Point Table				
Point #	Raw Description	Elevation	Northing	Easting
100	CP SET1/2IRWRC	1242.900	13849062.9300	2209359.2700
101	CP SET1/2IRWRC	1070.650	13851943.1060	2209979.1590
102	CP SET1/2IRWRC	1089.160	13851775.7690	2209446.8110
103	CP SET1/2IRWRC	1076.020	13851183.5860	2208378.2710
104	CP SET1/2IRWRC	1093.690	13851358.6030	2208702.4320

THE ROCK UNIT 1

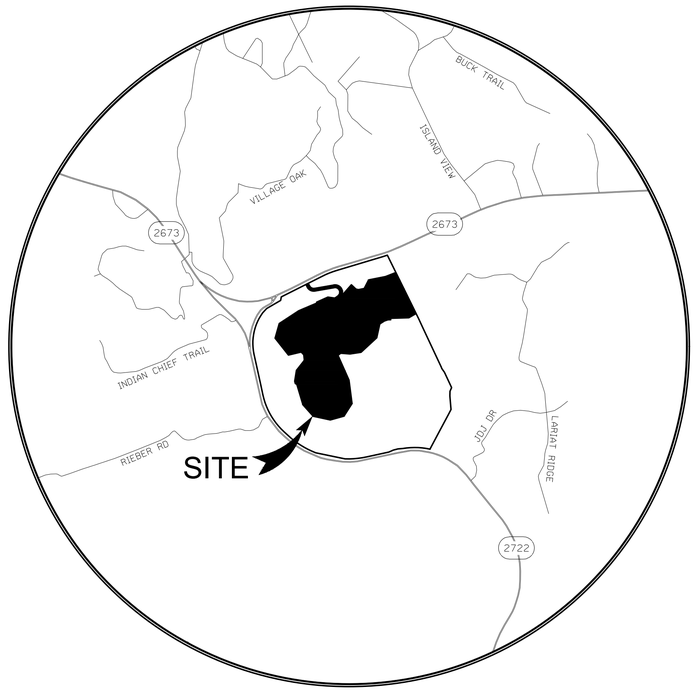
COMAL COUNTY, TEXAS

STREETS, DRAINAGE AND WATER IMPROVEMENT PROJECT

OWNER/DEVELOPER:
NORSELAND COMAL LLC
11777 KATY FREEWAY STE. 300 S
HOUSTON, TX 77079

ENGINEER/SURVEYOR:
INK CIVIL
JAMES INGALLS, P.E. - ENGINEER
2021 SH 46 W. STE 105.
NEW BRAUNFELS, TX. 78132
(830) 358-7127

CDS MUERY
DARRYL L ZERCHER, R.P.L.S. - SURVEYOR
100 NE LOOP 410, STE. 300
SAN ANTONIO, TEXAS 78216
(210) 581-1111



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2	SUBDIVISION PLAT I
3	SUBDIVISION PLAT II
4	SUBDIVISION PLAT III
5	AERIAL EXHIBIT
6	EROSION CONTROL PLAN
7	EROSION CONTROL DETAILS
8	SUNSET ESCAPE PLAN & PROFILE STA. 10+00 TO 14+00
9	SUNSET ESCAPE PLAN & PROFILE STA. 14+00 TO 18+00
10	SUNSET ESCAPE PLAN & PROFILE STA. 18+00 TO END
11	TAYLOR TRL PLAN AND PROFILE STA 56+00 TO END
12	HILLSTONE DR PLAN AND PROFILE STA. 10+00 TO 23+00
13	HILLSTONE DR PLAN & PROFILE STA 23+00 TO 32+60.18
14	CAVERN RD PLAN AND PROFILE 10+00 TO STA 14+28.73
15	CLIFFTOP CT PLAN AND PROFILE STA 10+00 TO 23+00
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18	TRAFFIC SIGNAGE PLAN
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21	PROPOSED DRAINAGE AREA MAP
22	OVERALL WATER DISTRIBUTION PLAN
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THE ROCK UNIT 1
PERMIT SET

DESIGN SPEED = 20 MPH

GENERAL NOTES:

1. IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE-YEAR OF COMAL COUNTY AND TEXAS WATER COMPANY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.
2. NO PORTION OF THE PROJECT IS LOCATED WITHIN THE EXISTING SPECIAL FLOOD HAZARD ZONE A, 100-YEAR FLOOD BOUNDARY, AS DEFINED BY THE COMAL COUNTY, TEXAS MAP NUMBER 48091C0255F, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, EFFECTIVE DATE SEPTEMBER 2, 2009.
3. THIS PROJECT IS LOCATED WITHIN THE EAA JURISDICTIONAL BOUNDARY AND IS LOCATED WITHIN THE EDWARDS AQUIFER CONTRIBUTING ZONE.
4. PRIOR TO THE START OF CONSTRUCTION, CONTRACTOR SHALL CONTACT COMAL COUNTY AND TEXAS WATER COMPANY TO SET A PRE-CONSTRUCTION MEETING. A 48-HOUR ADVANCED NOTIFICATION IS REQUIRED.
5. THE MOST CURRENT EDITIONS OF THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS AND THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES SHALL BE FOLLOWED FOR ALL CONSTRUCTION EXCEPT AS AMENDED BY COMAL COUNTY STANDARD DETAILS.

NOTE TO CONTRACTOR:

BY THE ACT OF SUBMITTING A BID FOR THIS 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, SPECIFICATIONS AND ALL 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.

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION ONLY AND MAY NOT MATCH LOCATIONS AND/OR DEPTHS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT EACH OF THE INDIVIDUAL UTILITIES FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY CROSSINGS PRIOR TO BEGINNING ANY CONSTRUCTION.

LOCATION MAP
SCALE: 1" = 1,500'

PREPARED BY:

INK CIVIL

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NEW BRAUNFELS, TX. 78132
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SUBMITTED BY:

JAMES INGALLS, P.E. #107416
INK CIVIL
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2021 W SH46, STE 105
NEW BRAUNFELS, TX 78132

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER

05/14/2024

SUBMITTAL DATE: 5/14/2024

NO	DATE	ISSUES AND REVISIONS
1		
2		
3		
4		
5		
6		
7		
8		

Drawing Name: C:\Users\JOJAZFR~1\AppData\Local\Temp\AcPublish_8760\0 COVER SHEET.dwg User: chadhiesenhorn May 16, 2024 - 1:15pm

GENERAL NOTES

1. THE MOST CURRENT EDITIONS OF THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS AND THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES SHALL BE FOLLOWED FOR ALL CONSTRUCTION EXCEPT AS AMENDED BY COMAL COUNTY STANDARD DETAILS.

2. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, COMAL COUNTY MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.

3. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT COMAL COUNTY TO SCHEDULE A PRECONSTRUCTION MEETING.

4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL DEVICES ARE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE PLANS AND LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. IF, IN THE OPINION OF THE 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. IF THE NEED ARISES, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES MAY BE ORDERED BY THE ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

5. A TXDOT TYPE II B-B BLUE REFLECTIVE RAISED PAVEMENT MARKER SHALL BE INSTALLED IN THE CENTER OF THE ROADWAY ADJACENT TO ALL FIRE HYDRANTS. IN LOCATIONS WHERE HYDRANTS ARE SITUATED ON CORNERS, BLUE REFLECTIVE RAISED PAVEMENT MARKERS SHALL BE INSTALLED ON BOTH APPROACHES WHICH FRONT THE HYDRANT. THE RAISED PAVEMENT MARKER SHALL MEET TXDOT MATERIAL, EPOXY AND ADHESIVE SPECIFICATIONS.

GROUNDWATER

6. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, CONTRACTOR, SUBCONTRACTORS, BUILDERS, GEO-TECHNICAL ENGINEER, AND PROJECT ENGINEER TO IMMEDIATELY NOTIFY THE OFFICE OF THE COUNTY ENGINEER AND PROJECT ENGINEER IF THE PRESENCE OF GROUNDWATER WITHIN THE SITE IS EVIDENT. UPON NOTIFICATION THE PROJECT ENGINEER SHALL RESPOND WITH PLAN REVISIONS FOR THE MITIGATION OF THE GROUNDWATER ISSUE. THE COUNTY ENGINEER SHALL RESPOND WITHIN TWO (2) BUSINESS DAYS UPON RECEIPT OF THE MITIGATION PLAN. ALL CONSTRUCTION ACTIVITY, IMPACTED BY THE DISCOVERY OF GROUNDWATER, SHALL BE SUSPENDED UNTIL THE CITY ENGINEER GRANTS A WRITTEN APPROVAL OF THE GROUNDWATER MITIGATION PLAN.

RECORD DRAWINGS

7. AS PER PLATTING ORDINANCE SECTION 118-38M.: WHEN ALL OF THE IMPROVEMENTS ARE FOUND TO BE CONSTRUCTED AND COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND WITH THE CITY'S STANDARDS, AND UPON RECEIPT OF ONE SET OF "RECORD DRAWING" PLANS, AND A DIGITAL COPY OF ALL PLANS (PDF COPY) THE CITY ENGINEER SHALL ACCEPT SUCH IMPROVEMENTS FOR THE COMAL COUNTY, SUBJECT TO THE GUARANTY OF MATERIAL AND WORKMANSHIP PROVISIONS IN THIS SECTION.

CONSTRUCTION NOTE

8. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THAT EROSION CONTROL MEASURES AND STORMWATER CONTROL SUFFICIENT TO MITIGATE OFF SITE IMPACTS ARE IN PLACE AT ALL STAGES OF CONSTRUCTION.

DRAINAGE NOTE

9. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE THE IMPACT OF CONSTRUCTION SHALL BE INSTALLED PRIOR TO ADDING IMPERVIOUS COVER.

FINISHED FLOOR ELEVATIONS

10. THE ELEVATION OF THE LOWEST FLOOR SHALL BE AT LEAST 10 INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND, WHICH SHALL BE SLOPED IN A FASHION SO AS TO DIRECT STORMWATER AWAY FROM THE STRUCTURE. PROPERTIES ADJACENT TO STORMWATER CONVEYANCE STRUCTURES MUST HAVE FLOOR SLAB ELEVATION OR BOTTOM OF JOISTS A MINIMUM OF ONE FOOT ABOVE THE 100-YEAR WATER FLOW ELEVATION IN THE STRUCTURE. DRIVEWAYS SERVING HOUSES ON THE DOWNHILL SIDE OF THE STREET SHALL HAVE A PROPERLY SIZED CROSS SWALE PREVENTING RUNOFF FROM ENTERING THE GARAGE.

SOILS TESTING

11. PROCTORS SHALL BE SAMPLED FROM ON-SITE MATERIAL (ON-SITE IS DEFINED AS LIMITS OF CONSTRUCTION FOR THIS -PLAN SET) AND A COPY OF THE PROCTOR RESULTS SHALL BE DELIVERED TO THE COMAL COUNTY STREET INSPECTOR PRIOR TO ANY DENSITY TESTS.

ROADWAY

12. ALL ROADWAY COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FLEXIBLE BASE OR FILL/EMBANKMENT MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED EIGHT INCHES (8") LOOSE. THE REQUIRED DENSITY FOR THE FILL/EMBANKMENT MATERIAL SHALL MEET THE REQUIREMENTS OF TXDOT'S SPECIFICATION ITEM 132. THE REQUIRED DENSITY FOR THE FLEXIBLE BASE MATERIAL SHALL MEET THE REQUIREMENTS OF TXDOT'S SPECIFICATION ITEM 247, EACH LAYER OF MATERIAL, INCLUSIVE OF SUBGRADE, SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING, THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

UTILITY TRENCH COMPACTION

13. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE COMAL COUNTY INSPECTOR.

CURB CUT DUE TO CONSTRUCTION OF NEW RIGHT-OF-WAY CONSTRUCTION

14. CURB CUTS SHALL BE THE FOLLOWING METHODS AND INDICATED ON THE PLANS IN DETAIL WHERE APPLICABLE.
    18.1 SAWCUT EXISTING STREET AND MATCH TO NEW CONSTRUCTION.
    18.2 SAWCUT EXISTING CURB TO TIE INTO EXISTING CONSTRUCTION.

CONSTRUCTION STABILIZED ENTRANCE

15. SAWCUT CURB FOR CONSTRUCTION ENTRANCE.

16. STABILIZED CONSTRUCTION AREA SHALL BE CONSTRUCTED OF 3"X5" ROCK TO BE PLACED A MINIMUM LENGTH OF 25-FT. AND MAINTAINED SO THAT CONSTRUCTION DEBRIS DOES NOT FALL WITHIN THE COUNTY/ STATE RIGHT-OF-WAY. RIGHT-OF-WAY MUST BE CLEARED FROM MUD, ROCKS, ETC. AT ALL TIMES.

SIGNING AND PAVEMENT MARKING PLAN NOTES

17. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY AND WARNING SIGNS, STREETS NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE COUNTY WILL INSPECT ALL SIGNS AT FINAL INSPECTION.

18. THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS.

19. THE CONTRACTOR SHALL NOTIFY THE COUNTY 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.

SEEDING AND ESTABLISHMENT OF VEGETATION WITHIN EARTHEN CHANNELS, STORMWATER BASINS AND DISTURBED AREAS

1. SEEDING FOR THE PURPOSE OF ESTABLISHING VEGETATION WITHIN CONSTRUCTED EARTHEN CHANNELS, BASINS AND DISTURBED AREAS SHALL BE CONDUCTED IN ACCORDANCE WITH ITEM 164 (SEEDING FOR EROSION CONTROL) OF TXDOT'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES MANUAL. ONLY SEED TYPES AND MIXES SPECIFIED FOR THE SAN ANTONIO DISTRICT (DISTRICT 15) IN TABLES 1 AND 2 UNDER ITEM 164 SHALL BE UTILIZED. DURING THE COOL SEASON (SEPT 1-NOV 30), CEREAL RYE AND SEED SPECIES SPECIFIED FOR THE SAN ANTONIO DISTRICT IN TABLE 3 MAY BE USED. FOR COOL SEASON SEEDING APPLICATIONS, COOL SEASON SEED MIXES SHALL BE USED IN CONJUNCTION WITH SEED MIXES FOR THE SAN ANTONIO DISTRICT AS SPECIFIED IN TABLE 1 AND 2 UNDER ITEM 164.

2. IT MAY BE DEEMED NECESSARY TO INCORPORATE TOPSOIL AND SOIL AMENDMENTS (I.E. COMPOST/ FERTILIZER) INTO EXISTING SOIL IN ORDER TO FACILITATE VEGETATION GROWTH. TOPSOIL, COMPOST AND FERTILIZER ADDITIONS SHALL BE CONDUCTED ACCORDING TO ITEMS 160, 161 AND 166 OF TXDOT'S STANDARD SPECIFICATIONS MANUAL, RESPECTIVELY.

3. AREAS REQUIRING PERMANENT VEGETATION (EARTHEN CHANNELS, PONDS, ETC.) ARE REQUIRED TO MEET TXDOT SPECIFICATIONS FOR ITEM 160 TOPSOIL. TESTING PER TEX-128-E WILL BE REQUIRED AT THE CITY'S REQUEST.

4. WATERING MAY ALSO BE NECESSARY TO FACILITATE AND EXPEDITE THE SPROUTING AND GROWTH OF VEGETATION. ITEM 168 OF TXDOT'S STANDARD SPECIFICATIONS MANUAL SHALL BE ADHERED TO FOR VEGETATIVE WATERING.

5. IF EXTENDED DROUGHT CONDITIONS EXIST THAT HINDER OR PROHIBIT THE GROWTH AND ESTABLISHMENT OF VEGETATION, THE CONTRACT/ DEVELOPER SHALL PROVIDE A PLAN TO COMAL COUNTY DESCRIBING THE MEASURES THAT WILL BE TAKEN TO STABILIZE EARTHEN DRAINAGE INFRASTRUCTURE UNTIL A TIME WHEN GROWING CONDITIONS BECOME MORE FAVORABLE.

TWC STANDARD CONSTRUCTION NOTES FOR PLANS
(REV 7-27-2023)

1. SECTION 1

i. SECTIONS OF THE TWC ENGINEERING DESIGN CRITERIA AND THE TWC STANDARD CONSTRUCTION NOTES FOR PLANS HAVE BEEN WRITTEN CONCURRENTLY. INFORMATION THAT APPLIES TO THE CONTRACTOR AND WORK PERFORMED ON-SITE IS LISTED IN THE TWC STANDARD CONSTRUCTION NOTES FOR PLANS. DURING DESIGN, BOTH DOCUMENTS SHOULD BE CHECKED FOR CLARITY.

a. CONSTRUCTION OF DOMESTIC WATER PIPELINES AND APPURTENANCES ARE SUBJECT TO INSPECTION AND APPROVAL BY THE TEXAS WATER COMPANY (TWC) AND SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DOCUMENT AND TWC'S STANDARD DRAWINGS AND TWC ENGINEERING DESIGN CRITERIA.

b. ALL WATER DISTRIBUTION SYSTEMS, WATER MAIN EXTENSIONS, AND ALL APPURTENANCES DESIGNED IN ACCORDANCE WITH THESE STANDARDS, TWC STANDARD DETAILS AND TCEQ TITLE 30 CHAPTER 290 STANDARDS, WHICHEVER IS MOST STRINGENT. CONSULT TWC FOR CLARIFICATION OF SPECIFIC ITEMS.

c. THE MOST RECENT TWC ENGINEERING DESIGN CRITERIA AND DETAILS SHALL APPLY TO ALL CONSTRUCTION REGARDLESS OF INFORMATION PROVIDED ON PLANS. CONTRACTORS ARE ENCOURAGED TO VERIFY CURRENT INFORMATION WITH TWC STAFF PRIOR TO THE BEGINNING OF CONSTRUCTION.

d. CONTRACTORS ARE RESPONSIBLE FOR ALL SAFETY REQUIREMENTS (OSHA AND ANY OTHER AGENCIES THAT APPLY) ASSOCIATED WITH TRENCH CONSTRUCTION AND SHALL BE REQUIRED TO HAVE A TRENCH SAFETY PLAN PREPARED BY AN APPROVED PROFESSIONAL, UNLESS OTHERWISE NOTED IN THE CONSTRUCTION DOCUMENTS. THERE IS NO SEPARATE PAY ITEM FOR THIS REQUIREMENT FOR PROJECTS COMPLETED ON BEHALF OF TWC.

e. IT IS THE INTENT OF THESE PLANS TO SHOW THE LOCATION OF EXISTING UNDERGROUND FACILITIES IN ACCORDANCE WITH EXISTING RECORDS. HOWEVER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY THE EXACT LOCATION OF ALL EXISTING UNDERGROUND FACILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES TO EXISTING FACILITIES.

2. SECTION 2 -PLAN PREPARATION

a. PLAN REVIEW

i. ONE SET OF THE "APPROVED FOR CONSTRUCTION" PLANS MUST BE ON SITE AT ALL TIMES DURING CONSTRUCTION.

ii. ANY CHANGES TO THE PLANS DURING CONSTRUCTION MUST BE DOCUMENTED ON THE "APPROVED FOR CONSTRUCTION"PLANS AND DENOTED ON THE AS-BUILT PLANS.

iii. MINOR CHANGES MAY BE REVIEWED AND APPROVED ON SITE BY A REPRESENTATIVE OF TWC AND THE CHANGES ANNOTATED ON THE AS-BUILT PLANS.

iv. ALL MAJOR CHANGES DURING CONSTRUCTION SHALL BE SUBMITTED IN WRITING TO THE TWC ENGINEERING DEPARTMENT FOR FORMAL REVIEW AND APPROVAL. DETERMINATION AS TO WHETHER OR NOT AN RFI/SUBMITTAL IS REQUIRED SHALL BE DETERMINED ON A CASE BY CASE BASIS BY TWC PERSONNEL.

3. SECTION 3 -MANDATORY PRE-CONSTRUCTION MEETING

a. NO LATER THAN ONE WEEK PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING WITH TWC, AT A LOCATION MUTUALLY DETERMINED.

b. CONTRACTOR SHALL NOTIFY THE TWC CONSTRUCTION INSPECTION DEPARTMENT (830 372 4600) AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.

c. THE PURPOSE OF THE PRE-CONSTRUCTION MEETING IS TO REVIEW PROJECT STATUS AND COORDINATE SCHEDULED ACTIVITIES.

d. NO CONSTRUCTION ACTIVITIES SHALL BEGIN UNTIL A PRECONSTRUCTION MEETING HAS BEEN HELD BETWEEN THE CONTRACTOR, ENGINEER OF RECORD, AND A REPRESENTATIVE OF TWC.

4. SECTION 4 -PROJECT CLEANLINESS

a. CONSTRUCTION METHODS, MATERIAL AND DISPOSAL OF PRODUCTS SHALL ALSO BE SUBJECT TO CURRENT STANDARDS ESTABLISHED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AND ANY OTHER LOCAL, STATE OR FEDERAL AGENCIES HAVING AUTHORITY IN THEIR RESPECTIVE JURISDICTIONS.

b. BOUNDARY FENCES OR OTHER IMPROVEMENTS REMOVED TO PERMIT CONSTRUCTION SHALL BE REPLACED IN THE SAME LOCATION AND IN SAME CONDITION AS GOOD OR BETTER THAN IN WHICH THEY WERE FOUND. UNLESS OTHERWISE STATED ON THE PLANS, NO COMPENSATION SHALL BE GIVEN TO THE CONTRACTOR FOR REMOVAL AND REPLACEMENT OF FENCES.

c. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND SIDEWALKS ADJACENT TO PROJECT FREE OF MUD AND DEBRIS FROM THE CONSTRUCTION.

d. CONTRACTOR SHALL NOT PLACE FILL OR WASTE MATERIAL ON ANY PRIVATE PROPERTY WITHOUT PRIOR WRITTEN AGREEMENT WITH THE PROPERTY OWNER. A COPY OF ANY WRITTEN AGREEMENT BETWEEN PROPERTY OWNER AND CONTRACTOR SHALL BE FURNISHED TO TWC.

e. NO EXCESS EXCAVATION MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAY WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

f. REMOVE AND DISPOSE OF TREES, STUMPS, BRUSH, ROOTS, VEGETATION, LOGS, RUBBISH AND OTHER OBJECTIONABLE MATTER WITHIN THE LIMITS OF AREA AFFECTED BY THE WORK, INCLUDING ALL AREAS TO BE GRADED. PROTECT TREES, SHRUBS AND OTHER LANDSCAPE FEATURES SPECIFICALLY DESIGNATED FROM DAMAGE DURING CONSTRUCTION OPERATIONS. 7/27/2023

5. SECTION 5 -PROJECT LAYOUT CONTROL AND SURFACE REPAIR

a. CONTACTOR TO CONFIRM ACTUAL HORIZONTAL AND VERTICAL LOCATION OF EXISTING STRUCTURES, PIPING, PAVING, FENCING, UNDERGROUND UTILITIES AND ALL OTHER EXISTING FACILITIES PRIOR TO CONSTRUCTION.

b. CONTRACTOR SHALL COORDINATE FOR ALL NECESSARY UTILITY LOCATES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

c. CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF TRANSPORTATION AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN THE STATE RIGHT OF WAY.

d. NO UTILITY TRENCHES OR PITS ARE TO BE LEFT OPEN OVERNIGHT. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ADEQUATE SAFETY MEASURES ARE IN PLACE FOR BOTH HUMANS AND LIVESTOCK FOR ANY TRENCH LEFT OPEN OVERNIGHT. BACKFILLING WILL OCCUR DAILY AND AS SOON AS PRACTICAL FOLLOWING CONSTRUCTION OPERATIONS.

e. CONTRACTOR SHALL NOT OPEN CUT ANY IMPROVED DRIVEWAY IN COUNTY OR STATE RIGHT OF WAY WITHOUT PRIOR WRITTEN APPROVAL OF THE AGENCY.

f. FINE GRADE AREAS TO ACHIEVE FINAL CONTOURS INDICATED OR RESTORE EXISTING GRADES. REMOVE RUBBISH VEGETATION AND ROCKS OVER 1 ½"IN DIAMETER. ADJUST CONTOURS TO ACHIEVE POSITIVE DRAINAGE AWAY FROM STRUCTURES. PROVIDE UNIFORM ROUNDING AT TOP AND BOTTOM OF SLOPES AND OTHER BREAKS IN GRADE. CORRECT IRREGULARITIES AND AREAS WHERE WATER WILL STAND.

g. ALL VEGETATED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITIONS THAN FOUND PRIOR TO THE BEGINNING OF CONSTRUCTION.

h. BEFORE FINAL COMPLETION OF THE PROPOSED WORK, ALL ROADWAY, SLOPES, DITCHES AND BERMS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

6. SECTION 6 -CONTRACT CLOSE-OUT

a. FINAL INSPECTION

i. TWC WILL REQUIRE A FIELD FINAL INSPECTION ON ALL MAIN LINE CONSTRUCTION PROJECTS. TWC WILL VERIFY OPERATION OF VALVES, HYDRANTS AND SERVICES. METER BOXES, VALVE BOXES AND VAULTS, MUST BE SET TO GRADE AND WORK SITE MUST BE FREE OF DEBRIS, EXCESS MATERIAL, ETC.

ii. FIELD SET OF AS-BUILT DRAWINGS MUST BE PROVIDED AT THE FIELD FINAL INSPECTION.

iii. BACTERIOLOGICAL TEST SAMPLES MUST HAVE RETURNED FROM THE DESIGNATED LAB FREE FROM COLIFORM BACTERIA AND MEET THE SAME STANDARDS AS THE SOURCE WATER. THIS MUST BE NOTED ON THE TWC ACCEPTANCE FORM BY A WATER QUALITY TECHNICIAN. INSPECTOR WILL THEN PROVIDE THREE DIGITAL ACCEPTANCE FORMS TO BE SIGNED BY THE ENGINEER, CONTRACTOR AND TWC INSPECTOR. EACH PARTY SHALL RECEIVE A DATED COPY OF THE FORM.

iv. SEE SECTION 7B FOR FURTHER GUIDANCE ON DISINFECTION REQUIREMENTS.

b. RECORD DRAWINGS

i. CONTRACTOR SHALL PROVIDE A NEAT AS BUILT DRAWING WITHIN 30 DAYS OF JOB COMPLETION IN BOTH PAPER AND ELECTRONIC (.PDF) FORMAT TO TWC AND THE ENGINEER OF RECORD.

ii. ACCEPTANCE OF FACILITIES BY TWC WILL NOT BE AUTHORIZED UNTIL RECEIPT OF AN APPROVED SET OF RECORD DRAWINGS COMPLETED BY THE ENGINEER OF RECORD. iii. SEE GENERAL SECTION 2A OF TWC ENGINEERING DESIGN CRITERIA.

c. WARRANTY PERIOD

i. THE WARRANTY PERIOD FOR ALL WORK COMPLETED SHALL BEGIN UPON WRITTEN ACCEPTANCE OF FACILITIES BY TWC. THE WARRANTY PERIOD AND REQUIREMENTS FOR BONDING SHALL BE OUTLINED IN THE CONTRACT.

7. SECTION 7 -LINE SEPARATION

a. HORIZONTAL SEPARATION

i. HORIZONTAL SEPARATION SHOULD BE IN ACCORDANCE WITH TCEQ REQUIREMENTS.

ii. JOINT TRENCHES OF WATER WITH OTHER UTILITIES SUCH AS ELECTRICAL, TELECOM, NATURAL GAS, FIBER OPTIC OR CABLE LINES ARE NOT PERMITTED.

b. VERTICAL SEPARATION

i. VERTICAL SEPARATION SHOULD BE IN ACCORDANCE WITH TCEQ REQUIREMENTS.

ii. AT ALL WATER MAIN CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE CENTERED AT THE CROSSING SO BOTH JOINTS OF THE WATER PIPE WILL BE AS FAR FROM THE OTHER PIPELINES AS POSSIBLE.

iii. NATURAL OR PROPANE GAS LINE CROSSINGS SHALL BE ENCASED IN CONCRETE. THE CONCRETE ENCASEMENT SHALL EXTEND 12" ABOVE AND BELOW THE GAS LINE AND SHALL HAVE A MINIMUM SEPARATION OF 18"FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.

iv. ALL OTHER UTILITIES SHALL BE LOCATED BELOW WATER MAINS UNLESS OTHERWISE APPROVED BY TWC. THIS INCLUDES SERVICE LINES FOR ALL OTHER UTILITIES.

c. TYPICAL SECTION SHOWING ALL UTILITIES

i. SEE GENERAL SECTION 7 OF TWC ENGINEERING DESIGN CRITERIA.

