

CIVIL CONSTRUCTION DOCUMENTS FOR
ALTURA AT TEZEL DUPLEXES

San Antonio, Bexar County, Texas

OWNER/DEVELOPER: VISTANCIA CUSTOM HOMES
20450 HWY 46, SUITE 115
SPRING BRANCH TX 78070

ENGINEER: UP ENGINEERING + SURVEYING
11903 JONES MALTSBERGER ROAD, SUITE 102
SAN ANTONIO, TEXAS 78216
(210) 774-5504
CONTACT: RYAN R. PLAGENS, P.E.

ADDRESS: 6950 TEZEL ROAD, CITY OF SAN ANTONIO, TEXAS, 78250

FLOODPLAIN INFORMATION:

FIRM #48029C, PANEL 0360G G 09/29/2010.

WATERSHED:

THIS SITE IS LOCATED IN THE LEON CREEK WATERSHED.

BENCHMARKS:

CP 1: SET IRON ROD W/ RED PLASTIC CAP "UP ENG CONTROL"
NORTHING: 13729308.240
EASTING: 2076063.085
ELEVATION: 864.33

CP 2: SET IRON ROD W/ RED PLASTIC CAP "UP ENG CONTROL"
NORTHING: 13729205.720
EASTING: 2075972.729
ELEVATION: 860.48

SURVEY BASIS:

BEARINGS SHOWN HEREON ARE BASED ON ACTUAL GPS OBSERVATIONS, TEXAS STATE PLANE COORDINATES, SOUTH CENTRAL ZONE, GRID.

LEGAL DESCRIPTION:

TYLER PLACE DUPLEXES
PLAT# 21-11800597

UTILITY PROVIDERS:

GAS: CPS ENERGY
145 NAVARRO
SAN ANTONIO, TX 78205
(210) 353-2376

ELECTRIC: CPS ENERGY
145 NAVARRO
SAN ANTONIO, TX 78205
(210) 353-2376

CABLE: TIME WARNER CABLE
1900 BLUE CREST LANE
SAN ANTONIO, TX 78247
(210) 244-0500

WATER: SAN ANTONIO WATER SYSTEM
2800 U.S HWY 281 NORTH
SAN ANTONIO, TX 78212
(210) 233-2010

WASTEWATER: SAN ANTONIO WATER SYSTEM
2800 U.S HWY 281 NORTH
SAN ANTONIO, TX 78212
(210) 233-2010

LAND USE SUMMARY:

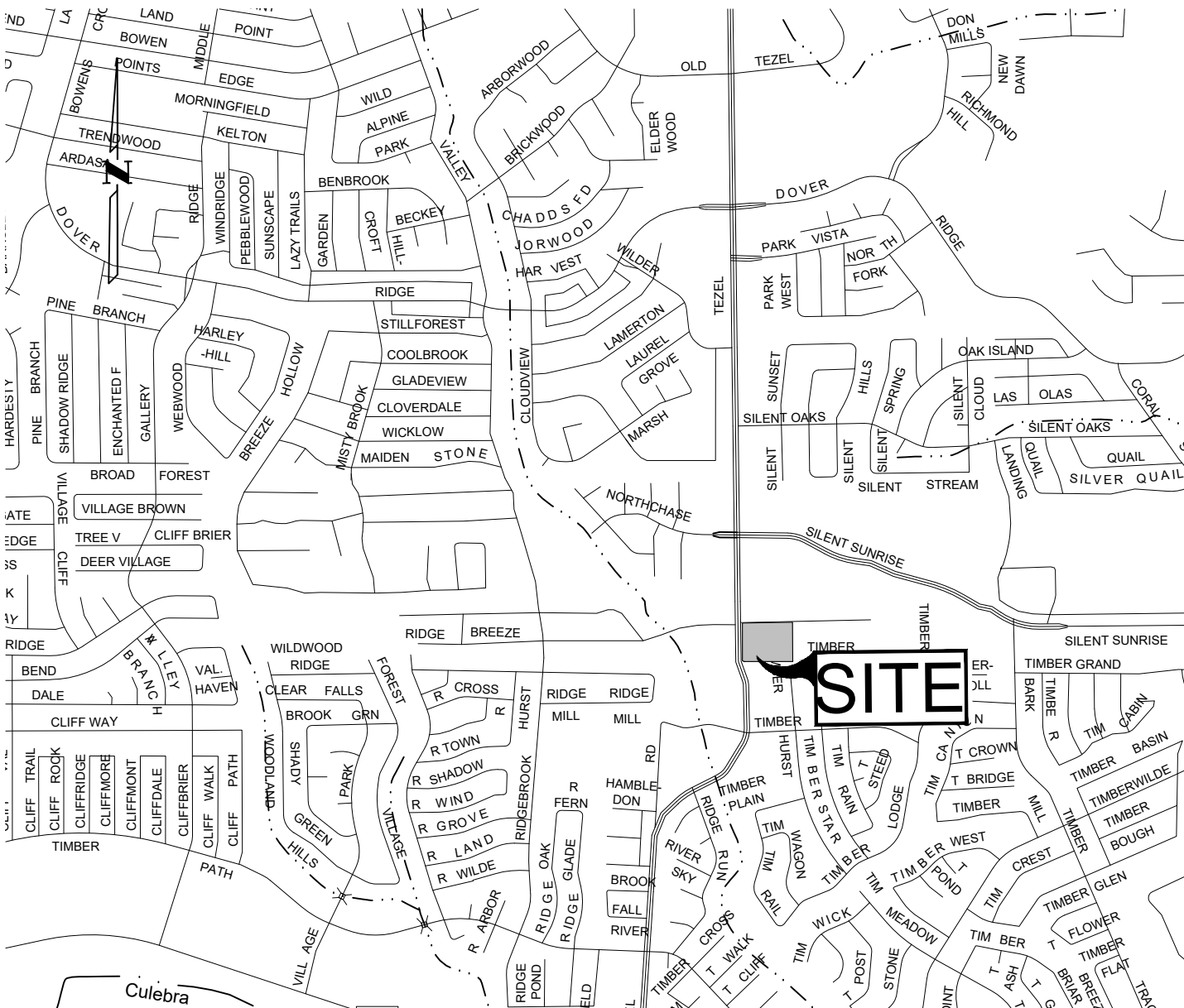
ZONING: C2-NA
PROPOSED SITE USE: MULTI-FAMILY
LOT SIZE: 3.89 ACRES

NOTES:

- 1. RELEASE OF THIS APPLICATION DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF HIS/ HER SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY CITY ENGINEERS.
- 2. BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS AND SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF HIS OR HIS SUBCONTRACTORS AND MATERIAL SUPPLIERS KNOWLEDGE ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.
- 3. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION AND/OR A FIELD SURVEY, AND MAY NOT MATCH LOCATIONS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT THE "ONE CALL" SYSTEM @ 811, OR THE OWNER OF EACH INDIVIDUAL UTILITY, FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF UTILITY CROSSING PRIOR TO BEGINNING CONSTRUCTION.
- 4. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE, INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, FOUNTAINHEAD TOWER, SUITE 605, 8200 W. INTERSTATE 10, SAN ANTONIO, TEXAS 78230).
- 5. CONTRACTOR SHALL RESTORE ALL SIGNS AND PAVEMENT MARKINGS TO EXISTING CONDITIONS FOLLOWING THE COMPLETION OF EACH PHASE OF CONSTRUCTION. CONTRACTORS SHALL REFER TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) FOR SIGN AND MARKING DIMENSIONS AND COLORS.

SURVEYOR: UP ENGINEERING + SURVEYING
11903 JONES MALTSBERGER ROAD, SUITE 102
SAN ANTONIO, TEXAS 78216
(210) 774-5504
CONTACT: ADRIAN REYES, R.P.L.S.

GEOTECHNICAL ENGINEER: ECS SOUTHWEST, LLP
431 ISOM ROAD, SUITE 114
SAN ANTONIO, TEXAS 78216
(210) 528-1430



VICINITY MAP
NOT TO SCALE

SUBMITTAL DATE:
January 22, 2024

Table with 2 columns: Sheet Number, Sheet Title. Rows include C1 COVER SHEET, C2 GENERAL NOTES, C3 EXISTING CONDITIONS PLAN, C4 SITE DIMENSION PLAN, C5 GRADING AND DRAINAGE PLAN, C5.1 STORM SEWER PLAN, C5.2 SOUTH SWALE, C5.3 INTERCEPTOR EAST, C5.4 NORTH SWALE, C5.5 POND LAYOUT, C6 WATER LAYOUT, C7 SANITARY SEWER LAYOUT, C7.1 SANITARY SEWER LINE A, C8 FIRE PROTECTION PLAN, C9 DRAINAGE AREA MAP, C10 STORM WATER POLLUTION PREVENTION PLAN, C11 STORM WATER POLLUTION PREVENTION PLAN DETAILS, C12 CONSTRUCTION DETAILS, C13 CONSTRUCTION DETAILS.

ALTURA AT TEZEL DUPLEXES

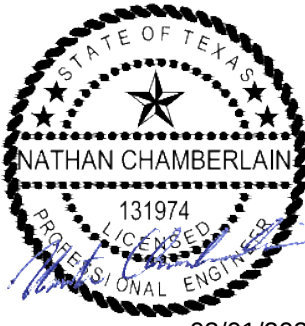
COVER SHEET

Table with 4 columns: REV, DATE, DESCRIPTION, BY. Rows include DESIGNED BY: WPF, DRAFTED BY: JWH, CHECKED BY: NFU.

SHEET

C1

VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070



UP ENGINEERING + SURVEYING
11903 JONES MALTSBERGER ROAD, SUITE 102
SAN ANTONIO, TX 78216 TEL 210-774-5504
WWW.UPENGINEERING.COM E-10194606

1. ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE 2008, OR LATEST.
2. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS, BUT NOT INCLUDED IN THE BID PROPOSAL. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.
3. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL, BY THE U.S. POSTAL SERVICE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION ANY DAMAGE DONE TO EXISTING FENCES, CONCRETE ISLANDS, STREET PAVING, CURBS, SHRUBS, BUSHES OR DRIVEWAYS. (NO SEPARATE PAY ITEM).
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL SIGNS AND BARRICADES ARE PROPERLY INSTALLED AND MAINTAINED. ALL LOCATIONS AND DISTANCES WILL BE DECIDED UPON IN THE FIELD BY THE CONTRACTOR, USING THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". THE CITY'S CONSTRUCTION INSPECTOR AND TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT BARRICADES AND SIGNS. IF, IN THE OPINION OF THE TRAFFIC ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE BARRICADES AND SIGNS DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED.
6. IF THE NEED ARISES, ADDITIONAL BARRICADES AND DIRECTIONAL DEVICES MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
7. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181 C.P.S. MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
8. CONTRACTOR SHALL NOTIFY THE CITY AROUND TWENTY FOUR (24) HOURS PRIOR TO BACKFILL OF ANY UTILITY TRENCHES TO SCHEDULE FOR DENSITY TEST AS REQUIRED.
9. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. IF ANY ARE DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES, THEY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
10. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION TO DETERMINE THE LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY THE FOLLOWING AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO EXCAVATION OPERATION:
SAN ANTONIO WATER SYSTEM (SAWS) 210-233-2009
WATER & SEWER EMERGENCIES 210-704-7297
SAN ANTONIO RIVER AUTHORITY (SARA) 210-227-1373
STORM DRAINAGE (BEXAR COUNTY) 210-335-6663
SIGNAL OPERATIONS (CITY OF SAN ANTONIO) 210-207-8022
TEXAS STATE WIDE ONE CALL LOCATOR 811
CPS ENERGY (GAS & ELECTRIC) 210-353-2000
CPS ELECTRIC/GAS ISSUES OR EMERGENCIES 210-353-4357
TIME WARNER 210-244-0500
AT&T 972-742-5892

11. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED, BUT SHALL BE INVESTIGATED AND VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR THE MAINTENANCE AND PROTECTION OF THE EXISTING UTILITIES EVEN IF THEY ARE NOT SHOWN ON THE PLANS. LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HERE ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND HE SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION.
12. ALL WASTE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE PROJECT. NO WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING ARTIFICIAL OR NATURAL DRAINAGE.
13. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
14. THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND / OR TRACKED CONSTRUCTION MATERIALS AND / OR DEBRIS.
15. IF THE CONTRACTOR ENCOUNTERS ANY ARCHAEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR MUST STOP EXCAVATION IMMEDIATELY, CALL THE CITY INSPECTOR, AND CALL THE CITY HISTORIC PRESERVATION OFFICE AT 210-215-0294 FOR AN ARCHAEOLOGICAL INVESTIGATION. THE CONTRACTOR CANNOT BEGIN EXCAVATION AGAIN WITHOUT WRITTEN PERMISSION FROM THE CITY.

IF MORE THAN THREE (3) DAYS ARE REQUIRED FOR INVESTIGATION (NOT INCLUDING HOLIDAY AND WEEKENDS) AND IF THE CONTRACTOR IS UNABLE TO WORK IN OTHER AREAS, THEN THE CONTRACTOR WILL BE ALLOWED TO NEGOTIATE FOR ADDITIONAL CONSTRUCTION TIME UPON WRITTEN REQUEST WITHIN TEN (10) DAYS AFTER THE FIRST NOTICE TO THE CITY OF ARCHAEOLOGICAL INVESTIGATION FOR EACH EVENT.

IF THE TIME REQUIRED FOR INVESTIGATION IS LESS THAN OR EQUAL TO THREE (3) DAYS FOR EACH EVENT, CONTRACT DURATION WILL NOT BE EXTENDED.

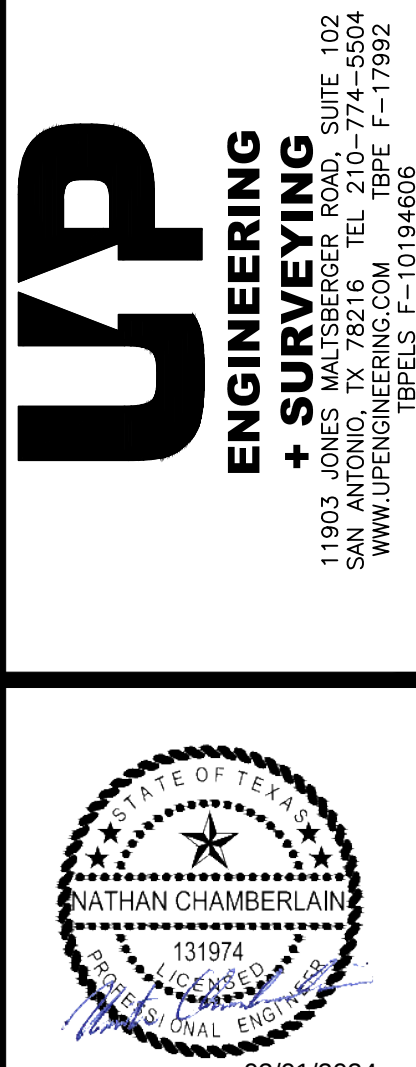
- 16 IF SUSPECTED CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION OPERATIONS, C.O.S.A. SHALL BE NOTIFIED IMMEDIATELY WHEN CONTAMINATED SOILS AND / OR GROUNDWATER ARE ENCOUNTERED AT LOCATIONS NOT IDENTIFIED IN THE PLANS. THE NOTIFICATION SHOULD INCLUDE THE STATION NUMBER, TYPE OF CONTAMINATED MEDIA, EVIDENCE OF CONTAMINATION, AND THE LOCATION OF THE CONTAMINATION. IF CONTAMINATION IS IDENTIFIED IN THE PLANS, THE CONTRACTOR SHALL NOT REMOVE CONTAMINATED SOIL AND / OR GROUNDWATER SHALL NOT BE REMOVED FROM THE LOCATION WITHOUT PRIOR C.O.S.A. APPROVAL. THE CONTRACTOR MUST STOP THE EXCAVATION IMMEDIATELY AND CONTACT THE C.O.S.A. INSPECTOR. THE CONTRACTOR CANNOT BEGIN EXCAVATION ACTIVITIES WITHOUT WRITTEN PERMISSION FROM THE CITY.

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL COMPLY TO ALL APPLICABLE CITY OF SAN ANTONIO RULES AND REQUIREMENTS FOR STREETS, SIDEWALKS, ALLEYS AND ROADWAY DESIGN (LATEST EDITIONS), THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (LATEST EDITIONS), THE SAN ANTONIO WATER SYSTEM (SAWS) SPECIFICATIONS FOR WATER WORKS CONSTRUCTION (LATEST EDITION) AND THE SAN ANTONIO RIVER AUTHORITY (SARA) SPECIFICATIONS FOR SANITARY SEWER CONSTRUCTION (LATEST EDITION).
2. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY CONFLICTS IMMEDIATELY, ANY DAMAGE BY THE CONTRACTOR TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
4. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE SYSTEMS WHETHER SHOWN ON PLANS OR NOT.
5. ALL UTILITIES SHALL BE INSTALLED PRIOR TO PAVEMENT CONSTRUCTION.
6. ALL UTILITY CONNECTIONS SHALL BE COORDINATED WITH THE MECHANICAL AND ELECTRICAL PLANS. NOTIFY ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL INSTALL ANY BENDS, FITTINGS, ETC. IN THE WATER & SEWER MAINS AS REQUIRED TO AVOID CONFLICTS WITH OTHER UTILITIES. (NO SEPARATE PAY).
8. NO WATER JETTING TO BACKFILL TRENCHES WILL BE ALLOWED ON THIS PROJECT.
9. POLYVINYL CHLORIDE (PVC) SEWER PIPE SHALL BE SDR 26. FITTINGS AND JOINTS SHALL CONFORM TO COMPATIBLE SDR 26 PIPE. SOLVENT CEMENTS JOINTS SHALL NOT BE USED.
10. WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF WATER MAINS, SUCH INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).
11. ALL SPILL AND OTHER UNSUITABLE MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
12. ALL SERVICES ARE BROUGHT TO WITHIN 5 FEET OF THE BUILDING UNLESS OTHERWISE NOTED. REFERENCE MEP PLANS FOR UTILITY CONNECTIONS AT THE BUILDING.
13. WHETHER SHOWN ON THE PLANS OR NOT ALL CLEANOUT TOPS AND MANHOLES SHALL BE INSTALLED AT LEAST 3" ABOVE FINISHED GRADE OUTSIDE PAVEMENT AND FLUSH WITH FINISHED GRADE WITHIN THE PAVEMENT AREAS. TOPS WITHIN PAVEMENT SHALL BE TRAFFIC RATED.
14. SANITARY SEWER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE AND THE SAN ANTONIO RIVER AUTHORITY PLUMBING SPECIFICATIONS, AND AS DIRECTED BY THE PLUMBING INSPECTOR.
15. THRUST BLOCKING SHALL BE INSTALLED IN ACCORDANCE WITH SAN ANTONIO WATER SYSTEM SPECIFICATIONS.
16. UTILITY CONTRACTOR SHALL COORDINATE WITH CPS ENERGY FOR THE GAS AND ELECTRICAL SERVICE.
17. FIRE LINE SHALL BE INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR.
18. DOMESTIC WATER SHALL BE PVC C900 FOR PIPES < 12" OR C905 FOR PIPES ≥ 12" OR COPPER TUBING AS SPECIFIED IN THE SAWS STANDARD SPECIFICATIONS - ITEM #824.
19. CLEANOUTS SHALL BE TWO-WAYS AND INSTALLED IN ACCORDANCE WITH COSA PLUMBING CODE (EVERY 100') & AS DIRECTED BY PLUMBING INSPECTOR.
20. FIRE LINE SHALL BE PVC C900, CLASS 150 AND SHALL COMPLY WITH AWWA STANDARDS AND SHALL WITHSTAND A WORKING PRESSURE OF NOT LESS THAN 200 P.S.I.
21. CONTRACTOR SHALL MAINTAIN "AS-BUILT" DRAWINGS THROUGHOUT THE COURSE OF CONSTRUCTION & SHALL SUBMIT SAME TO THE ENGINEER FOR APPROVAL PRIOR TO FINAL ACCEPTANCE BY OWNER.

