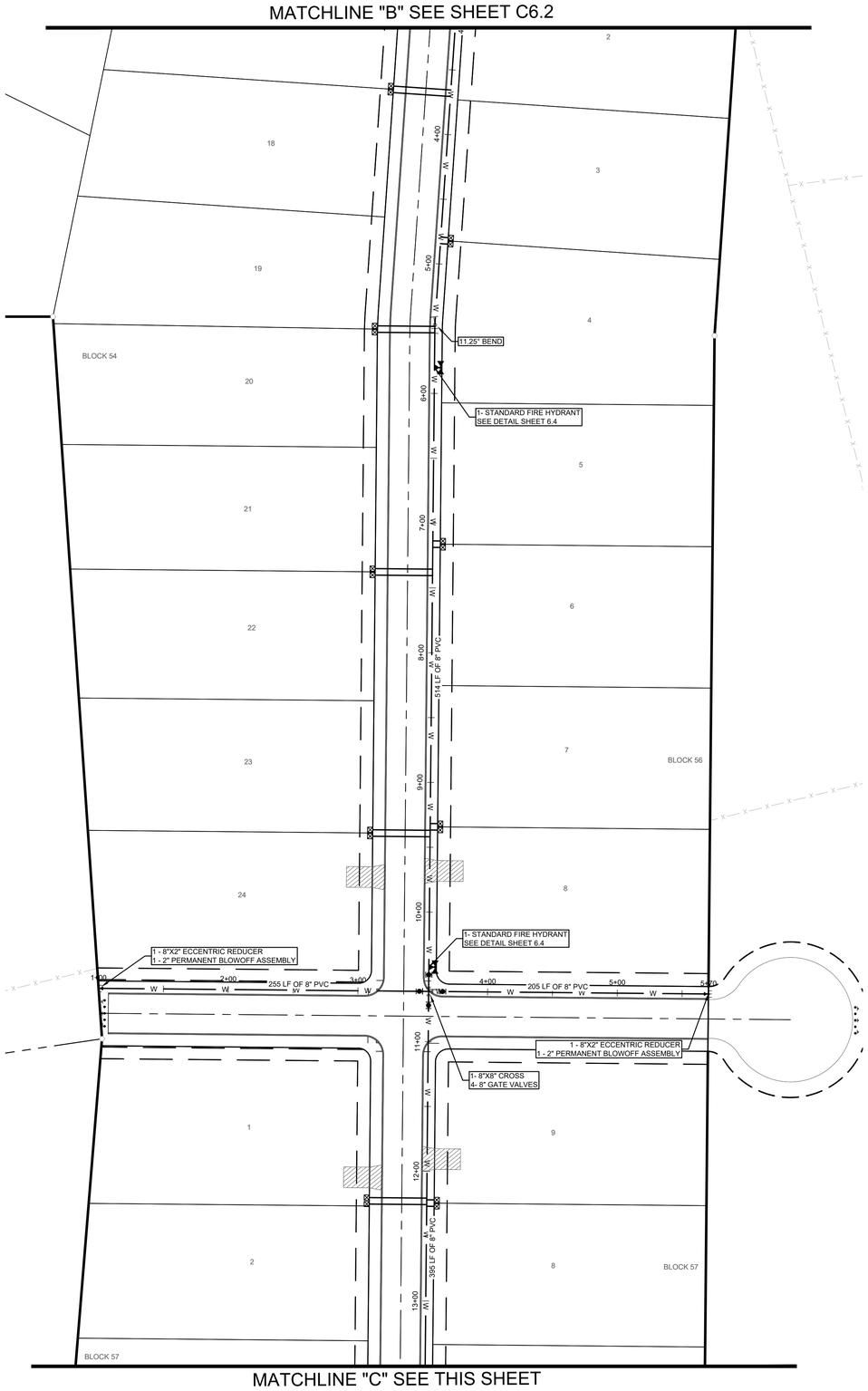
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SAN ANTONIO ETJ TEXAS