8. SECTION 8 -PIPE LAYING REQUIREMENTS

a. IF APPLICABLE, DEWATERING SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

b. PIPE SHALL BE CONSTRUCTED OF MATERIALS SPECIFIED AND AS SHOWN ON THE DRAWINGS.

c. EXCAVATION, TRENCHING AND BACKFILLING SHALL BE IN ACCORDANCE WITH TWC ENGINEERING DESIGN CRITERIA AND DETAILS.

i. ALL DICL PIPE SHALL BE INSTALLED IN ACCORDANCE WITH STANDARDS SET FORTH IN THE DIPRA "INSTALLATION GUIDE FOR DUCTILE IRON PIPE"UNLESS SUCH STANDARDS CONFLICT WITH TWC STANDARDS IN WHICH CASE TWC STANDARDS SHALL APPLY.

ii. ALL PVC AND PVCO PIPE SHALL BE INSTALLED IN ACCORDANCE WITH STANDARDS SET FORTH IN THE UNI-BELL 'HANDBOOK OF PVC PIPE DESIGN AND CONSTRUCTION"UNLESS SUCH STANDARDS CONFLICT WITH TWC STANDARDS IN WHICH CASE TWC STANDARDS SHALL APPLY.

d. NO PIPE SHALL BE LAID WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF TWC.

e. EACH SECTION OF PIPE SHALL REST UPON THE PIPE BED FOR THE FULL-LENGTH BARREL, WITH RECESSES EXCAVATED TO ACCOMMODATE BELLS AND JOINTS. ANY PIPE WHICH HAS A GRADE OR JOINT DISTURBED AFTER LYING SHALL BE TAKEN UP AND RE-LAID.

f. ANY SECTION OF PIPE ALREADY LAID WHICH IS FOUND TO BE DEFECTIVE OR DAMAGED SHALL BE REPLACED WITH NEW PIPE WITHOUT ADDITIONAL COST TO TWC.

g. USE DUCTILE IRON FITTING WITH MECHANICAL JOINT AND RESTRAIN PER TWC ENGINEERING DESIGN CRITERIA ON ALL PIPE REGARDLESS OF PIPE MATERIAL UNLESS OTHERWISE INDICATED ON PLANS.

h. CONTRACTOR SHALL CUT DUCTILE IRON PIPE ONLY AS NECESSARY TO COMPLY WITH ALIGNMENT SHOWN ON THE DRAWINGS.

9. SECTION 9 -TRENCH EXCAVATION

a. ALL EXCAVATIONS SHALL BE OPEN CUT, WITH BANKS OF TRENCHES KEPT AS NEARLY VERTICAL AS POSSIBLE IN ACCORDANCE WITH OSHA REQUIREMENTS.

b. WATER MAINS MAY BE OFFSET TO ONE SIDE OF A TRENCH BUT A MINIMUM OF 6"CLEARANCE MUST BE MAINTAINED BETWEEN THE TRENCH WALL AND THE WATER MAIN.

c. SEE TRENCHING REQUIREMENTS BELOW:

TWC TRENCHING REQUIREMENTS

PIPE DIAMETER (INCHES)	MINIMUM TRENCH WIDTH	MINIMUM TRENCH DEPTH
4"	16"	36"
6"	18"	42"
8"	20"	44"
12"	30"	52"
16"	36"	56"
>16"	DIAMETER + 24"	DIAMETER + 40"

d. THE TRENCH FLOOR SHALL PROVIDE A UNIFORM BEARING FOR EACH FULL LENGTH OF PIPE SECTION. EXCAVATE BELL HOLES AFTER THE BEDDING HAS BEEN GRADED. PERFORM ALL EXCAVATIONS OF WHATEVER SUBSTANCE ENCOUNTERED TO THE DEPTHS SHOWN OR INDICATED ON THE DRAWINGS.

e. WHEN APPROPRIATE, TWC WILL ALLOW CUT OR FILL TECHNIQUES TO BE USED TO LEVEL AN AREA FOR EXCAVATION.

10. SECTION 10 -BEDDING, BACKFILL, COMPACTION, AND FINAL GRADING

a. FOR ALL WATER LINES CROSSING COUNTY OR STATE ROADWAYS, THE PROVISIONS FOR TRENCH COMPACTION AND BACKFILL AS ESTABLISHED BY THESE AGENCIES SHALL BE MET. WHERE THESE PROVISIONS AND THE TWC ENGINEERING DESIGN CRITERIA ARE IN CONFLICT, THE MORE STRINGENT STANDARD SHALL APPLY.

b. BEDDING

i. PIPE SHALL BE BEDDED WITH A MINIMUM OF 6"OF THE SAWS MODIFIED CLASS A BEDDING. SCREENING OF EXCAVATED TRENCH MATERIAL FOR BEDDING MAY BE ALLOWED USING A 1"OR 1-1/4" SCREEN UNDER NO CIRCUMSTANCE WILL ROCKS LARGER THAN 2"BE ALLOWED IN BEDDING.

ii. BEDDING OF ALL WATER MAINS SHALL ADHERE TO THE STANDARD BEDDING DETAILS BASED ON BOTH CURRENT AND PROPOSED USAGE OF THE AREA ABOVE THE PIPE, WHICHEVER IS MORE STRINGENT.

c. BACKFILL

i. WHEN, IN THE OPINION OF TWC, MATERIAL EXCAVATED FROM THE TRENCH IS UNSUITABLE BACKFILL OR WHEN IT IS REQUIRED BY THE JURISDICTIONAL AGENCY, SUITABLE BACKFILL SHALL BE FURNISHED AND PLACED BY THE CONTRACTOR.

ii. ALL UNSUITABLE MATERIAL AND EXCESS BACKFILL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR CONCURRENTLY WITH THE INSTALLATION OF THE MAIN. iii. BACKFILL SHALL NOT BE PLACED UNTIL THE PIPELINE HAS BEEN INSPECTED BY TWC. BACKFILL MATERIAL SHALL NOT BE DROPPED DIRECTLY UPON THE PIPELINE. THE BACKFILL MATERIAL SHALL BE DEPOSITED FROM ONE END OF THE TRENCH UNIFORMLY ON BOTH SIDES OF THE PIPE.

iv. BACKFILL FOR HAND TAMPING SHALL BE DEPOSITED IN LAYERS NOT TO EXCEED 4"THICKNESS AND FOR MECHANICAL TAMPING NOT TO EXCEED 6". CARE SHALL BE TAKEN NOT TO INJURE THE PIPE WHILE ENSURING THOROUGH CONSOLIDATION. WHERE APPROPRIATE, EXCESS MATERIAL SHALL BE HEAPED OVER THE TRENCH TO ALLOW FOR SETTLEMENT.

d. COMPACTION

i. SEE TWC STANDARD DETAIL FOR COMPACTION REQUIREMENTS.

e. FINAL GRADING

i. ALL STREETS ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION WITH AT LEAST THE SAME AMOUNT OF PROPERLY COMPACTED SUB GRADE AND PAVEMENT.

ii. FINAL GRADING OF THE AREA SURROUNDING THE TRENCH EXCAVATION SITE SHALL NOT INTERRUPT THE NATURAL DRAINAGE COURSE OF THE SITE. THE AREA SHALL BE RELATIVELY FREE OF LARGE ROCKS AND OTHER DEBRIS THAT IS GREATER THAN THAT OF ORIGINAL CONDITIONS.

WATER NOTES

1. SECTION 1 -SYSTEM DESIGN AND FLOW CRITERIA

a. LINE SIZING CRITERIA

i. SEE WATER SECTION 1 OF TWC ENGINEERING DESIGN CRITERIA.

b. MINIMUM LINE SIZE

i. THE MINIMUM PIPE SIZE FOR DISTRIBUTION MAINS SHALL BE 4 INCHES, UNLESS OTHERWISE AUTHORIZED BY TWC. THE MINIMUM SIZE FOR DISTRIBUTION MAINS SERVING FIRE HYDRANTS AND FIRE HYDRANT BRANCHES SHALL BE 6 INCHES IN DIAMETER.

c. WATER LINE ROUTING AND LOOPING

i. CONTRACTOR SHALL ESTABLISH PIPE GRADES USING TOP OF FINISHED GRADE UNLESS OTHERWISE INDICATED ON PLANS.

ii. CONTRACTOR SHALL GRADE MAIN TO AVOID USE OF AIR VALVES.

iii. ALL ROAD CROSSING UNDER COMAL COUNTY ROADWAYS SHALL REQUIRE A SEPARATE PERMIT FROM THE COMAL COUNTY ENGINEER. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS AND SHALL CONSTRUCT ALL CROSSINGS IN ACCORDANCE WITH COMAL COUNTY STANDARDS.

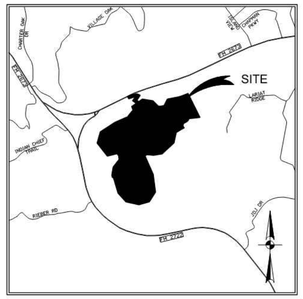
iv. CONTRACTOR SHALL CONSTRUCT ALL CROSSIN

THE ROCK UNIT 1

BEING A 93.77 ACRE OF LAND SITUATED IN THE RUSK TRANS. CO. SURVEY NO. 805, A-510, THE H. LUEHLFING SURVEY NO. 804, A-939, THE J.P. PREUSSER SURVEY NO. 538, A479, THE JOS. PREUSSER SURVEY NO. 671 A468, THE A. ARNOLD SURVEY NO. 806, A-931, AND TEH J. ROHDE SURVEY NO. 806, A-847, ALL BEING IN COMAL COUNTY, TEXAS AND AS RECORDED IN DOCUMENT #202306016826, COMAL COUNTY OFFICIAL PUBLIC RECORDS.

NOTES:

1. THIS PROPERTY WILL BE SERVICED BY INDIVIDUAL ON-SITE SEWAGE FACILITIES.
2. THIS PROPERTY WILL BE SERVICED BY TEXAS WATER COMPANY FOR WATER, PERDENALES ELECTRIC COOPERATIVE FOR ELECTRIC, AND CHARTER COMMUNICATIONS FOR TELEPHONE.
3. ALL STREETS ARE PROPOSED TO BE OF A LOCAL TYPE FUNCTIONAL CLASSIFICATION WITH 60 FOOT RIGHT-OF-WAYS UNLESS NOTED OTHERWISE.
4. THE SUBDIVISION IS WITHIN THE COMAL INDEPENDENT SCHOOL DISTRICT.
5. SIDEWALKS WILL NOT BE CONSTRUCTED FOR THIS DEVELOPMENT.
6. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE IN GRID BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM 1983. DISTANCES SHOWN HEREON ARE SURFACE USING COMBINED SCALE FACTOR OF 1.00015.
7. MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION. MONUMENTS AND MARKERS WILL BE SET WITH 1/2" IRON PIN WITH PLASTIC CAP STAMPED "CDS MUERY SATX" IMMEDIATELY AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.
8. THIS PROPERTY DOES NOT LIE WITHIN THE EXTRATERRITORIAL JURISDICTION OF A MUNICIPALITY.
9. THE ROCK – UNIT 1 ESTABLISHING A TOTAL OF 62 LOTS, WITH 59 BEING BUILDABLE LOTS, 1 BEING A PRIVATE STREET, AND 2 BEING OPEN SPACE LOTS.
10. BLOCK 1 LOT 900 IS A PRIVATE STREET BEING 10.3 AC. WITH A TOTAL APPROXIMATE LENGTH OF 7,610 LINEAR FEET. ALL STREETS WILL BE PRIVATE AND WILL BE MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION. BLOCK 1, LOT 900 SHALL BE USED AS INGRESS AND EGRESS FOR THE PROPERTY OWNERS WITHIN THE ROCK – UNIT 1 SUBDIVISION.
11. BLOCK 1 LOT 901 AND BLOCK 1 902 ARE OPEN SPACE LOTS. THESE LOTS SHALL BE MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION, THEIR SUCCESSORS OR ASSIGNS.
12. ALL PRIVATE STREETS ARE ALSO ELECTRIC, TELEPHONE, GAS, CABLE T.V., WATER, AND DRAINAGE EASEMENTS. ALL PRIVATE STREETS AND OPEN SPACE LOTS SHALL BE MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION, TEIR SUCCESSORS OR ASSIGNS, AND SHALL NOT BE THE RESPONSIBILITY OF COMAL COUNTY.
13. THIS PROPERTY DOES NOT LIE WITHIN THE EXISTING SPECIAL FLOOD HAZARD ZONE A, 100-YEAR FLOOD BOUNDARY, AS DEFINED BY THE COMAL COUNTY, TEXAS COMMUNITY PANEL NUMBER 48091C0255F, REVISED SEPTEMBER 02, 2009 AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
14. THIS PROPERTY DOES LIE WITHIN THE EDWARDS AQUIFER CONTRIBUTING ZONE.
15. COMAL COUNTY REQUIRES A MINIMUM 25' BUILDING SETBACK LINE FROM ROAD FRONTAGE.
16. PROPERTY OWNERS ARE ADVISED THAT THEY ARE RESPONSIBLE FOR MAINTENANCE OF DEDICATED EASEMENTS ON THEIR PROPERTY AND MAY NOT UTILIZE THESE EASEMENTS FOR ANY PURPOSE DETRIMENTAL TO THEIR INTENDED USE (I.E., NO STRUCTURES, SEPTIC TANK FIELDS, ETC.). GRANTEES OF SAID DEDICATED EASEMENTS RESERVE THE RIGHT OF ACCESS TO SUCH EASEMENTS.
17. NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF THE DRAINAGE EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASES THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE COUNTY ENGINEER. COMAL COUNTY SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTORS ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.
18. IT IS HEREBY UNDERSTOOD AND AGREED THAT NON-EXCLUSIVE, PERPETUAL EASEMENTS ARE RESERVED FOR THE INSTALLATION AND MAINTENANCE OF PUBLIC UTILITIES AND ALL NECESSARY APPURTENANCES. WHETHER THESE IMPROVEMENTS ARE INSTALLED UNDERGROUND, OVERHEAD AND/OR ON THE SURFACE OF THE GROUND WITHIN THE PUBLIC UTILITY EASEMENTS DEDICATED ON THIS PLAT, NOTHING SHALL BE PLACED OR PERMITTED TO REMAIN IN A PUBLIC UTILITY EASEMENT AREA WHICH MAY DAMAGE OR INTERFERE WITH THE INSTALLATION AND MAINTENANCE OF SAID PUBLIC UTILITIES. THE PUBLIC UTILITY EASEMENT AREA OF EACH LOT AND ALL IMPROVEMENTS WITHIN IT SHALL BE MAINTAINED BY THE OWNER OF THE LOT, EXCEPT FOR THOSE FACILITIES FOR WHICH AN AUTHORITY OR PUBLIC UTILITY PURVEYOR IS RESPONSIBLE. PUBLIC UTILITY PURVEYORS AND THEIR EMPLOYEES SHALL HAVE ALL OF THE RIGHTS AND BENEFITS NECESSARY FOR THE FULL ENJOYMENT OF THE RIGHTS HEREIN GRANTED, INCLUDING BUT NOT LIMITED TO INGRESS AND EGRESS FROM PRIVATE ROADS AND EASEMENTS, AND THE RIGHT FROM TIME TO TIME TO CUT ANY AND ALL TREES, UNDERGROWTH, AND OTHER OBSTRUCTIONS THAT MAY CAUSE INTERFERENCE WITH THE OPERATION OF SAID PUBLIC UTILITY FACILITIES.



LOCATION MAP
SCALE: 1"=2,000'

STATE OF TEXAS
COUNTY OF COMAL

I, THE UNDERSIGNED OWNER OF THE LAND SHOWN ON THIS PLAT; AND DESIGNATED HEREIN AS THE ROCK, UNIT 1, TO THE COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____.
OWNER:
PAUL MOSVOLD
NORSELAND COMAL LLC
11777 KATY FREEWAY STE. 300 S
HOUSTON, TX 77079

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS ___DAY OF_____20___.

BY _____.

_____.
NOTARY PUBLIC, STATE OF TEXAS
MY COMMISSION EXPIRES: _____.

KNOW ALL MEN BY THESE PRESENTS:

I, THE UNDERSIGNED, DARRYL L. ZERCHER, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE UNDER MY SUPERVISION AND IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

_____
DARRYL L. ZERCHER
R.P.L.S. REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5609
CDS MUERY INC.
100 NE LOOP 410, STE. 300
SAN ANTONIO, TEXAS 78216
FIRM# F-1733 | TBPLS NO. 100495-00

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

LEGEND:

U.E.	=	UTILITY EASEMENT
R.O.W.	=	RIGHT-OF-WAY
O.S.	=	OPEN SPACE LOT
■ ■ ■ ■	=	PAGE MATCH LINE
○	=	1/2" IRON PIN SET
M.P.R.C.C.T.	=	MAP & PLAT RECORDS OF COMAL COUNTY, TEXAS

THIS PLAT OF THE ROCK UNIT 1 HAS BEEN SUBMITTED TO AND CONSIDERED BY THE COMMISSIONER'S COURT OF COMAL COUNTY, TEXAS AND IS HEREBY APPROVED FOR FILING BY SAID COURT ON _____ ,20_____.
DATED THIS _____ DAY OF _____ A.D., 20_____ .

BY: _____
CITY MANAGER (MAYOR)

APPROVED:
BY: _____
CITY ENGINEER

BY: _____
CITY SECRETARY

STATE OF TEXAS
COUNTY OF COMAL

I, _____, COUNTY CLERK OF COMAL COUNTY, DO HEREBY CERTIFY THAT THIS PLAT WAS FILED FOR RECORD IN MY OFFICE ON THE _____DAY OF _____, A.D., 20_____ AT_____ M. AND DULY RECORDED THE _____ DAY OF _____ A.D., 20_____ AT _____ M. IN THE RECORDS OF MAPS AND PLATS IN SAID OFFICE, OF SAID COUNTY, IN DOCUMENT # _____. IN TESTIMONY WHEREOF WITNESS MY HAND AND OFFICIAL SEAL OF OFFICE THIS _____ DAY OF _____ , A.D., 20____

COUNTY CLERK, COMAL COUNTY, TEXAS
BY: _____ ,
DEPUTY

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

SUBDIVISION PLAT I

SHEET 2 OF 31

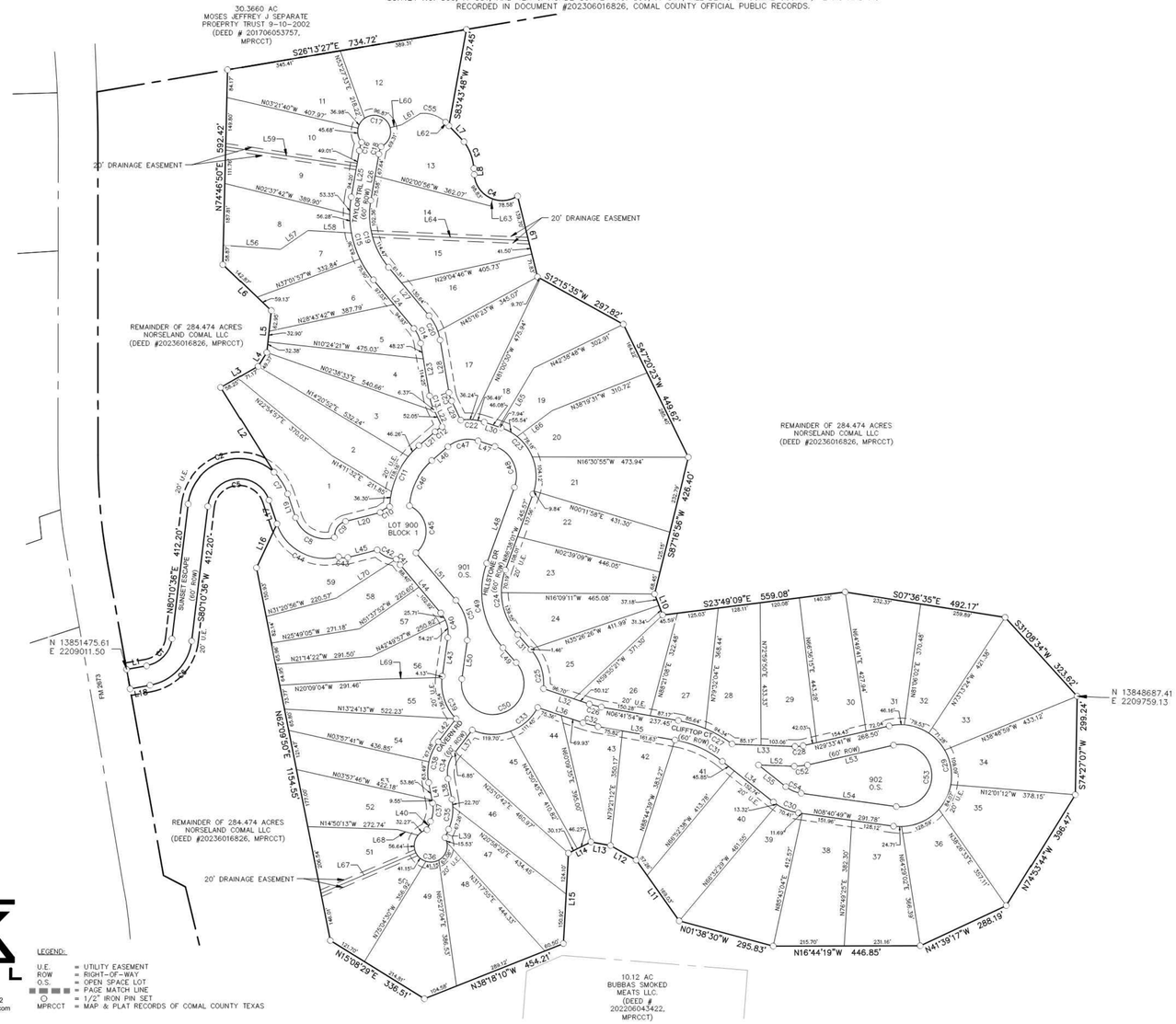
NO	DATE	ISSUES AND REVISIONS
1		

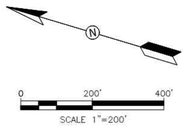
INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

PREPARED: May 16, 2024

THE ROCK UNIT 1

BEING A 93.77 ACRE OF LAND SITUATED IN THE RUSK TRANS. CO. SURVEY NO. 805, A-510, THE H. LUEHLFING SURVEY NO. 804, A-939, THE J.P. PREUSSER SURVEY NO. 538, A479, THE JOS. PREUSSER SURVEY NO. 671 A468, THE A. ARNOLD SURVEY NO. 806, A-931, AND TEH J. ROHDE SURVEY NO. 806, A-847, ALL BEING IN COMAL COUNTY, TEXAS AND AS RECORDED IN DOCUMENT #202306016826, COMAL COUNTY OFFICIAL PUBLIC RECORDS.





LEGEND:

U.E.	= UTILITY EASEMENT
ROW	= RIGHT-OF-WAY
O.S.	= OPEN SPACE LOT
	= PAGE MATCH LINE
O	= 1/2" IRON PIN SET
MPRCCT	= MAP & PLAT RECORDS OF COMAL COUNTY TEXAS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

PREPARED: May 16, 2024

PAGE 2 OF 3

05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

SUBDIVISION PLAT II

SHEET 3 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
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THE ROCK UNIT 1

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LINE TABLE		
LINE	LENGTH	BEARING
L1	61.59'	S26°47'07"E
L2	303.45'	N41°25'41"E
L3	129.42'	S46°20'50"E
L4	49.37'	S74°42'43"E
L5	128.24'	N79°37'16"E
L6	202.00'	N27°05'34"E
L7	66.91'	S30°01'02"W
L8	18.53'	S69°36'55"W
L9	253.03'	S59°29'12"W
L10	68.52'	S52°26'01"W
L11	226.30'	N38°06'18"E
L12	89.73'	N12°59'52"E
L13	60.51'	N06°31'25"W
L14	76.44'	N43°02'21"W
L15	275.02'	S76°33'25"W
L16	147.22'	S81°37'28"E
L17	76.05'	N54°44'04"E
L18	61.59'	N26°47'07"W
L19	76.05'	N54°44'04"E
L20	108.53'	N31°01'37"W

LINE TABLE		
LINE	LENGTH	BEARING
L21	64.48'	N57°13'00"W
L22	58.43'	N47°57'10"E
L23	162.49'	N63°47'11"E
L24	191.96'	N33°34'25"E
L25	143.22'	N83°16'01"E
L26	143.22'	N83°16'01"E
L27	191.96'	N33°34'25"E
L28	162.49'	N63°47'11"E
L29	64.48'	N47°57'10"E
L30	54.02'	N01°48'42"E
L31	60.37'	N31°44'22"E
L32	146.81'	N01°57'49"E
L33	189.81'	N14°37'32"W
L34	198.58'	N21°53'13"E
L35	237.45'	N06°41'54"W
L36	145.29'	N01°57'49"E
L37	91.26'	N69°03'33"W
L38	63.41'	N62°27'14"E
L39	27.60'	N83°11'02"W
L40	27.60'	N83°11'02"W

LINE TABLE		
LINE	LENGTH	BEARING
L41	63.41'	N62°27'14"E
L42	88.49'	N69°03'33"W
L43	118.58'	N81°27'53"E
L44	191.32'	N33°15'51"E
L45	92.16'	N31°01'37"W
L46	64.48'	N57°13'00"W
L47	54.02'	N01°48'42"E
L48	245.57'	N86°38'01"W
L49	60.37'	N31°44'22"E
L50	118.58'	N81°27'53"E
L51	188.37'	N33°15'51"E
L52	108.62'	N14°37'32"W
L53	268.50'	N29°33'41"W
L54	291.78'	N08°40'49"W
L55	105.88'	N21°53'13"E
L56	172.69'	N12°27'13"W
L57	101.26'	N51°07'15"W
L58	132.49'	N13°27'42"W
L59	400.91'	N07°59'38"W
L60	35.90'	N30°37'36"W

LINE TABLE		
LINE	LENGTH	BEARING
L61	66.46'	N47°38'08"W
L62	14.37'	N30°01'02"E
L63	22.43'	N87°00'18"W
L64	476.87'	N14°08'12"W
L65	208.31'	N75°53'09"W
L66	131.98'	N53°08'07"W
L67	313.67'	N39°44'47"W
L68	65.13'	N00°52'58"W
L69	202.60'	N18°12'07"W
L70	216.51'	N49°37'32"W

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD BEARING
C1	121.10'	95.00'	73°02'17"	70.35'	113.07'	S63°18'15"E
C2	340.91'	155.00'	126°01'07"	304.33'	276.23'	S36°48'51"E
C3	87.78'	153.27'	32°48'42"	45.13'	86.58'	S53°04'00"W
C4	177.41'	85.00'	119°35'10"	146.00'	146.92'	S09°49'20"W
C5	256.27'	95.00'	154°33'28"	420.82'	185.34'	N22°32'40"W
C6	197.59'	155.00'	73°02'17"	114.77'	184.48'	N63°18'15"W
C7	77.21'	155.00'	28°32'21"	39.42'	76.41'	N40°27'53"E
C8	146.38'	95.00'	88°16'51"	92.19'	132.32'	N10°35'38"E
C9	53.17'	44.00'	69°13'52"	30.37'	49.99'	N65°38'33"W
C10	33.95'	79.00'	24°37'18"	17.24'	33.69'	N47°51'28"W
C11	210.48'	255.22'	47°15'06"	111.64'	204.57'	N80°51'10"W
C12	26.26'	155.00'	9°42'30"	13.16'	26.23'	N52°21'45"W
C13	42.83'	155.00'	15°50'00"	21.55'	42.70'	N55°52'10"E
C14	50.09'	95.00'	30°12'46"	25.64'	49.52'	N48°40'48"E
C15	268.87'	310.00'	49°41'36"	143.55'	260.52'	N58°25'13"E
C16	26.12'	155.00'	9°39'22"	13.09'	26.09'	N88°05'42"E
C17	248.84'	50.00'	285°09'12"	38.26'	60.77'	N04°12'25"W
C18	23.56'	95.00'	14°12'36"	11.84'	23.50'	N89°37'41"W
C19	216.83'	250.00'	49°41'36"	115.76'	210.10'	N58°25'13"E
C20	81.73'	155.00'	30°12'46"	41.84'	80.79'	N48°40'48"E