- CONTRACTOR TO VERIFY ELEVATIONS PRIOR TO CONSTRUCTION. EXISTING CONTOURS BASED ON SURVEY TOPOGRAPHIC DATA.
- ALL GRADES AND CONTOURS SHOWN ARE FINAL. TOP OF FINISHED SURFACE ELEVATIONS, CONTRACTOR SHALL SUBTRACT PAVEMENT, BASE, TOPSOIL, MULCH, . . . ETC. TO OBTAIN PROPER SUBGRADE ELEVATIONS.
- POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER. MINIMUM SLOPE 0.50%.
- NO ABRUPT CHANGE OF GRADE SHALL OCCUR.
- ALL DISTURBED AREAS SHALL BE REVEGETATED, BY THE CONTRACTOR, IN ACCORDANCE WITH PROJECT SPECIFICATIONS, AND ARCHITECTURAL LANDSCAPING PLANS.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLAN OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
- ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL APPLICABLE CITY OF SAN ANTONIO SPECIFICATIONS FOR CONSTRUCTION, TxDOT STANDARD SPECIFICATIONS AND BEXAR COUNTY PUBLIC WORKS STANDARD SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL, OR BETTER CONDITION ANY DAMAGES DONE TO EXISTING SIGNS, UTILITIES, PAVEMENT, CURBS, SIDEWALKS OR DRIVEWAYS (NO SEPARATE ITEM).
- DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, CPS ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVE THAT ARE IN THE PROJECT AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH NECESSARY UTILITY COMPANIES FOR PROVIDING TEMPORARY UTILITY SERVICES DURING CONSTRUCTION.
- CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS FOR UNDERGROUND UTILITIES AND DRAINAGE SYSTEMS WHETHER SHOWN ON PLANS OR NOT.
- CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS, OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
- THE CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT AT NEW PAVEMENT AND CURB JUNCTURES. NO JAGGED OR IRREGULAR CUTS IN PAVEMENT WILL BE ACCEPTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE NEOT GEOTECH OF THIS PROJECT.
- ALL EXCAVATION IS UNCLASSIFIED.
- ALL ON-SITE CURBS ARE 7" HIGH UNLESS OTHERWISE SPECIFIED.
- SEE CIVIL COVER SHEET FOR PROJECT BENCHMARK.
- CONTRACTOR TO RAISE/LOWER ALL UTILITY BOXES, COVERS, GRATES, VALVES BOXES, MANHOLES, CLEANOUTS, ETC., TO MATCH PROPOSED FINISHED GRADE ELEVATIONS.
- ALL DISTURBED AREAS WHICH ARE NOT TO BE PAVED SHALL BE COVERED WITH 6" MIN. CLEAN TOPSOIL UNLESS OTHERWISE NOTED. CUT OR FILL SHALL BE ADJUSTED TO ALLOW FOR TOPSOIL IN ORDER TO MAINTAIN PROPOSED ELEVATIONS. AREAS FOR LANDSCAPING SHOULD BE IN ACCORDANCE WITH THE LANDSCAPE ARCHITECT'S PLANS.
- PROVIDE THE REQUIRED MINIMUM DENSITY AND MOISTURE CONTENT OF COMPACTED FILL IN ACCORDANCE WITH THE SOILS REPORT AND THE REQUIREMENTS OF THE PROFESSIONAL ENGINEER (GEOTECH AND CIVIL).
- A TESTING LABORATORY SHALL BE EMPLOYED BY THE CONTRACTOR TO CHECK THE SUITABILITY OF MATERIAL SELECTED FOR CONTROLLED FILLS, TO TEST AND DETERMINE IF THE REQUIRED IS BEING OBTAINED, AND TO TEST COMPACTION OF EXPOSED SUBGRADES, WHEN COMPACTION TESTS DOES NOT MEET GEOTECH REQUIREMENTS. FILL AND BACKFILL SHALL BE DRIED OUT OR MOISTENED AS NECESSARY, SCARIFIED, AND RECOMPACTED AT NO ADDITIONAL COSTS TO OWNER.

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL, DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT (S), ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATIONS(S) WITHIN THE PROJECT AREA AND DETERMINE THE APPROPRIATE DESIGN, CONSTRUCTION AND SAFETY MEASURES TO BE IMPLEMENTED FOR THE PROJECT. THE CONTRACTOR SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATIONS 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 EXCAVATION SAFETY PLAN IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE CITY OF SAN ANTONIO STANDARDS AND SPECIFICATIONS.
2. ALL FILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD (ASTM D-698).
3. ALL CONSTRUCTION BARRICADING TO BE IN ACCORDANCE WITH CURRENT "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
4. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIG TEST" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN PER THE APPROPRIATE REMEDIAL ACTION AGREED UPON BY THE ENGINEER.
5. DISPOSAL OF ALL DEMOLISHED MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL MUNICIPAL REQUIREMENTS.
6. WHERE A STATE OR LOCAL MUNICIPAL STANDARD DETAIL DUPLICATES A DETAIL SHOWN IN THE PLANS, THE MORE STRINGENT DETAIL, AS DETERMINED BY THE REVIEWING AGENCY, SHALL APPLY.
7. ALL ITEMS NOT SPECIFICALLY CALLED OUT TO BE REMOVED SHALL REMAIN. ANY ITEM TO REMAIN WHICH IS REMOVED SHALL BE REPLACED AT THE CONTRACTORS EXPENSE. (NO SEPARATE PAY).
8. CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY DEMOLITION PERMITS FOR THE PROJECT AND COORDINATION WITH THE RESPECTIVE UTILITY COMPANIES FOR REMOVAL OF THEIR INDIVIDUAL SERVICES.
9. CONTRACTOR SHALL IMMEDIATELY CONTACT THE ENGINEER REGARDING QUESTIONS ON THE DEMOLITION PLAN.
10. DEMOLITION CONTRACTOR SHALL CLEARLY MARK ALL EXISTING UTILITY SERVICES WHERE THEY CROSS PROPERTY LINES. THIS INFORMATION WILL BE USED BY UTILITY COMPANIES AND CONTRACTORS TO TIE INTO FOR THE PROPOSED UTILITY SERVICES.
11. CONTRACTOR SHALL VERIFY WHICH TREES ARE TO BE SAVED & PROTECTED PRIOR TO COMMENCING CONSTRUCTION. DURABLE FENCE PROTECTION BARRIERS SHALL BE INSTALLED AROUND ALL TREES TO BE SAVED WITH FENCE PLACEMENT A MINIMUM OF 10 FEET FROM TREES TRUNKS. (IF APPLICABLE)
12. CONTRACTOR SHALL NOT DISTURB AREAS AROUND EXISTING TREES TO BE SAVED. (IF APPLICABLE)
13. CONTRACTOR SHALL COMPENSATE OWNER FOR DAMAGE OF TREES THAT WERE TO REMAIN (IF APPLICABLE)



03/01/2024

**VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070**

ALTURA AT TEZEL DUPLICES

GENERAL NOTES

[illegible]

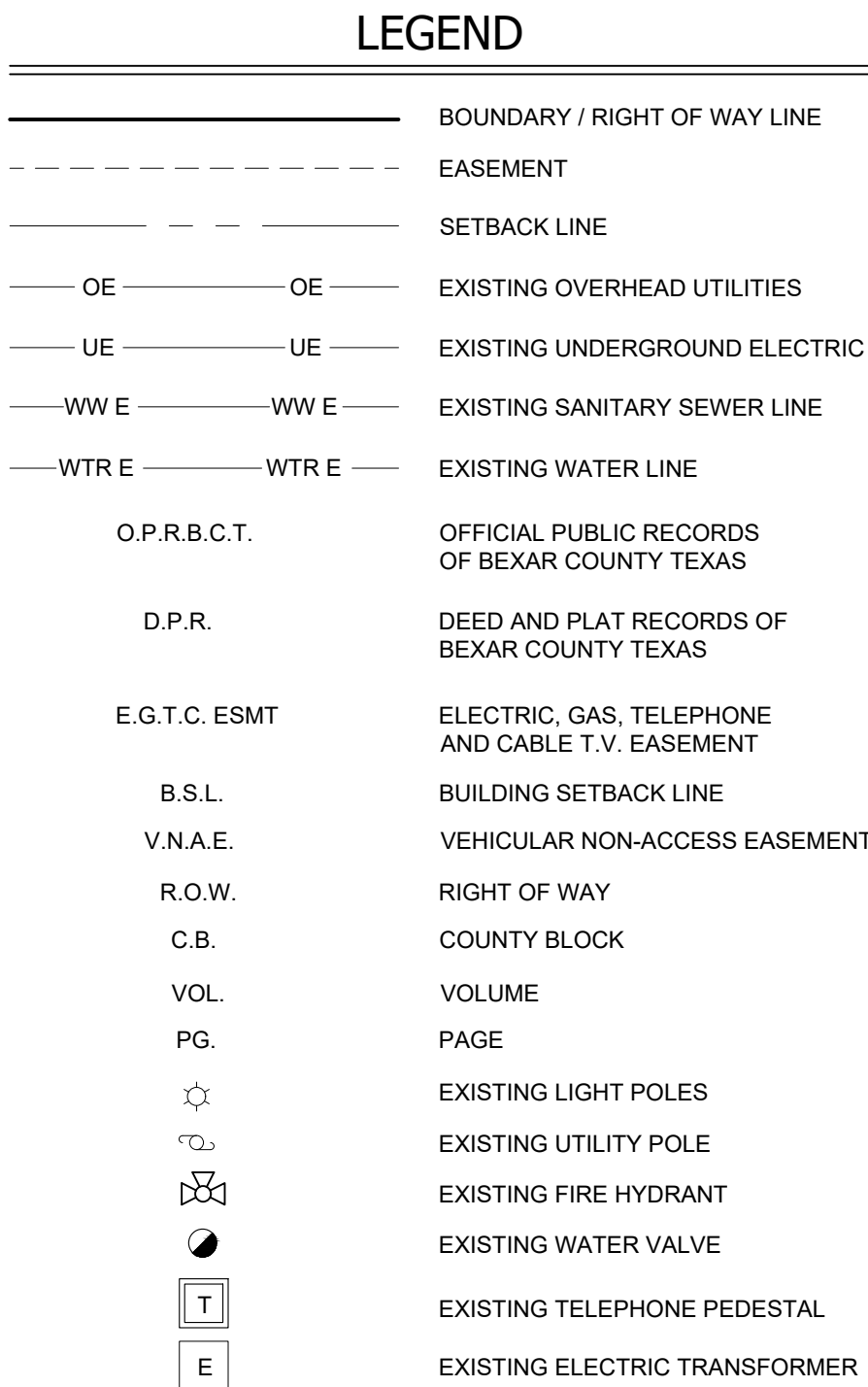
DESIGNED BY: WPF

DRAFTED BY: JWH

CHECKED BY: NFU

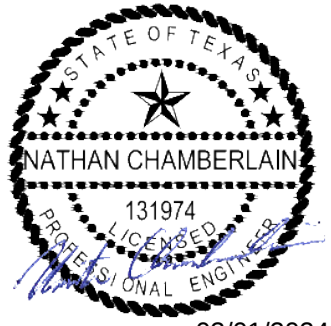
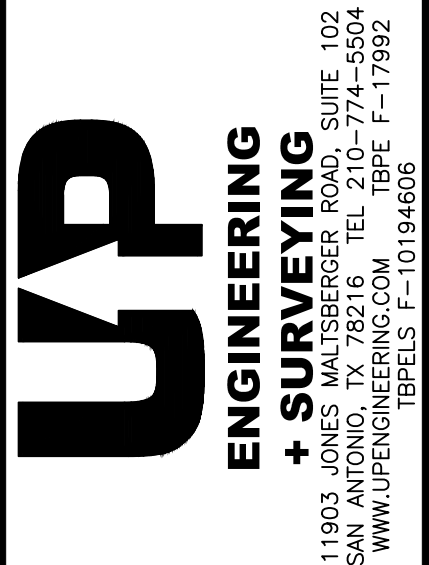
SHEET

C2



CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	CHORD	CHORD BEARING
C1	657'.00"	40.81'	3°33'32"	40.80'	S3°20'44"E
C2	30.00'	18.66'	35°38'15"	18.36'	N16°54'25"W
C3	10.00'	6.17'	35°21'14"	6.07'	N17°02'42"W
C4	657'.00"	9.04'	0°47'19"	9.04'	S4°43'51"E

LINE TABLE		
LINE	BEARING	LENGTH
L1	N00°03'45"E	20.88
L2	S01°33'58"E	40.54'
L3	S89°24'00"E	111.30'
L4	S89°21'52"E	50.70'
L5	S89°21'52"E	50.63'
L6	N89°21'52"W	102.69'
L8	S00°54'42"W	49.50'
L9	N34°43'33"W	23.03'
L10	S89°24'47"E	24.51'
L11	N34°43'33"W	38.62'
L12	N00°38'08"E	48.48'
L13	N00°38'08"E	22.00'
L14	S89°21'52"E	18.94'
L15	N01°33'58"E	50.65'
L16	N00°30'20"E	50.33'



**VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070**

ALTURA AT TEZEL DUPLICES

EXISTING CONDITIONS PLAN

[illegible]

DESIGNED BY:	WPF
DRAFTED BY:	JWH
CHECKED BY:	NFU

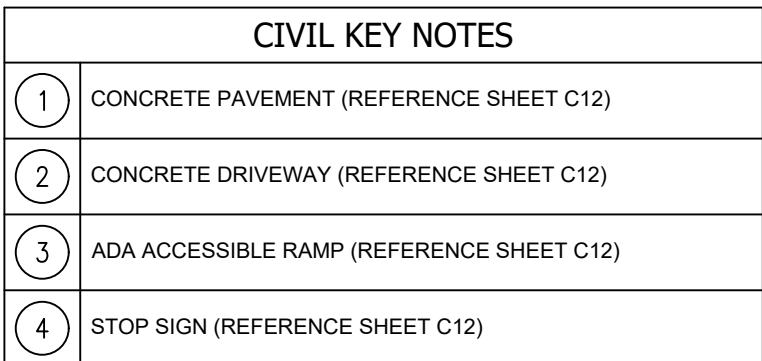
SHEET

C3

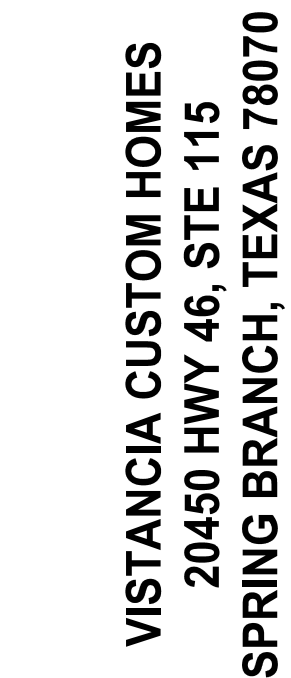
Date: Mar 01, 2024, 3: 48pm User ID: Nathan Chamberlain
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Date: Mar 01, 2024, 3:48pm User ID: Nathan Chamberlain
File: U:_Projects\222 - Tezel Road\ACAD\Sheets\SITE DIMENSION PLAN.dwg

1. REFERENCE STRUCTURAL PLANS FOR FOUNDATIONS.
2. ALL CURB RADI ARE 3' UNLESS OTHERWISE NOTED.
3. REFER TO GENERAL NOTE SHEET FOR ADDITIONAL SITE NOTES.
4. ALL SIDEWALKS, CURBS, RAMPS AND DRIVE APPROACHES IN THE RIGHT-OF-WAY SHALL BE IN COMPLIANCE WITH CURRENT TEXAS ACCESSIBILITY STANDARDS AND CITY OF SAN ANTONIO DESIGN STANDARDS PRIOR TO FINAL INSPECTION APPROVAL.
5. EXISTING CURB ON APPLE RIDGE LANE IS TO BE SAW CUT WHERE THE DRIVEWAY FLAIR OR CURB TRANSITION WILL END AND REPLACED WITH A 1' X 1' LUG (THICKENED SLAB) SLOPED BACK TOWARDS THE DRIVEWAY TO THE EXISTING CURB. THE CONC. TO BE POURED AT THE SAME TIME THE DRIVEWAY APPROACH IS POURED.
6. PAVEMENT MARKINGS IN BEXAR COUNTY R.O.W. MUST BE THERMOPLASTIC.



PAVEMENT			
Point #	North	Westing	Easting
1	12792034.8236	2075841.8601	
2	12789981.9132	2075942.4062	
3	1279005.2384	2075561.3779	
4	1279000.2397	2075652.0233	
5	12792034.2478	2076041.8031	
6	12792048.8448	2076066.3767	
7	12792048.8004	2076091.3764	
8	12792033.4122	2076116.0660	
9	1279222.5957	2076069.1455	
10	1279222.5609	2076094.1414	
11	12792034.3533	2076044.5555	
12	1279247.1599	2076114.5430	
13	12792047.3037	2075957.8858	
14	12792047.7275	2075958.3362	
15	12792038.4640	2076352.0509	
16	1279204.2594	2076301.8095	
17	12792218.9637	2076326.055	
18	12792045.8235	2076324.5867	
19	12792021.3478	2076299.3120	
20	12792021.5478	2076314.3062	
21	12792020.3297	2076402.0693	
22	12789955.2142	2076401.8690	



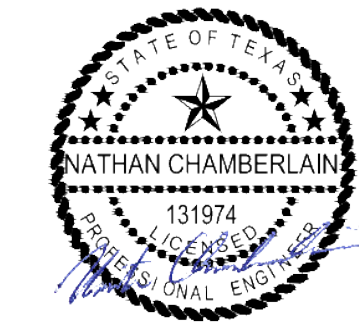
ALTURA AT TEZEL DUPLEXES

SITE DIMENSION PLAN

DESIGNED BY:	WPF
DRAFTED BY:	JWH
CHECKED BY:	NFU

SHEET

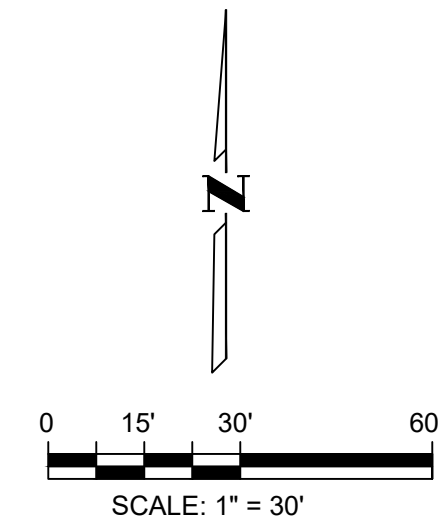
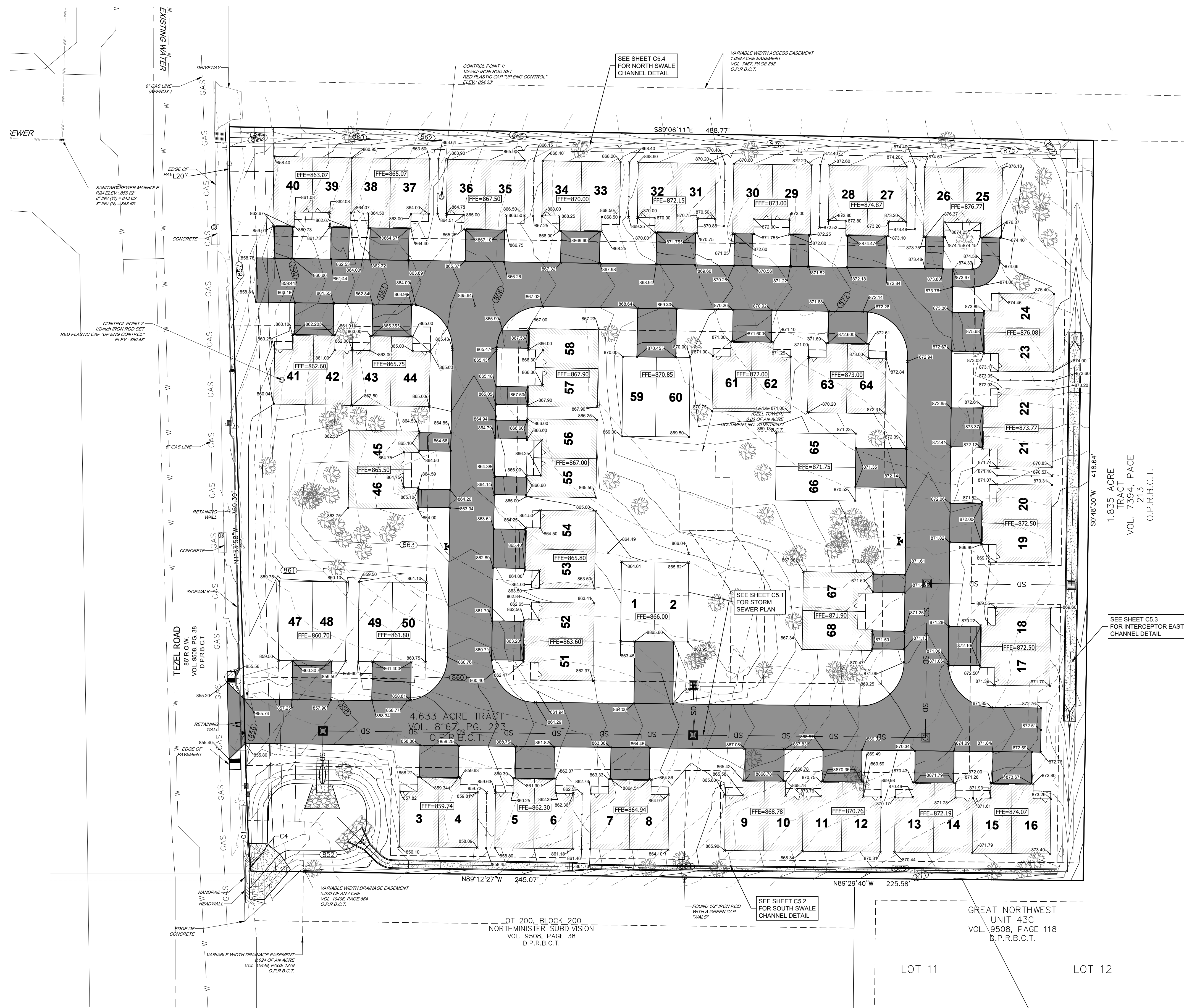
C4