SHEET NUMBER
C6.2

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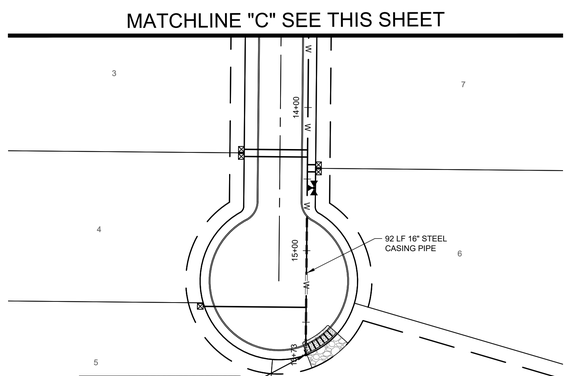
GRAPHIC SCALE IN FEET
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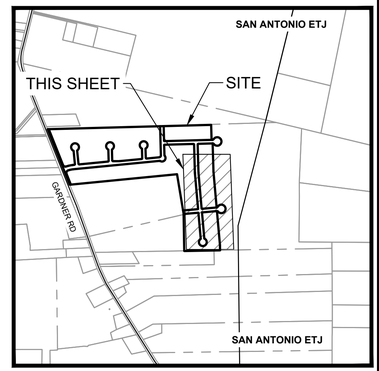
LEGEND

- RIGHT-OF-WAY LINE
- PROPOSED WATERLINE
- EXISTING WATERLINE
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KEY MAP
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LAND-PLAT-24-11800462

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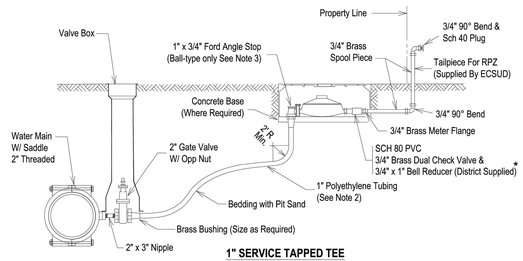
VISTA GARDENS PH 1
PREPARED FOR
M/I HOMES OF SAN ANTONIO
SAN ANTONIO ETJ TEXAS

ONSITE WATERLINE PLAN (2 OF 2)

SHEET NUMBER
C6.3

PIPE TAPPING SCHEDULE	
PIPE DIAMETER	SERVICE SIZE 1"
6" A.C.	Tap With Service Saddle
6" C.I. or D.I.	Tap With Service Saddle
8" A.C.	Tap With Service Saddle
8" C.I. or D.I.	Tap With Service Saddle
8" PVC	Tap With Service Saddle
10" A.C.	Tap With Service Saddle
10" C.I. or D.I.	Tap With Service Saddle
10" PVC	Tap With Service Saddle
12" A.C.	Tap With Service Saddle
12" C.I. or D.I.	Tap With Service Saddle
12" PVC	Tap With Service Saddle
16" A.C.	Tap With Service Saddle
16" C.I. or D.I.	Tap With Service Saddle

* Tailpieces Supplied by ECSUD w/ Cost of Meter

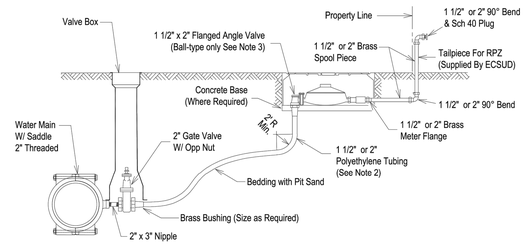


1" SERVICE TAPPED TEE

NOTE:
1. No Direct Tap to Main, Saddle Required
2. Polyethylene Shall be 250 psi Rated - Color Blue
3. FORD Angle Stop BA43-342-WNL
4. 2" HDPE Main Will Use FORD 2" CT's x 1" FIPT Tee (T441-774NL)