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD BEARING
C21	26.25'	95.00'	15°50'00"	13.21'	26.17'	N55°52'10"E
C22	72.73'	155.00'	26°53'08"	37.05'	72.07'	N11°37'52"W
C23	247.68'	155.00'	91°33'17"	159.26'	222.16'	N47°35'21"E
C24	209.74'	195.00'	61°37'38"	116.31'	199.78'	N62°33'11"E
C25	128.80'	155.00'	47°36'35"	68.38'	125.12'	N55°32'39"E
C26	37.79'	250.00'	8°39'43"	18.93'	37.76'	N02°22'02"W
C27	181.55'	380.00'	27°22'28"	92.54'	179.83'	N06°59'21"E
C28	24.76'	95.00'	14°56'09"	12.45'	24.69'	N22°05'37"W
C29	543.44'	155.00'	200°52'53"	841.16'	304.87'	N70°52'44"E
C30	83.73'	155.00'	30°57'01"	42.91'	82.71'	N06°47'41"E
C31	159.65'	320.00'	28°35'06"	81.52'	158.00'	N07°35'39"E
C32	46.86'	310.00'	8°39'43"	23.48'	46.82'	N02°22'02"W
C33	231.16'	155.00'	85°26'48"	143.15'	210.32'	N35°36'02"W
C34	80.39'	95.00'	48°29'13"	42.78'	78.02'	N86°41'51"E
C35	92.96'	155.00'	34°21'45"	47.92'	91.57'	N79°38'06"E
C36	249.81'	50.00'	286°15'37"	37.50'	60.00'	N06°48'58"E
C37	56.97'	95.00'	34°21'45"	29.37'	56.12'	N79°38'06"E
C38	131.17'	155.00'	48°29'13"	69.80'	127.29'	N86°41'51"E
C39	140.67'	155.00'	51°59'53"	75.60'	135.89'	N55°27'57"E
C40	79.92'	95.00'	48°12'03"	42.50'	77.58'	N57°21'53"E

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD BEARING
C41	21.17'	155.00'	7°49'37"	10.60'	21.16'	N37°10'40"E
C42	65.58'	85.00'	44°12'09"	34.52'	63.96'	N09°33'39"E
C43	28.67'	44.00'	37°19'40"	14.86'	28.16'	N12°21'47"W
C44	233.94'	155.00'	86°28'39"	145.75'	212.36'	N11°29'44"E
C45	172.55'	85.00'	116°18'49"	136.86'	144.41'	N65°34'42"E
C46	155.84'	195.00'	45°47'20"	82.35'	151.72'	N80°06'40"W
C47	97.87'	95.00'	59°01'42"	53.78'	93.60'	N27°42'09"W
C48	151.80'	95.00'	91°33'17"	97.61'	136.16'	N47°35'21"E
C49	274.28'	255.00'	61°37'38"	152.09'	261.25'	N62°33'11"E
C50	380.90'	95.00'	229°43'32"	205.01'	172.39'	N33°23'52"W
C51	130.40'	155.00'	48°12'03"	69.34'	126.58'	N57°21'53"E
C52	40.41'	155.00'	14°56'09"	20.32'	40.29'	N22°05'37"W
C53	333.07'	95.00'	200°52'53"	515.55'	186.85'	N70°52'44"E
C54	51.49'	95.00'	31°03'23"	26.40'	50.87'	N06°50'52"E
C55	84.27'	94.22'	51°14'51"	45.19'	81.49'	S02°30'43"W

INK CIVIL
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NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

LEGEND:

U.E. = UTILITY EASEMENT
ROW = RIGHT-OF-WAY
O.S. = OPEN SPACE LOT
= PAGE MATCH LINE
○ = 1/2" IRON PIN SET
MPRCCT = MAP & PLAT RECORDS OF COMAL COUNTY TEXAS

PREPARED: May 16, 2024

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

SUBDIVISION PLAT III

SHEET 4 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

0 300' 600'

SCALE: 1" = 300'

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER

05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

AERIAL EXHIBIT

SHEET 5 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

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PH: 830-358-7127 ink-civil.com
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SEQUENCE OF CONSTRUCTION:

1. OBTAIN CITY APPROVED SITE PREPARATION PLANS, AND TPDES PERMIT (NOT A COPY OF THE TPDES APPLICATION TO TCEQ), IF APPLICABLE.
2. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
3. BEGIN DEMOLITION ACTIVITIES, IF APPLICABLE.
4. BEGIN SITE CLEARING AND GRADING.
5. RESTORE AND REVEGETATE ALL DISTURBED AREAS NOT UNDER IMPERMEABLE IMPROVEMENTS.
6. COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
7. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION IS AT LEAST 70% EVENLY ESTABLISHED. RYE IS NOT ACCEPTED.

EROSION CONTROL NOTES:

1. LIMITS OF CONSTRUCTION AND OTHER EROSION CONTROL IMPROVEMENTS SHOWN OUTSIDE THE PROPERTY ARE SHOWN FOR GRAPHICAL PURPOSE ONLY. IF NEAR PROPERTY LINE, THE INTENT IS TO BE PLACED NEAR THE PROPERTY LINE, NOT ON THE ADJACENT PROPERTY.

2. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.

3. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.

4. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED IN THE SWPPP DOCUMENTS AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.

5. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.

6. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.

7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.

8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.

9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UP-GRADIENT AREAS.

10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.

11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.

12. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 12.2(N).

HYDRAULIC MULCH

MATERIALS:

HYDRAULIC MULCHES: WOOD FIBER MULCH CAN BE APPLIED ALONE OR AS A COMPONENT OF HYDRAULIC MATRICES. WOOD FIBER APPLIED ALONE IS TYPICALLY APPLIED AT THE RATE OF 2,000 TO 4,000 LB/ACRE. WOOD FIBER MULCH IS MANUFACTURED FROM WOOD OR WOOD WASTE FROM LUMBER MILLS OR FROM URBAN SOURCES.

HYDRAULIC MATRICES: HYDRAULIC MATRICES INCLUDE A MIXTURE OF WOOD FIBER AND ACRYLIC POLYMER OR OTHER TACKIFIER AS BINDER. APPLY AS A LIQUID SLURRY USING A HYDRAULIC APPLICATION MACHINE (I.E., HYDRO SEEDER) AT THE FOLLOWING MINIMUM RATES, OR AS SPECIFIED BY THE MANUFACTURER TO ACHIEVE COMPLETE COVERAGE OF THE TARGET AREA: 2,000 TO 4,000 LB/ACRE WOOD FIBER MULCH, AND 5 TO 10% (BY WEIGHT) OF TACKIFIER (ACRYLIC COPOLYMER, GUAR, PSYLLIUM, ETC.)

BONDED FIBER MATRIX: BONDED FIBER MATRIX (BFM) IS A HYDRAULICALLY APPLIED SYSTEM OF FIBERS AND ADHESIVES THAT UPON DRYING FORMS AN EROSION RESISTANT BLANKET THAT PROMOTES VEGETATION, AND PREVENTS SOIL EROSION. BFMS ARE TYPICALLY APPLIED AT RATES FROM 3,000 LB/ACRE TO 4,000 LB/ACRE BASED ON THE MANUFACTURER'S RECOMMENDATION. A BIODEGRADABLE BFM IS COMPOSED OF MATERIALS THAT ARE 100% BIODEGRADABLE. THE BINDER IN THE BFM SHOULD ALSO BE BIODEGRADABLE AND SHOULD NOT DISSOLVE OR DISPERSE UPON RE-WETTING. TYPICALLY, BIODEGRADABLE BFMS SHOULD NOT BE APPLIED IMMEDIATELY BEFORE, DURING OR IMMEDIATELY AFTER RAINFALL IF THE SOIL IS SATURATED. DEPENDING ON THE PRODUCT, BFMS TYPICALLY REQUIRE 12 TO 24 HOURS TO DRY AND BECOME EFFECTIVE.

INSTALLATION:

1. PRIOR TO APPLICATION, ROUGHEN EMBANKMENT AND FILL AREAS BY ROLLING WITH A CRIMPING OR PUNCHING TYPE ROLLER OR BY TRACK WALKING. TRACK WALKING SHALL ONLY BE USED WHERE OTHER METHODS ARE IMPRACTICAL.
2. TO BE EFFECTIVE, HYDRAULIC MATRICES REQUIRE 24 HOURS TO DRY BEFORE RAINFALL OCCURS.
3. AVOID MULCH OVER SPRAY ONTO ROADS, SIDEWALKS, DRAINAGE CHANNELS, EXISTING VEGETATION, ETC.
4. 4" OF TOP SOIL SHALL BE PLACED.

INSPECTION AND MAINTENANCE GUIDELINES:

1. MULCHED AREAS SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.
2. AREAS DAMAGED BY STORMS OR NORMAL CONSTRUCTION ACTIVITIES SHOULD BE REGRADED AND HYDRAULIC MULCH REAPPLIED AS SOON AS PRACTICAL.

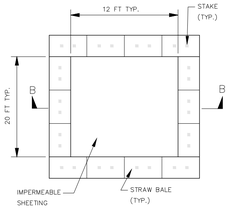
RESIDENTIAL LOT STABILIZATION

1. CURLEX BLANKET (I) (4' MIN WIDTH) OR ENGINEER APPROVED EQUAL
2. CURLEX MUST BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
3. MAX SLOPE FOR CURLEX (I) < 2H : 1V

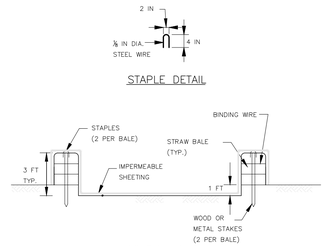
SOIL STABILIZATION NOTE

PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.

SUBSTANTIAL GRADING IS PROPOSED WITH THIS UNIT. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE TIME.

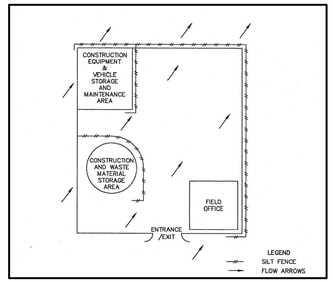


PLAN

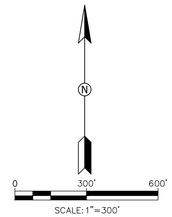


SECTION B-B

TYPICAL CONCRETE TRUCK WASHOUT PIT



TYPICAL CONSTRUCTION STAGING AREA



LEGEND

- SF — SILT FENCE
- BOUNDARY OF DISTURBED AREA
- 900 — EXISTING CONTOURS
- 900 — PROPOSED CONTOURS
- EDGE OF PAVEMENT
- FLOW ARROWS
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING TREE
- STABLIZED CONSTRUCTION ENTRANCE/EXIT
- TRUCK WASH OUT PIT
- CONSTRUCTION STAGING AREA
- ROCK BERM

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

EROSION CONTROL PLAN

SHEET 6 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
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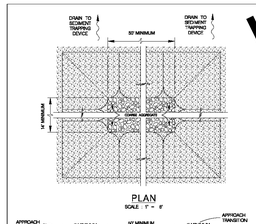
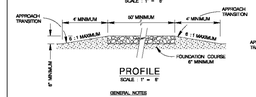
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Drawing Name: N:\Projects\WATER01 Watercolours Texas\Civil\Construction Drawings\0 EROSION CONTROL PLAN.dwg User: chadrileyjohn May 16, 2024 - 11:16pm

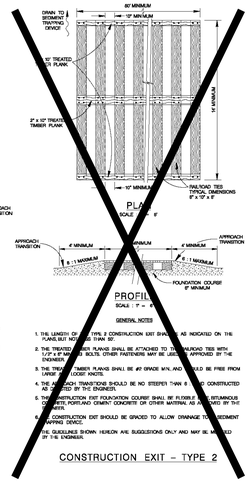




GENERAL NOTES

1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS,BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6:1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE,BITUMINOUS CONCRETE,PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

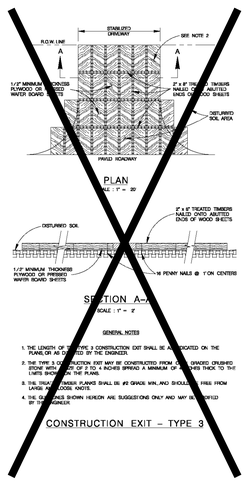
CONSTRUCTION EXIT - TYPE 1



GENERAL NOTES

1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS,BUT NOT LESS THAN 50'.
2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO RAILROAD TIES WITH 1/2" x 6" MINIMUM BOLTS.OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
3. THE TREATED TIMBER PLANKS SHALL BE #1 GRADE M.N. AND SHALL BE FREE FROM LARGE KNOTS OR LOOSE KNOTS.
4. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6:1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE,BITUMINOUS CONCRETE,PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
6. THE CONSTRUCTION EXIT SHOULD BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
7. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

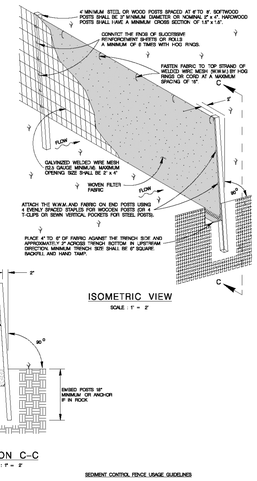
CONSTRUCTION EXIT - TYPE 2

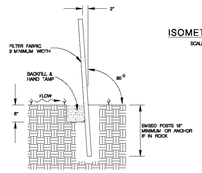


GENERAL NOTES

1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS,OR AS DIRECTED BY THE ENGINEER.
2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM 3" TO 5" GRADED CRUSHED STONE WITH A DEPTH OF 2 TO 4 INCHES SPREAD A MINIMUM OF 6 INCHES THICK TO THE LINES SHOWN ON THE PLANS.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE M.N. AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT - TYPE 3





SEDIMENT CONTROL FENCE USAGE GUIDELINES

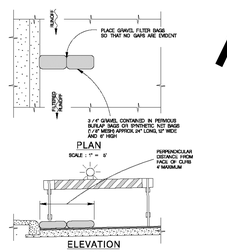
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM /FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

GENERAL NOTES

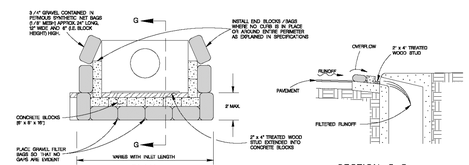
1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE



NOTE:
STAGGLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TAPE OR FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION DETAILS FOR TYPE 1 BARRICADES. PLACE AWAY FROM CUTTES FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

GRAVEL FILTER BAGS



NOTE: GRAVEL FILTERS CAN BE USED ON PAVEMENT OR BARE GROUND

CURB INLET GRAVEL FILTER

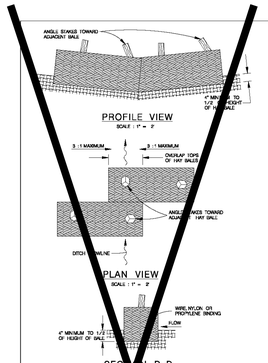
JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1

N. SUBMITTAL PROJECT NO.:		DATE:
DRWN. BY V. VASQUEZ	DSGN. BY:	CHKD. BY:

SHEET NO. ___ OF ___



BALED HAY USAGE GUIDELINES

A BALED HAY BARRIER MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A TWO (2) YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. A BALED HAY INSTALLATION SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 0.5 GPM /FT SQUARED OF CROSS SECTIONAL AREA. BALED HAY MAY BE USED AT THE FOLLOWING LOCATIONS:

1. WHERE THE FLOW OF RUNOFF APPROACHING THE BALED HAY FLOWS OVER DISTURBED SOIL FOR A MAXIMUM OF 100 FEET TO THE BALED HAY BARRIER, AND THE SLOPE IN THE LENGTH OF SLOPE UPSTREAM OF THE BALED HAY SHOULD BE LESS THAN 20%.
2. WHERE THE INSTALLATION WILL BE REQUIRED FOR LESS THAN 3 MONTHS.
3. WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN ½ ACRE.

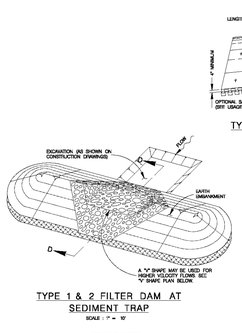
FOR BALED HAY INSTALLATIONS IN SMALL DITCHES,THE FOLLOWING ADDITIONAL CONSTRUCTION SPECIFICATIONS APPLY:

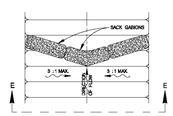
1. THE DITCH SIDESLOPES SHOULD BE GRADED AS FLAT AS POSSIBLE TO MINIMIZE THE CONCENTRATED FLOW RATE THRU THE HAY.
2. THE DITCH SHOULD BE GRADED LARGE ENOUGH TO CONTAIN THE IMPOUNDING VOLUME WHEN SEDIMENT HAS FILLED TO THE TOP OF THE BALED HAY.
3. BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTEGRITY IS ACCELERATED.

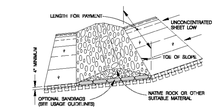
GENERAL NOTES

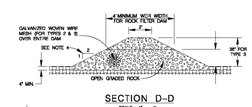
1. HAY BALES SHALL BE A MINIMUM OF 36" IN LENGTH AND WEIGH A MINIMUM OF 60 LBS.
2. HAY BALES SHALL BE BOUND BY STEEL WIRE OR NYLON OR POLYPROPYLENE STRING. HAY BALES SHALL BE FREE FROM NOXIOUS WEEDS OR WEED SEEDS.
3. HAY BALES SHALL BE EMPLACED TO THE SIDE A MINIMUM OF 4" AND, WHEN POSSIBLE, ONE-HALF THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING ADJACENT BALES.THE BALES SHALL BE PLACED WITH ENDINGS PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 2 1/2" DIA.REBAR STAKES OR 2" x 2" WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TOWARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

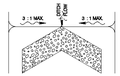
BALED HAY FOR EROSION CONTROL

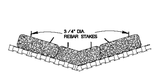


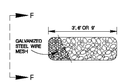












TYPE 4 FILTER DAM AT DITCHES & SMALLER CHANNELS PLAN VIEW

ROCK FILTER DAMS

ROCK FILTER DAM USAGE GUIDELINES

ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLOAD RUNOFF AND LOW CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 50 GPM /FT SQUARED OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.

TYPE 1 DIP HIGH WITH NO WIRE MESH:

TYPE 1 MAY BE USED AT THE TOE OF SLOPES AROUND INLETS IN SMALL DITCHES AND AT DMD OR SWALE OUTLETS. THE TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCENTRATED FLOW AREAS WHERE SCOUR BELOW THE DAM IS LIKELY TO OCCUR. IF THE NATIVE ROCK DOES NOT MAY OCCUR, SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION OF DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

TYPE 2 20" HIGH WITH WIRE MESH:

TYPE 2 MAY BE USED IN DITCHES AND AT DRE OR SWALE OUTLETS.

TYPE 2 DIP HIGH WITH WIRE MESH:

TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.

TYPE 4 SACK GABIONS:

TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.

GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER,FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED UPSTREAM AND / OR DOWNSTREAM AT CHANNAGE STRUCTURES AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (SACKGAVIN, WIRE MESH, SANDBAGS,ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE STORM WATER POLLUTION PREVENTION PLANS.
4. SIDE SLOPES SHOULD BE 2 :1 OR FLATTER, DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDE SLOPES OF 3 :1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO THE EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AROUND THE ENDS AND SIDES OF THE DAM AND THE ENDS SHALL BE SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE,THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO THE AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3/4" DIA REBAR STAKES.
10. FLOW OUT,IST SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
11. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 2

N. SUBMITTAL PROJECT NO.:		DATE:
DRWN. BY V. VASQUEZ	DSGN. BY:	CHKD. BY:

SHEET NO. ___ OF ___

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

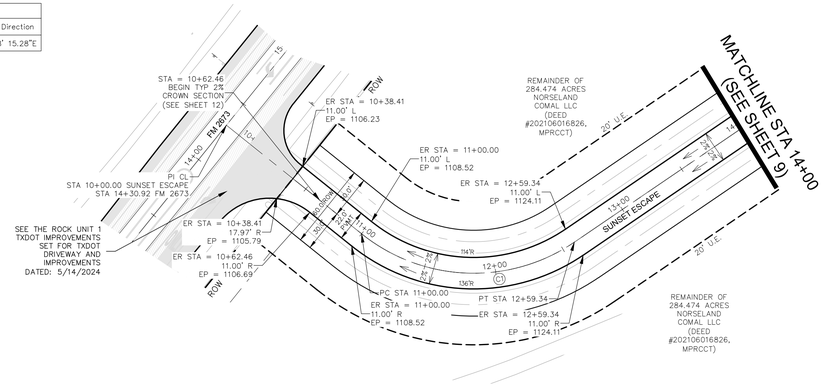
EROSION CONTROL DETAILS

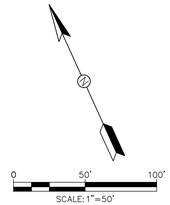
SHEET 7 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

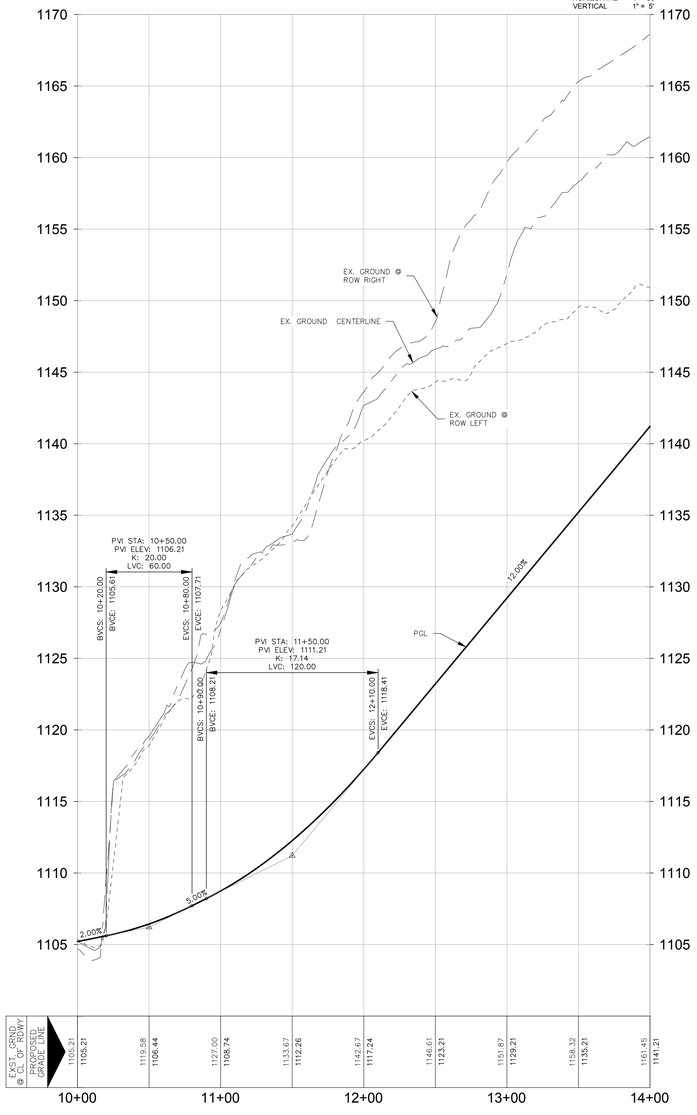
Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	125.00	159.34	73°02'17"	92.56'	148.77'	S63° 18' 15.28"E





SUNSET ESCAPE STA 10+00 TO STA 14+00

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



NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

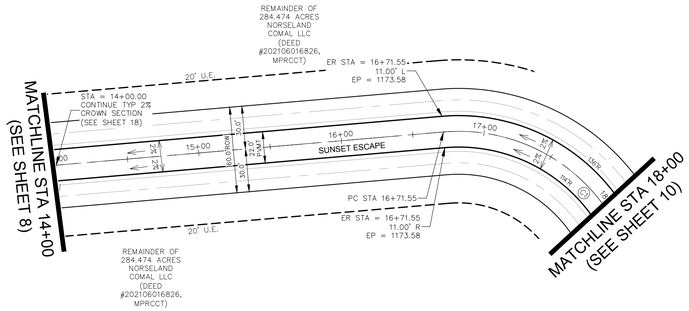
SUNSET ESCAPE PLAN & PROFILE STA. 10+00 TO 14+00

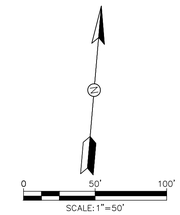
SHEET 8 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

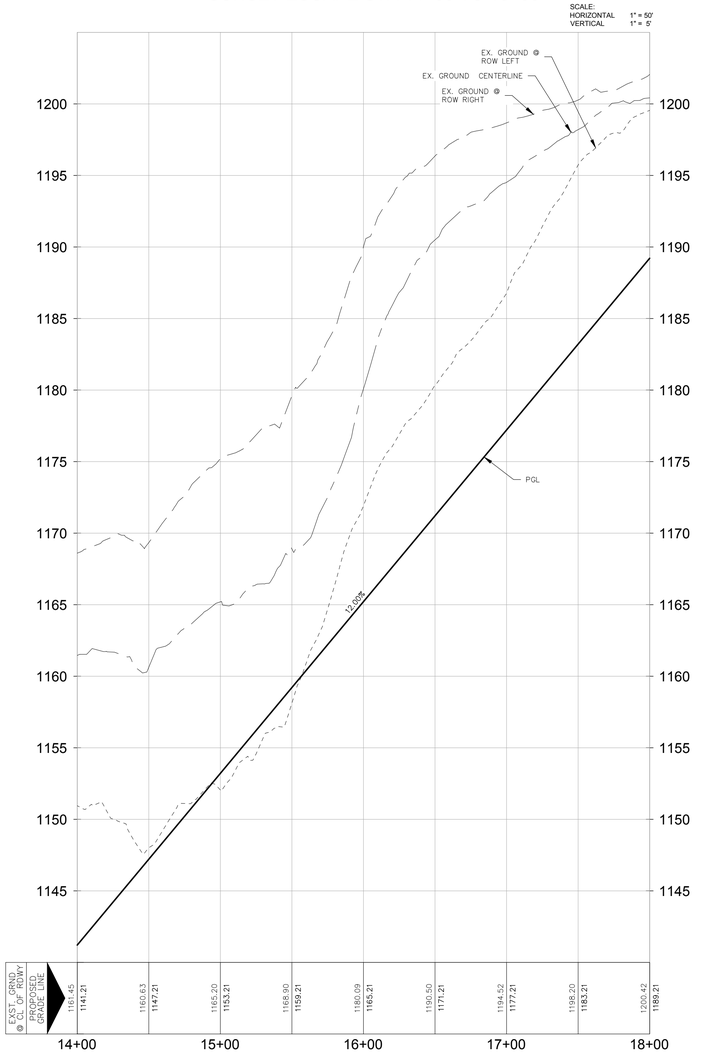
INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	125.00	337.19	154°33'28"	553.72'	243.86'	S22° 32' 39.90"E





SUNSET ESCAPE STA 14+00 TO 18+00



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11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

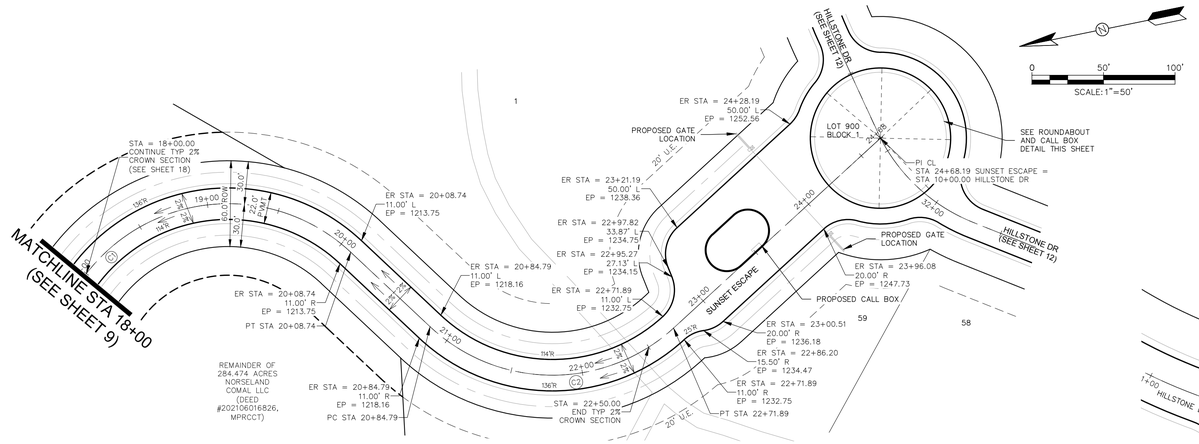
SUNSET ESCAPE PLAN & PROFILE STA. 14+00 TO 18+00