03/01/2024

UP

1903 JONES MALTSBERGER ROAD, SUITE 102
SAN ANTONIO, TX 78216 TEL 210-774-5504
WWW.UPENGINEERING.COM TBPE F-17992



LEGEND

	BOUNDARY / RIGHT OF WAY LINE
	CONCRETE CURB
	EASEMENT / SETBACK LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	OVERHEAD UTILITIES
	SWALE CENTERLINE
	PROPOSED ELEVATION
	EXISTING ELEVATION
	TOP OF WALL
	BOTTOM OF WALL
	FLOW DIRECTION
	TREE TO BE SAVED

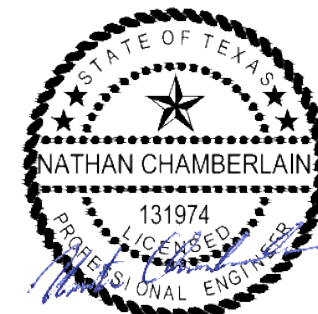
GRADING AND DRAINAGE NOTES

1. ALL GRADES AND CONTOURS SHOWN ARE FINAL, TOP OF FINISHED SURFACE ELEVATIONS, CONTRACTOR SHALL SUBTRACT PAVEMENT, BASE, TOPSOIL, MULCH, ...ETC. TO OBTAIN PROPER SUBGRADE ELEVATIONS.
2. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER. MINIMUM SLOPE 0.50%.
3. NO ABRUPT CHANGE OF GRADE SHALL OCCUR.
4. ALL DISTURBED AREAS SHALL BE REVEGETATED, BY THE CONTRACTOR, IN ACCORDANCE WITH PROJECT SPECIFICATIONS, AND ARCHITECTURAL LANDSCAPING PLANS.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLAN OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
6. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL APPLICABLE CITY OF SAN ANTONIO SPECIFICATIONS FOR CONSTRUCTION, TxDOT STANDARD SPECIFICATIONS, AND BEXAR COUNTY PUBLIC WORKS STANDARD SPECIFICATIONS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL, OR BETTER CONDITION ANY DAMAGES DONE TO EXISTING SIGNS, UTILITIES, PAVEMENT, CURBS, SIDEWALKS OR DRIVEWAYS (NO SEPARATE ITEM).
8. DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, CPS ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVE THAT ARE IN THE PROJECT AREA.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH NECESSARY UTILITY COMPANIES FOR PROVIDING TEMPORARY UTILITY SERVICES DURING CONSTRUCTION.
10. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS FOR UNDERGROUND UTILITIES AND DRAINAGE SYSTEMS WHETHER SHOWN ON PLANS OR NOT.
11. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS, OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
12. THE CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT AT NEW PAVEMENT AND CURB JUNCTURES. NO JAGGED OR IRREGULAR CUTS IN PAVEMENT WILL BE ACCEPTED.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
14. ALL EXCAVATION IS UNCLASSIFIED.
15. ALL ON-SITE CURBS ARE 6" HIGH UNLESS OTHERWISE SPECIFIED.
16. SEE CIVIL COVER SHEET FOR PROJECT BENCHMARKS.
17. CONTRACTOR TO RAISE/LOWER ALL UTILITY BOXES, COVERS, GRATES, VALVES BOXES, MANHOLES, CLEANOUTS, ETC., TO MATCH PROPOSED FINISHED GRADE ELEVATIONS.
18. ALL DISTURBED AREAS WHICH ARE NOT TO BE PAVED SHALL BE COVERED WITH 6" MIN. CLEAN TOPSOIL UNLESS OTHERWISE NOTED. CUT OR FILL SHALL BE ADJUSTED TO ALLOW FOR TOPSOIL. IN ORDER TO MAINTAIN PROPOSED ELEVATIONS. AREAS FOR LANDSCAPING SHOULD BE IN ACCORDANCE WITH THE LANDSCAPE ARCHITECTS PLANS.
19. PROVIDE THE REQUIRED MINIMUM DENSITY AND MOISTURE CONTENT OF COMPACTED FILL IN ACCORDANCE WITH THE SOLS REPORT AND THE REQUIREMENTS OF THE PROFESSIONAL ENGINEER (GEOTECH AND CIVIL).
20. A TESTING LABORATORY SHALL BE EMPLOYED BY THE CONTRACTOR TO CHECK THE SUITABILITY OF MATERIAL SELECTED FOR CONTROLLED FILLS. TO TEST AND DETERMINE IF THE REQUIRED IS BEING OBTAINED, AND TO TEST COMPACTION OF EXPOSED SUBGRADES, WHEN COMPACTION TESTS DOES NOT MEET GEOTECH REQUIREMENTS. FILL AND BACKFILL SHALL BE DRIED OUT OR MOISTENED AS NECESSARY. SCARIFIED, AND RECOMPACTED AT NO ADDITIONAL COSTS TO OWNER.

ALTURA AT TEZEL DUPLEXES

GRADING AND DRAINAGE PLAN

VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070

[illegible]

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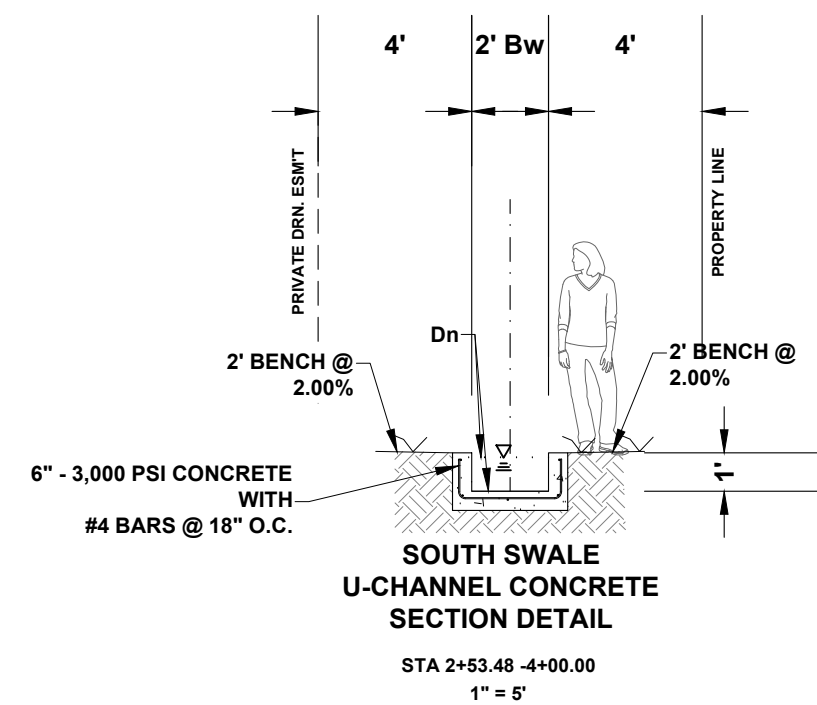
1903 JONES MALMBERG ROAD, SUITE 102
DAN, ILLINOIS 61830
TEL 219-774-5504
WWW.UPEENGINEERING.COM TPEF F-17992
TPEF'S: 5-10194508



UP ENGINEERING + SURVEYING 11903 JONES MATTSBERGER ROAD, SUITE 102 SAN ANTONIO, TEXAS 78216 TEL 210-774-5504 WWW.UPENGINEERING.COM TSPS 720-774-5504 TBPELS F-10194806 E-F-17892		 03/01/2024			
VISTANCIA CUSTOM HOMES 20450 HWY 46, STE 115 SPRING BRANCH, TEXAS 78070		ALTURA AT TEZEL DUPLEXES STORM SEWER PLAN			
DESIGNED BY:	WPF	REV	DATE	DESCRIPTION	BY
DRAFTED BY:	JWH				
CHECKED BY:	NFU				

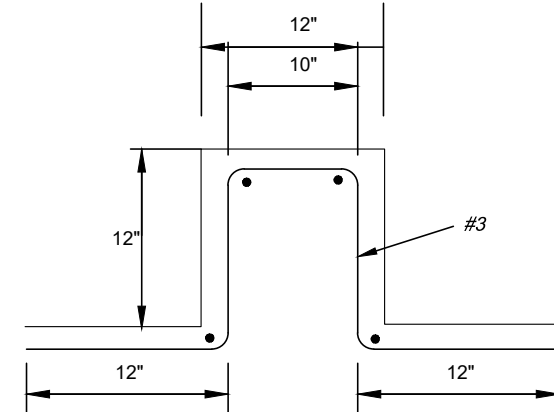
SHEET

C5.1



	So ur th Se a re PR DP C10 C18 Q25	Se ur th Se a re PR DP C10 C18 Q25	Se ur th Se a re PR DP C10 C18 Q25
Name			
C (cfs)	12.75	12.75	6.68
h (ft)	1.00 ¹	1.00 ¹	1.00 ¹
b ₀ (ft)	4.00 ¹	4.00 ¹	2.00 ¹
z () ¹ left	0	0	0
z () ¹ right	0	0	0
t ₀ (ft)	4	4	2
n	0.015	0.015	0.015
Slope (%)	2.00 ¹	5.50 ¹	5.50 ¹
d, (ft)	0.45 ¹	0.32 ¹	0.35 ¹
V (fps)	7.16	9.90	9.50

DROP STRUCTURE BAFFLE CALCULATIONS		
Fr_1	4.71	Froude Number
V_1 (fps)	13.15	velocity at drop
g (ft/s ²)	32.20	Gravitational constant
$C=$	0.92	Coefficient
$y_2=$	1.37	Conjugate Depth
V_2	0.85	Exit Velocity



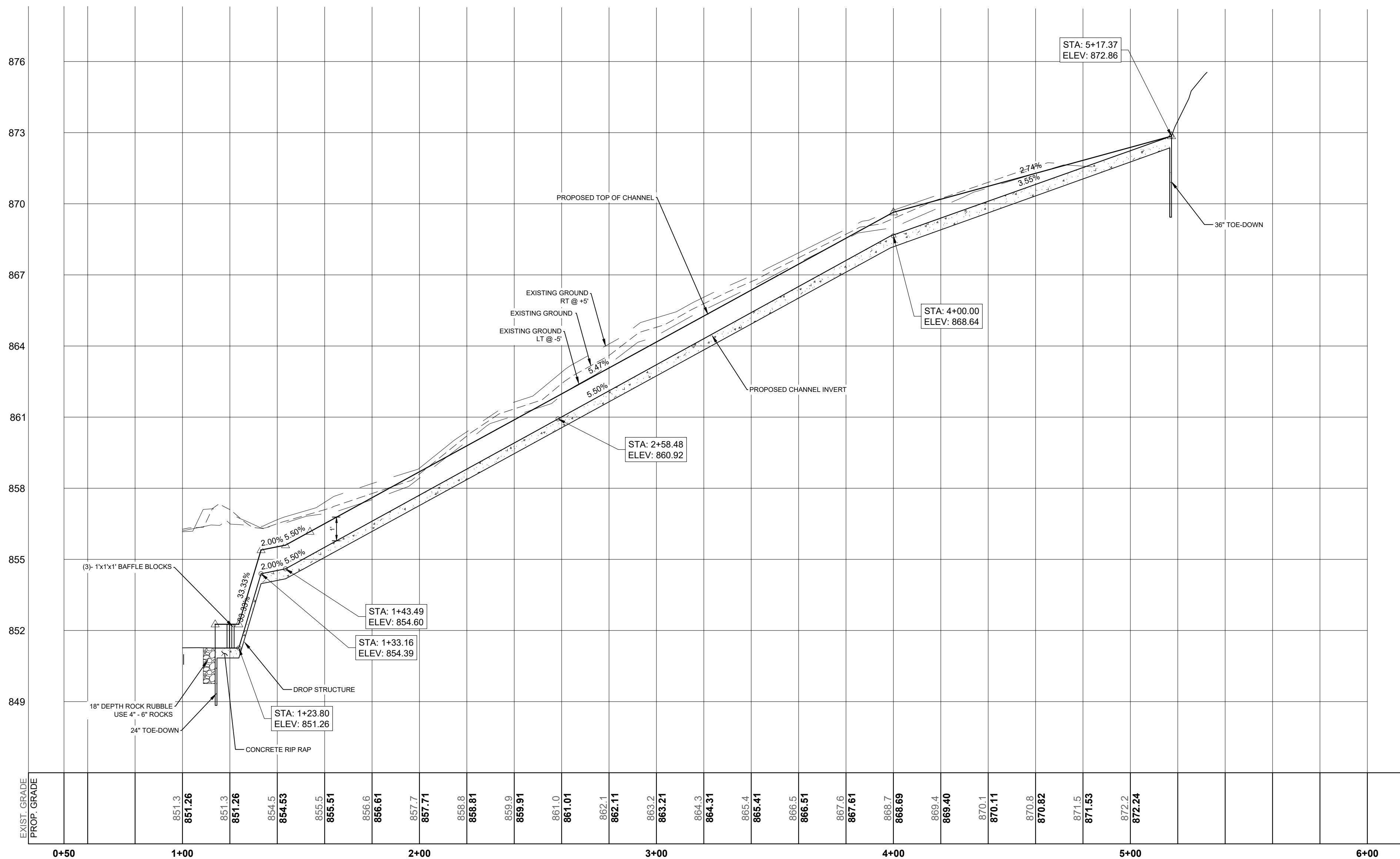
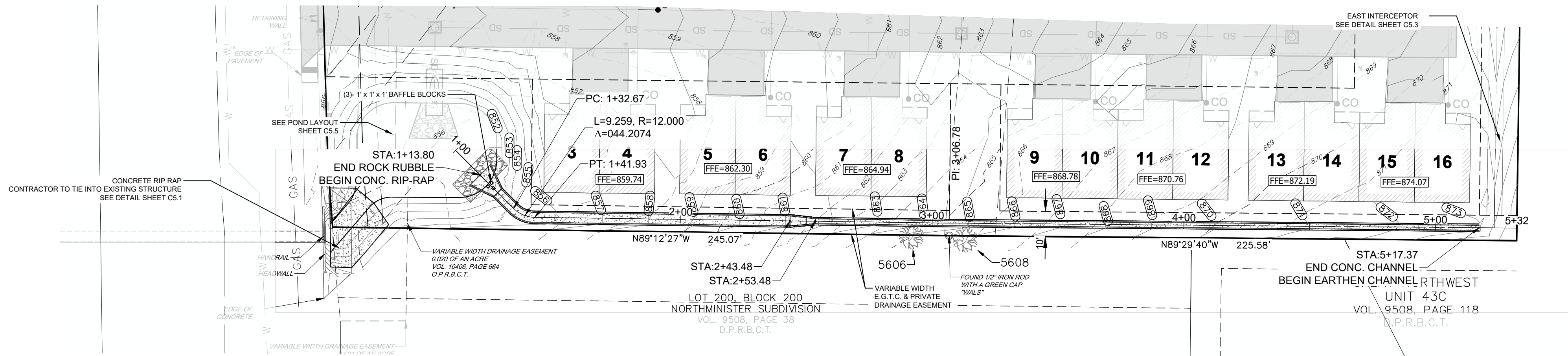
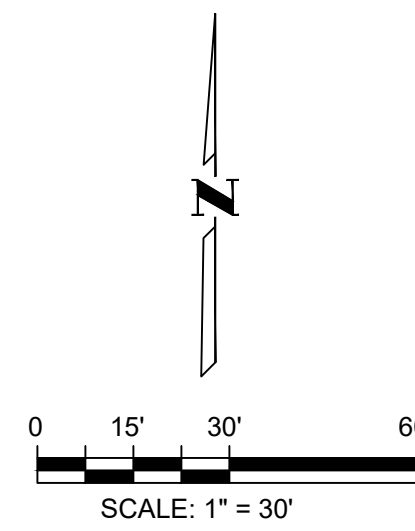
BAFFLE BLOCK DETAIL
NTS



BLOWOFF

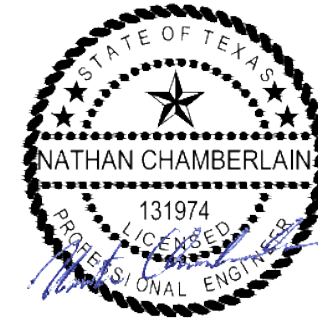
1. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW.

22. TURF REINFORCEMENT MATTING: 6 FPS < V < 12 FPS. IF > 12 FPS, ENGINEER'S REPORT SHOULD CERTIFY THAT MATERIAL IS APPROPRIATE FOR VELOCITY. INCLUDE MANUFACTURER SPEC'S & INSTALLATION INSTRUCTIONS. ENGINEER TO CERTIFY AT FINAL INSPECTION THAT MATERIAL WAS INSTALLED CORRECTLY.



Date: Mar 01, 2024, 3: 49pm User ID: Nathan Chamberlain
File: U: _Projects\222 - Tezel Road\ACAD\Streets\C5.2 Interceptor Channel.dwg

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+ SURVEYING
JUANES MALTSBERGER ROAD, SUITE 100
DALLAS, TX 75216 TEL 210-777-7777
FAX 210-777-7777
WWW.ENGINEERING.COM
TPOE F. 10-10184606
TPOE F. 5-10184606



03/01/2024

**VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070**

ALTURA AT TEZEL DUPLEXES

SOUTH SWALE

[illegible]

DESIGNED BY: WPF

DRAFTED BY: JWH

CHECKED BY: NFU

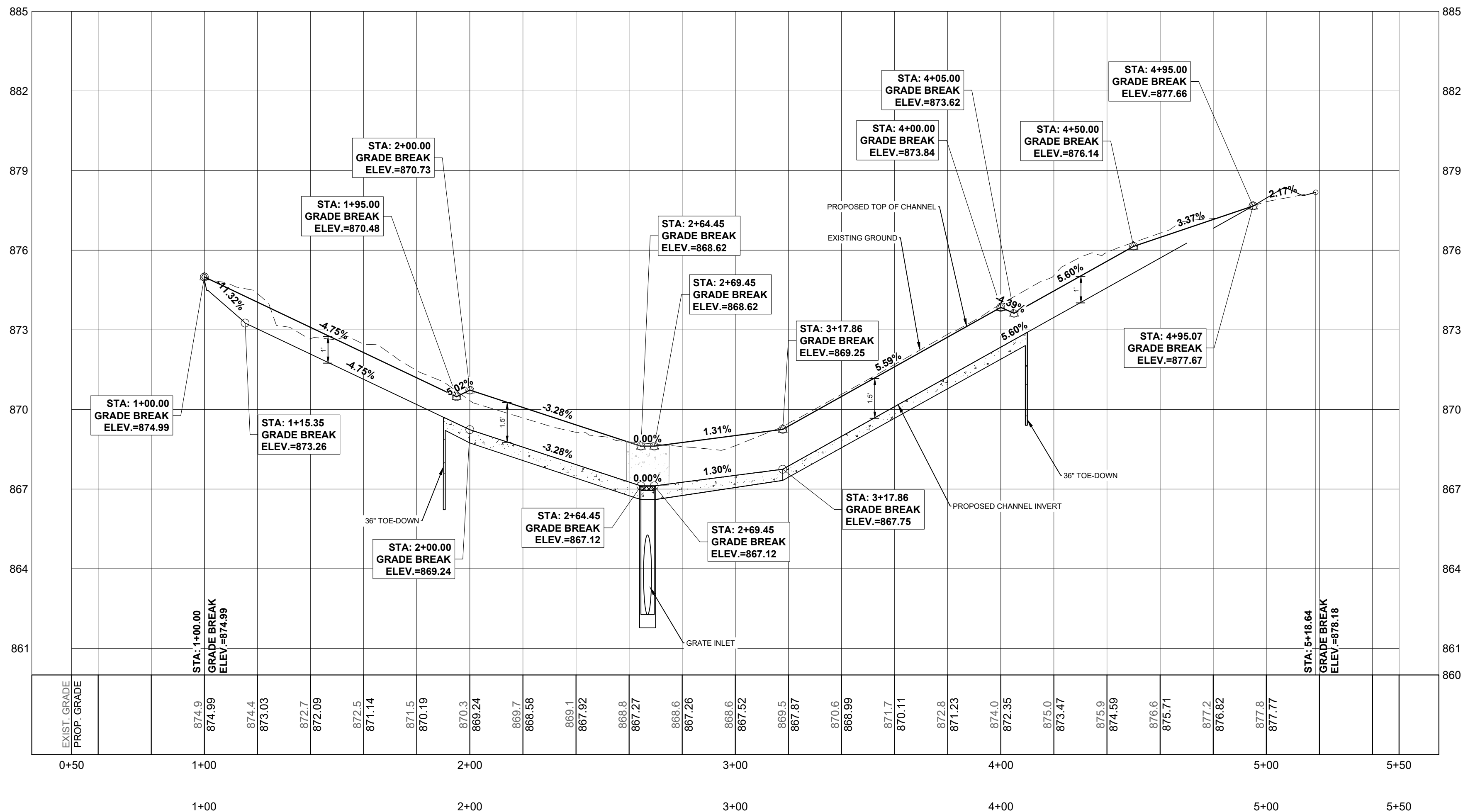
SHEET

C5.2



<u>LEGEND</u>	
	FIRE HYDRANT
	EXISTING FIRE HYDRANT
	WATER MAIN
	EXISTING WATER MAIN
	DUAL WATER SERVICE
	SINGLE WATER SERVICE
	SANITARY SEWER PIPE
	EXISTING SANITARY SEWER PIPE
	EXISTING SANITARY SEWER MANHOLE
	PROPOSED SANITARY SEWER MANHOLE
	FLOW DIRECTION
	SANITARY SEWER LATERAL
	EXIST. SANITARY SEWER LATERAL
E. G. T. C.	ELECTRIC, GAS, TELEPHONE AND CABLE TV
VNAE	VEHICLE NON-ACCESS EASEMENT
BSL	BUILDING SETBACK LINE
ESMT.	EASEMENT
1937/550	VOLUME/PAGE
O. P. R. B. C. T.	OFFICIAL PUBLIC RECORDS OF BEXAR COUNTY TEXAS
D. P. R.	DEED AND PLAT RECORDS OF BEXAR COUNTY TEXAS
	POWER POLE
	EXISTING POWER POLE
	ELECTRIC TRANSFORMER
	TELEPHONE PEDESTAL
	CABLE T.V. PEDESTAL
	ELECTRIC RISER POLE
	EXISTING STREET LIGHT
	PROPOSED STREET LIGHT (100 WATT UG)
R.O.W.	RIGHT-OF-WAY
	BLOWOFF