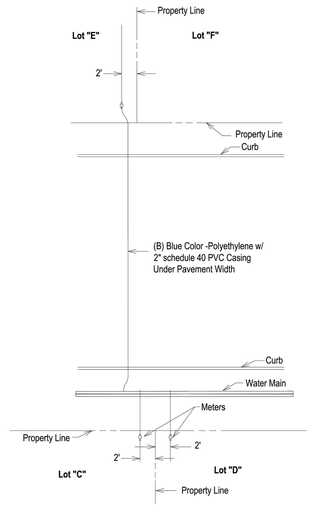
FOR PERFERED MANUFACTURERS SEE STANDARD SPECIFICATIONS

PIPE TAPPING SCHEDULE		
PIPE DIAMETER	SERVICE SIZE 1 1/2"	2"
6" A.C.	Tap With Service Saddle	Tap With Service Saddle
6" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle
8" A.C.	Tap With Service Saddle	Tap With Service Saddle
8" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle
8" PVC	Tap With Service Saddle	Tap With Service Saddle
10" A.C.	Tap With Service Saddle	Tap With Service Saddle
10" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle
10" PVC	Tap With Service Saddle	Tap With Service Saddle
12" A.C.	Tap With Service Saddle	Tap With Service Saddle
12" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle
12" PVC	Tap With Service Saddle	Tap With Service Saddle
16" A.C.	Tap With Service Saddle	Tap With Service Saddle
16" C.I. or D.I.	Tap With Service Saddle	Tap With Service Saddle



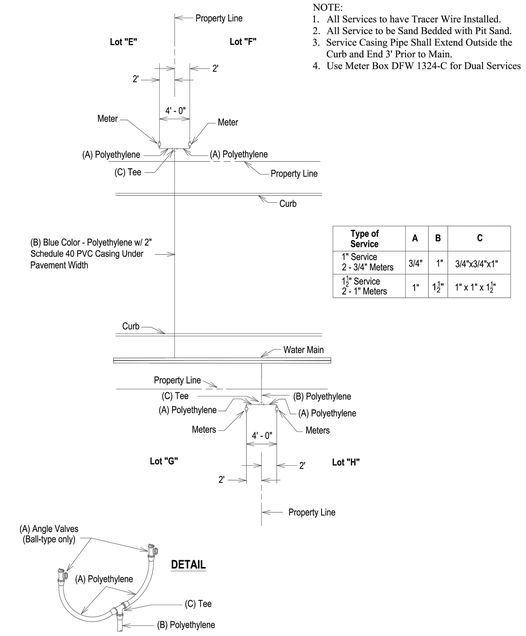
1 1/2" & 2" SERVICE TAPPED TEE

NOTE:
1. No Direct Tap to Main, Saddle Required
2. Polyethylene Shall be 250 psi Rated - Color Blue
3. Anything Greater Than 1 1/2" Will Use a Angle x Flange



NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Pipe Shall Extend Outside the Curb and End 3' Prior to Main.

SINGLE SERVICE LINE - SINGLE METER



Type of Service	A	B	C
1" Service 2 - 3/4" Meters	3/4"	1"	3/4"x3/4"x1"
1 1/2" Service 2 - 1" Meters	1"	1 1/2"	1" x 1" x 1 1/2"

NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Pipe Shall Extend Outside the Curb and End 3' Prior to Main.
4. Use Meter Box DFW 1324-C for Dual Services

DETAIL

SINGLE SERVICE LINE - DUAL METER

East Central SUD	1" SERVICE INSTALLATION TAPPING SCHEDULE	APPROVED NOVEMBER 2024	REVISED	SHEET 1 OF 2	DET-824-Ø1

East Central SUD	1 1/2" & 2" SERVICE INSTALLATION TAPPING SCHEDULE	APPROVED NOVEMBER 2024	REVISED	SHEET 2 OF 2	DET-824-Ø2

East Central SUD	TYPICAL SERVICE ARRANGEMENT	APPROVED JULY 2022	REVISED	SHEET 1 OF 4	DET-824-Ø5

East Central SUD	TYPICAL RURAL SERVICE ARRANGEMENT	APPROVED JULY 2022	REVISED	SHEET 2 OF 4	DET-824-Ø5

NOTE:
1. All Services to have Tracer Wire Installed.
2. All Service to be Sand Bedded with Pit Sand.
3. Service Casing Pipe Shall Extend Outside the Curb and End 3' Prior to Main.