SHEET 9 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	125.00	337.19	154°33'28"	553.72'	243.86'	S22° 32' 39.90"E
C2	125.00	187.10	85°45'41"	116.08'	170.12'	S11° 51' 13.69"W



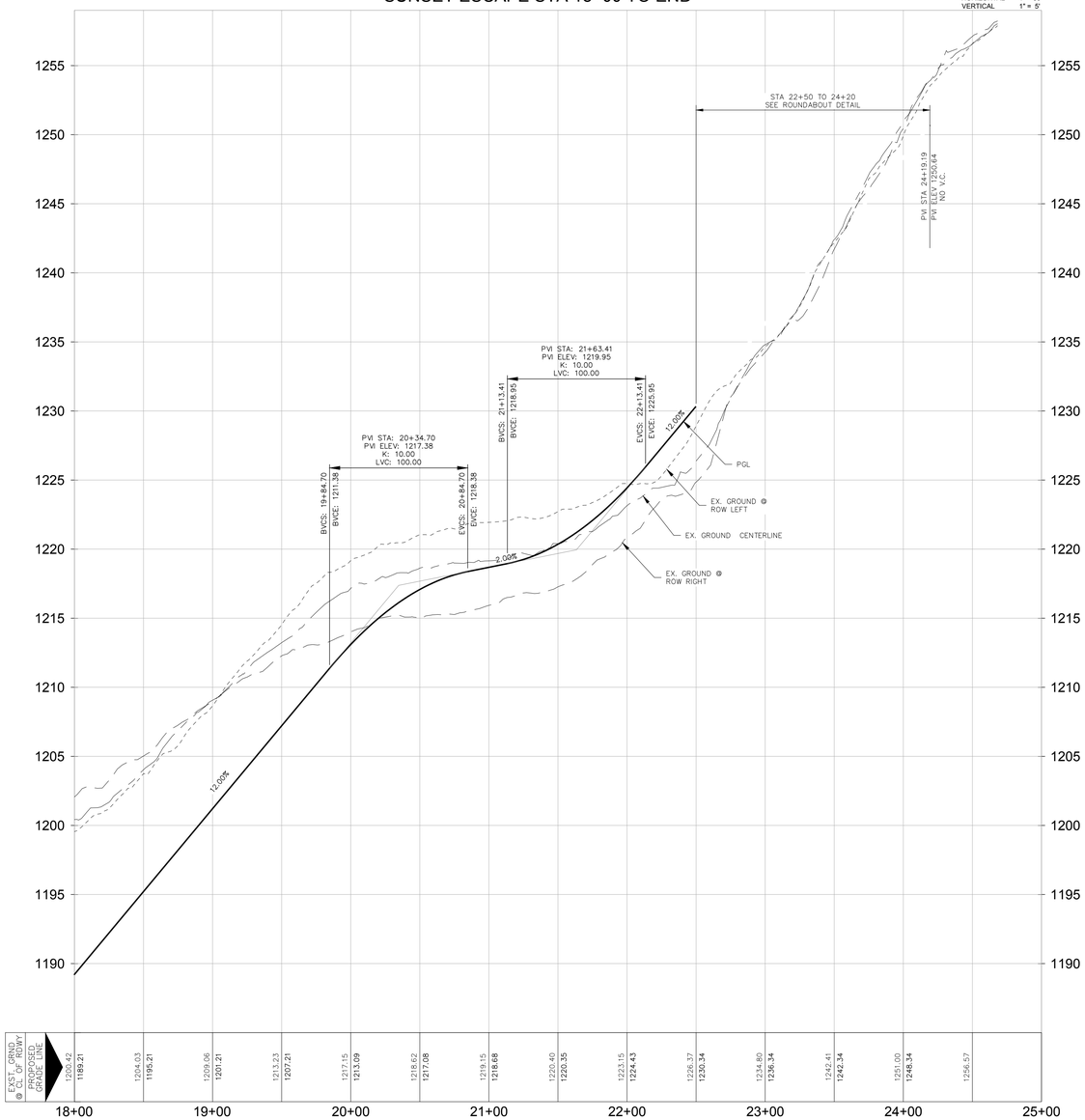
LEGEND

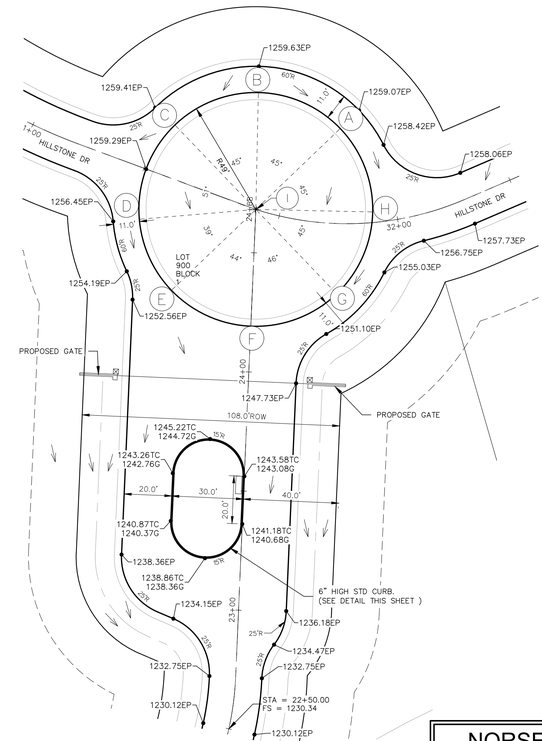
212.83EP — PROPOSED EDGE OF PAVEMENT SPOT ELEVATION

633.86TC / 633.36G — PROPOSED TOP OF CURB & GUTTER SPOT ELEVATION

SUNSET ESCAPE STA 18+00 TO END

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

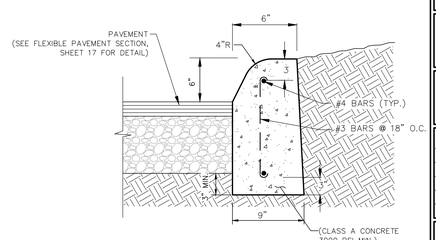




ROUNDABOUT AND CALL BOX DETAIL

SCALE: 1"=30'

ROUNDABOUT HUB ELEV	
HUB	EP
A	1258.96
B	1259.52
C	1259.31
D	1257.22
E	1252.77
F	1250.64
G	1252.84
H	1257.65
I	1255.97



NOTE: CURB TO EXTEND A MINIMUM OF 3" INTO SUBGRADE.

6" STANDARD CURB DETAIL

NOT TO SCALE

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

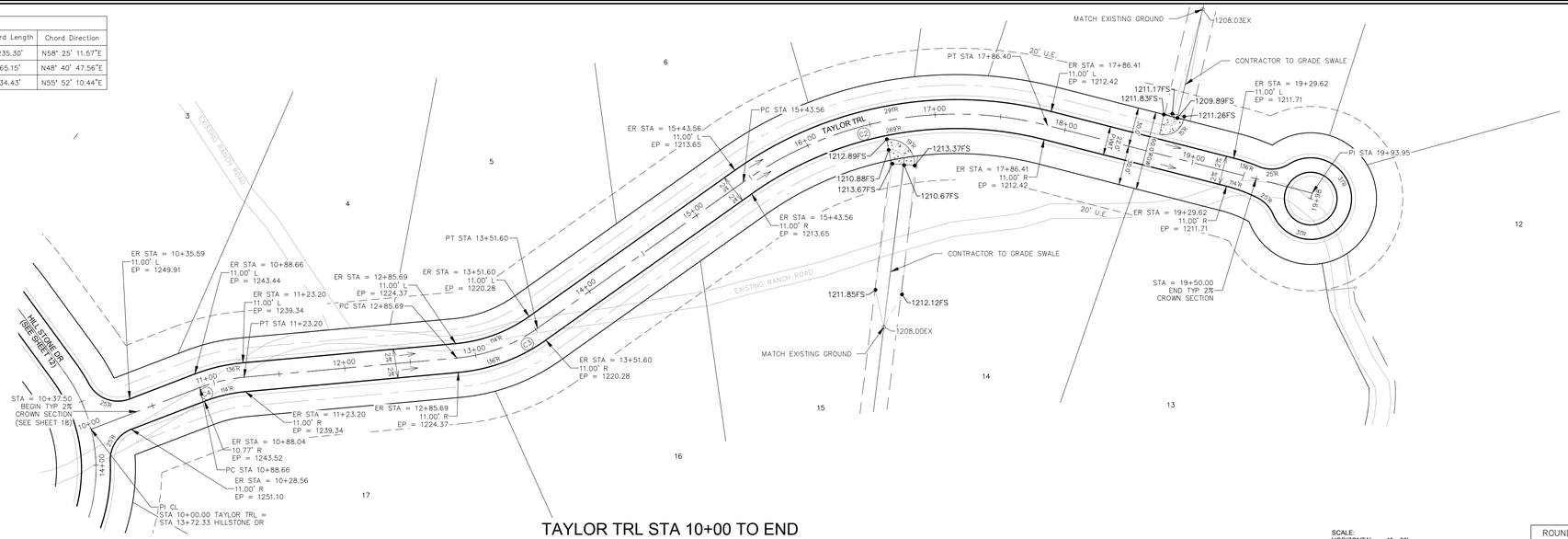
SUNSET ESCAPE PLAN & PROFILE STA. 18+00 TO END

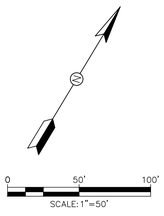
SHEET 10 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C2	280.00	242.84	49°41'34"	129.65'	235.30'	N58° 25' 11.57"E
C3	125.00	65.91	30°12'46"	33.74'	65.15'	N48° 40' 47.56"E
C4	125.00	34.54	15°50'00"	17.38'	34.43'	N55° 52' 10.44"E

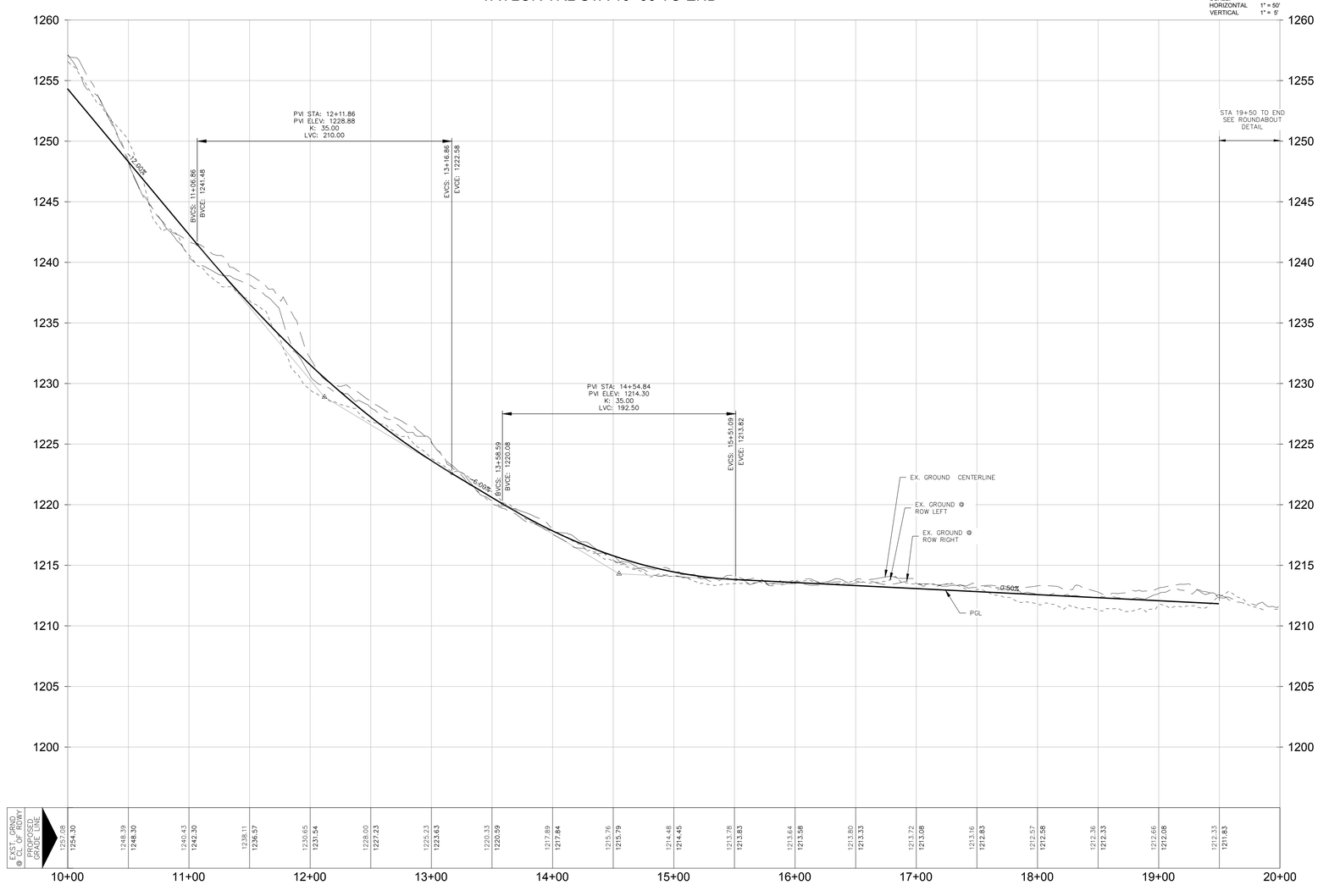




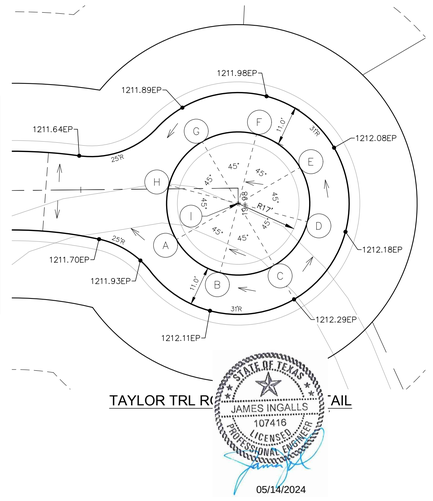
LEGEND

1211.47FS	PROPOSED FINISHED SURFACE SPOT ELEVATION
1209.35EX	EXISTING FINSHED SURFACE SPOT ELEVATION
1211.35EP	EDGE OF PAVEMENT SPOT ELEVATION
	5" THICK CONCRETE RIPRAP W/ #3 BARS @ 16" OCEW

TAYLOR TRL STA 10+00 TO END



ROUNDABOUT HUB ELEV	
HUB	EP
A	1212.05
B	1212.22
C	1212.40
D	1212.30
E	1212.20
F	1212.10
G	1212.00
H	1211.97
I	1212.18



STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

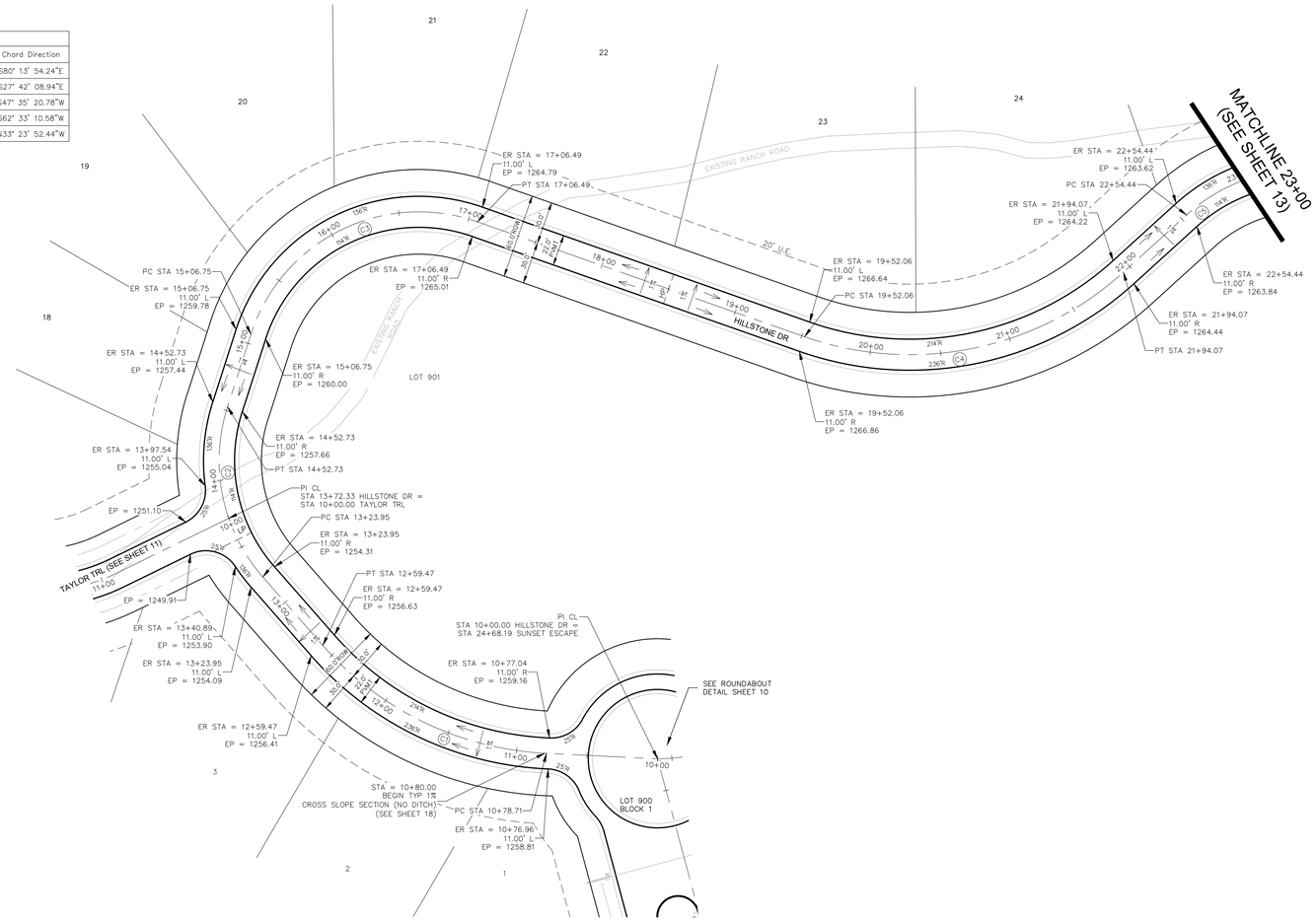
TAYLOR TRL PLAN AND PROFILE STA 56+00 TO END

SHEET 11 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

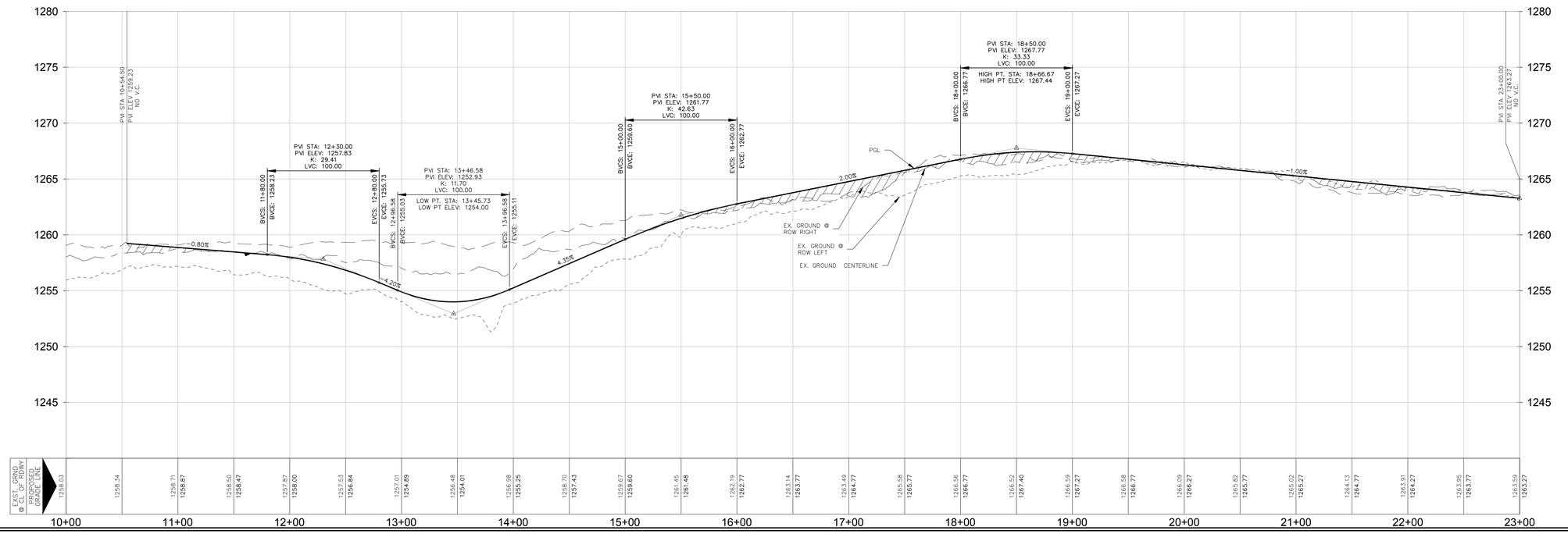
INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	225.00	180.76	46°01'49"	95.58'	175.94'	S80° 13' 54.24"E
C2	125.00	128.78	59°01'42"	70.76'	123.16'	S27° 42' 08.94"E
C3	125.00	199.74	91°33'17"	128.44'	179.16'	S47° 35' 20.78"W
C4	225.00	242.01	61°37'38"	134.20'	230.51'	S62° 33' 10.58"W
C5	125.00	501.18	229°43'32"	269.75'	226.83'	N33° 23' 52.44"W



HILLSTONE DR STA10+00 TO STA 23+00

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



STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

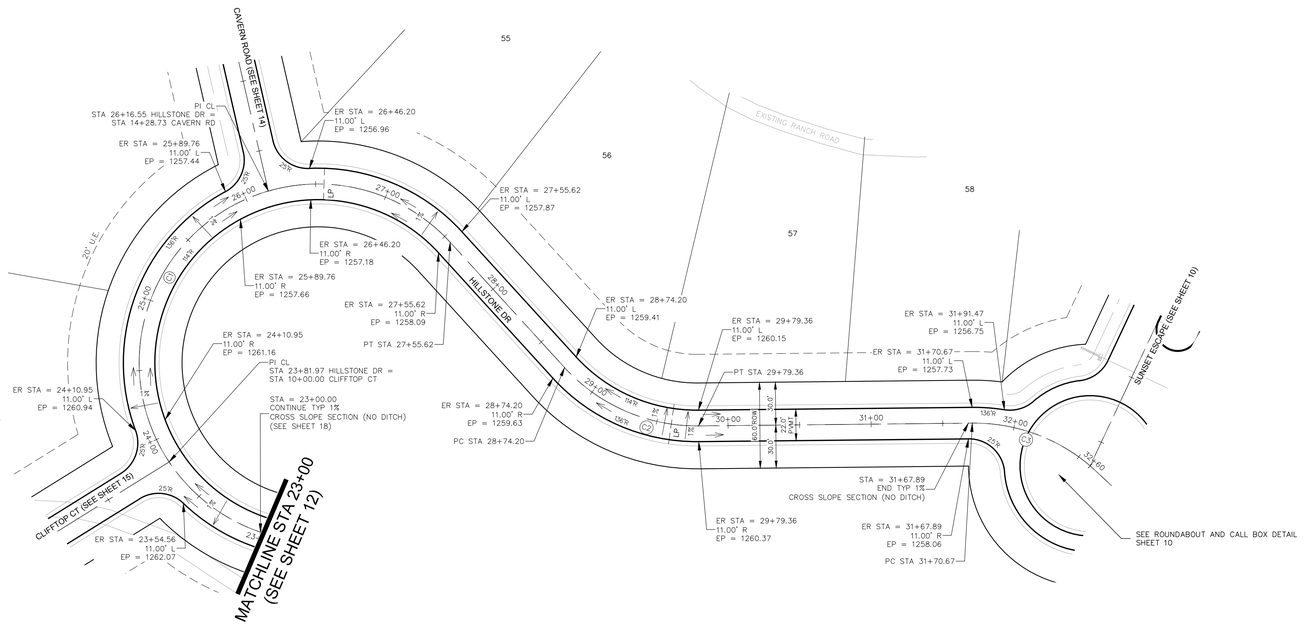
HILLSTONE DR PLAN AND PROFILE STA. 10+00 TO 23+00

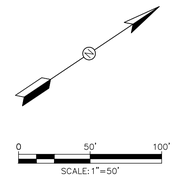
SHEET 12 OF 31

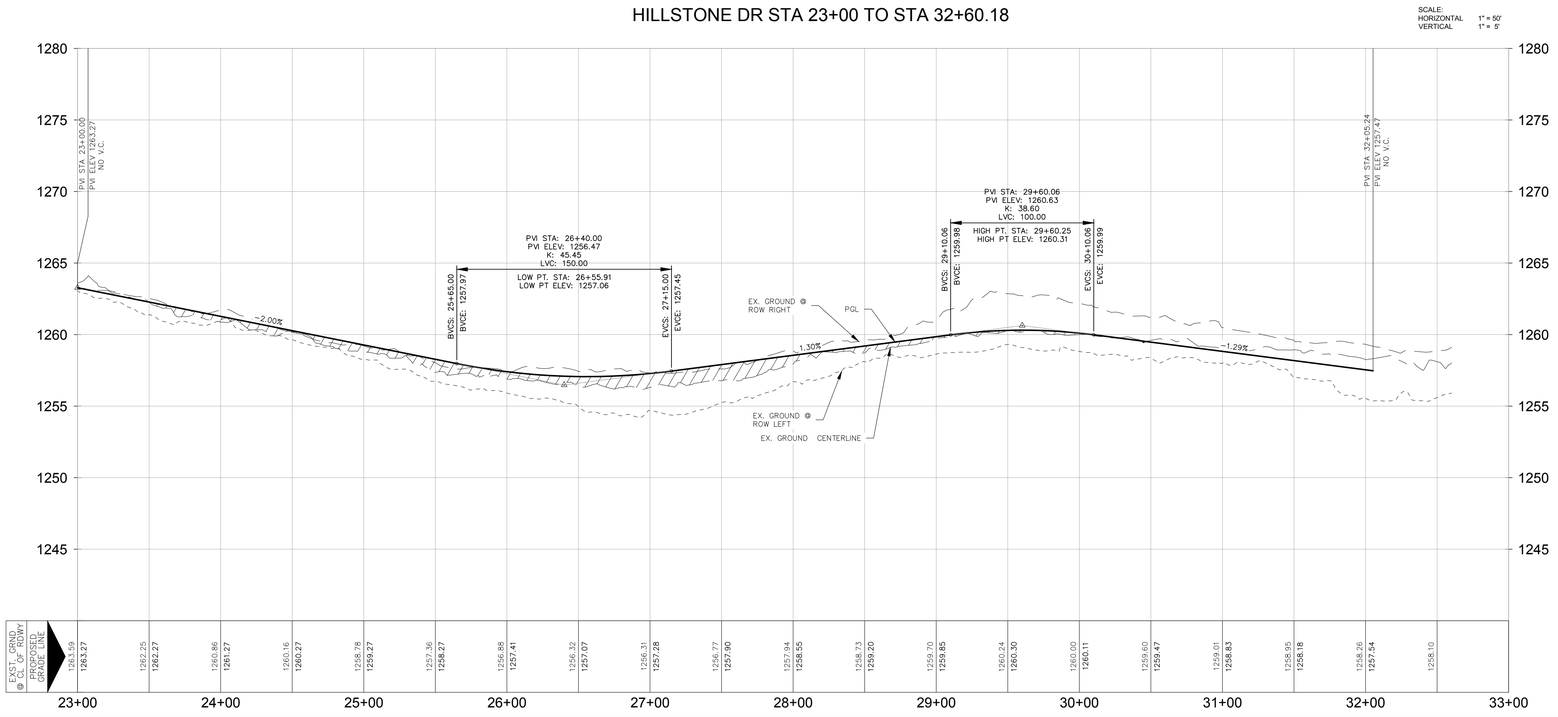
NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	125.00	501.18	229°43'32"	269.75'	226.83'	N33° 23' 52.44"W
C2	125.00	105.16	48°12'03"	55.92'	102.08'	N57° 21' 53.02"E
C3	125.00	89.50	41°01'33"	46.77'	87.60'	N53° 46' 37.95"E







NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

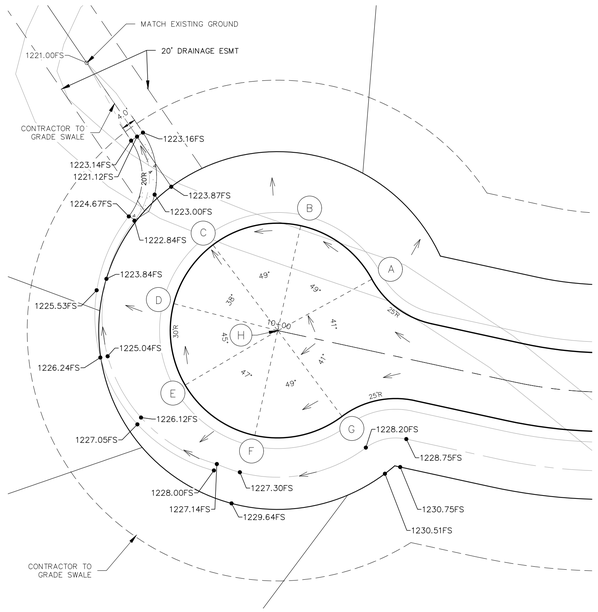
HILLSTONE DR PLAN & PROFILE STA 23+00 TO 32+60.18

SHEET 13 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

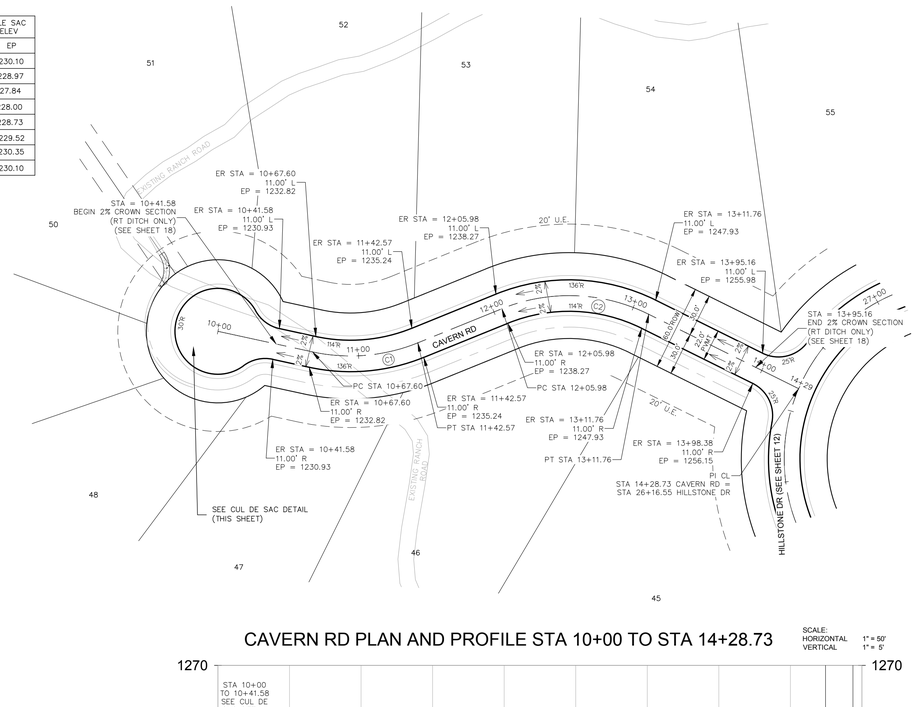
Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	125.00	74.97	34°21'45"	38.65'	73.85'	N79° 38' 06.31"E
C2	125.00	105.78	48°29'13"	56.29'	102.65'	N86° 41' 50.68"E



CAVERN RD CUL DE SAC DETAIL

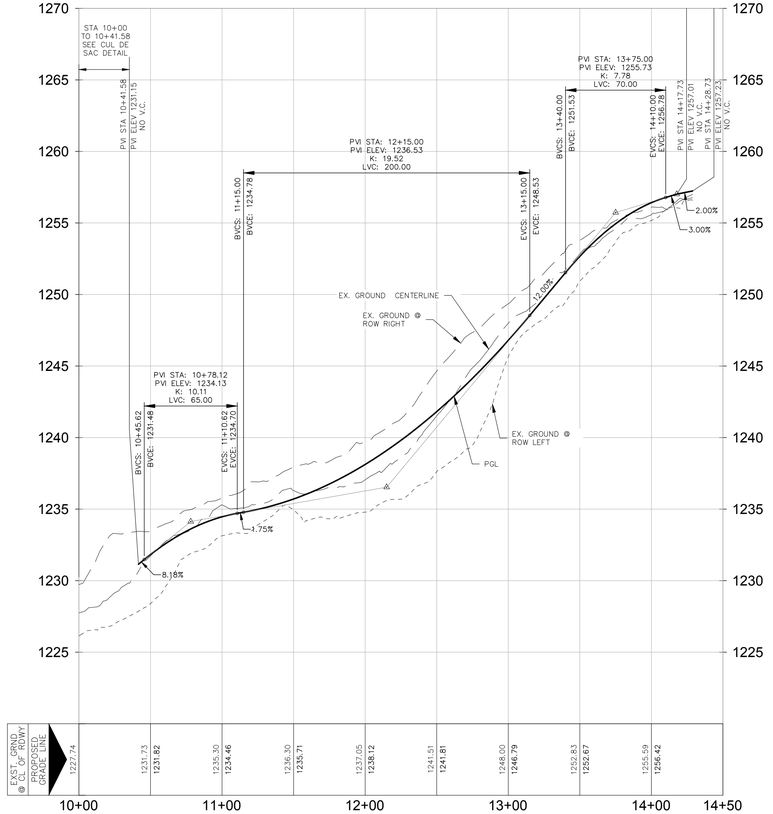
SCALE: 1"=20'

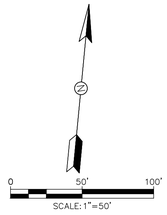
KNUCKLE SAC HUB ELEV	
HUB	EP
A	1230.10
B	1228.97
C	1227.84
D	1228.00
E	1228.73
F	1229.52
G	1230.35
H	1230.10



CAVERN RD PLAN AND PROFILE STA 10+00 TO STA 14+28.73

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





LEGEND

1211.47FS — PROPOSED FINISHED SURFACE SPOT ELEVATION

1209.35EX — EXISTING FINSHED SURFACE SPOT ELEVATION

5" THICK CONCRETE RIPRAP W/ #3 BARS @ 16" OCEW

05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

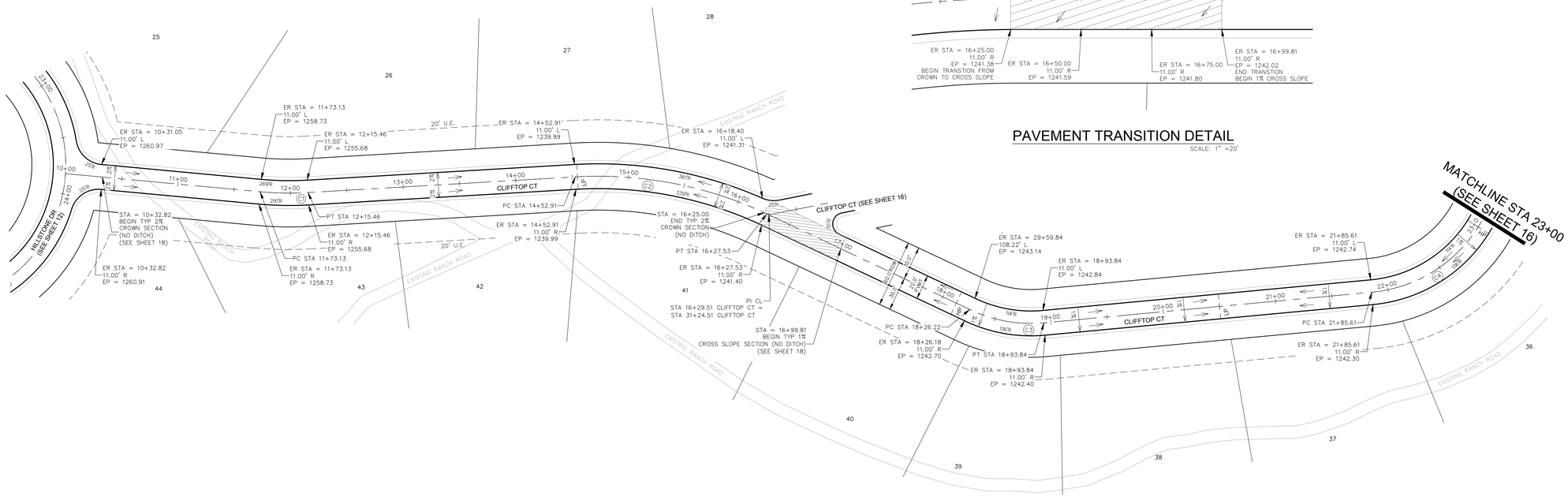
CAVERN RD PLAN AND PROFILE
10+00 TO STA 14+28.73

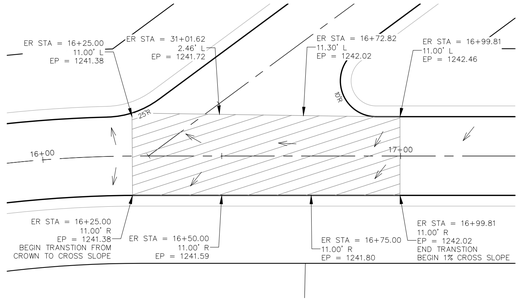
SHEET 14 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

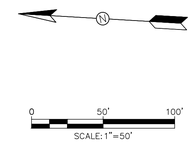
Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	280.00	42.33	8°39'43"	21.21'	42.29'	S02° 22' 02.38"E
C2	350.00	174.62	28°35'06"	89.17'	172.81'	S07° 35' 39.48"W
C3	125.00	67.62	30°59'37"	34.66'	66.80'	S06° 48' 58.88"W
C4	125.00	438.26	200°52'53"	678.35'	245.86'	N70° 52' 44.34"E





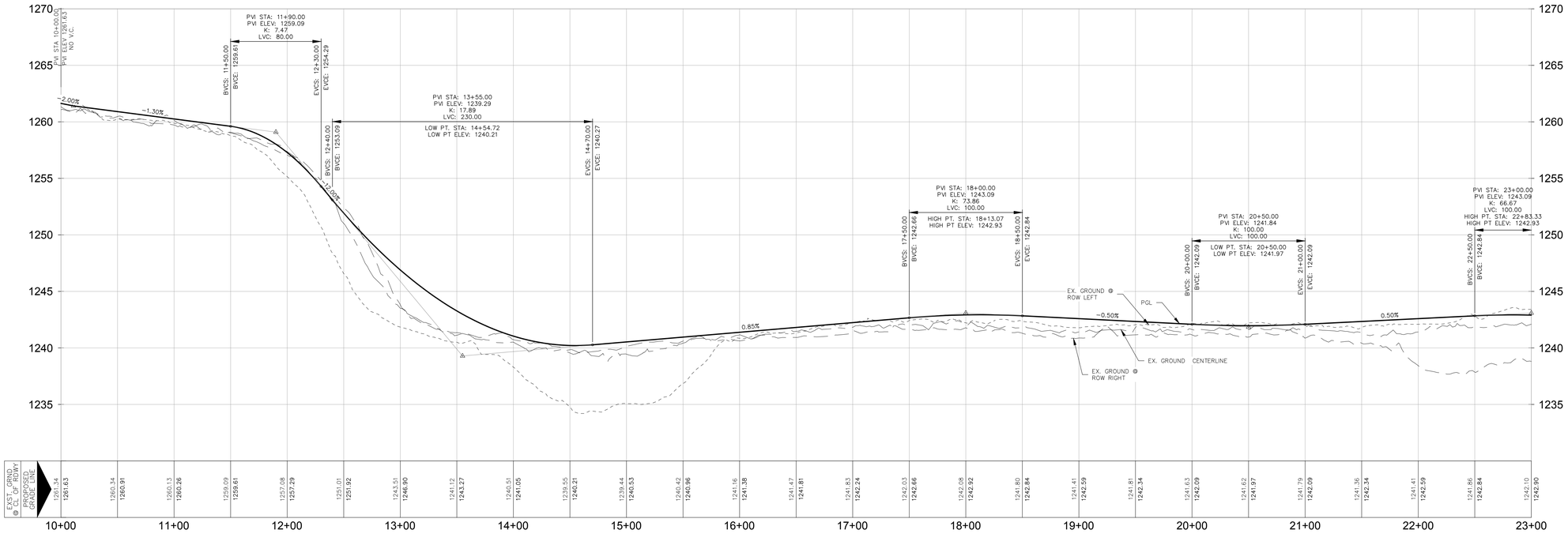
PAVEMENT TRANSITION DETAIL

SCALE: 1" =20'



CLIFFTOP CT PLAN AND PROFILE STA 10+00 TO STA 23+00

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



NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

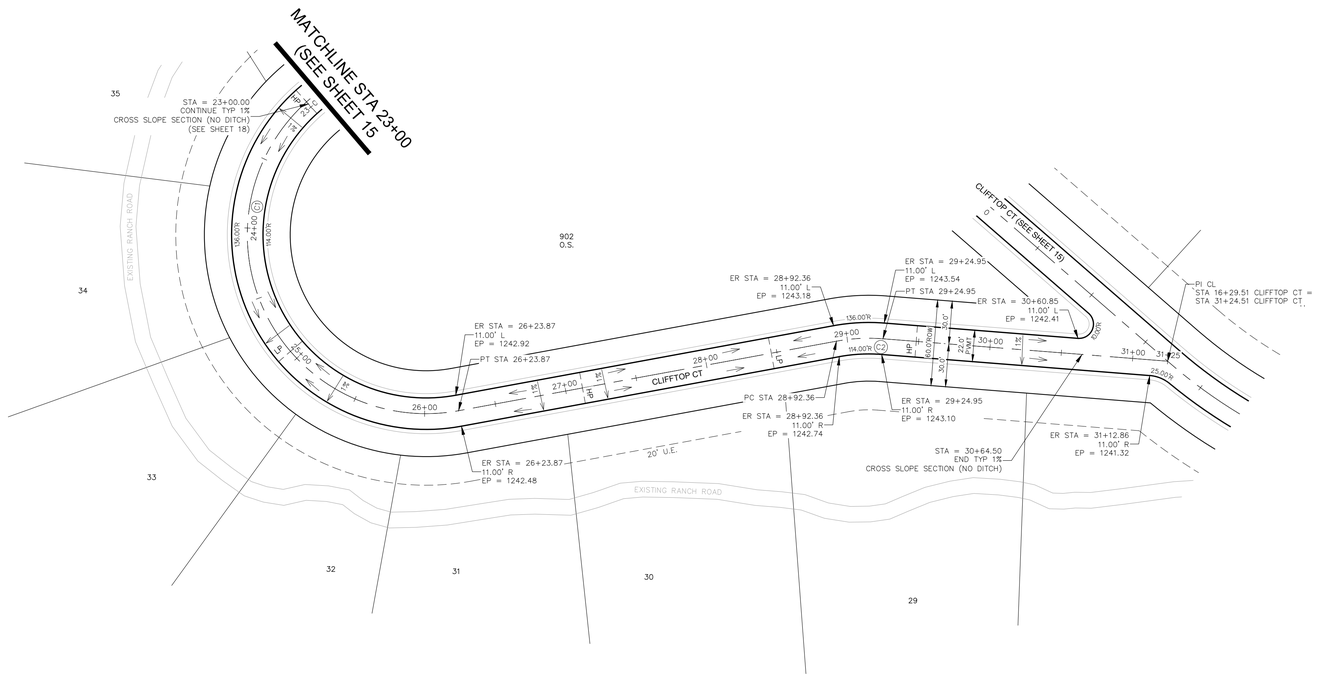
CLIFFTOP CT PLAN AND PROFILE STA 10+00 TO 23+00

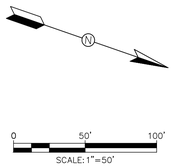
SHEET 15 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

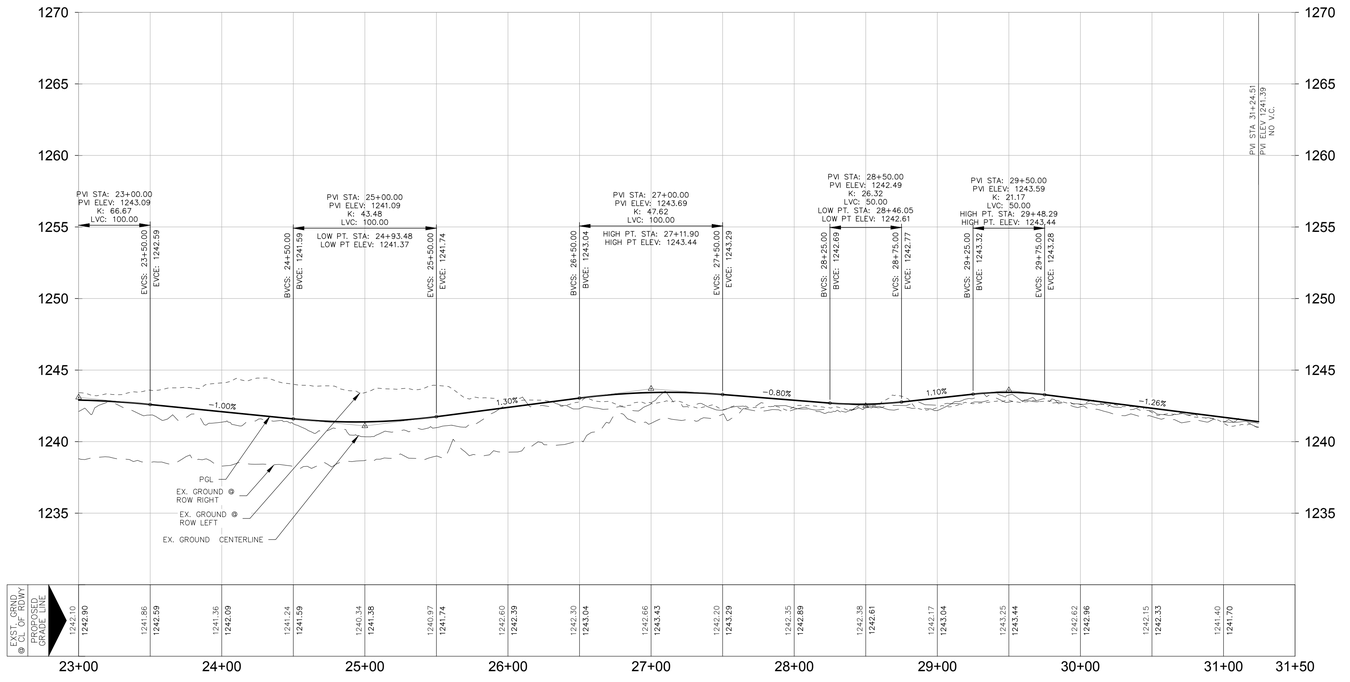
Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	125.00	438.26	200°52'53"	678.35'	245.86'	N70° 52' 44.34"E
C2	125.00	32.59	14°56'09"	16.39'	32.49'	N22° 05' 36.91"W





CLIFFTOP CT PLAN AND PROFILE STA 23+00 TO STA 31+24.51

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



NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

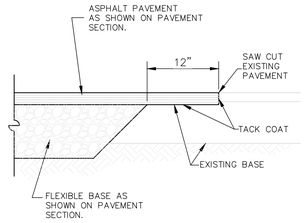
THE ROCK UNIT 1

CLIFFTOP CT PLAN & PROFILE
STA 23 +00 TO STA 31+24.51

SHEET 16 OF 31

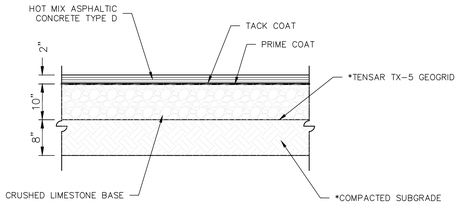
NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351



NEW PAVEMENT TO EXISTING

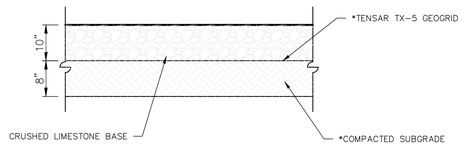
SCALE: NTS



* NOTE: SEE PAVEMENT TABLE AND GEOTECHNICAL REPORT

TYPICAL PAVEMENT SECTION - LOCAL TYPE A

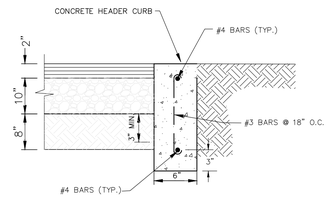
Scale: NTS



* NOTE: SEE PAVEMENT TABLE AND GEOTECHNICAL REPORT

EMERGENCY ACCESS SECTION

Scale: NTS



PAVEMENT HEADER CURB DETAIL

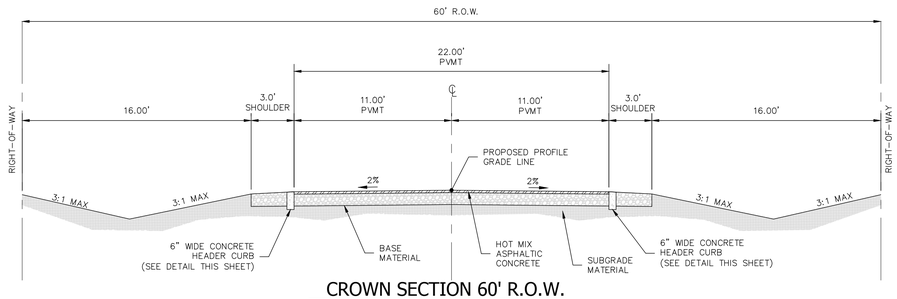
NOT TO SCALE

"LOCAL TYPE A STREET WITHOUT BUS TRAFFIC" (Required AASHTO 18-KIP ESAL = 100,000)		
Subgrade Type	**Soil Subgrade**	**Rock Subgrade**
Hot Mix Asphaltic Concrete	2"	2"
Crushed Limestone Base	10"	10"
TENSAR TX-5 Triaxial Geogrid	Yes	---
Compacted Subgrade	8"	---
Calculated AASHTO 18-kip ESAL	111,000	>150,000

NOTE:

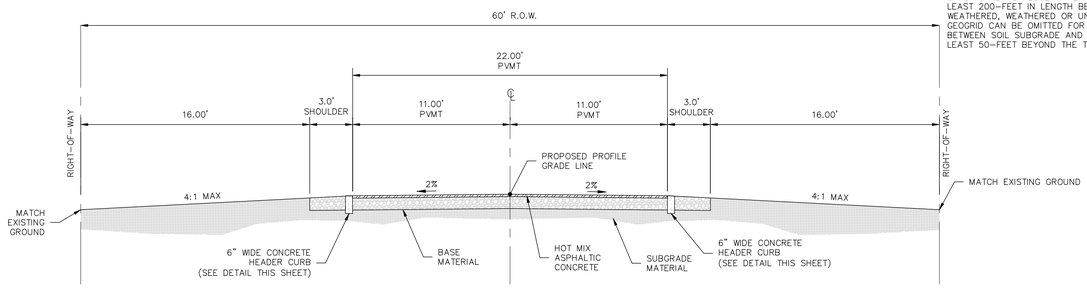
1. LOCAL TYPE A STREET WITHOUT BUS TRAFFIC – ALL STREETS
2. CONTRACTOR TO REFERENCE PRELIMINARY GEOTECHNICAL ENGINEERING STUDY "WATERCOLOURS SUBDIVISION UNIT 1" PREPARED BY ROCK ENGINEERING & TESTING LABORATORY, LLC. PROJECT NO.:G223051 DATED FEBRUARY 23, 2023.

   ACCORDING TO THE GEOTECHNICAL ENGINEERING STUDY "SUBSURFACE EXPLORATION, LABORATORY TESTING PROGRAM AND PAVEMENT EVALUATION FOR THE PROPOSED WATERCOLOURS UNIT 1 ROADWAYS" PREPARED BY ROCK ENGINEERING & TESTING LABORATORY, LLC PROJECT NO.:G223051 DATED FEBRUARY 23, 2023.
3. ROCK RECOMMENDS DESIGNING ALL OF THE PLANNED PAVEMENT AREAS BASED ON THE "SOIL SUBGRADE" CONDITION AS INDICATED IN THE BELOW TABLE. HOWEVER, IF GRADING PLANS RESULT IN LARGE AND CONTINUOUS PORTIONS OF THE ROADWAYS AT LEAST 200-FEET IN LENGTH BEING IN "CUT" AREAS THAT EXPOSE SEVERELY WEATHERED, WEATHERED OR UNWEATHERED LIMESTONE, THE TENSAR TX-5 TRIAXIAL GEOGRID CAN BE OMITTED FOR THOSE AREAS. WHERE THE SUBGRADE TRANSITIONS BETWEEN SOIL SUBGRADE AND ROCK SUBGRADE, THE GEOGRID SHOULD EXTEND AT LEAST 50-FEET BEYOND THE TRANSITION.



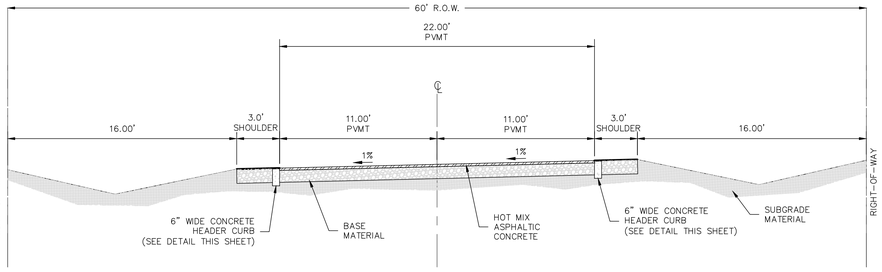
CROWN SECTION 60' R.O.W.

Scale: 1" = 5'



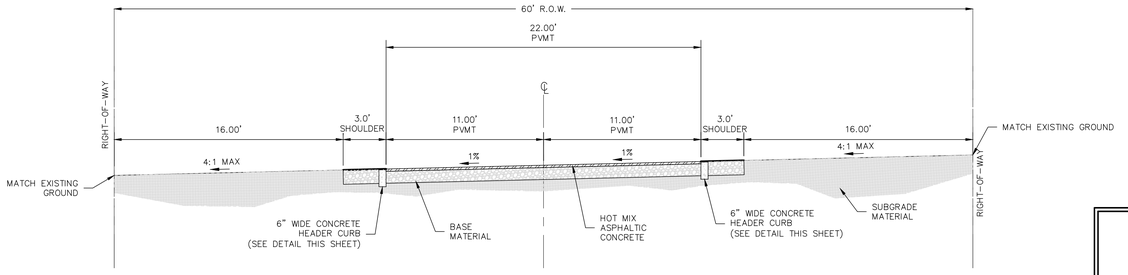
CROWN SECTION (NO DITCH) 60' R.O.W.

Scale: 1" = 5'



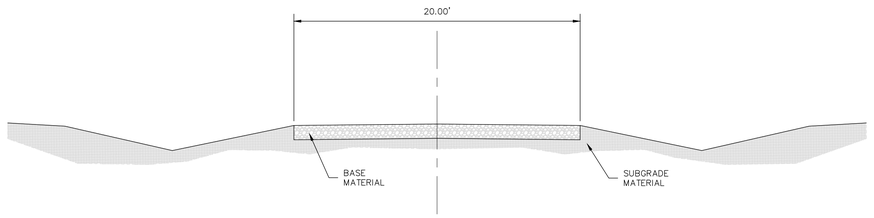
CROSS SLOPE SECTION 60' R.O.W.

Scale: 1" = 5'



CROSS SLOPE SECTION (NO DITCH) 60' R.O.W.