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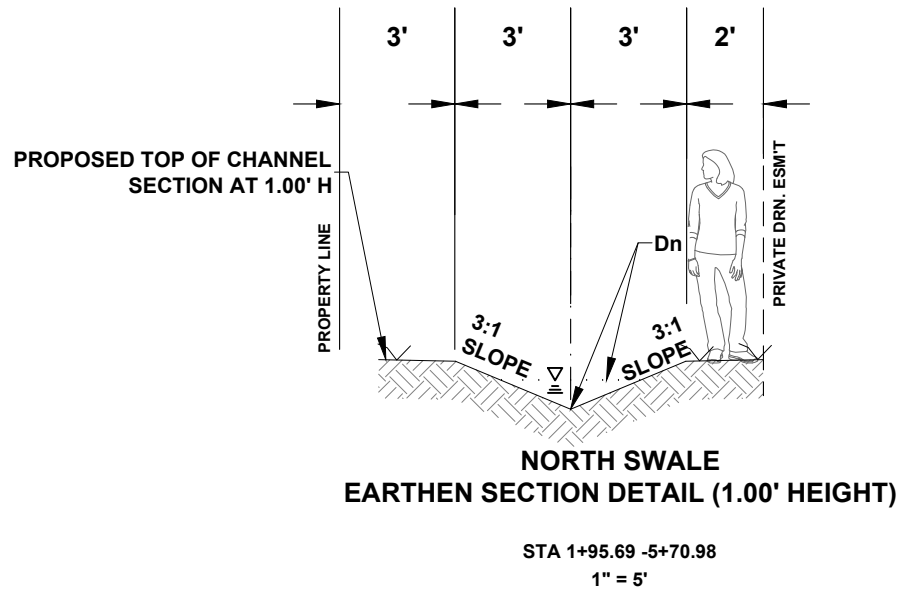
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File: U:_Projects\222 - Tezel Road\ACAD\Sheets\C5.3 INTERCEPTOR EAST.dwg

INTERCEPTOR EAST

[illegible]

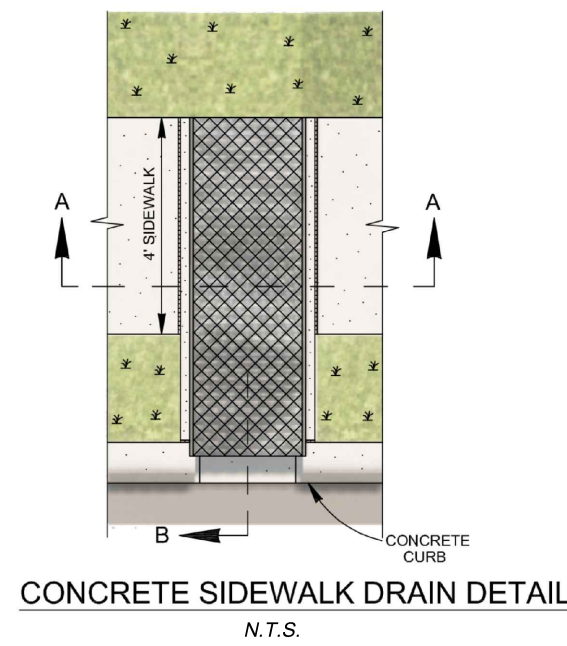
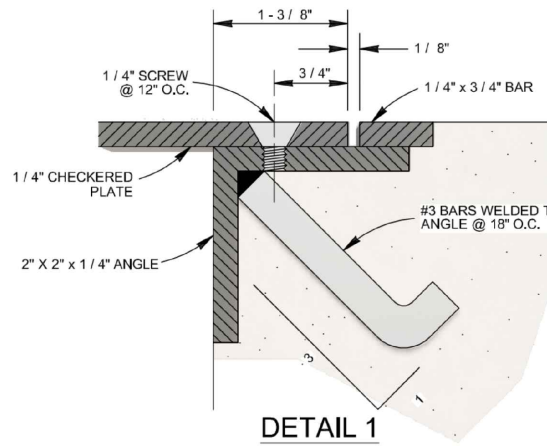
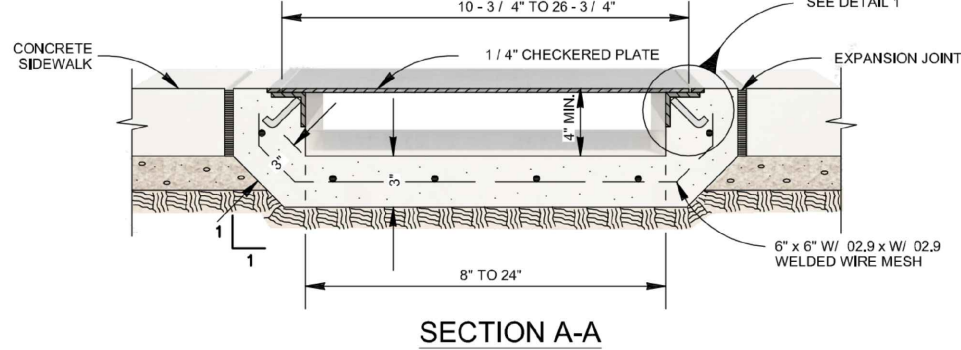
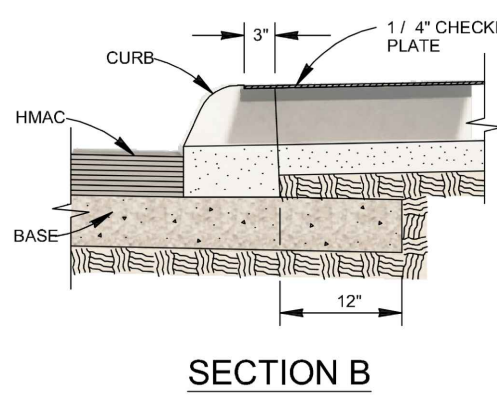
C5.3

Date: May 01, 2024, 1:25pm, User ID: Nathan Chamberlain
Project: VSTANCIA CUSTOM HOMES, 20450 HWY 46, STE 115, SPRING BRANCH, TEXAS 78070
Drawing: C5.4, NORTH SWALE, INTERCEPTOR NORTH 499



Q = PROP A1:A2
Q₂₅ = 5.98 cfs
Q₁₀₀ = 7.42 cfs

Name	North Swale PROP A1:A2 Q25	North Swale PROP A1:A2 Q100		
Q (cfs)	4.44	4.44		
h (ft)	1.00'	1.00'		
b _u (ft)	1.00'	1.00'		
Z (-) left	3	3		
Z (-) right	3	3		
t _u (ft)	7	7		
n	0.035	0.035		
Slope (%)	4.83%	3.70%		
d _u (ft)	0.46'	0.49'		
V (fps)	4.02	3.64		



LEGEND

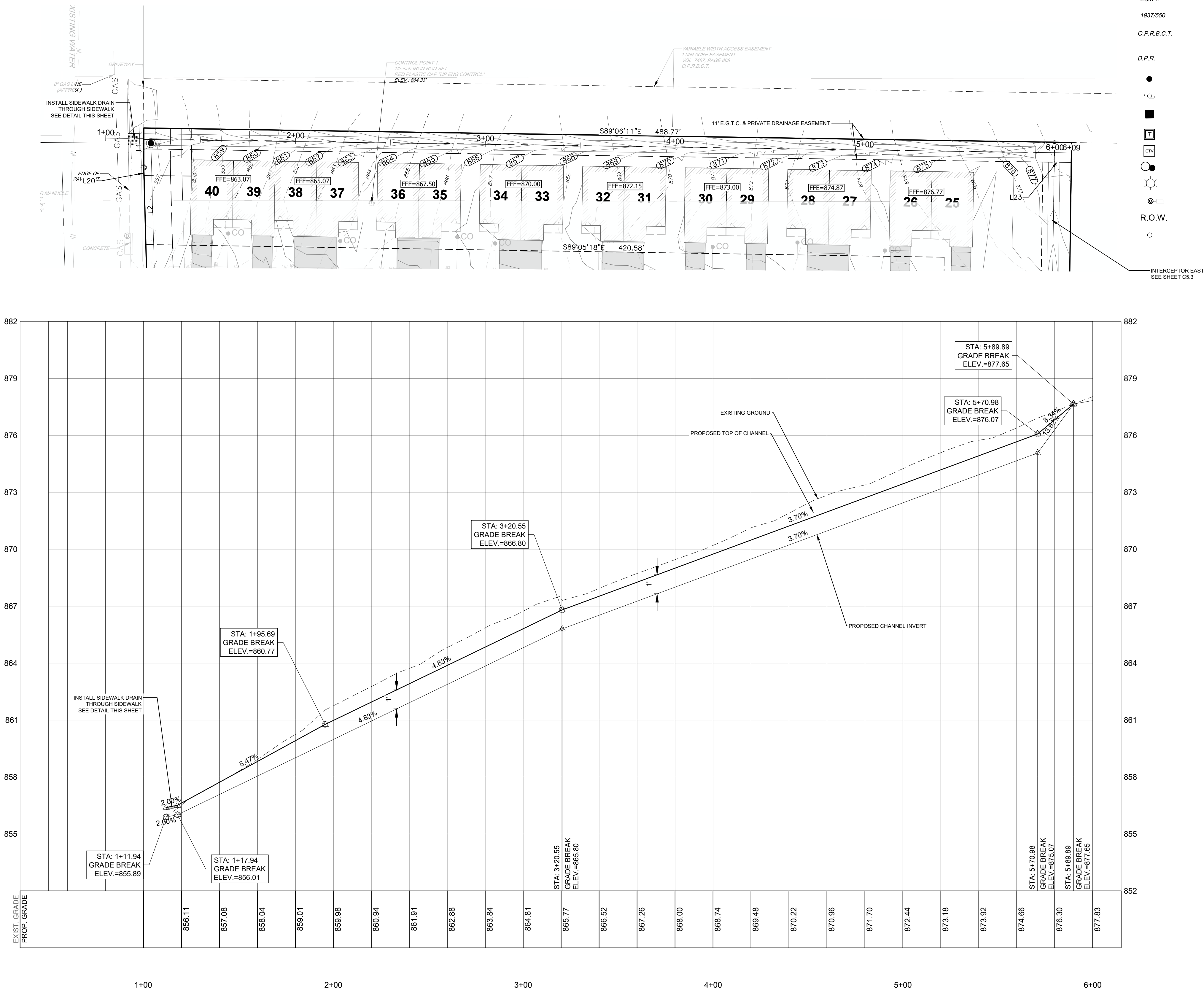
	FIRE HYDRANT
	EXISTING FIRE HYDRANT
	WATER MAIN
	EXISTING WATER MAIN
	DUAL WATER SERVICE
	SINGLE WATER SERVICE
	SANITARY SEWER PIPE
	EXISTING SANITARY SEWER PIPE
	EXISTING SANITARY SEWER MANHOLE
	PROPOSED SANITARY SEWER MANHOLE
	FLOW DIRECTION
	SANITARY SEWER LATERAL
	EXIST. SANITARY SEWER LATERAL
	ELECTRIC, GAS, TELEPHONE AND CABLE TV
	VEHICLE NON-ACCESS EASEMENT
	BUILDING SETBACK LINE
	EASEMENT
	VOLUME/PAGE
	OFFICIAL PUBLIC RECORDS OF BEXAR COUNTY TEXAS
	DEED AND PLAT RECORDS OF BEXAR COUNTY TEXAS
	POWER POLE
	EXISTING POWER POLE
	ELECTRIC TRANSFORMER
	TELEPHONE PEDESTAL
	CABLE T.V. PEDESTAL
	ELECTRIC RISER POLE
	EXISTING STREET LIGHT
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	RIGHT-OF-WAY
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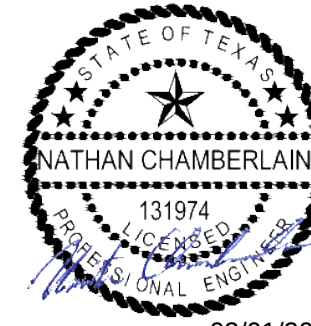
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- THE CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT AT NEW PAVEMENT AND CURB JUNCTURES. NO JAGGED OR IRREGULAR CUTS IN PAVEMENT WILL BE ACCEPTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
- ALL EXCAVATION IS UNCLASSIFIED.
- ALL ON-SITE CURBS ARE 6" HIGH UNLESS OTHERWISE SPECIFIED.
- SEE CIVIL COVER SHEET FOR PROJECT BENCHMARKS.
- CONTRACTOR TO RAISE/LOWER ALL UTILITY BOXES, COVERS, GRATES, VALVES BOXES, MANHOLES, CLEANOUTS, ETC., TO MATCH PROPOSED FINISHED GRADE ELEVATIONS.
- ALL DISTURBED AREAS WHICH ARE NOT TO BE PAVED SHALL BE COVERED WITH 6" MIN. CLEAN TOPSOIL UNLESS OTHERWISE NOTED. CUT OR FILL SHALL BE ADJUSTED TO ALLOW FOR TOPSOIL IN ORDER TO MAINTAIN PROPOSED ELEVATIONS. AREAS FOR LANDSCAPING SHOULD BE IN ACCORDANCE WITH THE LANDSCAPE ARCHITECTS PLANS.
- PROVIDE THE REQUIRED MINIMUM DENSITY AND MOISTURE CONTENT OF COMPACTED FILL IN ACCORDANCE WITH THE SOILS REPORT AND THE REQUIREMENTS OF THE PROFESSIONAL ENGINEER (GEOTECH AND CIVIL).
- A TESTING LABORATORY SHALL BE EMPLOYED BY THE CONTRACTOR TO CHECK THE SUITABILITY OF MATERIAL SELECTED FOR CONTROLLED FILLS. TO TEST AND DETERMINE IF THE REQUIRED IS BEING OBTAINED, AND TO TEST COMPACTION OF EXPOSED SUBGRADES. WHEN COMPACTION TESTS DOES NOT MEET GEOTECH REQUIREMENTS, FILL AND BACKFILL SHALL BE DRIED OUT OR MOISTENED AS NECESSARY, SCARIFIED, AND RECOMPACTED AT NO ADDITIONAL COSTS TO OWNER.
- IMPROVED EARTHEN CHANNELS AND DETENTION PONDS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE CHANNEL SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT THE CHANNEL FOR MAINTENANCE.
- TURF REINFORCEMENT MATTING: 6 FPS < V < 12 FPS, IF > 12 FPS, ENGINEER'S REPORT SHOULD CERTIFY THAT MATERIAL IS APPROPRIATE FOR VELOCITY. INCLUDE MANUFACTURER SPEC'S & INSTALLATION INSTRUCTIONS. ENGINEER TO CERTIFY AT FINAL INSPECTION THAT MATERIAL WAS INSTALLED CORRECTLY.



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03/01/2024

VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070

ALTURA AT TEZEL DUPLEXES

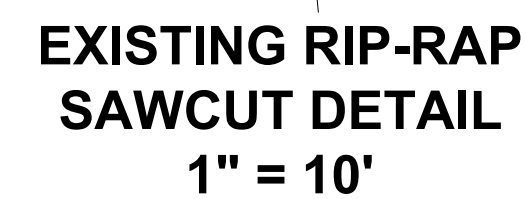
NORTH SWALE

REV	DATE	DESCRIPTION	BY

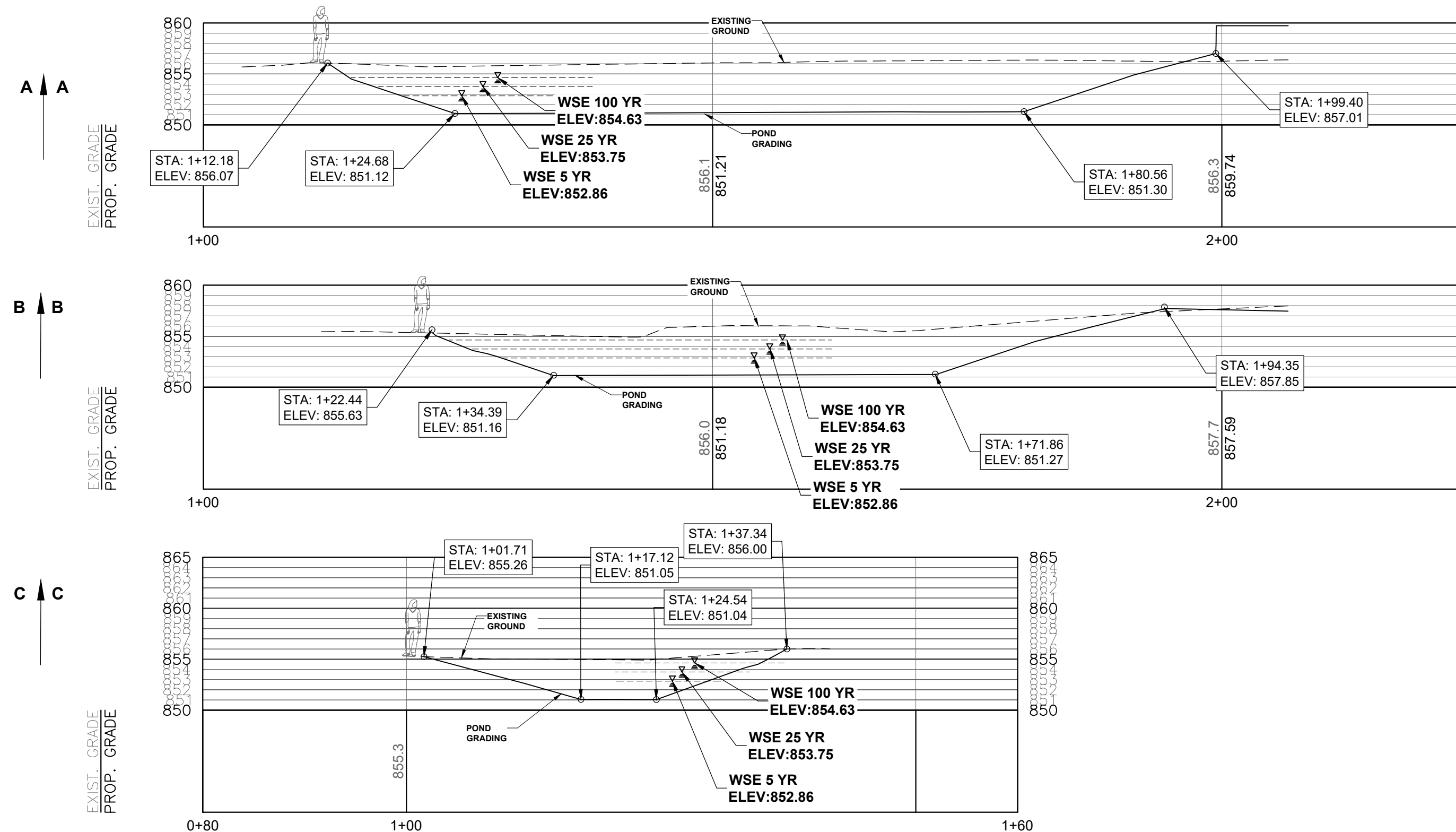
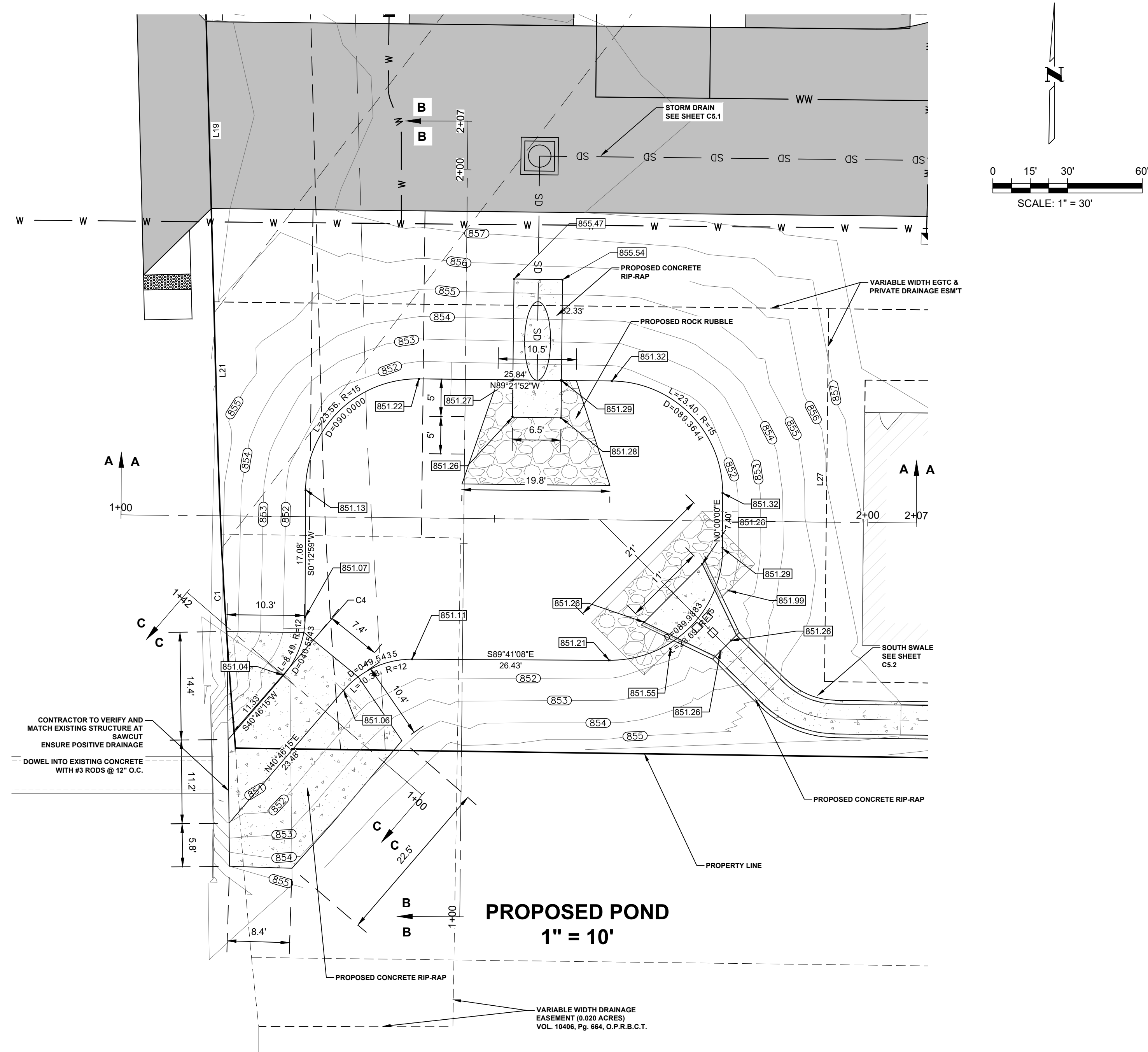
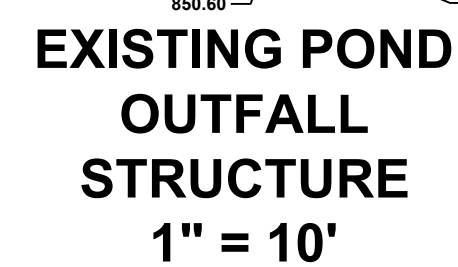
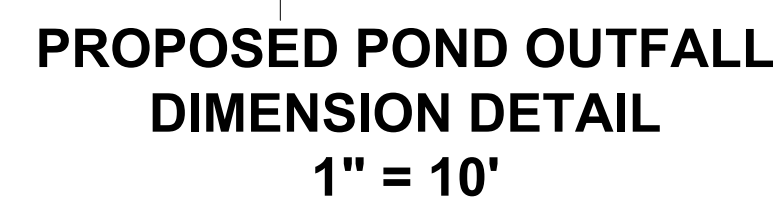
DESIGNED BY: WPF
DRAFTED BY: JWH
CHECKED BY: NFU