SINGLE SERVICE LINE - DUAL METER W/ EASEMENT

Type of Service	A	B	C
1" Service 2 - 3/4" Meters	3/4"	1"	3/4"x3/4"x1"
1 1/2" Service 2 - 1" Meters	1"	1 1/2"	1" x 1" x 1 1/2"

SINGLE SERVICE LINE W/ EASEMENT

NOTE:
1. Polywrap C-900 or D.I. Pipe to Boot 6" on Either Side.
2. Tracer Wire to be Outside the Pipe Till Valve Box Top Section.
3. Min. 18" Concrete Form Tube Centered Around Valve Box for Concrete Collar W/ #3 Bar.

East Central SUD	INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION	APPROVED JULY 2022	REVISED	SHEET 1 OF 1	DET-828-Ø1

* Resilient Seat

PREFERRED INSTALLATION
Profile shown, without Horizontal Bend

NOTE:
1. Polywrap Below Ground
2. Use Anchoring Tee with M.J. Fitting or M.J. Valve
3. Std. M.J. Tee with Anchoring Coupling or Anchoring Fitting.
4. All Fittings Shall be Mega Lug.
5. All Fire Hydrants are to be RED in color.
6. Fire Hydrant Assembley to Include Main Tee, 2 - D.I. Nipples (Length as Required), Anchoring Coupling or Anchoring Fitting, 6" - 90° Bend and Fire Hydrant

ALTERNATE INSTALLATION
Plan shown, with Bend

East Central SUD	FIRE HYDRANT INSTALLATION	APPROVED OCTOBER 2024	REVISED	SHEET 1 OF 1	DET-834-Ø1

STREET CUT REPAIR DETAIL

N.T.S.

NOTES:

1. ALL UTILITIES WILL BE BORED UNDER EXISTING PAVEMENT. ONLY AT THOSE LOCATIONS AT WHICH IT IS PHYSICALLY IMPOSSIBLE TO BORE WILL THE PAVEMENT BE ALLOWED TO BE CUT AND RESTORED ACCORDING TO THIS DETAIL.

2. THE TYPE OF THE PAVEMENT REPLACEMENT WILL BE DETERMINED AT THE TIME A PERMIT IS REVIEWED AND MUST BE SAW CUT STRAIGHT. TACK OIL AT A RATE OF 0.10 GAL/SY SHALL BE PLACED PRIOR TO PLACEMENT OF 2 INCHES HMAC TYPE "C" OR "D" FINISHED SURFACE. LONGITUDINAL ROADWAY CUTS WILL BE PAVED WITH THE CLOSEST LINE EXTENSION OF THE EXISTING PAVEMENT EDGE AS A MINIMUM. IF EXISTING ROAD SURFACE IS CHIP SEAL, 2 INCHES OF HMAC TYPE "C" WILL BE PLACED PRIOR TO APPLICATION OF FINAL CHIP SEAL COURSE.

3. CONDUIT CASING TO BE PROVIDED AND INSTALLED BY UTILITY COMPANY FOR ALL UTILITIES, EXCEPT FOR SANITARY SEWER GRAVITY LINES AND NATURAL GAS SERVICE LINES. MATERIAL TO BE USED SHALL BE DUCTILE IRON (FOR DEPTH LESS THAN OR EQUAL TO 36 INCHES),SCHEDULE 40 PVC PIPE (GREATER THAN 36 INCHES DEEP), OR APPROVED EQUAL BY COUNTY ENGINEER. THE CONDUIT CASING SHALL EXTEND A MINIMUM OF FIVE FEET OUTSIDE THE EDGE OF SHOULDER OR CURBING DEPENDING ON FUTURE EXPANSION OF STREET WIDTH.