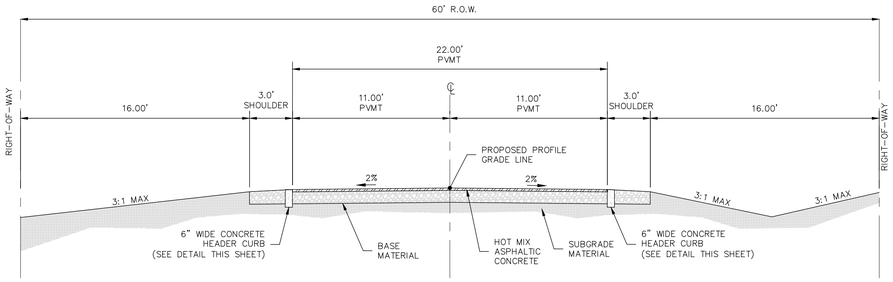
Scale: 1" = 5'



EMERGENCY ACCESS SECTION

Scale: 1" = 5'

NOTE: EMERGENCY ACCESS SECTION TO BE USED FOR TAYLOR TRL FOR PORTION OUTSIDE OF UNIT 1 BOUNDARY



CROWN SECTION 60' R.O.W. (RT DITCH ONLY)

Scale: 1" = 5'

TYPICAL STREET CROSS SECTIONS

STREET SECTION NOTES:

1. CROSS SLOPE VARIES WITHIN VERTICAL TRANSITIONS. THE TYPICAL CROSS SLOPE SHALL BE 1% UNLESS OTHERWISE SPECIFIED ON PLANS.
2. SEE GRADING PLAN FOR LOT GRADING BEYOND RIGHT OF WAY LINE.

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
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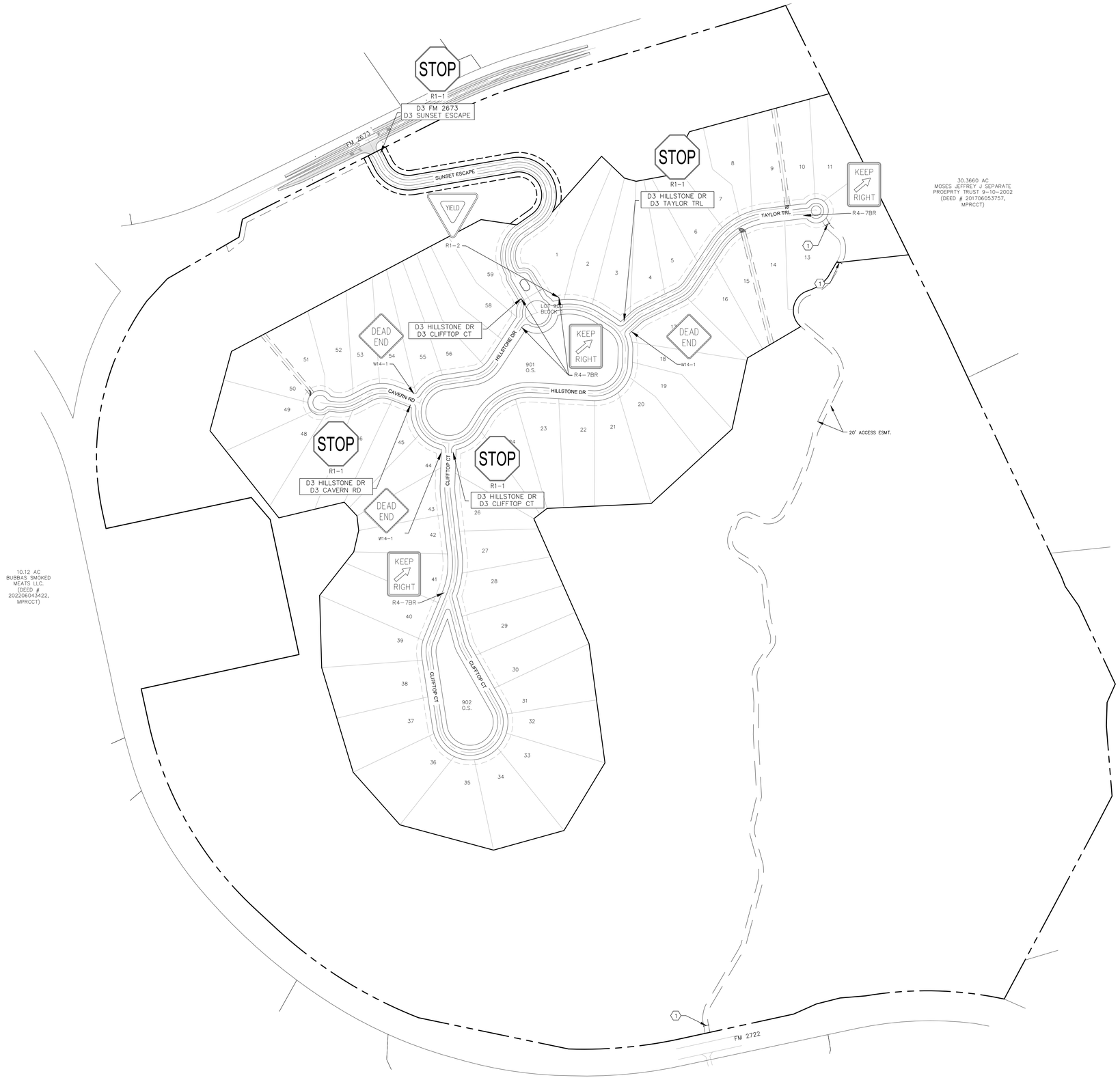
THE ROCK UNIT 1

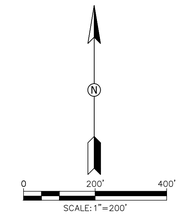
STREET SECTIONS AND DETAILS

SHEET 17 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351





LEGEND

(1) 20' DOUBLE SWNG BARRIER GATE (MANUAL)
(SEE DETAIL SHEET 19)
W/ KNOX MODEL 3782 EMERGENCY ACCESS PADLOCK

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

TRAFFIC SIGNAGE PLAN

SHEET 18 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
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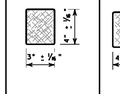
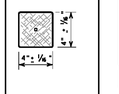
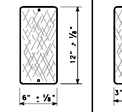
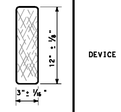
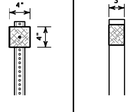
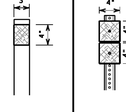
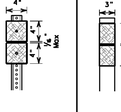
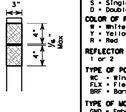
TBPE FIRM F-13351

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (fix). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	FLX	WC	FLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

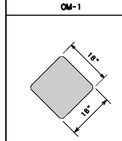
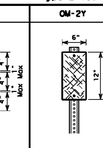
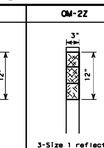
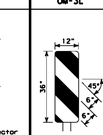
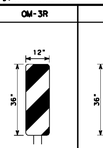
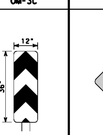
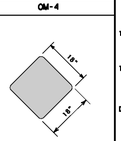
INSTL DEL ASSM (D-XX)SZ X (XXX)XXX(XX)

- NUMBER OF REFLECTORS: S = Single; D = Double
- COLOR OF REFLECTORS: W = White; Y = Yellow; R = Red
- REFLECTOR UNIT SIZE: 1 or 2
- TYPE OF POST OR DELINEATOR: WC = Wing Channel Post; FLX = Flexible Post; BRF = Barrier Reflector
- TYPE OF MOUNT: GND = Embedded (drivable or set in concrete); CTB = Concrete Barrier Mount; GF1 or GF2 = Guard Fence Attachment; SRF = Surface Mount
- DIRECTION: If Required; BI = Bi-Directional; BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXX)XXX(XX)

- TYPE OF OBJECT MARKER: 1, 2, 3, or 4
- NUMBER OF REFLECTORS OR DIRECTION: X = 3-Size 2 reflector units (type 2 only); Y = 1-Size 3 reflector unit (type 2 only); Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only); L = Left Side (Type 3 Object Marker only); R = Right Side (Type 3 Object Marker only); C = Center (Type 3 Object Marker only)
- TYPE OF POST: WC = Wing Channel Post; FLX = Flexible Post; TMT = Thin Walled Tubing
- TYPE OF MOUNT: GND = Embedded (drivable); SRF = Surface Mount; WAS = Wedge Anchor Steel; WAP = Wedge Anchor Plastic
- DIRECTION: If Required; BI = Bi-Directional

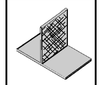
OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_L or C_L Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_L or C_L Sheeting			Red -Type B_L or C_L Sheeting
POST TYPE	TMT	WC	WC	FLX	TMT			TMT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

DEPARTMENTAL MATERIAL SPECIFICATIONS

FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Minimum 9 square inches of reflective sheeting surface area.		

CHEVRONS

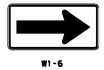
DEVICE: 

W1-8

SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

NOTE:
1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. The Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTIONAL LARGE ARROW (W1-6).

ONE DIRECTION LARGE ARROW

DEVICE: 

W1-6

SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

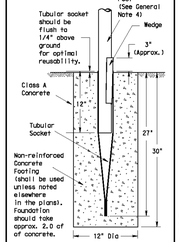
NOTE:
Delineator and object marker backplates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation — Traffic Operations Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION
D & OM(1)-15

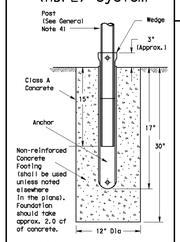
FILE: dom1-15.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-09 3-15 4-10	DIST	COUNTY		SHEET NO.

Wedge Anchor Steel System



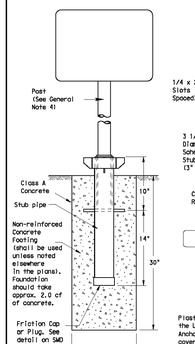
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

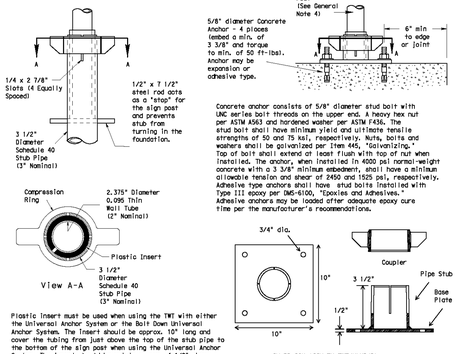


SMD RD SGN ASSM TY TWT(XX)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



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

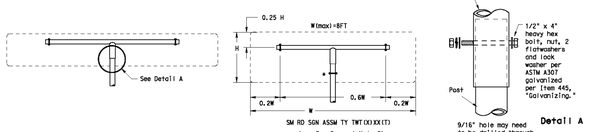


Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized 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(XX)XX(IT)
(* - 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 (13 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"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated 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 clamps at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced 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: http://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. Place concrete into hole until it is approximately flush with the ground. 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 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 around 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	DIST	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

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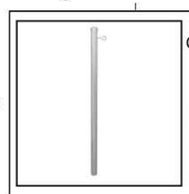
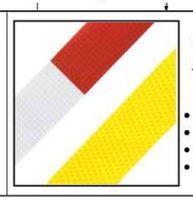
DATE: May 16, 2024 - 1:21pm
FILE: User: chadfriesenhahn
Drawing Name: N:\Projects\WA-TR001 Workedcopy\Texas\Civil\Construction Drawings\10 SIGNAGE DETAILS.dwg



Optional Swing Gate Barrier Receiver Post - 14030R

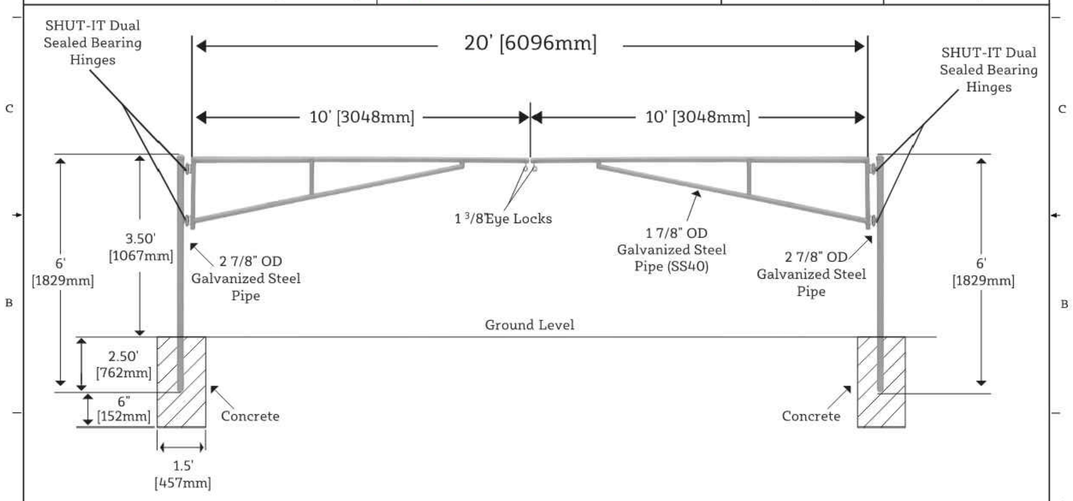
- Height: 6 ft.
- Galvanized Steel
- Diameter: 3 in. [2 7/8 in. OD]
- 1 3/8 in. Eye-Lock Loop



Optional Barrier Arm Gate & Post Safety Tape Kit

- Thickness: 8 Mil.
- MUTCD Compliant
- Red/White & Yellow
- Increases Visibility

Single Gate Models:	Double Gate Models:
14010-10 | 10 ft.	14020-20 | 20 ft.
14010-12 | 12 ft.	14020-24 | 24 ft.
14010-14 | 14 ft.	14020-28 | 28 ft.
14010-15 | 15 ft.	14020-30 | 30 ft.
14010-16 | 16 ft.	14020-32 | 32 ft.
14010-20 | 20 ft.	14020-40 | 40 ft.



Contact Information:	Manufacturer:	Part Number:	Product Description:	Product Specifications:
Web: www.TigerTeethStore.com Phone: (800) 878-7829 Email: Sales@TigerTeethStore.com	Barrier Gate Brands™	14020-20	SENTINEL 20 ft. Manual Double Swing Barrier Gate	• Width: 20 ft. • Material: Galvanized Steel • Installation Type: In-Ground • Barrier Gate Type: Manu e

STATE OF TEXAS — JAMES INGALLS — 107416 — LICENSED — PROFESSIONAL ENGINEER

05/14/2024

SIGN REQUIREMENTS

1. TRAFFIC SIGNS SHALL BE USED IN ACCORDANCE WITH THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND WHERE JUSTIFIED BY ENGINEERING JUDGMENT OR STUDY. TRAFFIC SIGNS INCLUDE REGULATOR SIGNS, WARNING SIGNS, STREET NAME SIGNS AND OBJECT MARKERS.
2. ALL SIGNS SHALL BE SHOWN IN THE ENGINEERING PLANS FOR REVIEW AND APPROVAL AS PART OF THE PLAN AND PROFILE SHEET OR SEPARATE SIGNING AND PAVEMENT MARKING LAYOUT SHEET. THE ENGINEERING PLANS SHALL INCLUDE SIGN LOCATION, NAME, DESIGNATION AND SIZE. SIGN STANDARDS SHALL BE INCLUDED IN THE ENGINEERING PLANS.

INSTALLATION

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY, WARNING AND STREET NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS.

MOUNTING

1. THE WEDGE ANCHOR STEEL SYSTEM AND THIN-WALLED TUBING POST SHALL BE USED FOR SIGNS WITH UP TO 10 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) TRAFFIC STANDARDS SMD(GEN)-08 AND SMD(TWT)-08.
2. THE TRIANGULAR SLIP BASE SYSTEM AND 10 BWG TUBING POST SHALL BE USED FOR SIGNS THAT HAVE 10 TO 30 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS SMD(GEN)-08 AND SMD(SLIP-1-3)-08.
3. OBJECT MARKERS MATERIALS AND INSTALLATION SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS D&OM(1-5)-10.

MATERIALS

1. SIGN MATERIALS INCLUDING ALUMINUM SING BLANKS AND SIGN FACE MATERIALS SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS TSR(1-5)-08 AND DEPARTMENTAL MATERIAL SPECIFICATIONS DMS-7110 AND DMS-8300.

PAVEMENT MARKING REQUIREMENTS

1. PAVEMENT MARKINGS SHALL BE USED IN ACCORDANCE WITH THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND WHERE JUSTIFIED BY ENGINEERING JUDGMENT OR STUDY.
2. ALL PAVEMENT MARKINGS SHALL BE SHOWN IN THE ENGINEERING PLANS FOR REVIEW AND APPROVAL AS PART OF THE PLAN AND PROFILE SHEET OR SEPARATE SIGNING AND PAVEMENT MARKING LAYOUT SHEET. DESIGN, MATERIALS AND INSTALLATION SHOULD FOLLOW TXDOT TRAFFIC STANDARDS PM(1-4)-12. CITY OF SAN ANTONIO TRAFFIC ENGINEERING STANDARDS FOR PAVEMENT MARKINGS DESIGNATING TRAFFIC LANES, LANE USAGE AND LANE REGULATIONS AND PEDESTRIAN/BICYCLIST ACCOMMODATIONS MAY BE USED FOR ADDITIONAL STANDARD DESIGN DETAILS. MARKING STANDARDS SHALL BE INCLUDED IN THE ENGINEERING PLANS.
3. ALL PAVEMENT MARKINGS SHALL BE TYPE I HOT APPLIED THERMOPLASTIC AND MEET TXDOT DEPARTMENTAL MATERIAL SPECIFICATIONS DMS-8200.

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11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

SIGNAGE DETAILS

SHEET 19 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

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PH: 830-358-7127 ink-civil.com
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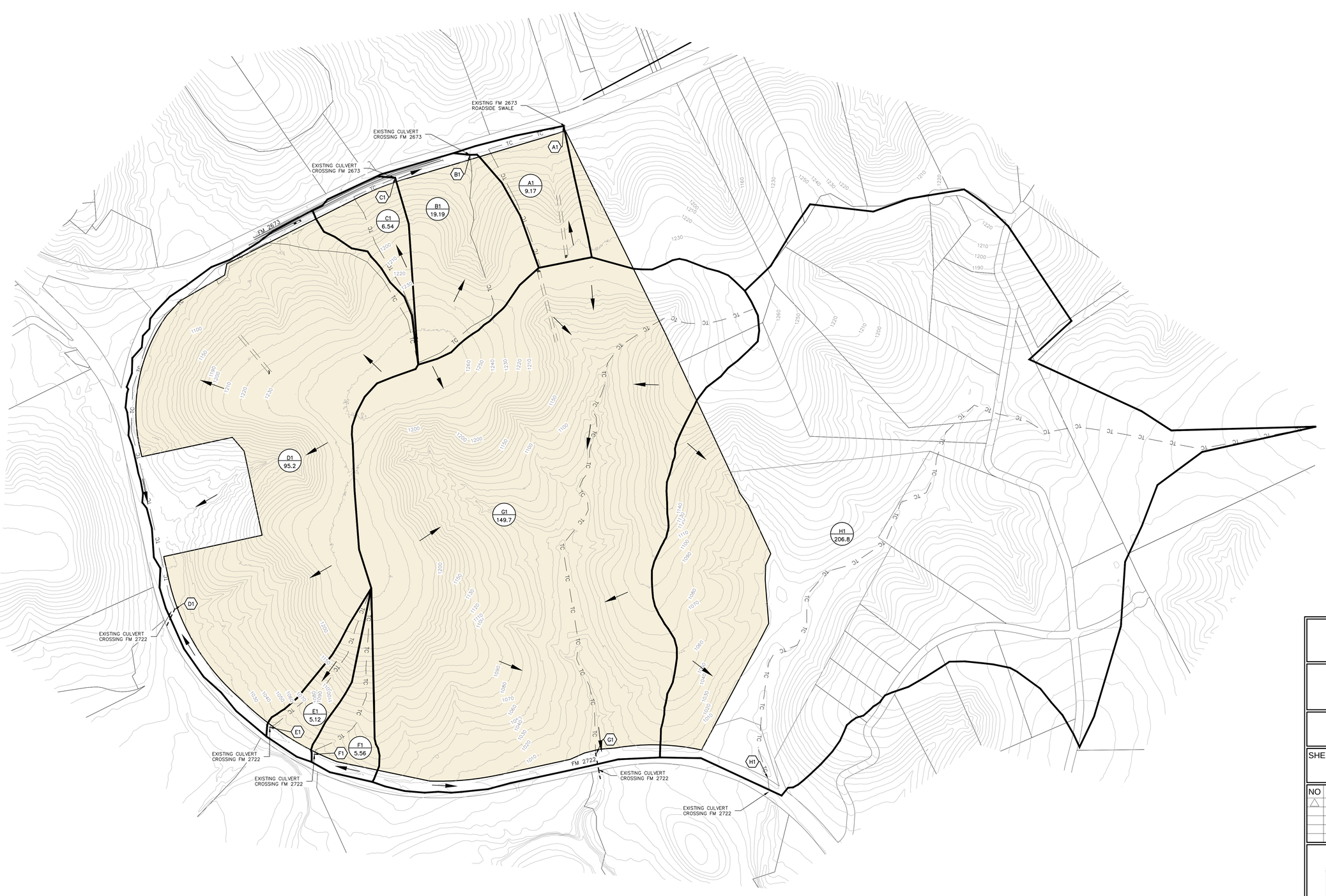

LEGEND

- LIMITS OF DRAINAGE AREA
- LIMITS OF SUB-DRAINAGE AREA
- TC — TC — TIME OF CONCENTRATION
- 900 EXISTING CONTOURS
- FLOW ARROWS
- A / 9.0 DRAINAGE BASIN LABEL / BASIN AREA (AC)
- A1 / 2.0 SUB-DRAINAGE AREA LABEL / SUB-DRAINAGE AREA (AC)
- A1 INLET LABEL
- A1 ANALYSIS POINT LABEL

EXISTING CONDITIONS

SCALE: 1"=300'

The Rock - Existing Conditions

Point	AREA ID	Area (ac)	C	T_c (min)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	Q_{100} (cfs)	Location	Method
A1	EX-A1	9.17	0.62	22	18.53	24.90	29.85	36.73	42.13	47.93	FM 2673 ROADSIDE SWALE	Rational
B1	EX-B1	19.19	0.62	26	35.46	47.71	57.35	70.67	81.26	92.56	FM 2673 24" CMP	Rational
C1	EX-C1	6.54	0.62	26	14.27	19.10	22.87	28.06	32.15	36.49	FM 2673 18" CMP	Rational
D1	EX-D1	95.20	0.62	26	175.89	236.69	284.50	350.60	403.13	459.21	FM 2722 5x5' CULVERT	Rational
E1	EX-E1	5.12	0.65	11	14.84	19.78	23.56	28.66	32.63	36.77	FM 2722 30" CMP CULVERT	Rational
F1	EX-F1	5.56	0.65	11	16.27	21.68	25.82	31.42	35.78	40.32	FM 2722 25" CMP CULVERT	Rational
G1	EX-G1	149.7	0.62	32	245.96	331.35	399.10	493.77	568.95	649.70	FM 2722 6'x6' CULVERT	Rational
H1	EX-H1	206.82	77.7	39	240.34	387.98	538.99	776.73	993.03	1240.38	FM 2722 5'x6' CULVERT	SCS

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

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THE ROCK UNIT 1

EXISTING DRAINAGE AREA MAP

SHEET 20 OF 31

NO	DATE	ISSUES AND REVISIONS

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PH: 830-358-7127 ink-civil.com
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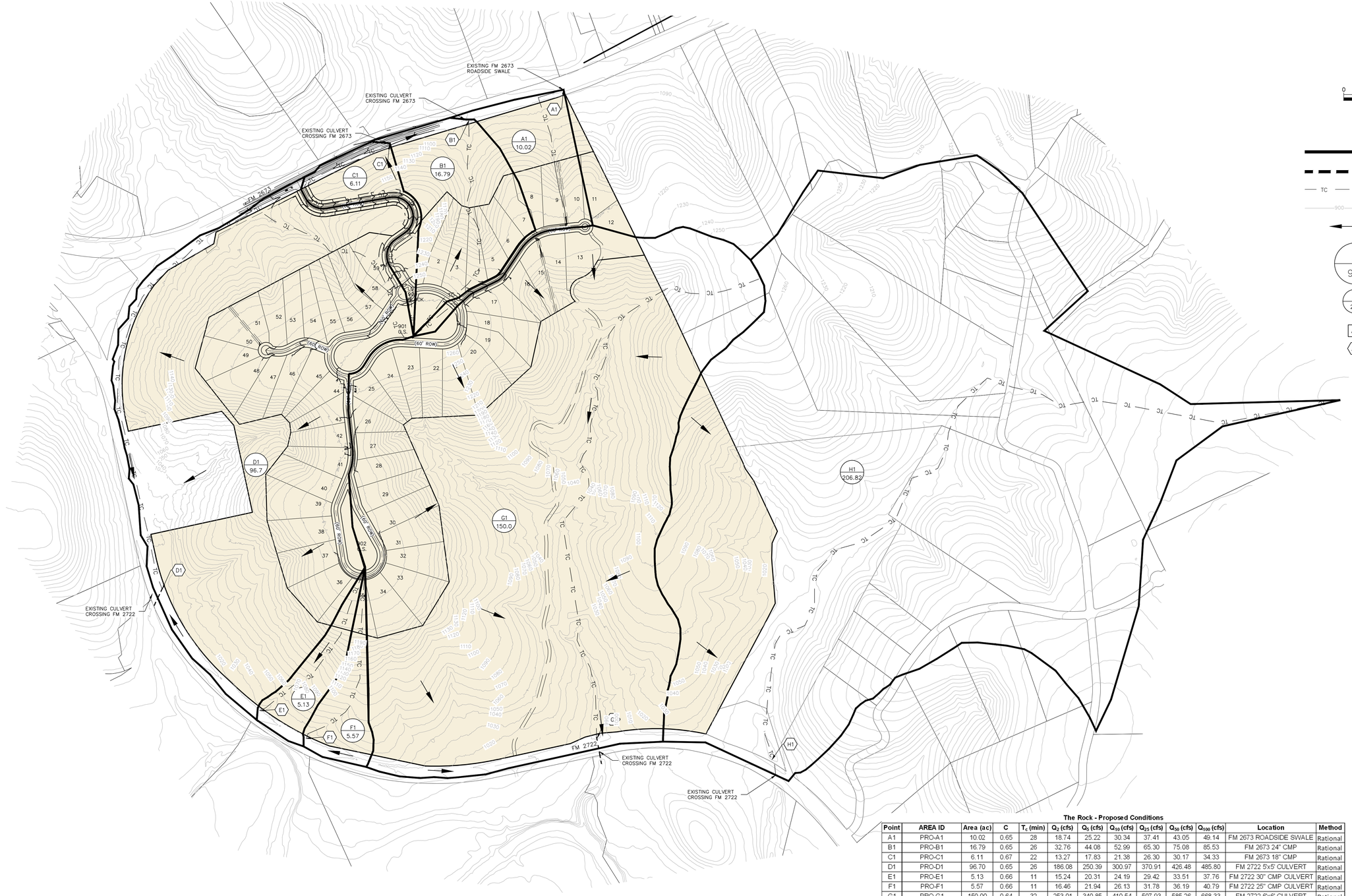

PROPOSED CONDITIONS

SCALE: 1"=300'

0 150' 300'

SCALE: 1"=300'

LEGEND

- LIMITS OF DRAINAGE AREA
- LIMITS OF SUB-DRAINAGE AREA
- TC — TC — TIME OF CONCENTRATION
- 900 EXISTING CONTOURS
- FLOW ARROWS
- A / 9.0 DRAINAGE BASIN LABEL / BASIN AREA (AC)
- A1 / 2.0 SUB-DRAINAGE AREA LABEL / SUB-DRAINAGE AREA (AC)
- A1 INLET LABEL
- A1 ANALYSIS POINT LABEL

The Rock - Proposed Conditions

Point	AREA ID	Area (ac)	C	T_c (min)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	Q_{100} (cfs)	Location	Method
A1	PRO-A1	10.02	0.65	28	18.74	25.22	30.34	37.41	43.05	49.14	FM 2673 ROADSIDE SWALE	Rational
B1	PRO-B1	16.79	0.65	26	32.76	44.08	52.99	65.30	75.08	85.53	FM 2673 24" CMP	Rational
C1	PRO-C1	6.11	0.67	22	13.27	17.83	21.38	26.30	30.17	34.33	FM 2673 18" CMP	Rational
D1	PRO-D1	96.70	0.65	26	186.08	250.39	300.97	370.91	426.48	485.80	FM 2722 5'x5' CULVERT	Rational
E1	PRO-E1	5.13	0.66	11	15.24	20.31	24.19	29.42	33.51	37.76	FM 2722 30" CMP CULVERT	Rational
F1	PRO-F1	5.57	0.66	11	16.46	21.94	26.13	31.78	36.19	40.79	FM 2722 25" CMP CULVERT	Rational
G1	PRO-G1	150.00	0.64	32	253.01	340.85	410.54	507.93	585.26	668.33	FM 2722 6'x6' CULVERT	Rational
H1	PRO-H1	206.82	77.7	39	240.34	387.98	538.99	776.73	993.03	1240.38	FM 2722 5'x6' CULVERT	SCS

Flow Comparison - Existing VS Proposed

Area ID	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
A1	0.20	0.32	0.49	0.68	0.92	1.21
B1	-2.70	-3.63	-4.36	-5.37	-6.18	-7.04
C1	-1.00	-1.26	-1.49	-1.76	-1.98	-2.17
D1	10.19	13.71	16.48	20.30	23.35	26.59
E1	0.40	0.53	0.63	0.77	0.87	0.98
F1	0.19	0.25	0.30	0.37	0.42	0.47
G1	7.05	9.50	11.44	14.16	16.31	18.63
H1	0.00	0.00	0.00	0.00	0.00	0.00

STATE OF TEXAS
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05/14/2024

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THE ROCK UNIT 1

PROPOSED DRAINAGE AREA MAP

SHEET 21 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

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Drawing Name: N:\Projects\WA19001 Watercolours Texas\Civil\Construction Drawings\21 PROPOSED DRAINAGE AREA MAP.dwg User: chadrileyjohnson May 16, 2024 - 1:32pm

NORSELAND COMAL UNIT 1	
ITEM	QTY.
WATER MAIN (8" PVCO C-909)	4771 LF
WATER MAIN (12" DICL CL-350)	3664 LF
6" GATE VALVE	7 EA.
8" GATE VALVE	5 EA.
12" GATE VALVE	5 EA.
WATER SERVICES	60 EA.
IRRIGATION SERVICES	3 EA.
WATER METERS	63 EA.
FIRE HYDRANTS	7 EA.
FIRE LINES	45 LF

NOTES:
1. STATIONING FOR 8" WATER MAINS ARE BASED ON ROAD ALIGNMENTS.
2. STATIONING FOR 12" WATER MAIN IS BASED ON 12" WATER MAIN ALIGNMENT.
3. GATE VALVES ON FIRE HYDRANT LEADS SHALL BE RESTRAINED AT THE TEE. SEE THIS SHEET FOR CALLOUTS FOR ANCHOR TEES FOR FIRE HYDRANTS.
4. THE MAIN SUPPLY LINE THAT SUPPLIES ALL DOMESTIC METERS WITHIN THIS PROJECT SHALL REQUIRE AN RP BACKFLOW PREVENTION.
5. ALL IRRIGATION METERS SHALL HAVE AN RP BACKFLOW PREVENTION.