SHEET

C5.4



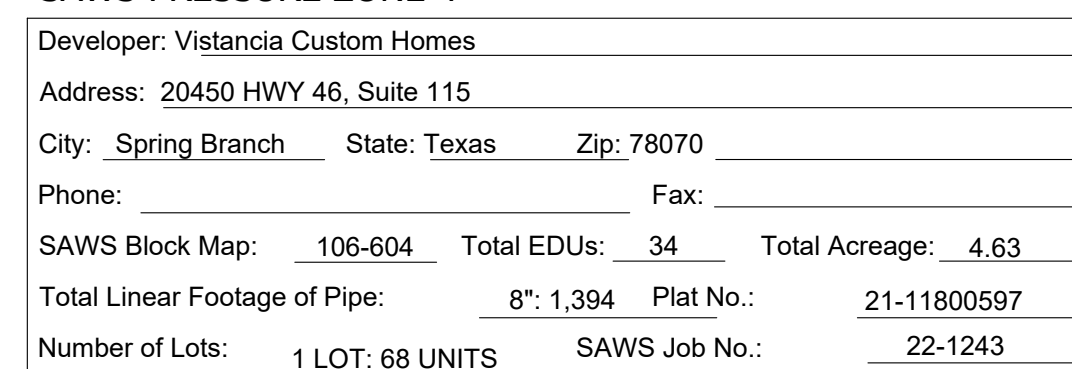
OVERALL OVERDETENTION WITH POND JUNCTION C		
	EXISTING Q ₁₀₀ (CFS)	PROPOSED Q ₁₀₀ (CFS)
JUNCTION A	4.06	5.51
JUNCTION B	14.37	23.72
JUNCTION C (Hydrographs)	79.75	67.04
TOTAL	98.18	96.27



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 ANTICIPATE INSTALLATION STRATEGY FOR THE PROJECT WORK 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 EXCAVATION SAFETY PROTECTION SYSTEM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CONTRACTOR SHALL INSTALL RETAINER GLANDS OR MEGALUGS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESS OR FIELD LOK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC., HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GLANDS OR MEGALUGS SHALL BE CALCULATED BY SAWS APPROVED PROGRAMS AND VERIFIED BY SAWS INSPECTOR. CONTRACTOR SHALL INSTALL CONCRETE THRUST BLOCKING IN ACCORDANCE WITH SAWS STD. DRAWING 839 IN ADDITION TO JOINT RESTRAINTS UNLESS OTHERWISE DIRECTED BY THE SAWS INSPECTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE JOINT RESTRAINTS AND THRUST BLOCKING WITH THE SAWS INSPECTOR.

6. CONTRACTOR/HOME BUILDER RESPONSIBLE FOR ANY PERMITTING/INSPECTIONS REQUIRED BY THE CITY FOR CONNECTION TO THE WATER METERS.



WATER LAYOUT

C6

1. AFTER ALL SANITARY SEWER CONSTRUCTION HAS BEEN COMPLETED, FINAL STABILIZATION OF THE CONSTRUCTION AREA ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES SHALL BE COMPLETED BY EVENLY DISTRIBUTING SEEDS AND WATERING TO A MINIMUM OF 70% OF THE NATIVE BACKGROUND VEGETATIVE COVER.
2. ALL WASTEWATER MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FEBRUARY 2017 SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.
3. ALL WASTEWATER PRECAST MANHOLES SHALL BE PROVIDED BY SUPPLIERS APPROVED BY SAWS.
4. CONTRACTOR SHALL PROVIDE MANUFACTURED STUB OUT CAP & PLUG TO MEET 30 TAC 213.5(3)(G) STANDARDS AND TO MEET ASTM D3034 SPECIFICATIONS UNLESS OTHERWISE NOTED.
5. ALL RESIDENTIAL SEWER SERVICE LATERALS ARE 8" DIA. AND 36 FEET IN LENGTH UNLESS NOTED OTHERWISE.

6. ALL RESIDENTIAL SEWER SERVICE LATERALS SHALL BE EXTENDED TO THE 10' G.E. T.V.E. AND CAPPED AND SEALED.
7. LATERALS TO LOTS THAT SLOPE AWAY FROM STREET SHALL BE SLOPED FROM THE TEE OR STACK AT 2% TO THE PROPERTY LINE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12-INCH (3- INCH) LOOSE LIFT PER 40' LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

9. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THE CONTRACTOR'S AND/OR CONTRACTOR'S GEOTECHNICAL INFORMATION AND THE AMBIENT/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'S DESCRIPTION OF TRENCH EXCAVATION DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATION SPECIFICALLY. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS FOR PRESENCE AND/OR ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

10. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDON. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

12. ALL PIPE TO BE SDR 26 PVC PER ASTM D3034 SPECIFICATIONS UNLESS OTHERWISE NOTED. PIPE JOINTS TO BE SDR 26 PER ASTM D3139 SPECIFICATIONS.

13. ALL SANITARY SEWER LINES WHICH CROSS WATERLINES ARE TO HAVE A MINIMUM OF A SINGLE LENGTH OF SDR 26 (ASTM D2241-09), PRESSURE RATED (150 PSI) PIPE, CENTERED ON THE WATERLINE SUCH THAT EACH SEWER LINE JOINT IS A MINIMUM OF NINE FEET FROM THE WATERLINE.

14. CONTRACTOR TO VERIFY TOP OF MANHOLE ELEVATION WITH FINISHED PAVEMENT ELEVATION AND ADJUST AS NECESSARY.

15. CONTRACTOR TO PROVIDE MANUFACTURED STUB
OUT CAP & PLUG TO MEET 30 TAC 213.5(3)(G)
STANDARDS AND TO MEET ASTM D3034
SPECIFICATION.

16. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW.

17. CONTRACTOR TO REFER TO SAWS STANDARD DETAILS FOR ALL SAWS APPURTENANCES AND STRUCTURES.

18. ALL ONSITE SANITARY SEWER INFRASTRUCTURE TO BE PRIVATELY OWNED AND MAINTAINED.

WEST SEWERSHED - LEON CREEK W.R.C.

Developer: Vistancia Custom Homes

Address: 20450 HWY 46, Suite 115

City: Spring Branch State: Texas Zip: 78070

Phone: _____ Fax: _____

SAWS Block Map: 106-604 Total EDUs: 34 Total Acreage: 4.63

Total Linear Footage of Pipe: 28 DUPLEXES 8" 98 L.F. Plat No.: 21-118000597

Number of Lots: 3 FOURPLEXES SAWS Job No.: 22-1734

	FIRE HYDRANT
	EXISTING FIRE HYDRANT
	WATER MAIN
	EXISTING WATER MAIN
	DUAL WATER SERVICE
	SINGLE WATER SERVICE
	SANITARY SEWER PIPE
	EXISTING SANITARY SEWER PIPE
	EXISTING SANITARY SEWER MANHOLE
	PROPOSED SANITARY SEWER MANHOLE
	FLOW DIRECTION
	SANITARY SEWER LATERAL
	EXIST. SANITARY SEWER LATERAL
	ELECTRIC, GAS, TELEPHONE AND CABLE TV
	VEHICLE NON-ACCESS EASEMENT
	BUILDING SETBACK LINE
	EASEMENT
	VOLUME/PAGE
	OFFICIAL PUBLIC RECORDS OF BEXAR COUNTY TEXAS
	DEED AND PLAT RECORDS OF BEXAR COUNTY TEXAS
	POWER POLE
	EXISTING POWER POLE
	ELECTRIC TRANSFORMER
	TELEPHONE PEDESTAL
	CABLE T.V. PEDESTAL
	ELECTRIC RISER POLE
	EXISTING STREET LIGHT
	PROPOSED STREET LIGHT (100 WATT UG)
	RIGHT-OF-WAY
	BLOWOFF

1. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW.

DD-804-01
DD-848-01 1 OF 2
DD-848-01 2 OF 2
DD-852-01 1 OF 2
DD-852-07 1 OF 5
DD-852-07 2 OF 5
DD-854-02 2 OF 2
DD-854-03
DD-858-01

WASTE WATER/GAS CROSSING DETAIL

NOT TO SCALE

Diagram illustrating the minimum separation distance between a proposed water line and a proposed sanitary sewer line.

The diagram shows a cross-section of the ground. A horizontal line represents the **FINISHED GROUND/PAVEMENT (TOP OF GRADE)**. Below this, a vertical line indicates the **PROPOSED WATER LINE**. A circular **PROPOSED SANITARY SEWER LINE** is shown crossing the water line at a **20° MIN.** angle.

Key dimensions and requirements:

- The **SEWER PIPE** must be at least **180°** from the water line and meet the requirements of **ASTM D22** with one **20° JOINT CENTER** at the water crossing.
- The **SEPARATION DISTANCE** between the water line and the sewer pipe is **10'**.
- The **SEPARATION DISTANCE** between the sewer pipe and the finished ground/pavement is **10'**.
- The **SEPARATION DISTANCE** between the sewer pipe and the water line is **10'**.

Additional text on the left side of the diagram:

SEPARATION DISTANCE TO COMPLY WITH SECTION 30.302.04 (E) OF THE CITY OF CHICAGO ORDINANCES (LOCAL ORDINANCE 30.302.04 (E) - SEPARATION DISTANCE).

TYPICAL SANITARY
SEWER/WATER CROSSING DETAIL

ALTURA AT TEZEL DUPLICES

SANITARY SEWER LAYOUT

**VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070**

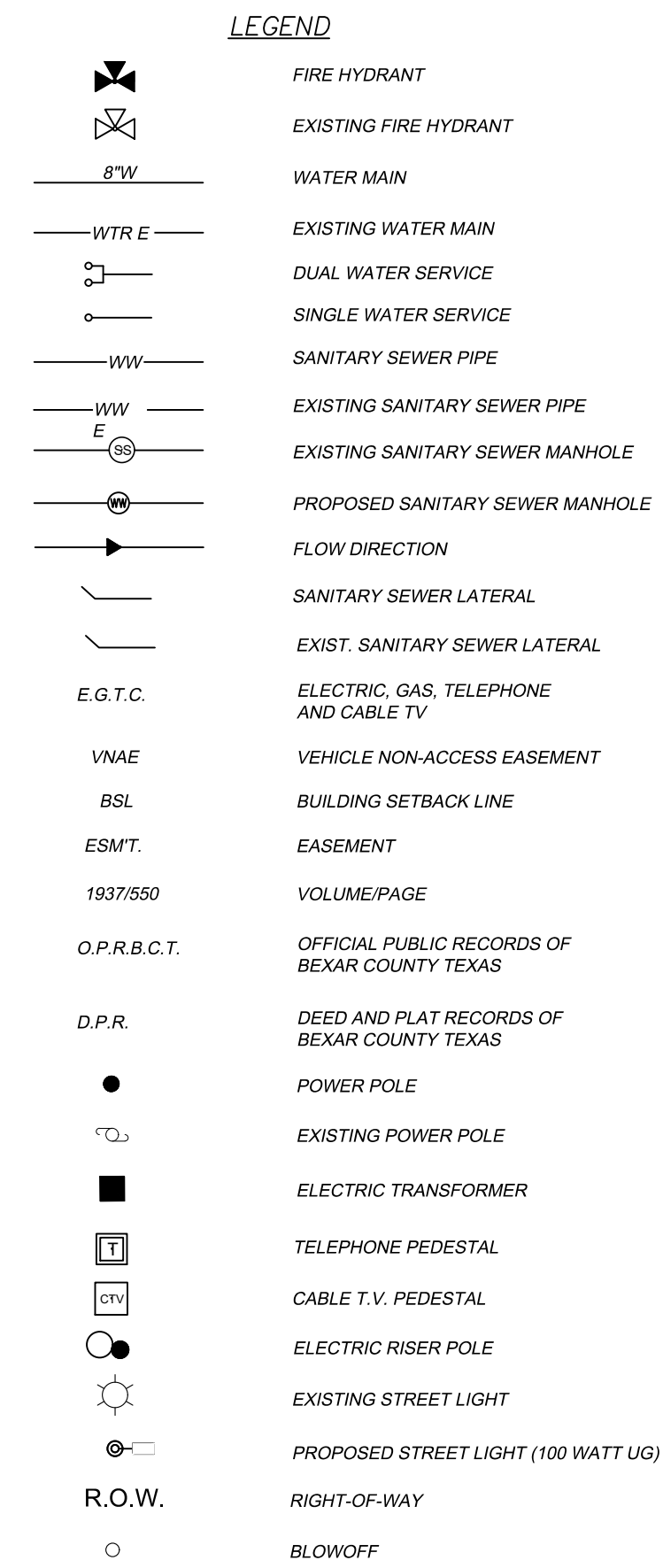
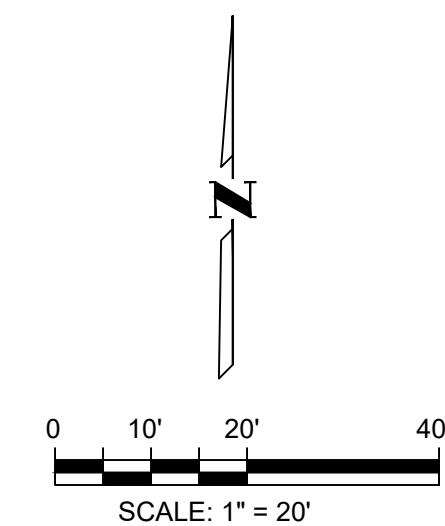
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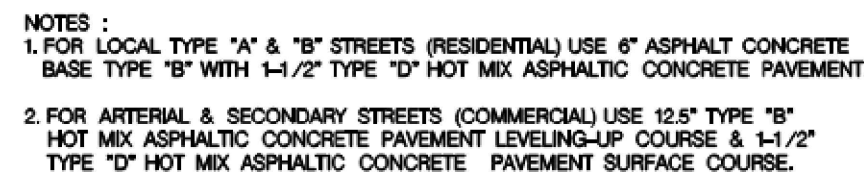
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1903 JONES MALTSBERGER ROAD, SUITE 102
SAN ANTONIO, TX 78216 TEL 210-774-5504
WWW.UPENGINEERING.COM TBPE F-17992
TBPE'S E-10184606

Date: Mar 01, 2024, 3:50pm User ID: Nathan Chamberlain
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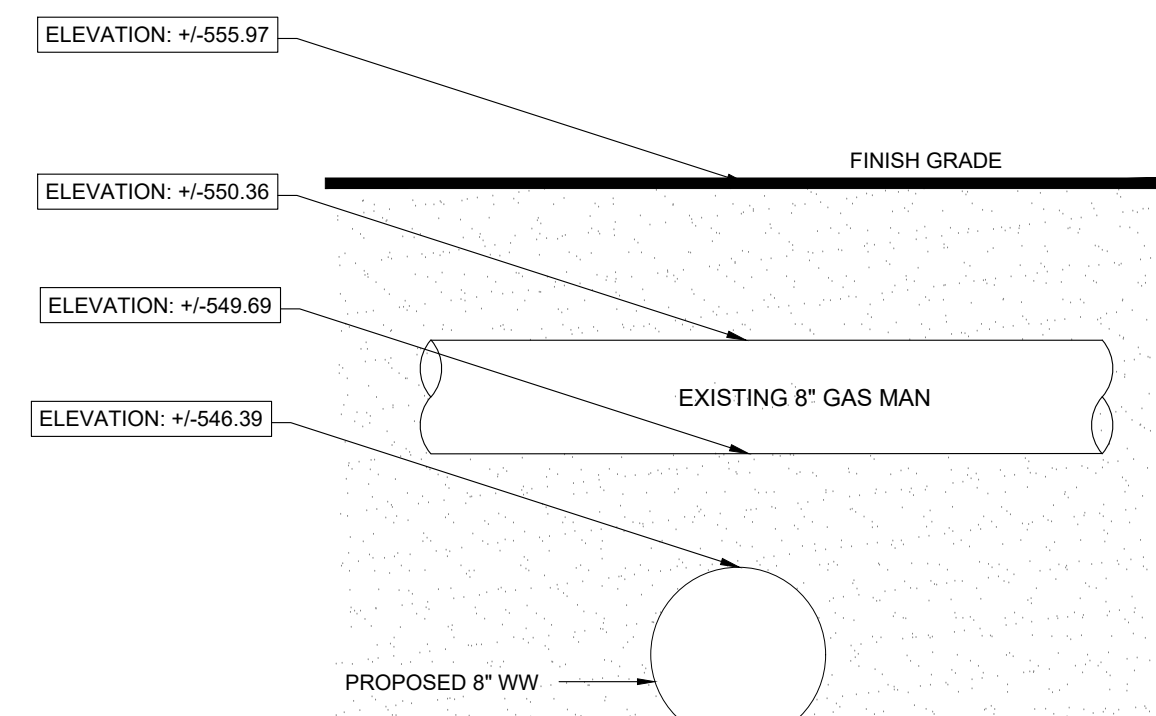


1. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW.