4. A 10" THICKNESS OF HMAC TYPE "B", BENCHED NO LESS THAN 1 FOOT EACH SIDE OF TRENCH, WILL BE USED FOR THE FINAL LIFT OF THE TRENCH REPAIR. THE TYPE "B" ASPHALT, PLACED IN 5 INCH LIFTS, SHALL BE BROUGHT UP TO WITHIN 2 INCHES OF THE EXISTING PAVEMENT SURFACE.

5. THE UTILITY COMPANY OR CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF OF THE STREET CUT THEREAFTER UNTIL AND IF THE COUNTY REMOVES THE STREET CUT THROUGH RECONSTRUCTION.

6. PAVEMENT REPLACEMENT LIMITS WILL BE DETERMINED AT THE TIME OF PERMIT REVIEW OR INSPECTION. WHERE EXISTING SURFACE IS ASPHALT, SURFACE MUST BE MILLED AND REPLACED NO LESS THAN 10 FT OVERALL OR UP TO 50 FT IN EACH DIRECTION BEYOND THE LIMITS OF THE TRENCH UNLESS OTHERWISE DETERMINED BY ON-SITE INSPECTION. IF EXISTING SURFACE IS CHIP SEAL, THE LIMITS OF SURFACE REPLACEMENT WILL BE A MINIMUM OF 5 FT IN EACH DIRECTION BEYOND LIMITS OF THE TRENCH. (SEE NOTE 2 FOR SURFACE REPLACEMENT GUIDELINES)

7. UNLESS OTHERWISE NOTED IN THE ROW STANDARD SPECIFICATIONS, WHEN GEOGRID OR OTHER GEOSYNTHETIC SUBGRADE/BASE REINFORCEMENT IS PRESENT, THE CONTRACTOR SHALL CONDUCT EXCAVATION TO PROVIDE APPROPRIATE OVERLAP (2' MIN.) AND TIE TO EXISTING UNDISTURBED REINFORCEMENT AS REQUIRED BY MANUFACTURER FOR EACH LAYER OF REINFORCEMENT ENCOUNTERED.

PREPARED BY: BEXAR COUNTY PUBLIC WORKS DEPARTMENT June 4, 2013

BY	DATE	REVISIONS	No.

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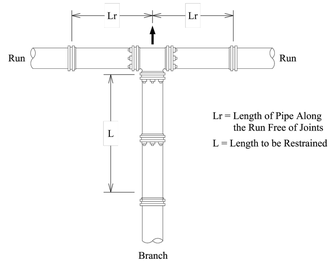
WATER DETAILS (1 OF 2)

SHEET NUMBER
C6.4

LAND-PLAT-24-11800462

Plotted By:Heasley, Kara March 04, 2025 07:42:15pm K:\SNA_Civil\068687804-MI Homes-Vista Gardens (Cordier) Phase 1\C4D\PlotSheet\C-WATR-DETAILS.dwg
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Lr = Length of Pipe Along the Run Free of Joints
L = Length to be Restrained

RESTRAINED LENGTH FOR TEES				
PIPE SIZE (Inch)	BRANCH SIZE (Inch)	LENGTH OF RUN (Feet)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	4	0	42	31
6	4	5	7	1
6	4	10	1	1
6	6	0	59	44
6	6	5	35	20
6	6	10	11	1
8	4	0	42	31
8	4	5	1	1
8	6	0	59	44
8	6	5	28	13
8	6	10	1	1
8	8	0	77	58
8	8	5	53	34
8	8	10	30	11
8	8	15	6	1

RESTRAINED LENGTH DESIGN

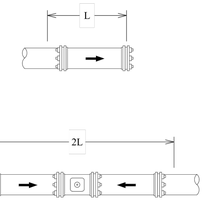
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

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RESTRAINED LENGTHS FOR TEES

APPROVED	REVISED
SEPTEMBER 2024	
DET-839-04	SHEET 1 OF 4



L = Length to be Restrained

PIPE SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	59	44
8	77	58
10	93	69
12	109	82
16	117	88
20	145	109
24	172	129

RESTRAINED LENGTH DESIGN

Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet.