CONSTRUCTION NOTES:

1. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).
2. WHERE A 9' (NINE FOOT) SEPARATION FROM WATER AND SEWER LINES CROSSING CANNOT BE MAINTAINED, THE NEW WATER LINE SHALL BE ABOVE THE SEWER LINE AS SHOWN ON THE WATER/SEWER LINE CROSSING DETAIL. AT NO TIME SHALL A WATER LINE OR WATER SERVICE BE PLACED UNDER A SEWER LINE OR SEWER SERVICE.
3. WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. IF THE EXISTING WASTEWATER MAIN OR LATERAL SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE.
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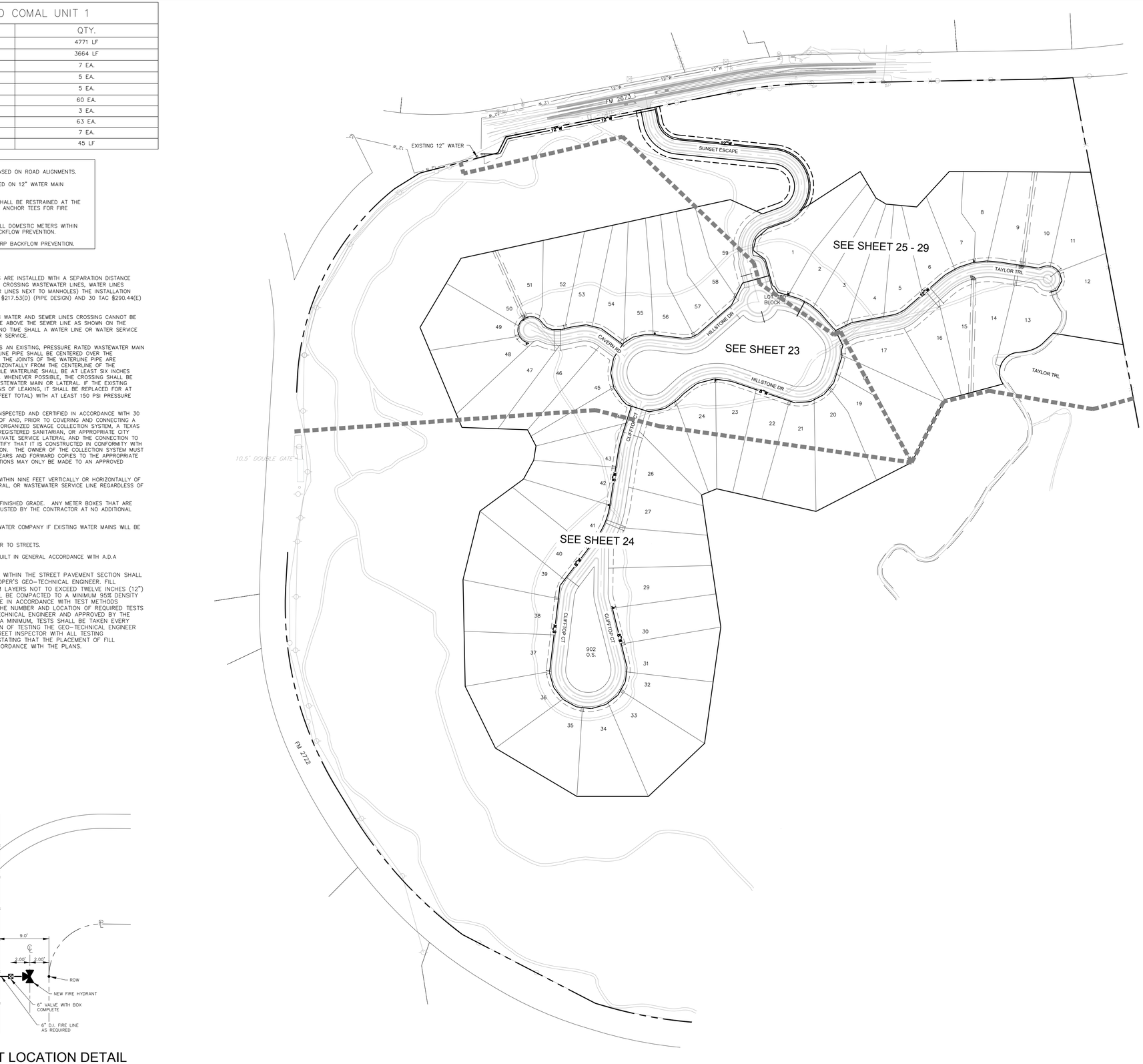
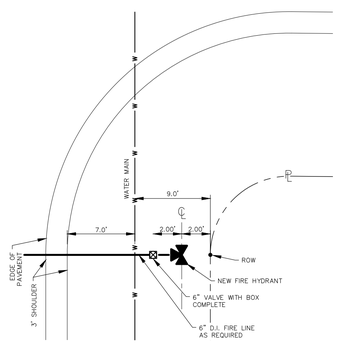
5. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.
6. METER BOXES MUST BE SET AT PROPOSED FINISHED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED BY THE CONTRACTOR AT NO ADDITIONAL COSTS.
7. CONTRACTOR TO COORDINATE WITH TEXAS WATER COMPANY IF EXISTING WATER MAINS WILL BE REMOVED FROM SERVICE AT ANY TIME.
8. ALL UTILITIES SHALL BE CONSTRUCTED PRIOR TO STREETS.
9. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A SPECIFICATIONS.
10. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX- 114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO- TECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.





FIRE HYDRANT LOCATION DETAIL
N.T.S.

0 200' 400'
SCALE: 1"=200'

LEGEND

- EXISTING 12" WATER MAIN
- NEW 8" WATER MAIN
- NEW 12" WATER MAIN
- NEW FIRE HYDRANT
- EXISTING OVERHEAD ELECTRIC
- EXISTING 8" SANITARY SEWER
- EXISTING WOOD FENCE
- EXISTING BARBWIRE FENCE
- EXISTING TRAFFIC GUARDRAIL
- EXISTING SIGN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING GUY

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

OVERALL WATER DISTRIBUTION PLAN

SHEET 22 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

PROPOSED CONDITIONS - OVERALL

SCALE: 1"=300'

0 150' 300'

SCALE: 1" = 300'

LEGEND

- LIMITS OF DRAINAGE AREA
- LIMITS OF SUB-DRAINAGE AREA
- TC — TC — TIME OF CONCENTRATION
- 900 EXISTING CONTOURS
- FLOW ARROWS
- A / 9.0 — DRAINAGE BASIN LABEL / BASIN AREA (AC)
- A1 / 2.0 — SUB-DRAINAGE AREA LABEL / SUB-DRAINAGE AREA (AC)
- A1 — INLET LABEL
- A1 — ANALYSIS POINT LABEL

STATE OF TEXAS
JAMES INGALLS
107419
LICENSED
PROFESSIONAL ENGINEER

05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

PROPOSED RAT
DRAINAGE AREA MAP

SHEET 23 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

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2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
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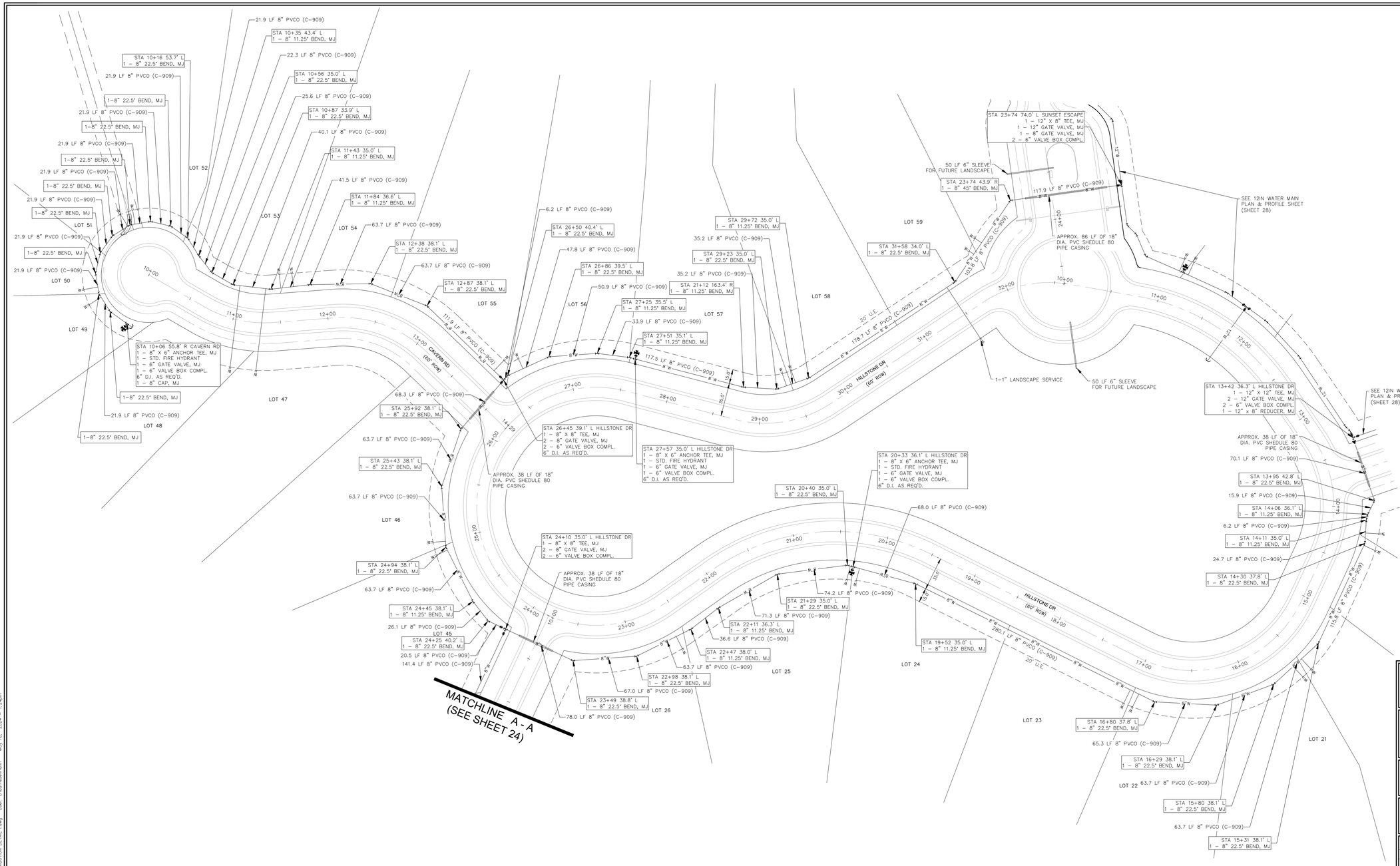

LEGEND

- EXISTING 12" WATER MAIN
- NEW 8" WATER MAIN
- NEW 12" WATER MAIN
- NEW SINGLE METERED WATER SERVICE
- NEW FIRE HYDRANT
- EXISTING OVERHEAD ELECTRIC
- EXISTING WOOD FENCE
- EXISTING BARBWIRE FENCE

NOTES:

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2. STATIONING FOR 12" WATER MAIN IS BASED ON 12" WATER MAIN ALIGNMENT.
3. GATE VALVES ON FIRE HYDRANT LEADS SHALL BE RESTRAINED AT THE TEE. SEE THIS SHEET FOR CALLOUTS FOR ANCHOR TEES FOR FIRE HYDRANTS.
4. THE MAIN SUPPLY LINE THAT SUPPLIES ALL DOMESTIC METERS WITHIN THIS PROJECT SHALL REQUIRE AN RP BACKFLOW PREVENTION.
5. ALL IRRIGATION METERS SHALL HAVE AN RP BACKFLOW PREVENTION.
6. ALL WATER SERVICES THAT CROSS UNDER ROADWAYS MUST BE INSTALLED WITHIN A CASING. CASING MUST BE 12 INCHES LARGER IN DIAMETER THAN THE SERVICE PIPE WITH APPROPRIATE SPACERS AND SEALS SIZED FOR WATER MAIN CASING. SEE CASING DETAIL SHEET 31

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER

05/14/2024

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11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

WATER DISTRIBUTION DETAIL I

SHEET 23 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

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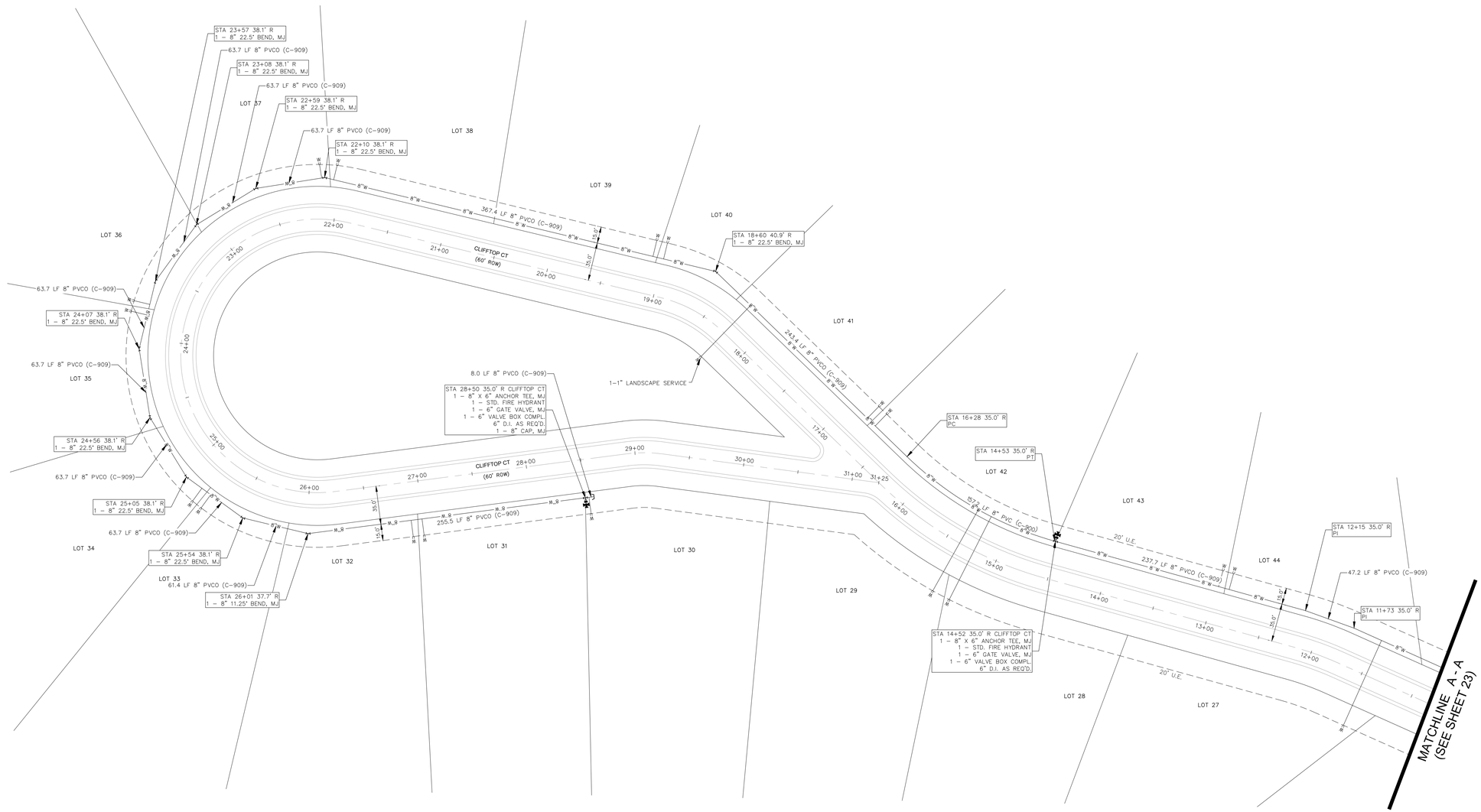

0 50' 100'

SCALE: 1"=50'

LEGEND

- 12"W — EXISTING 12" WATER MAIN
- 8"W — NEW 8" WATER MAIN
- 12"W — NEW 12" WATER MAIN
- NEW SINGLE METERED WATER SERVICE
- NEW FIRE HYDRANT
- OHE — EXISTING OVERHEAD ELECTRIC
- // // // — EXISTING WOOD FENCE
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NOTES:

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STATE OF TEXAS
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05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

WATER DISTRIBUTION DETAIL II

SHEET 24 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Drawing Name: N:\Projects\MATR001 Watercolours Texas\Civil\Construction Drawings\24 WATER DISTRIBUTION DETAIL II.dwg User: chadhesselmyer May 16, 2024 - 12:46pm

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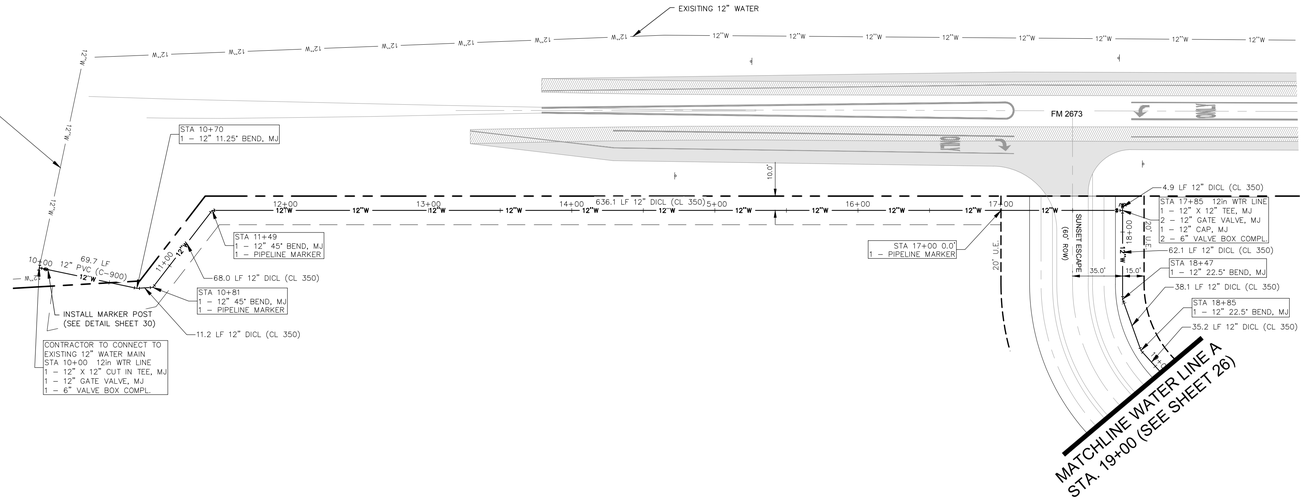

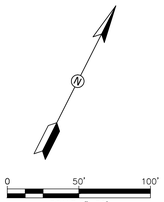

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- OHE — EXISTING OVERHEAD ELECTRIC
- // — // — // — EXISTING WOOD FENCE
- x — x — x — EXISTING BARBWIRE FENCE

WATER LINE A STA 10+00 TO STA 19+00

05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

12in WATER MAIN
STA. 10+00 TO 19+00

SHEET 25 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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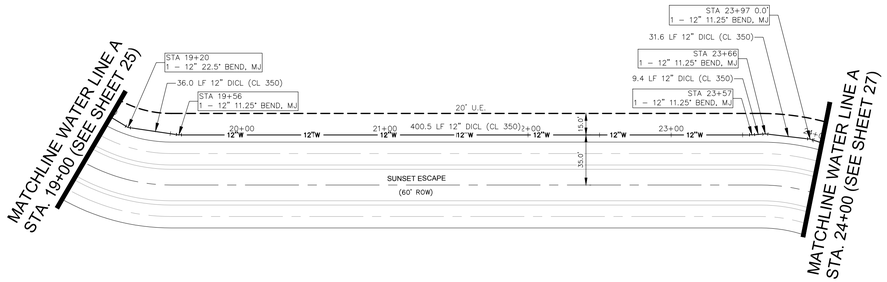
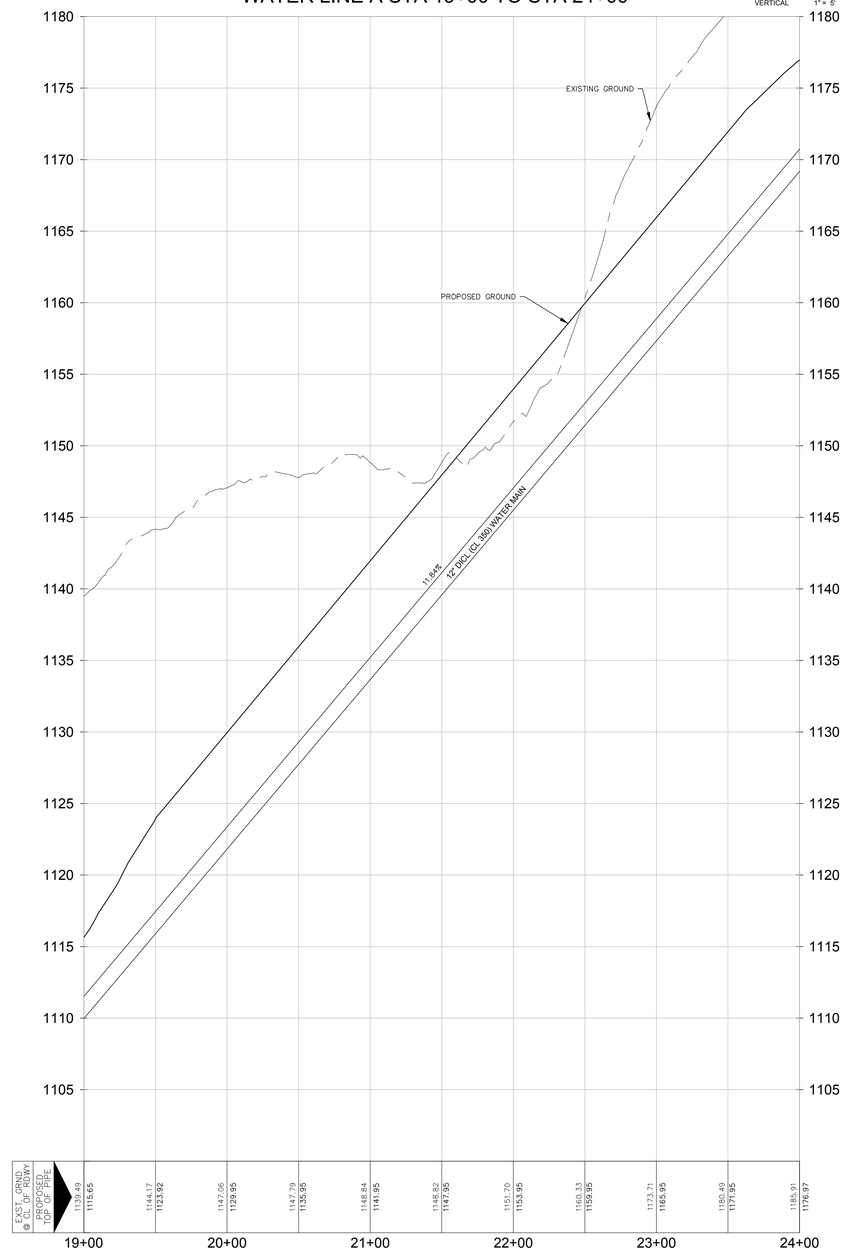
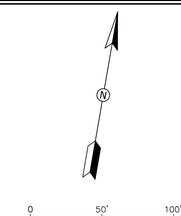


WATER LINE A STA 19+00 TO STA 24+00

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





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STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

12in WATER MAIN
STA. 19+00 TO 24+00

SHEET 26 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Drawing Name: N:\Projects\WA7600 Watercolours, Texas\Civil\Construction Drawings\26 12in WATER MAIN STA. 19+00 TO 24+00.dwg User: chadhilgenhorn May 16, 2024 - 1:25pm

NOTES:
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3. WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. IF THE EXISTING WASTEWATER MAIN OR LATERAL SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE.
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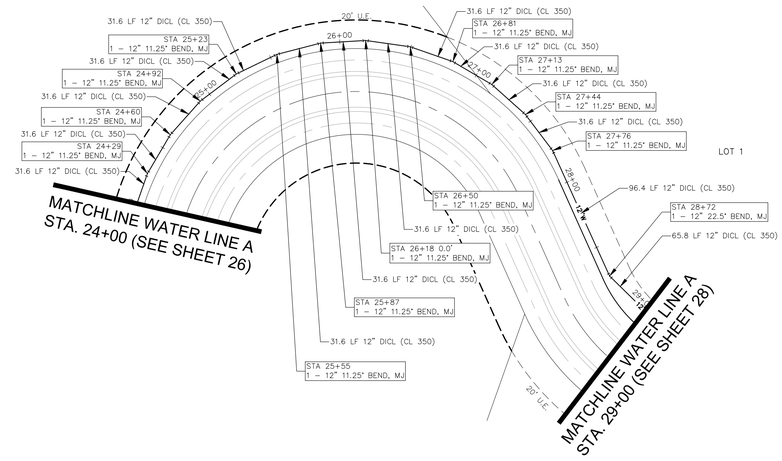
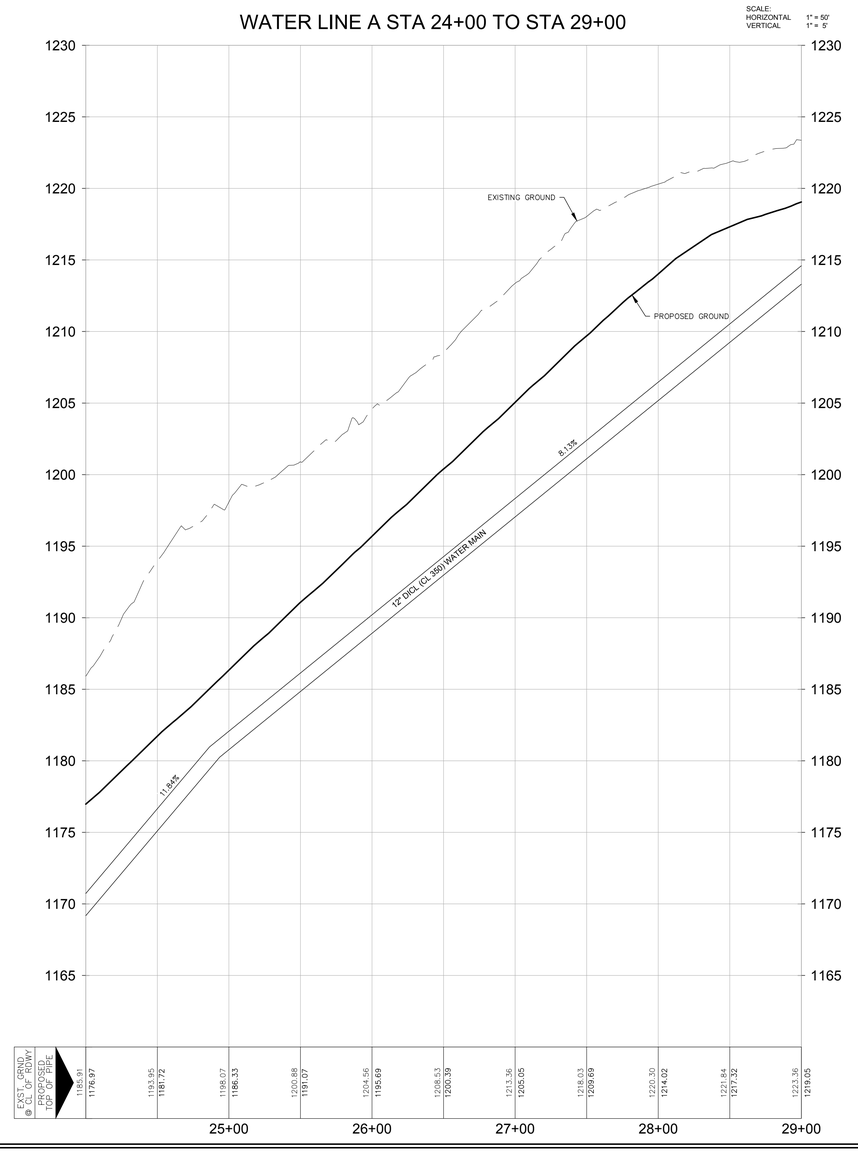
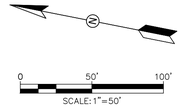
5. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.
6. METER BOXES MUST BE SET AT PROPOSED FINISHED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED BY THE CONTRACTOR AT NO ADDITIONAL COSTS.
7. CONTRACTOR TO COORDINATE WITH TEXAS WATER COMPANY IF EXISTING WATER MAINS WILL BE REMOVED FROM SERVICE AT ANY TIME.
8. ALL UTILITIES SHALL BE CONSTRUCTED PRIOR TO STREETS.
9. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A SPECIFICATIONS.
10. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX- 114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO- TECHNICAL ENGINEER AND APPROVED BY THE COMAL COUNTY STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE COMAL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.