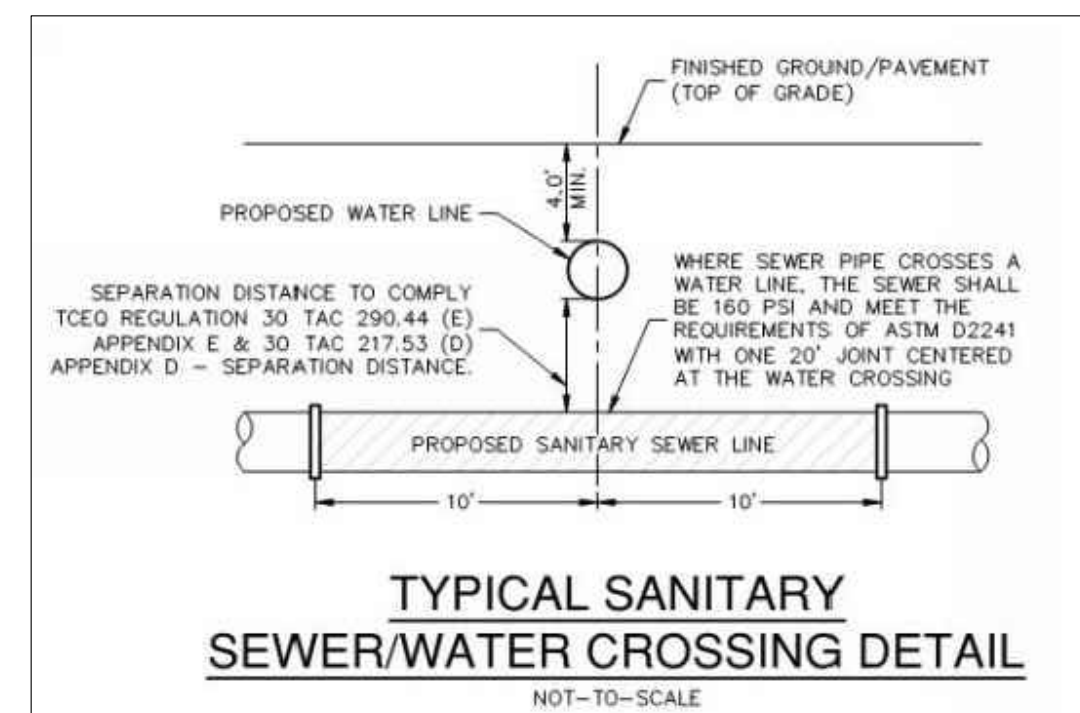
DD-804-01
DD-848-01 1 OF 2
DD-848-01 2 OF 2
DD-852-01 1 OF 2
DD-852-07 1 OF 5
DD-852-07 2 OF 5
DD-852-08
DD-854-02 2 OF 2
DD-854-03
DD-858-01
DD-860-01



SCALE:
1" = 5' VERT.
1" = 20' HORIZ.



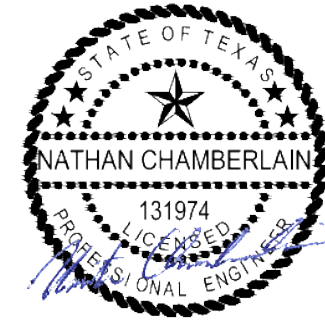
WASTE WATER/GAS CROSSING DETAIL
NOT TO SCALE



Developer: Vistancia Custom Homes			
Address: 20450 HWY 46, Suite 115			
City: Spring Branch	State: Texas	Zip: 78070	
Phone: _____	Fax: _____		
SAWS Block Map: 106-604	Total EDUs: 34	Total Acreage: 4.63	
Total Linear Footage of Pipe: 28 DUPLEXES	8": 98 L.F.	Plat No.:	21-118000597
Number of Lots: 3 FOURPLEXES	SAWS Job No.:	22-1734	

SANITARY SEWER LINE A

VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070



03/01/2024



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TBPE S F-10194606

[illegible]

SHEET

C7.1

1. FIRE LINES SHALL HAVE A MINIMUM 2-WAY TRAFFIC WIDTH OF 25 FT. WITH A MINIMUM OUTSIDE TURNING RADIUS OF 50 FT., UNLESS OTHERWISE NOTED.
2. FIRE LINES NEXT TO FIRE HYDRANTS OR DESIGNATED FOR AERIAL APPARATUS SHALL BE A MINIMUM OF 26 FT.
3. FIRE LINES SHALL BE DESIGNATED IN ACCORDANCE TO THE 2015 INTERNATIONAL FIRE CODE AND PER BEARX COUNTY FIRE MARSHALL AMENDMENTS.
4. THE SURFACE SHALL BE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS.
5. BLUE TRAFFIC REFLECTORS SHALL BE PROVIDED ON EACH SIDE OF THE SURFACE EVERY 20 FEET TO CLEARLY MARK THE BOUNDARIES OF THE SURFACE AND THE SURROUNDING SURFACE SHALL BE MAINTAINED SUCH THAT SAID REFLECTORS ARE VISIBLE AT ALL TIMES.
6. A SIGNED LETTER FROM THE MANUFACTURER SHALL BE PROVIDED TO THE FIRE MARSHALL'S OFFICE CERTIFYING THAT THE INSTALLATION MEETS ALL REQUIREMENTS IN THE CURRENTLY EFFECTIVE INTERNATIONAL FIRE CODE TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
7. THE SURFACE SHALL BE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES WHEN UTILIZED AS A REQUIRED FIRE LANE. SHOULD THE SURFACE BECOME DAMAGED OR FALL INTO DISREPAIR, THE FIRE MARSHALL OR HIS DESIGNEE SHALL BE AUTHORIZED TO REQUIRE THE REPAIR AND RE-CERTIFICATION OF SAID SURFACE.

FIRE LANE STRIPING



2" DIAM. G.
STEEL PO

EXTEND CONCRETE 3'
ABOVE FINISHED GRADE
AT LOCATIONS WHERE

PROTECTED BY CURB &
GUTTER OR WHEEL
STOPS

FIRE LANE SIGNAGE

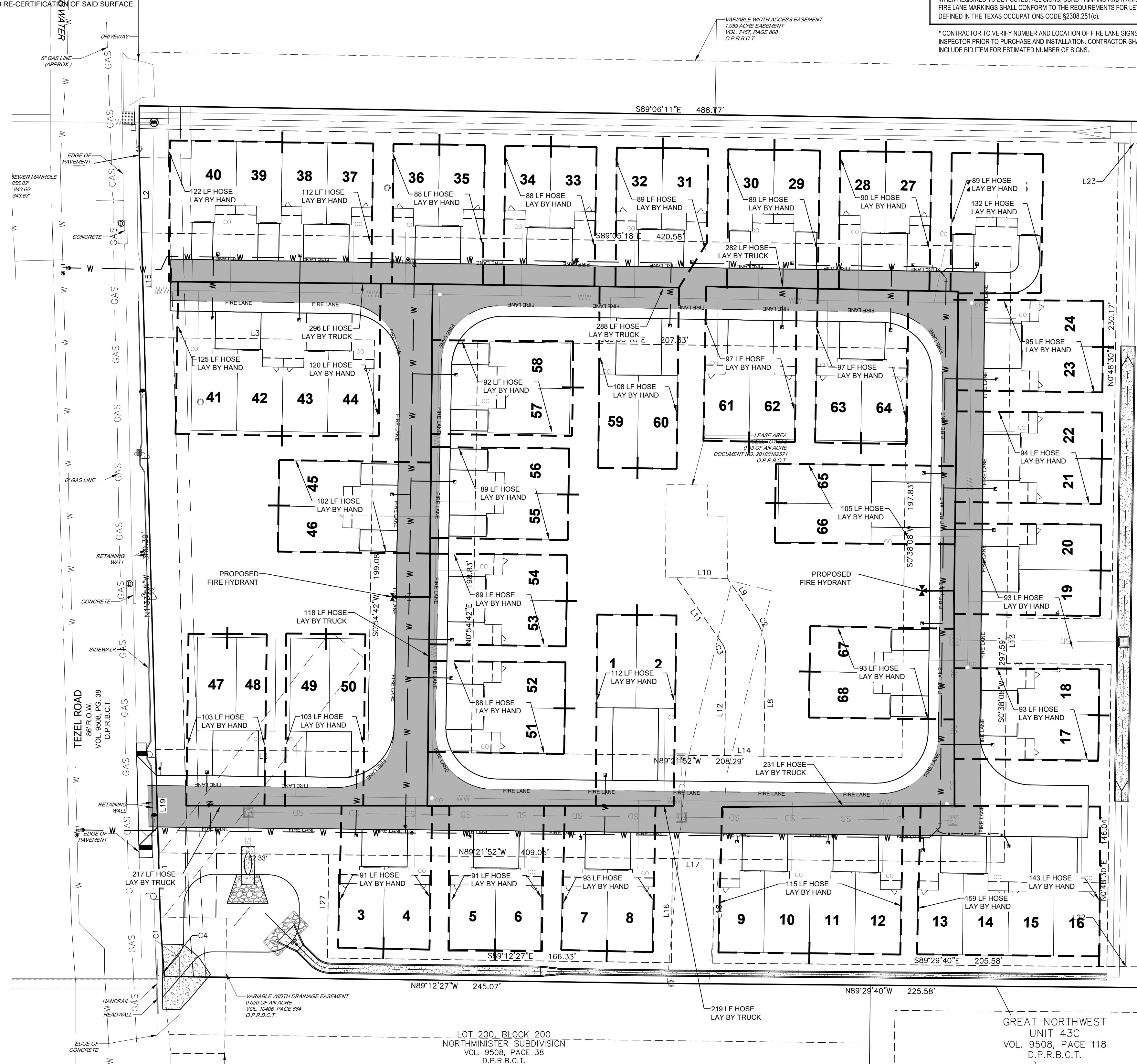
SIGN INSTALLATION NOTE:
WHEN REQUIRED TO BE POSTED, ALL SIGNS, CURB PAINTING AND MARKING, AND PARKING LOT FIRE LANE MARKINGS SHALL CONFORM TO THE REQUIREMENTS FOR LETTERING AND WORDING DEFINED IN THE TEXAS OCCUPATIONS CODE §2308.251(c).

* CONTRACTOR TO VERIFY NUMBER AND LOCATION OF FIRE LANE SIGNS WITH INSPECTOR PRIOR TO PURCHASE AND INSTALLATION. CONTRACTOR SHALL INCLUDE BID ITEM FOR ESTIMATED NUMBER OF SIGNS.

Legend:

- BOUNDARY / RIGHT OF WAY
- PROPOSED BUILDING
- FIRE LANE
- HOSE LAY (TRUCK PULL) 550 LF MAX.
- HOSE LAY (HAND PULL) 200 LF MAX.
- EXISTING OVERHEAD ELECTRIC
- EXISTING WATER LINE
- EXISTING FIRE HYDRANT
- PROPOSED FENCE
- DIRECTION OF TRAVEL

CAUTION:
CONTRACTOR TO VERIFY ALL EXISTING UTILITIES VERTICALLY
AND HORIZONTALLY PRIOR TO CONSTRUCTION. CONTRACTOR TO
NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.



Date: Mar 01, 2024, 3:51pm User ID: Nathan Chamberlain
File: U:_Projects\222 - Tezel Road\ACAD\Sheets\FIRE PROTECTION PLAN.dwg

**VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070**

ALTURA AT TEZEL DUPLEXES

FIRE PROTECTION PLAN

[illegible]

SHEET

C8

Date: Mar 01, 2024, 1:23 PM, User: J. Williams, Computer: J. Williams, Project: Tezel Road Duplexes, Drawing: DRAINAGE AREA MAP, Scale: 1" = 50'

LEGEND

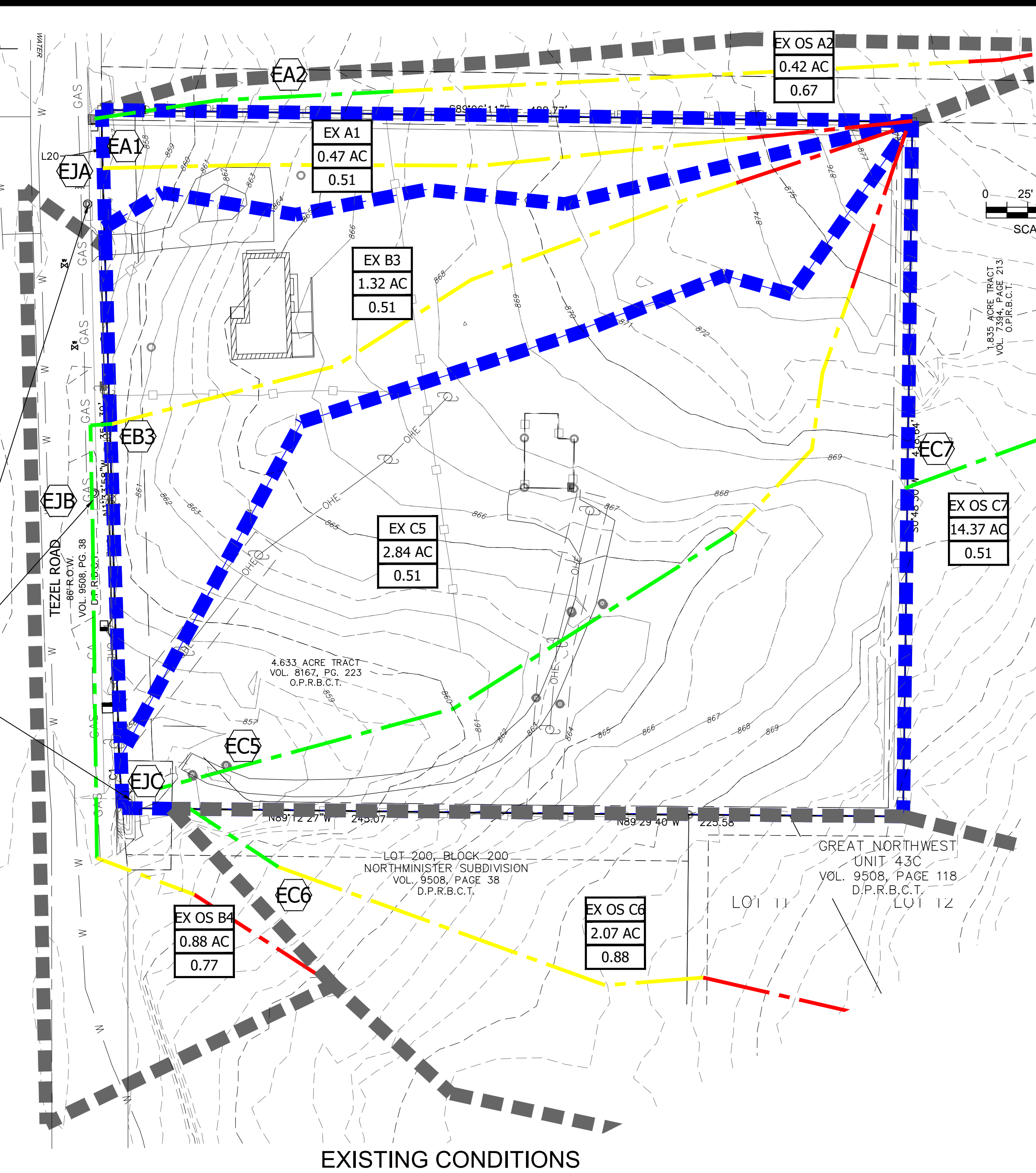
1
5.2 AC
0.47

EXIST. CONTOUR
DRAINAGE AREA
SHEET FLOW
SHALLOW CONCENTRATED
CHANNEL FLOW

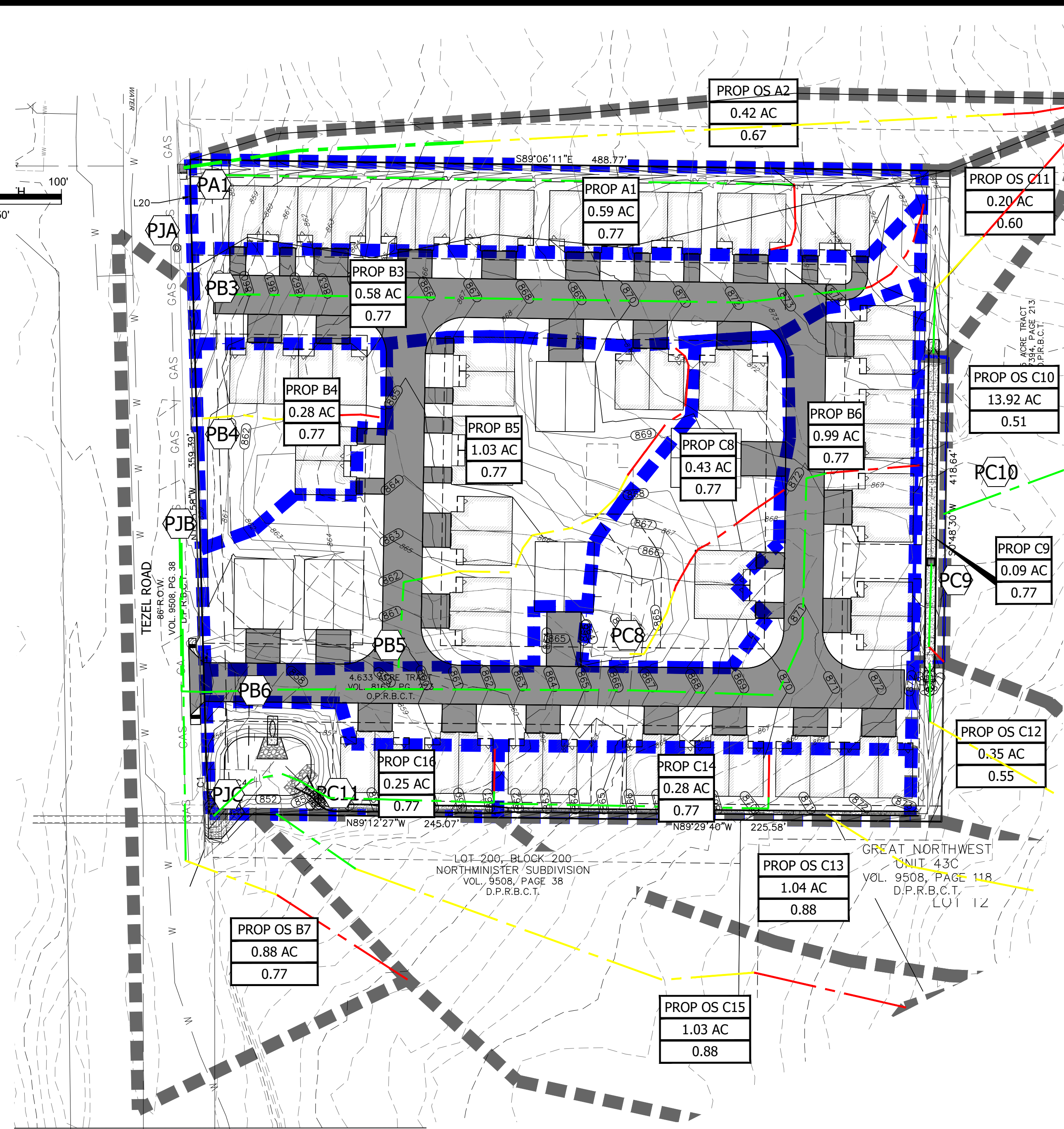
EXISTING 10' INLET ON TEZEL ROAD
SEE TxDOT PLANS AREA E2