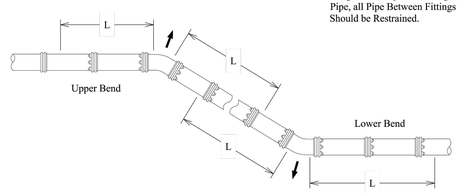
NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

East Central SUD — OUR QUALITY IS CLEAR

RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES

APPROVED	REVISED
SEPTEMBER 2024	
DET-839-05	SHEET 1 OF 1

L = Length to be Restrained on Both Sides of Fitting. When Restrained Lengths Overlap on the Diagonal Pipe, all Pipe Between Fittings Should be Restrained.



PIPE SIZE (Inch)	BEND ANGLE (deg.)	LOW SIDE DEPTH	UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi	LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	45	5	24	8	18	6
6	22.5	5	12	4	9	3
6	11.25	5	6	2	4	1
6	45	10	24	5	18	4
6	22.5	10	12	2	9	2
6	11.25	10	6	1	4	1
8	45	5	32	11	24	8
8	22.5	5	15	5	11	4
8	11.25	5	8	3	6	2
8	45	10	32	7	24	5
8	22.5	10	15	3	11	2
8	11.25	10	8	2	6	1
12	45	5	45	16	34	12
12	22.5	5	22	7	16	6
12	11.25	5	11	4	8	3
12	45	10	45	10	34	7
12	22.5	10	22	5	16	3
12	11.25	10	11	2	8	2

RESTRAINED LENGTH DESIGN

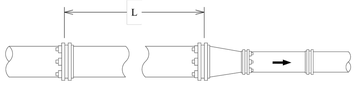
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

East Central SUD — OUR QUALITY IS CLEAR

RESTRAINED LENGTHS VERTICAL OFFSETS

APPROVED	REVISED
SEPTEMBER 2024	
DET-839-06-01	SHEET 1 OF 2



L = Length to be Restrained

PIPE SIZE (Inch)	SMALL SIZE (Inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	4	30	23
8	4	55	42
8	6	32	24
12	4	95	71
12	6	80	60
12	8	58	43
16	6	97	73
16	8	83	62
16	12	43	32
24	6	159	119
24	8	150	113
24	12	124	93
24	16	96	72
24	20	53	40

RESTRAINED LENGTH DESIGN

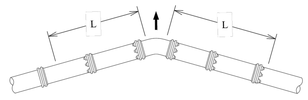
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

East Central SUD — OUR QUALITY IS CLEAR

RESTRAINED LENGTHS FOR REDUCERS

APPROVED	REVISED
SEPTEMBER 2024	
DET-839-07	SHEET 1 OF 1



L = Length to be Restrained on Both Sides of Fitting

PIPE SIZE (Inch)	BEND ANGLE (deg)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE=150 psi
6	90	23	17
6	45	9	7
6	22.5	5	3
6	11.25	2	2
8	90	30	22
8	45	12	9
8	22.5	6	4
8	11.25	3	2
12	90	43	32
12	45	18	13
12	22.5	8	6
12	11.25	4	3
16	90	59	44
16	45	25	19
16	22.5	12	9
16	11.25	6	5
24	90	86	64
24	45	36	27
24	22.5	17	13
24	11.25	9	7