EXISTING 10' INLET ON TEZEL ROAD
SEE TxDOT PLANS AREA E4

EXISTING CULVERT UNDER TEZEL ROAD



EXISTING CONDITIONS

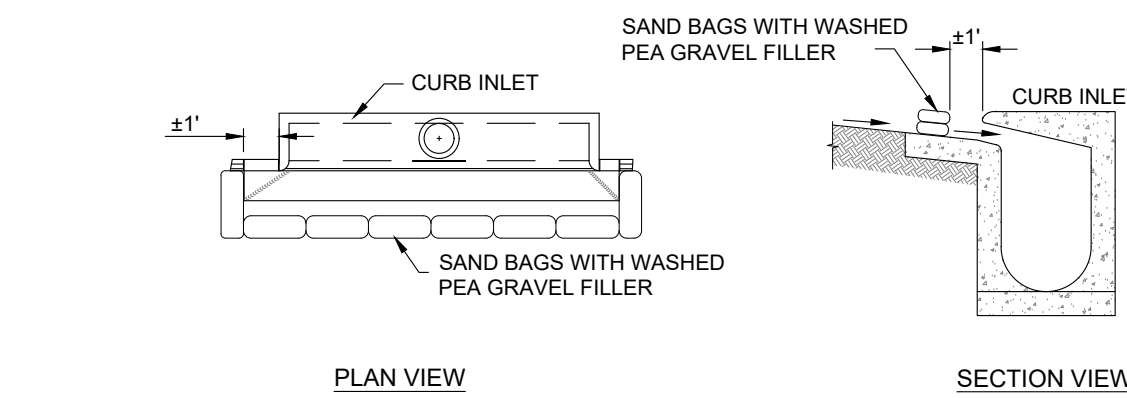
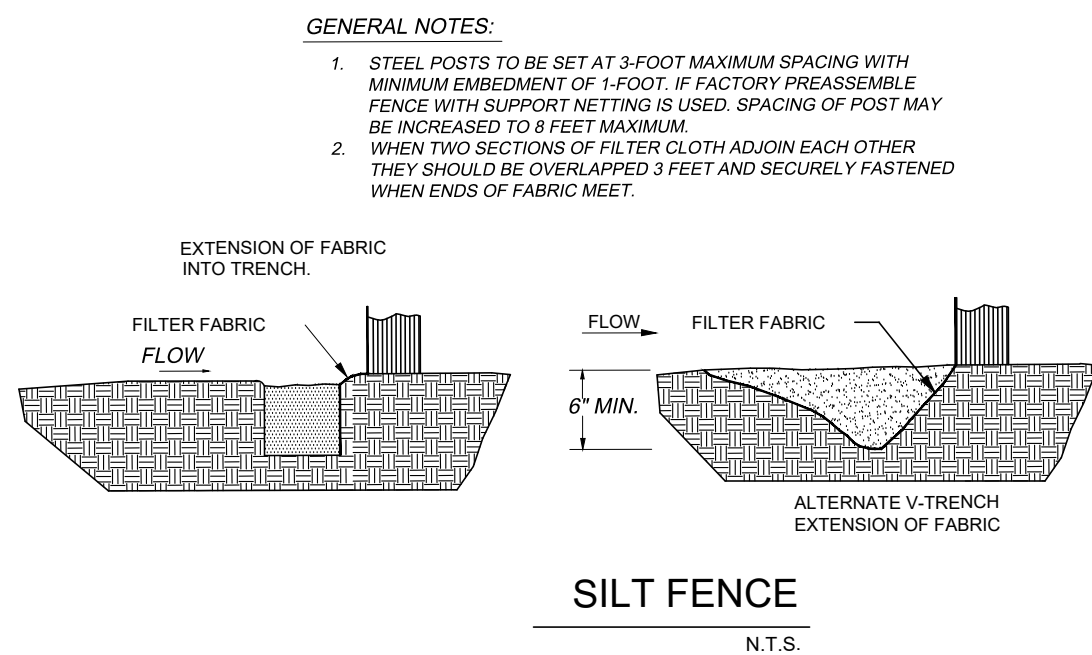
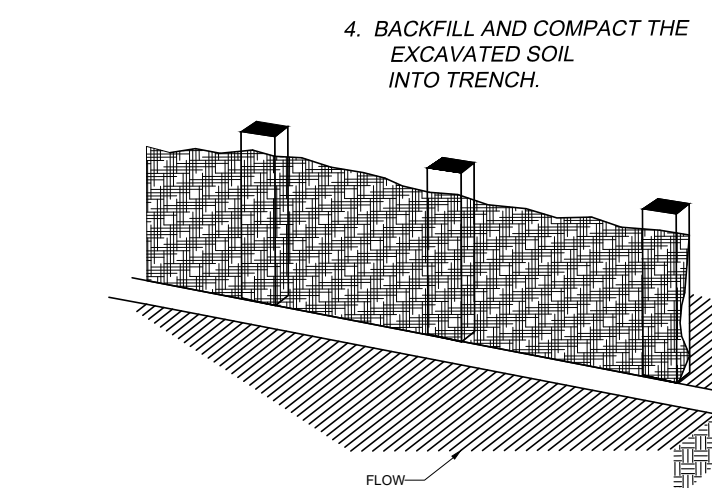


PROPOSED CONDITIONS

Project Conditions	Tezel Road Duplexes
Date	2/20/2024
Precipitation Area	PA_3

Tezel Road Duplexes Atlas14 Proposed Time of Concentration Table PA_3														
Drainage Basin(s)/ Analysis Points	Sheet Flow (max length = 150')					Shallow Concentrated Flow					Channel Flow			
	n	L _t (ft)	P ₂ (in)	S _p (%)	T _t (min)	L _{sc} (ft)	S _{sc} (%)	k	T _{sc} (min)	L (ft)	V (ft/sec)	T _{ch} (min)	T _c (min)	T _c (min)
PROP A1	0.41	54	3.96	0.3	20.0	Unpaved	0	1.0	16.13	0.0	373	4	1.6	21.6
PROP OS A2	0.41	100	3.96	5.4	13.2	Unpaved	348	4.2	16.13	1.8	181	4	0.8	15.7
JUNCTION A1:A2	0.41	54	3.96	0.3	20.0	Unpaved	0	1.0	16.13	0.0	373	4	1.6	21.6
PROP B3	0.41	69	3.96	5.1	10.1	Unpaved	0	1.0	16.13	0.0	423	4	1.8	11.8
PROP B4	0.41	55	3.96	4.0	9.2	Unpaved	58	4.6	16.13	0.3	0	4	0.0	9.5
PROP B5	0.41	100	3.96	3.1	16.5	Unpaved	163	4.3	16.13	0.8	67	4	0.3	17.6
PROP B6	0.41	60	3.96	3.5	10.5	Unpaved	0	1.0	16.13	0.0	524	4	2.2	12.7
PROP OS B7	0.41	55	3.96	6.4	7.7	Unpaved	63	5.1	16.13	0.3	204	4	0.9	8.8
JUNCTION B3:B7	0.41	100	3.96	3.1	16.5	Unpaved	163	4.3	16.13	0.8	223	4	0.9	18.2
PROP C8	0.41	98	3.96	6.0	12.5	Unpaved	54	3.8	16.13	0.3	0	4	0.0	12.8
PROP C9	0.41	14	3.96	1.0	5.4	Unpaved	0	1.0	16.13	0.0	155	4	0.6	6.0
PROP OS C10	0.24	100	3.96	2.0	12.9	Unpaved	701	3.1	16.13	4.1	547	4	2.3	19.3
PROP OS C11	0.41	100	3.96	5.2	13.4	Unpaved	46	3.8	16.13	0.2	41	4	0.2	13.8
PROP OS C12	0.41	100	3.96	5.5	13.1	Unpaved	121	7.9	16.13	0.4	37	4	0.2	13.7
JUNCTION C9:C12	0.24	100	3.96	2.0	12.9	Unpaved	701	3.1	16.13	4.1	547	4	2.3	19.3
JUNCTION C8:C12	0.24	100	3.96	2.0	12.9	Unpaved	701	3.1	16.13	4.1	547	4	2.3	19.3
PROP OS C13	0.41	100	3.96	1.7	20.0	Unpaved	532	4.8	16.13	2.5	0	4	0.0	22.5
PROP C14	0.41	27	3.96	0.4	13.0	Unpaved	0	4.5	16.13	0.0	180	4	0.8	13.8
JUNCTION C13:C14	0.41	100	3.96	1.7	20.0	Unpaved	532	4.8	16.13	2.5	0	4	0.0	22.5
PROP OS C15	0.41	100	3.96	4.9	13.7	Paved	269	4.5	20.32	1.0	62	4	0.3	15.0
PROP C16	0.41	27	3.96	4.4	5.0	Unpaved	0	4.5	16.13	0.0	201	4	0.8	5.9
JUNCTION C13:C16	0.41	100	3.96	1.7	20.0	Unpaved	532	4.8	16.13	2.5	356	4	1.5	24.0
JUNCTION C8:C16	0.41	100	3.96	1.7	20.0	Unpaved	532	4.8	16.13	2.5	356	4	1.5	24.0
$T_t = \frac{0.007(nL_t)^{0.8}}{(P_2)^{0.5} S_t^{0.4}}$														
$T_{sc} = \frac{L_{sc}}{3600 K S_{sc}^{0.5}}$														
$T_{ch} = \frac{L_{ch}}{3600 \cdot V}$														
$T_c = T_t + T_{sc} + T_{ch}$														

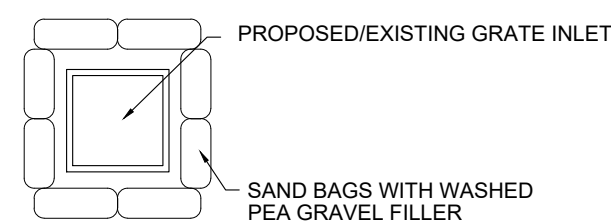
Tezel Road Duplexes Atlas14 Proposed Q Flow Table PA_3									
Drainage Area	A (ac.)	C	Intensity			Q FLOW			
			I ₅ (in/hr)	I ₂₅ (in/hr)	I ₁₀₀ (in/hr)	Q ₅ (ft ³ /s)	Q ₂₅ (ft ³ /s)	Q ₁₀₀ (ft ³ /s)	Q ₁₀₀ (ft ³ /s)
PROP A1	0.59	0.77	4.37	6.04	7.49	1.99	2.74	3.40	3.40
PROP OS A2	0.42	0.67	5.15	7.14	8.89	1.45	2.01	2.50	2.50
JUNCTION A1:A2	1.01	0.73	4.37	6.04	7.49	3.22	4.44	5.51	5.51
PROP B3	0.58	0.77	5.90	8.24	10.31	2.64	3.68	4.61	4.61
PROP B4	0.28	0.77	6.42	8.99	11.27	1.38	1.94	2.43	2.43
PROP B5	1.03	0.77	4.85	6.72	8.35	3.85	5.33	6.62	6.62
PROP B6	0.99	0.77	5.73	7.98	9.98	4.37	6.09	7.61	7.61
PROP OS B7	0.88	0.77	6.59	9.23	11.58	4.49	6.29	7.88	7.88
JUNCTION B3:B7	3.76	0.77	4.76	6.59	8.18	13.81	19.10	23.72	23.72
PROP C8	0.43	0.77	5.70	7.95	9.94	1.89	2.63	3.29	3.29
PROP C9	0.09	0.77	7.44	10.41	13.06	0.52	0.72	0.90	0.90
PROP OS C10	13.92	0.58	4.63	6.40	7.95	37.39	51.68	64.15	64.15
PROP OS C11	0.20	0.60	5.50	7.66	9.55	0.66	0.92	1.15	1.15
PROP OS C12	0.35	0.55	5.52	7.68	9.58	1.06	1.48	1.84	1.84
JUNCTION C9:C12	14.56	0.58	4.63	6.40	7.95	39.16	54.12	67.18	67.18
JUNCTION C8:C12	14.99	0.59	4.63	6.40	7.95	41.05	56.75	70.47	70.47
PROP OS C13	1.04	0.88	4.28	5.91	7.32	3.92	5.41	6.70	6.70
PROP C14	0.28	0.77	5.51	7.67	9.57	1.19	1.65	2.06	2.06
JUNCTION C13:C14	1.32	0.86	4.28	5.91	7.32	4.84	6.68	8.28	8.28
PROP OS C15	1.03	0.88	5.28	7.32	9.11	4.78	6.63	8.26	8.26
PROP C16	0.25	0.77	7.51	10.50	13.17	1.45	2.02	2.53	2.53
JUNCTION C13:C16	2.60	0.86	4.14	5.72	7.08	9.24	12.75	15.79	15.79
JUNCTION C8:C16	17.59	0.63	4.14	5.72	7.08	45.65	62.97	78.03	78.03
$Q = CIA$									



- NOTES:
1. SAND BAGS SHOULD BE PLACED TIGHTLY AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN BAGS.
 2. SAND BAGS SHOULD BE FILLED WITH WASHED PEA GRAVEL AND STACKED TO FORM A CONTINUOUS BARRIER APPROXIMATELY 1 FOOT IN HEIGHT, APPROXIMATELY 1 FOOT FROM THE INLET OPENING.
 3. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT.
 4. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES.
 5. STRUCTURES CAN BE REMOVED WHEN THE REMAINING DRAINAGE AREA CONSTRUCTION HAS CEASED AND THE AREA HAS BEEN PROPERLY STABILIZED.

CURB INLET PROTECTION OR APPROVED ALTERNATE METHOD

NOT TO SCALE

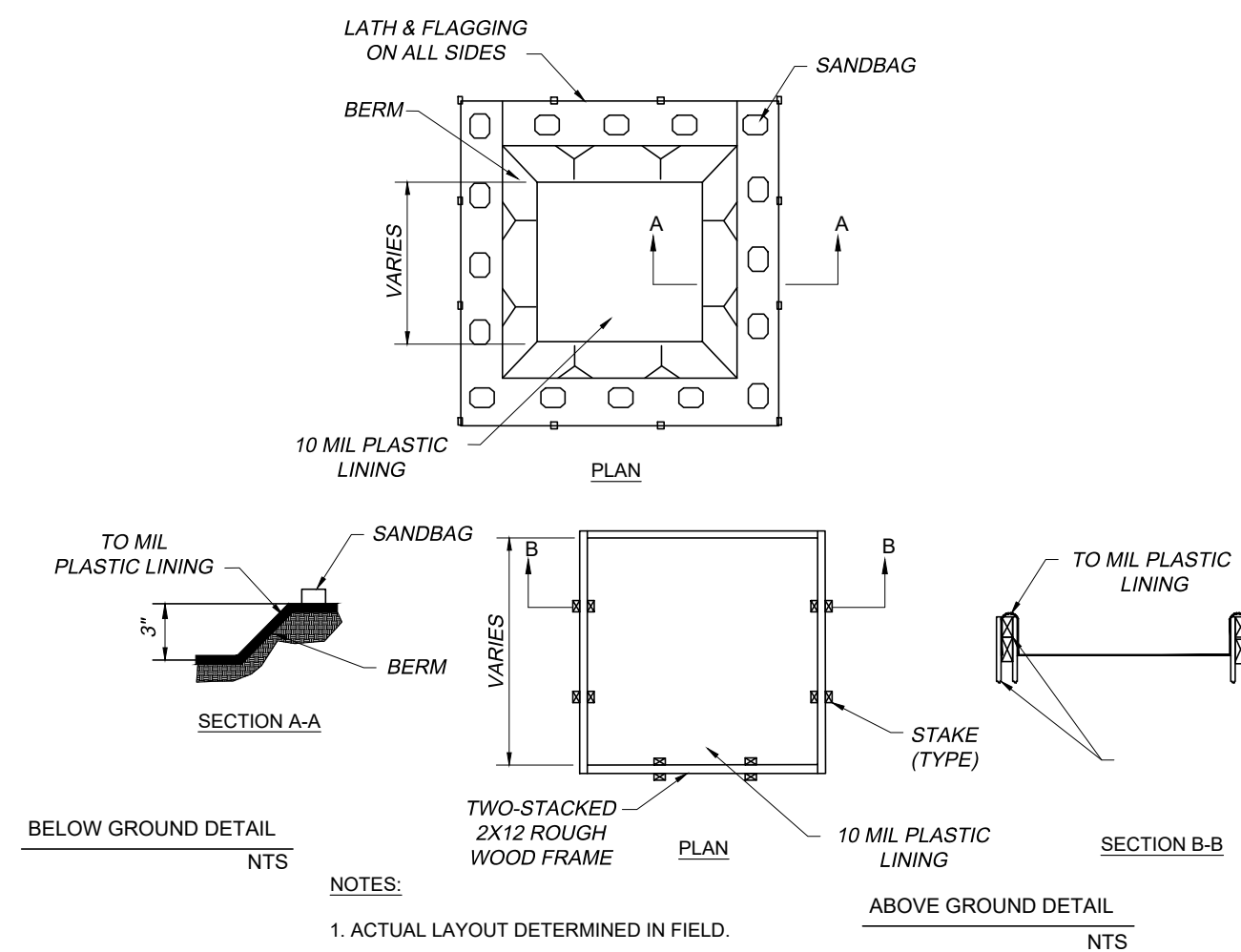


PLAN VIEW

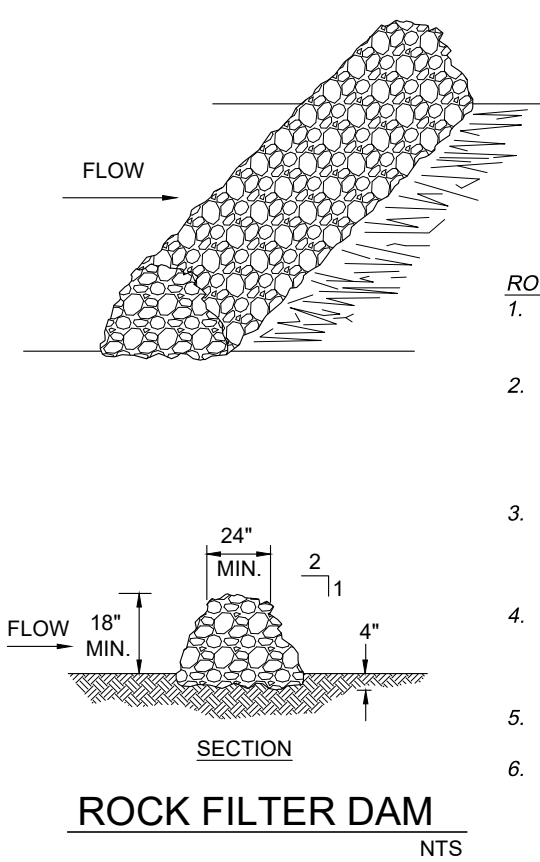
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 5. STRUCTURES CAN BE REMOVED WHEN THE REMAINING DRAINAGE AREA CONSTRUCTION HAS CEASED AND THE AREA HAS BEEN PROPERLY STABILIZED.

4-WAY YARD/GRATE INLET PROTECTION

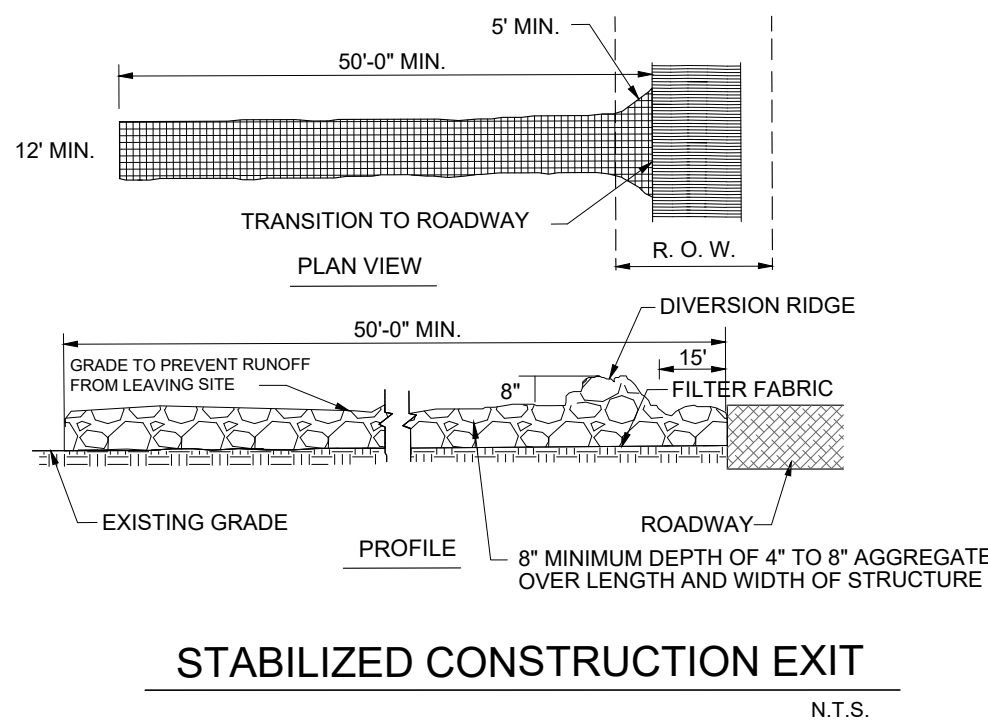
NOT TO SCALE



CONCRETE WASHOUT AREA



- ROCK BERM NOTES:**
1. USE ONLY OPEN GRAIN ROCK 100 to 200 mm (4 to 8") DIAMETER FOR STREAM FLOW CONDITIONS. USE OPEN GRAIN ROCK 75 to 125 mm (3 to 5") DIAMETER FOR OTHER SITUATIONS.
 2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MINIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (1/2" GAUGE). ROCK BERMS IN CHANNEL APPLICATIONS SHALL BE ANCHORED FIRMLY TO SUBSTRATE USING MINIMUM OF 150 mm (6") 1/4" WITH 1-POSSITS OR 150 OR 20M (#5 OR #6) REBAR, WITH MAXIMUM SPACING AFT OF 1.2m (48") ON CENTER.
 3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN. AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STONE OR FABRIC LEAKS ARE OBSERVED. REPAIRS SHALL BE MADE IMMEDIATELY AFTER THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
 4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SITUATION PROHIBITION.
 5. DAILY INSPECTION SHALL BE MADE ON SEVERE-SERVICE ROCK BERMS. SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 150 mm (6").
 6. WHEN THE SITE IS CLOSED TO TRAFFIC, ALL ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.



STABILIZED CONSTRUCTION EXIT

N.T.S.