RESTRAINED LENGTH DESIGN

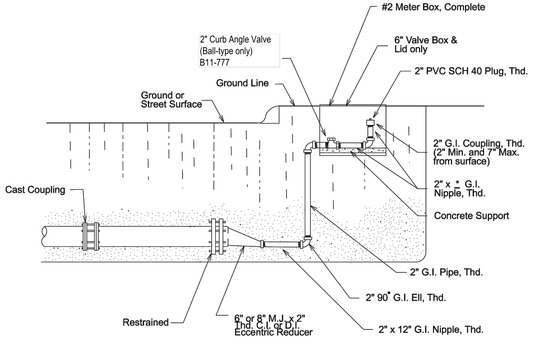
Restrained Length Calculations are for P.V.C. Pipe Bedded in Compacted Granular Material Extending to the Top of the Pipe. The Native Soil Material is Assumed to be Inorganic Clay of High Plasticity. Depth of Bury is Assumed to be 4 Feet.

NOTE:
1. These Calculations are Provided for Reference. The Restrained Length Shall be Designed Based Upon the Conditions Encountered During Installation.
2. All joints within the calculated length must be restrained.
3. If your distance between fittings is less than or equal to the calculated restraint length, restrain all joints between those fittings.

East Central SUD — OUR QUALITY IS CLEAR

RESTRAINED LENGTHS FOR HORIZONTAL BENDS

APPROVED	REVISED
SEPTEMBER 2024	
DET-839-08	SHEET 1 OF 1



* Cut to fit in meter box.

East Central SUD — OUR QUALITY IS CLEAR

2" PERMANENT BLOW-OFF ASSEMBLY ON 6" & 8" MAINS

APPROVED	REVISED
JULY 2022	
DET-844-02	SHEET 2 OF 2

CEMENT STABILIZED BACKFILL DETAIL

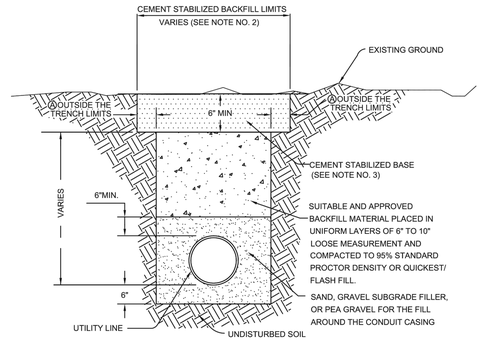


TABLE I: TRENCH BENCH

TRENCH WIDTH	Ⓐ (FEET)*
≤ 3'	1
>3' - ≤6'	2
>6' - ≤9'	3
>9'	W/3**

NOTES:

1. All UTILITIES WITHIN 2 FEET OF THE EDGE OF A PAVED SHOULDER, OR 4 FEET IF NO PAVED SHOULDER EXISTS, OR WHERE EXISTING SURFACE GRADE EXCEEDS 5% SHALL BE REQUIRED TO BE CAPPED WITH CEMENT STABILIZED BASE OR APPROVED EQUIVALENT.

2. THE LIMITS CEMENT STABILIZED BACKFILL WILL BE DETERMINED AT THE TIME A PERMIT IS REVIEWED.

3. A 6" THICKNESS OF CEMENT STABILIZED BASE, BENCHED AS NOTED IN TABLE I ON EACH SIDE OF THE TRENCH WILL BE USED FOR THE FINAL LIFT OF THE TRENCH REPAIR.

PREPARED BY: BEXAR COUNTY PUBLIC WORKS — DECEMBER 2014

LAND-PLAT-24-11800462

No.	REVISIONS	DATE	BY

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WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928

STATE OF TEXAS
KARA J. HEASLEY
92580
LICENSED PROFESSIONAL ENGINEER
3/4/2025

KHA PROJECT 068678804
DATE 3/4/2025
SCALE AS SHOWN
DESIGNED BY
DRAWN BY
CHECKED BY KJH

WATER DETAIL (2 OF 2)

VISTA GARDENS PH 1

PREPARED FOR
M/I HOMES OF SAN ANTONIO

SAN ANTONIO ETJ — TEXAS

SHEET NUMBER
C6.5