SEDIMENTATION AND EROSION CONTROLS

A. DESIGN CRITERIA

- (1) Fences are to be constructed along level contours.
- (2) The ends of the fence shall be turned upstream to prevent bypass of stormwater.
- (3) Steel posts which support the silt fence shall be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of one foot.
- (4) The toe of the silt fence shall be trenched in with a spade or mechanical trencher, so that the downslope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g. wetland), weight fabric flap with washed gravel on updrift side to prevent flow under fence.
- (5) The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.
- (6) Silt fence should be securely fastened at each steel post overlap or to woven wire. Which is in turn attached to the steel post face. There shall be a 6" double overlap, securely fastened where ends of fabric meet.
- (7) Inspection shall be made weekly or after each rainfall. Repair or replacement shall be made promptly as needed.
- (8) Accumulated silt shall be removed when it reaches a depth of 6 inches. The silt shall be disposed of in an approved site and in such a manner as to not contribute to the additional siltation.

B. TEMPORARY DIVERSION DIKE

- (1) Maximum depth of flow at the dike shall be 1 foot.
- (2) Side slopes of the diversion dike shall be 3:1 or flatter.
- (3) Minimum width of the embankment at the top shall be 2 feet.
- (4) Minimum embankment height shall be 15 inches as measured from the toe of slope on the upgrade side of the berm.
- (5) The dikes shall remain in place until all disturbed areas which are protected by the dike are permanently stabilized unless other controls are put into place to protect the site.
- (6) Compacted earth dikes require stabilization immediately upon placement so as not to contribute to the problem they are addressing.
- (7) All diversion dikes shall have positive drainage to an outlet.
- (8) Dikes must be inspected on a regular basis to determine if silt is building up behind the dike, or erosion is occurring on the face of the dike. Silt shall be removed in a timely manner. If erosion is occurring on the face of the dike, the slopes of the face shall be stabilized.

C. INTERCEPTOR SWALE

- (1) Maximum depth of flow in the swale shall be 1 foot.
 - (2) The minimum bottom width of the swale shall be 2 feet.
 - (3) Side slopes of the swale shall be 3:1 or flatter.
 - (4) Minimum design channel freeboard shall be 6 inches.
 - (5) Swales must maintain positive grade to an acceptable outlet.
 - (6) Interceptor swales must be stabilized immediately upon excavation so as not to contribute to the erosion problem they are addressing.
 - (7) All trees, brush, stumps, obstructions and other material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
 - (8) All earth removed and not needed in construction shall be disposed of in an approved spoils site.
 - (9) Inspection must be made after each rain event to locate and repair any damage to the channel or to clear debris or other obstructions so as not to diminish flow capacity. Damages which result from normal construction activities shall be repaired at the end of each work day.
- BY ALE DIKE**
- (1) Each hay bale shall be placed into an excavated trench having a depth of 4 inches and a width just wide enough to accommodate the bales themselves.
 - (2) Hay bales shall be installed in such a way that there is no space between to allow for any kind of seepage.
 - (3) Individual bales shall be held in place by no less than two wood or steel stakes driven a minimum distance of 6 inches into undisturbed ground, with the first stake driven at an angle toward the previously installed bale.
 - (4) The ends of the dike shall be turned upward to prevent bypass of stormwater.
 - (5) Inspection shall be weekly or after each rainfall event and repair or replacement shall be made promptly as needed by the contractor.
 - (6) When silt reaches a depth of 6 inches, it shall be removed and disposed of in an approved sil.

D. HAY BALE DIKE

- (1) Each hay bale shall be placed into an excavated trench having a depth of 4 inches and a width just wide enough to accommodate the bales themselves.
 - (2) Hay bales shall be installed in such a way that there is no space between to allow for any kind of seepage.
 - (3) Individual bales shall be held in place by no less than two wood or steel stakes driven a minimum distance of 6 inches into undisturbed ground, with the first stake driven at an angle toward the previously installed bale.
 - (4) The ends of the dike shall be turned up to prevent bypass of stormwater.
 - (5) Inspection shall be weekly or after each rainfall event and repair or replacement shall be made promptly as needed by the contractor.
 - (6) When soil reaches a depth of 6 inches, it shall be removed and disposed of in an approved fill.
 - (7) Hay bales shall be replaced if there are signs of degradation such as straw located downstream from the bales, structural deficiencies due to rotting straw in the bale or other signs of deterioration. Sediment should be removed from behind the bales when it reaches a depth of approximately 6 inches. If the bales become cracked, they should be replaced immediately.
- ANDABG BERM**
- (1) Minimum height shall be 18 inches.
 - (2) Minimum width of the berm shall be 18 inches at the top and 48 inches measured at the bottom.
 - (3) Maximum side slopes shall be 2:1.
 - (4) The ends of the berm shall be turned up grade or shall tie into natural grades to prevent bypass of stormwater.
 - (5) Sandbags should be stacked in at least three rows abutting each other, and in staggered arrangement.
 - (6) Inspections should be made on a daily basis and after each rain event. The sandbags shall be replaced or replaced as needed during the inspection. Silt should be removed when it reaches a depth of six (6) inches

E. SANDBAG BERM

- (1) Minimum height shall be 18 inches.
- (2) Minimum width of the berm shall be 18 inches at the top and 48 inches measured at the bottom.
- (3) Maximum side slopes shall be 2:1.
- (4) The ends of the berm shall be turned *upgrade* or shall lie into natural grades to prevent bypass of stormwater.
- (5) Sandbags should be stacked in at least three rows abutting each other, and in a staggered arrangement.
- (6) Inspections should be made on a daily basis and after each rain event. The sandbags shall be reshaped or replaced as needed during the inspection. Silt should be removed when it reaches a depth of six (6) inches.

F. STONE OUTLET SEDIMENT TRAP

- (1) Minimum width of the embankment at the top shall be 3 feet perpendicular to the flow.
- (2) Minimum embankment slope shall be 3:1.
- (3) Maximum embankment height shall be 2 feet as measured from the toe of slope to the crest of the stone outlet.
The height of the compacted earth embankment shall be one foot higher than the crest of the outlet.
- (4) Sediment shall be removed and the area directly behind the berm shall be regraded to its original dimensions at such point when the capacity of impoundment has been reduced to one-half of its original storage capacity.
- (5) The stone outlet structure should be inspected frequently and after each major rain event to check for clogging of the vertical spaces between stones. If the aggregate appears to be settled in such a way that efficiency is diminished, the stone should be replaced.

G. SEDIMENT BASIN

- (1) Maximum drainage area contributing to the basin shall be 100 acres.
- (2) Deposited sediment shall be removed when the storage capacity of the basin has been depleted by one-half.
- (3) Minimum width of the embankment at the top shall be 8 feet.
- (4) Minimum embankment slope shall be 3:1.
- (5) Sediment shall be removed and the basin shall be regraded to its original dimensions. The removed sediment shall be stockpiled or redistributed in areas which are protected from erosion.
- (6) The basin outlet structure and emergency spillway (if present) should be checked frequently and after each major rain event to check for damage.

H. STABILIZED CONSTRUCTION EXIT

- (1) Stone size - 3 to 5 inches crushed rock.
- (2) Length - as effective, but less than 50 feet, unless depth of lot is less than 150 feet from edge of pavement where length must only be 30 feet.
- (3) Thickness - not less than 8 inches.
- (4) Width - not less than full width of all points of ingress or egress.
- (5) Washing - when necessary, wheels shall be cleaned to remove sediment prior to entrance onto public roadway. When washing is required, it shall be done on an area stabilized with crushed stone which drains into an approved trap or sediment basin. All sediment shall be prevented from entering any storm drain, ditch or watercourse using approved methods.
- (6) Maintenance - the entrance shall be maintained in condition which will prevent tracking or flowing of sediment onto public roadways. This may require periodic top dressing with additional stone as conditions demand, and repair and/or cleaning of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public roadway, must be removed immediately.
- (7) Drainage - entrance must be properly graded or incorporate a drainage swale to prevent runoff from leaving the construction site.

ADDITIONAL NOTES:

- (1) Upon completion of construction all disturbed areas shall be revegetated to 85% of existing conditions in accordance with the SWPPP and TPDES requirements.
- (2) This project will not use any off-site material, waste/borrow/fill, or equipment storage areas.
- (3) This site is not located adjacent to any surface waters.
- (4) This site will not have any locations where storm water discharges directly to a surface water body.



03/01/2024

**VISTANCIA CUSTOM HOMES
20450 HWY 46, STE 115
SPRING BRANCH, TEXAS 78070**

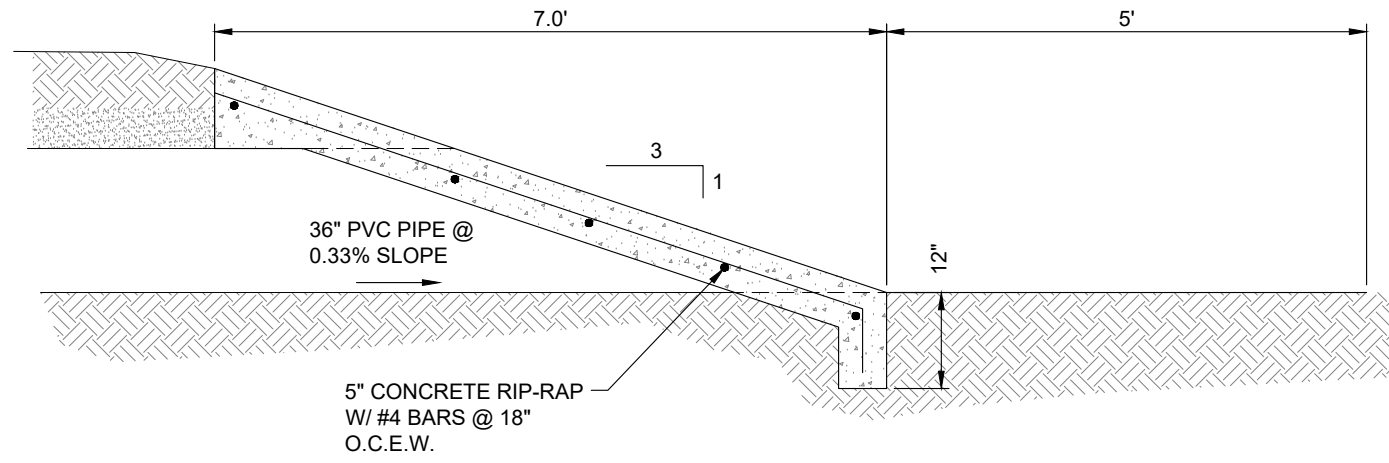
ALTURA AT TEZEL DUPLICES

STORM WATER POLLUTION PREVENTION PLAN DETAILS

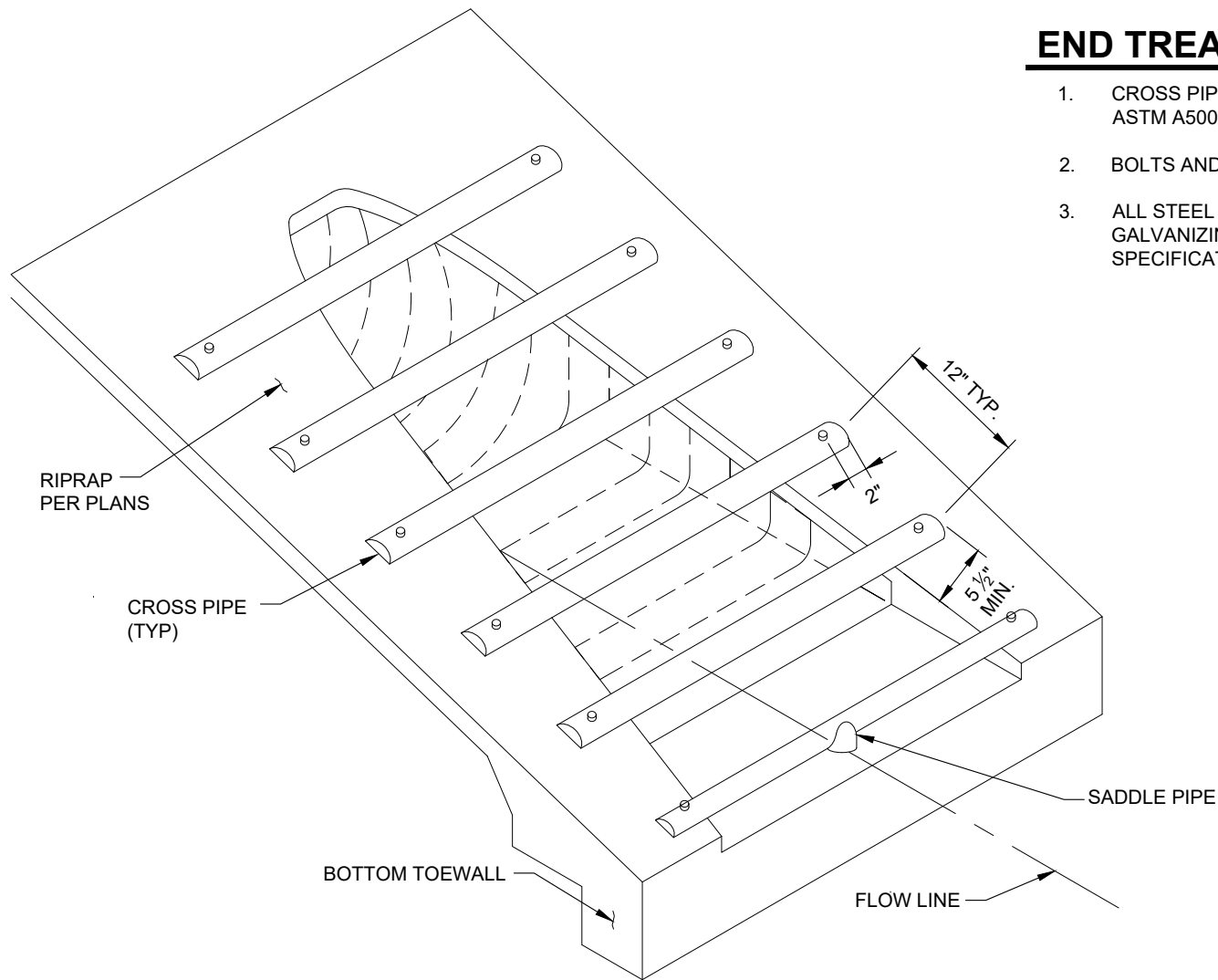
	REV	DATE	DESCRIPTION	BY
DESIGNED BY:			WPF	
DRAFTED BY:			JWH	
CHECKED BY:			NFU	

SHEET

C11



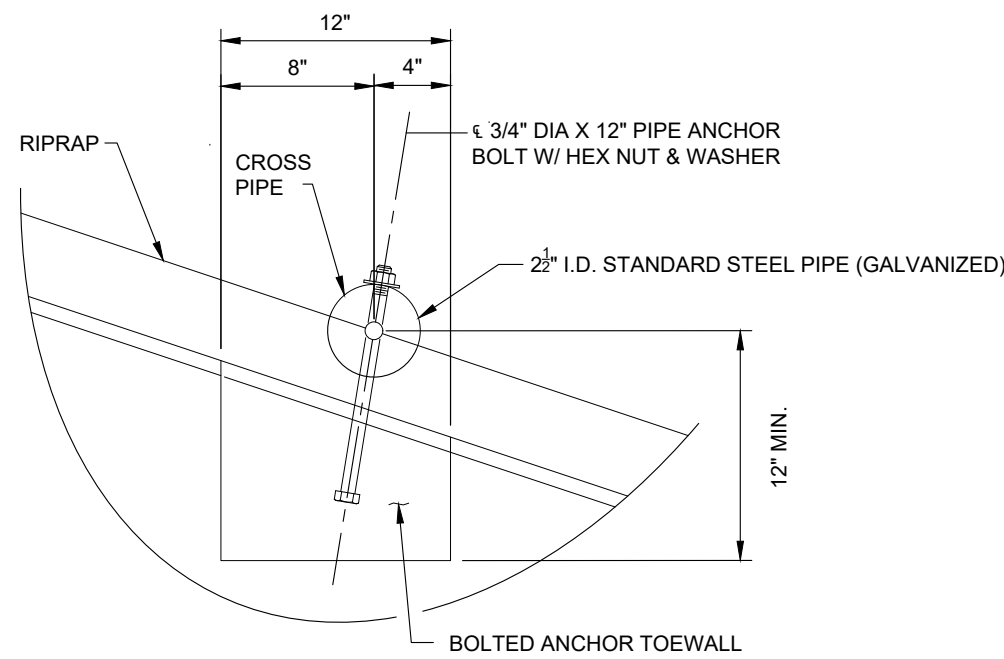
SLOPED END TREATMENT



ISOMETRIC VIEW OF TYPICAL INSTALLATION

END TREATMENT PIPE RUNNER NOTES

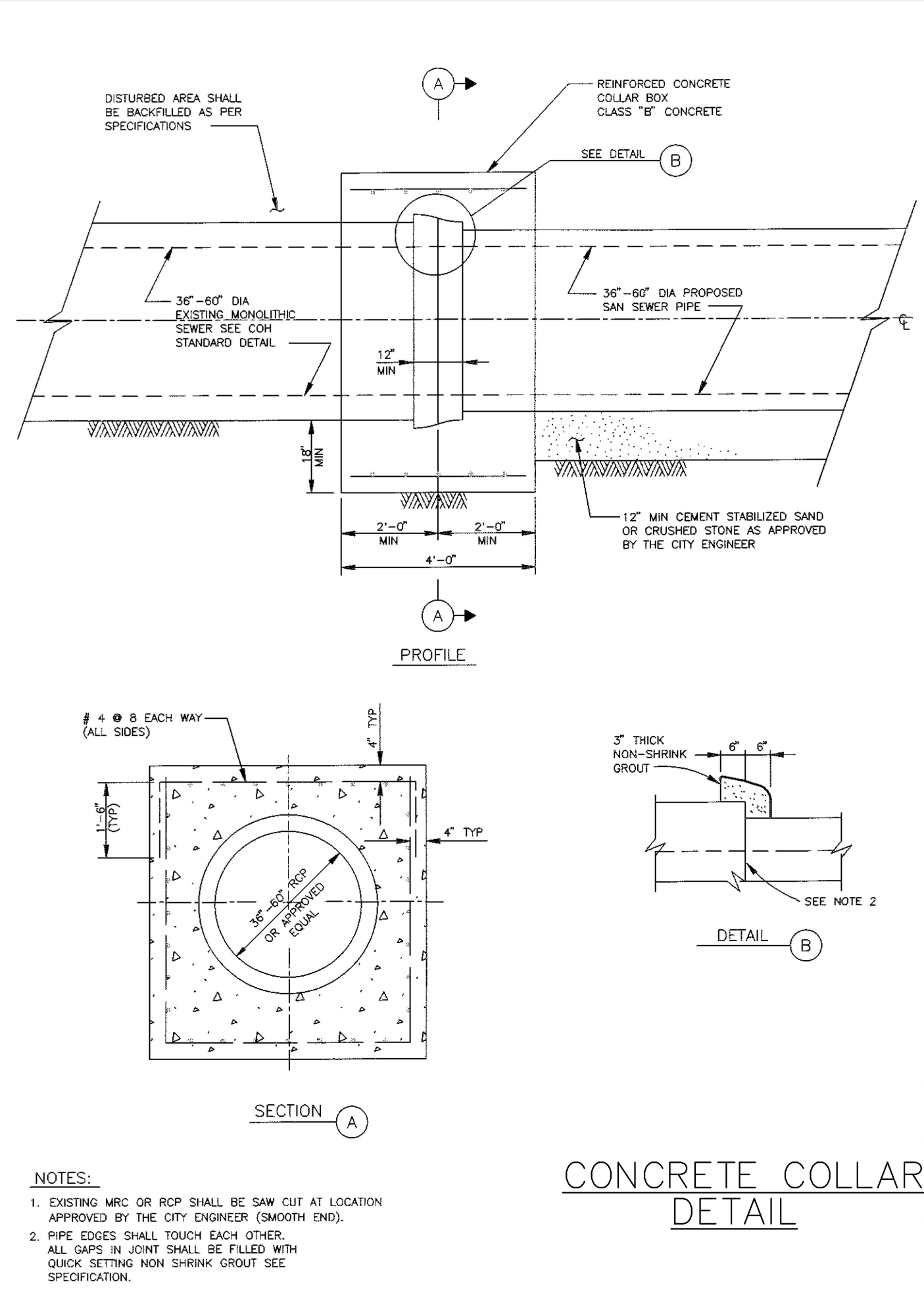
- CROSS PIPES AND SADDLE PIPES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A53 (TYPE E OR S, GRADE B), ASTM A500 (GRADE B), OR API 5LX52.
- BOLTS AND NUTS SHALL CONFORM TO ASTM A307.
- ALL STEEL COMPONENTS, EXCEPT CONCRETE REINFORCING, SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING DAMAGED DURING TRANSPORT OR CONSTRUCTION SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.



SECTION

(SHOWING BOLTED ANCHOR DETAILS)

END TREATMENT PIPE RUNNERS DETAIL (FOR ACCESS CONTROL)



REV	DATE	DESCRIPTION	BY

DESIGNED BY: WPF
DRAFTED BY: JWH
CHECKED BY: NFU

SHEET

C13