LEGEND

- EXISTING 12" WATER MAIN
- NEW 8" WATER MAIN
- NEW 12" WATER MAIN
- NEW SINGLE METERED WATER SERVICE
- NEW FIRE HYDRANT
- EXISTING OVERHEAD ELECTRIC
- EXISTING WOOD FENCE
- EXISTING BARBWIRE FENCE

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

12in WATER MAIN
STA. 24+00 TO 29+00

SHEET 27 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

NOTES:
1. STATIONING FOR 8" WATER MAINS ARE BASED ON ROAD ALIGNMENTS.
2. STATIONING FOR 12" WATER MAIN IS BASED ON 12" WATER MAIN ALIGNMENT.
3. GATE VALVES ON FIRE HYDRANT LEADS SHALL BE RESTRAINED AT THE TEE. SEE THIS SHEET FOR CALLOUTS FOR ANCHOR TEES FOR FIRE HYDRANTS.
4. THE MAIN SUPPLY LINE THAT SUPPLIES ALL DOMESTIC METERS WITHIN THIS PROJECT SHALL REQUIRE AN RP BACKFLOW PREVENTION.
5. ALL IRRIGATION METERS SHALL HAVE AN RP BACKFLOW PREVENTION.

CONSTRUCTION NOTES:

1. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).
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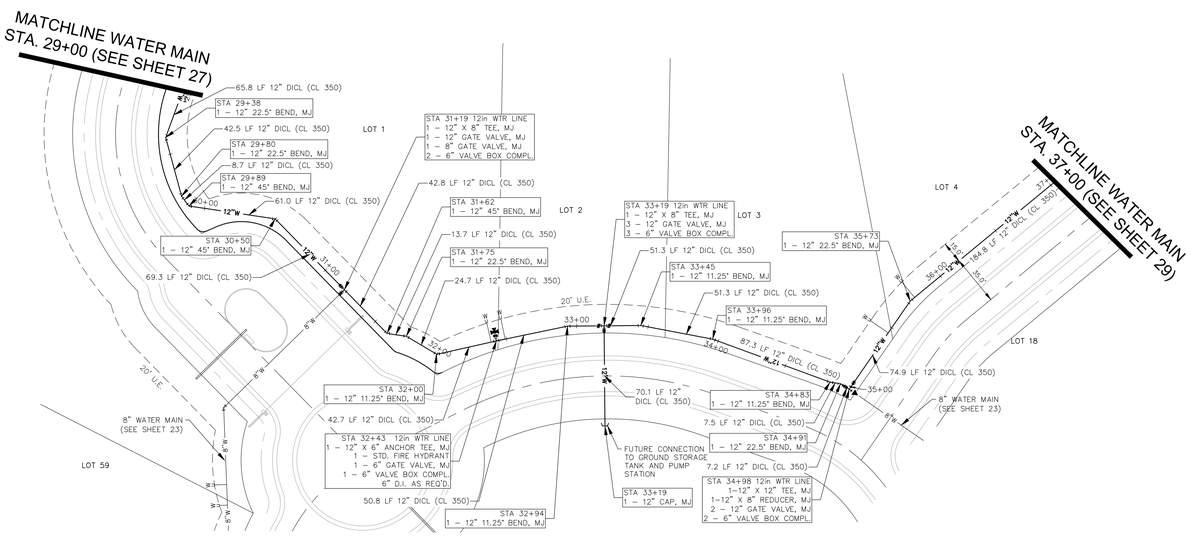
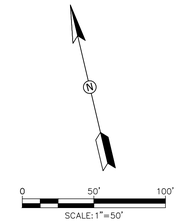


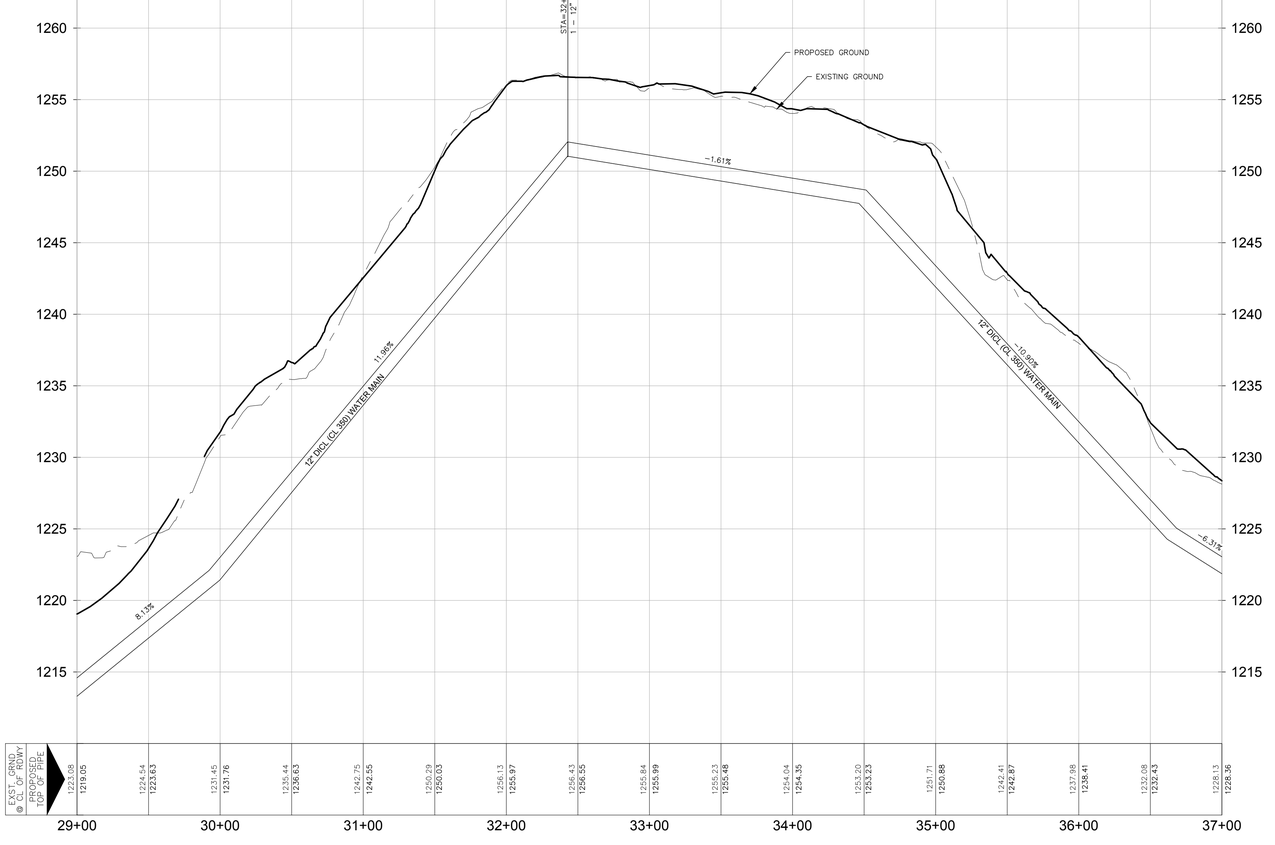


LEGEND

- 12"W — EXISTING 12" WATER MAIN
- 8"W — NEW 8" WATER MAIN
- 12"W — NEW 12" WATER MAIN
- NEW SINGLE METERED WATER SERVICE
- NEW FIRE HYDRANT
- OHE — EXISTING OVERHEAD ELECTRIC
- EXISTING WOOD FENCE
- X — EXISTING BARBWIRE FENCE

WATER LINE A STA 29+00 TO STA 37+00

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



NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

12in WATER MAIN
STA. 29+00 TO 37+00

SHEET 28 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Drawing Name: N:\Projects\WA19001 Workersboro, Texas\Civil\Construction Drawings\08 12in WATER MAIN STA. 29+00 TO 37+00.dwg User: chadfriesenhahn May 16, 2024 - 1:26pm

NOTES:
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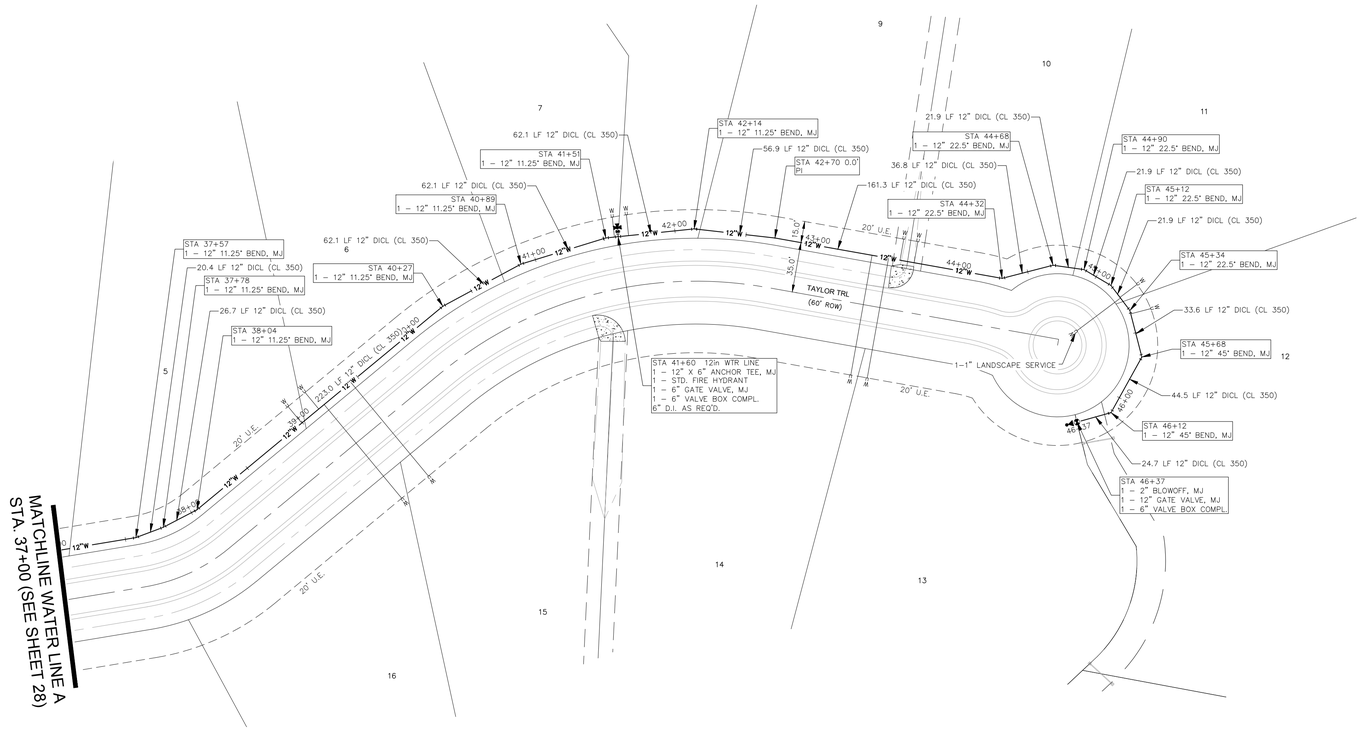
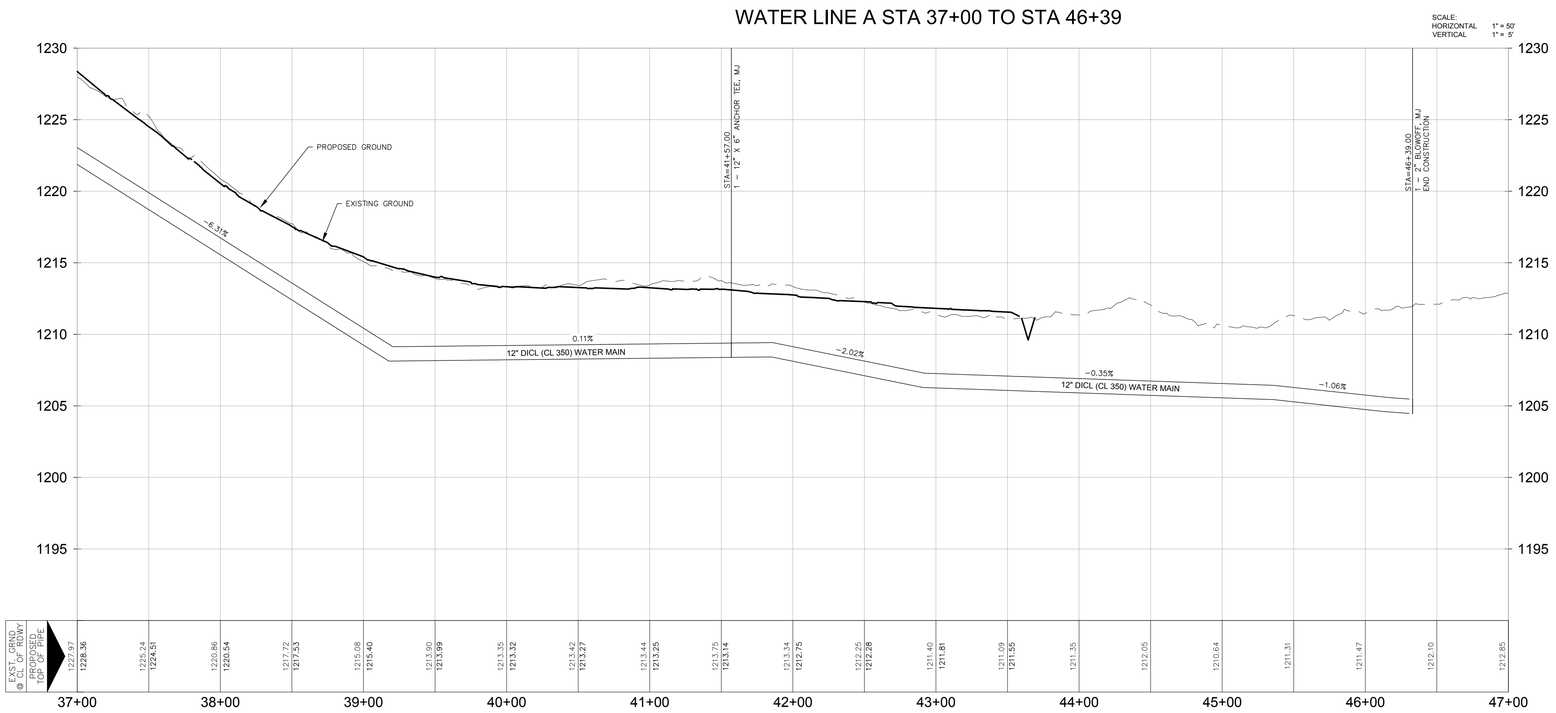
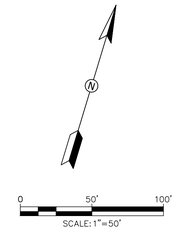






LEGEND

- EXISTING 12" WATER MAIN
- NEW 8" WATER MAIN
- NEW 12" WATER MAIN
- NEW SINGLE METERED WATER SERVICE
- NEW FIRE HYDRANT
- EXISTING OVERHEAD ELECTRIC
- EXISTING WOOD FENCE
- EXISTING BARBWIRE FENCE

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

THE ROCK UNIT 1

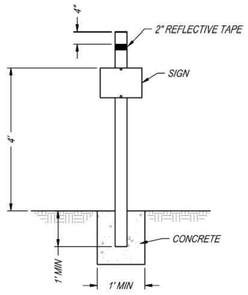
12in WATER MAIN
STA. 37+00 TO 48+00

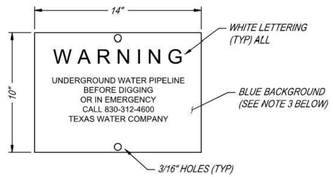
SHEET 29 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

Drawing Name: N:\Projects\WA19001 Workersburg Texas\Civil\Construction Drawings\03 12in WATER MAIN STA. 37+00 TO 48+00.dwg User: chadfriesenhahn May 16, 2024 - 1:26pm

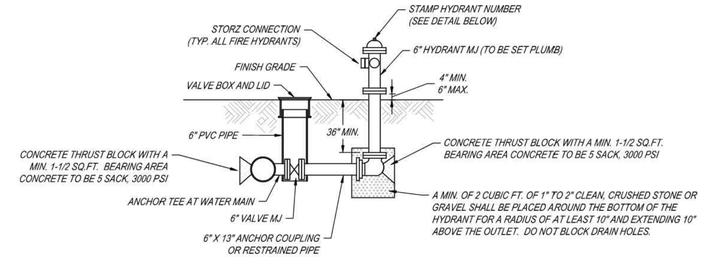




NOTES:

1. MARKERS TO BE PAINTED 0.08" THINK ALUMINUM WITH STANDARD NO DIG SYMBOL.
2. INSTALL MARKER POST AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY TWC.
3. COLORS AND LABELS SHOWN ARE FOR POTABLE WATER. WASTEWATER BACKGROUND SHALL BE GREEN AND LABELED "SEWER". RECLAIMED BACKGROUND SHALL BE PURPLE AND LABELED "RECLAIMED"

TEXAS WATER COMPANY 1399 Sattler Road Canyon Lake, Texas 78133 (830) 312-4600	MARKER POST DETAL February 15, 2024		SHEET NO. MAIN-MP

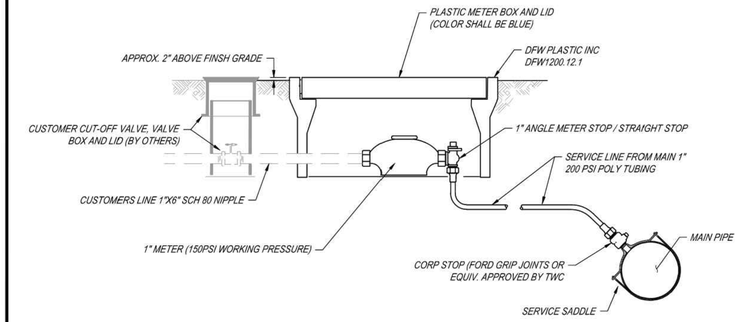


HYDRANT NUMBER LOCATION TOP VIEW

NOTE:

1. ALL HYDRANTS SHALL BE TURN LEFT TO OPEN.
2. FIRE HYDRANTS SHALL BE INSTALLED WITH STORZ TYPE CONNECTION, INTEGRAL CONNECTION OR STORZ ADAPTORS SHALL BE REQUIRED ON ALL FIRE HYDRANTS.
3. SEE STD. DWG. MAIN-VB FOR VALVE BOX INSTALLATION

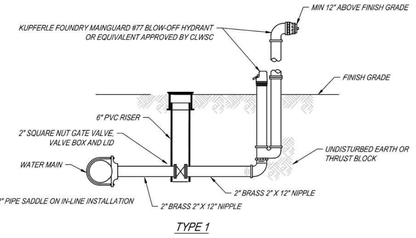
TEXAS WATER COMPANY 1399 Sattler Road Canyon Lake, Texas 78133 (830) 312-4600	STANDARD FIRE HYDRANT INSTALLATION February 15, 2024		SHEET NO. MAIN-HYD



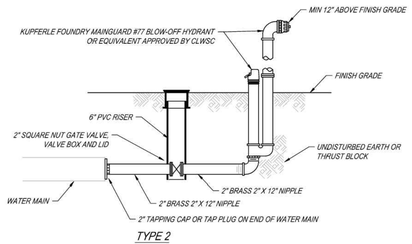
NOTES:

1. SERVICE SADDLES SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM.
2. PIPING AND TUBING SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED IN THE SPECIFICATIONS.
3. METERS SUPPLIED BY TWC.

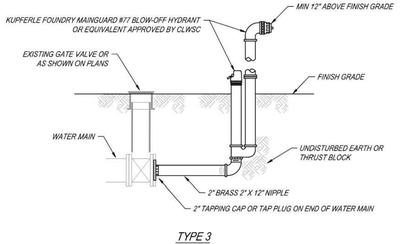
TEXAS WATER COMPANY 1399 Sattler Road Canyon Lake, Texas 78133 (830) 312-4600	1" SERVICE February 15, 2024		SHEET NO. SER-1



TYPE 1



TYPE 2

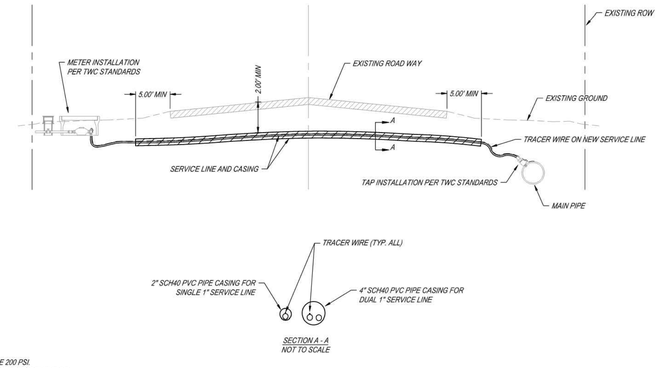


TYPE 3

TEXAS WATER COMPANY 1399 Sattler Road Canyon Lake, Texas 78133 (830) 312-4600	TYPICAL BLOW-OFF ASSEMBLY INSTALLATION February 15, 2024		SHEET NO. MAIN-BO

RESTRAINED LENGTH FOR PVC PIPE											
PIPE INSIDE DIA.	HORIZONTAL BENDS				VERTICAL BENDS						DEAD END/ INLINE VALVES
					UPPER			LOWER			
	90°	45°	22.5°	11.25°	45°	22.5°	11.25°	45°	22.5°	11.25°	
8"	19	8	4	2	25	12	6	7	4	2	60
12"	27	12	6	3	36	17	9	9	5	3	85

NOTES:
LENGTHS SHOWN ABOVE WERE COMPUTED BASED ON THE FOLLOWING VALUES:
a. SAFETY FACTOR = 1.5 TO 1
b. TEST PRESSURE – 200 psi
c. SOIL DESIGNATION – WELL GRADED GRAVLES AND GRAVEL–SAND MIXTURES, LITTLE OR NO FINES (PEA GRAVEL)
d. DEPTH OF COVER – 4 feet (TYPICAL AND UPPER BEND)
e. DEPTH OF COVER – 5 feet (LOWER BEND)



SECTION A - A
NOT TO SCALE

NOTES

1) ALL HDPE SERVICE PIPE SHALL BE 200 PSI.
2) ALL METERS SHALL BE PLACED WITHIN EASEMENT OR EXISTING CITY/COUNTY RIGHT OF WAY.

TEXAS WATER COMPANY 1399 Sattler Road Canyon Lake, Texas 78133 (830) 312-4600	LONG SERVICE February 15, 2024		SHEET NO. SER-LT

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
05/14/2024

NORSELAND COMAL LLC
11777 KATY FRWY STE. 300 S
HOUSTON, TX 77079.

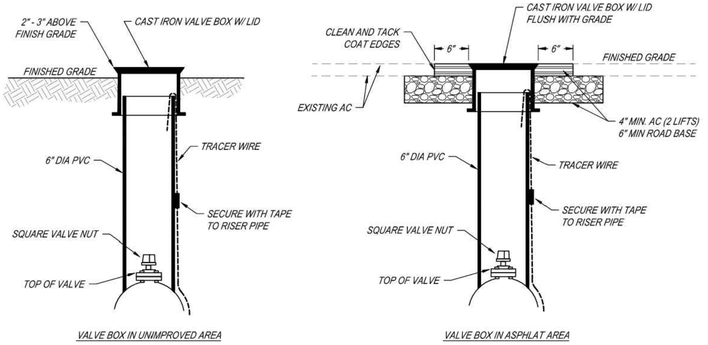
THE ROCK UNIT 1

WATER DETAILS I

SHEET 30 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351



NOTES:

1. ALL ASPHALT MATERIAL SHALL BE TYPE C GRADATION, USING AC-10 OIL AND SHALL BE COMPACTED TO AT LEAST 97% OF MAXIMUM DENSITY.
2. VALVE BOX SHALL BE CENTERED ON VALVE.

TEXAS WATER COMPANY
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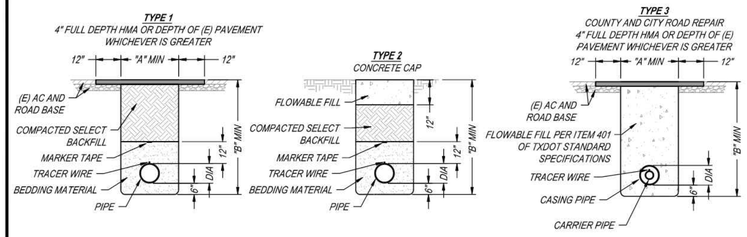
(830) 312-4600

VALVE BOX INSTALLATION

February 15, 2024

SHEET NO. MAIN-VB



PIPE DIA	WIDTH "A"	DEPTH "B"
4"	16"	36"
6"	18"	42"
8"	20"	44"
12"	30"	52"
16"	36"	56"
>16"	DIA + 24"	DIA + 40"

NOTES:

1. SEE GENERAL NOTES CONCERNING BEDDING AND COMPACTION.
2. ALL TRENCHES UNDER OR WITHIN 5 FEET OF PAVEMENT OR STRUCTURES SHALL BE FILLED IN MAXIMUM 6 INCH LIFTS, COMPACTED TO 95% STANDARD PROCTOR DENSITY. TRENCHES IN OTHER AREAS TO BE COMPACTED TO THE DENSITY OF THE ADJACENT UNDISTURBED SOIL.
3. ALL ASPHALT MATERIAL SHALL BE TYPE C GRADATION, USING AC-10 OIL AND SHALL BE COMPACTED TO AT LEAST 97% OF MAXIMUM DENSITY.
4. MARKER TAPE ATTACHED TO THE TOP OF PIPE WITH DUCT TAPE.
5. INSULATED 12 AWG SOLID DIRECT BURIAL RATED (30 MIL POLYETHYLENE JACKET MINIMUM) COPPER TRACER WIRE SHALL BE INSTALLED ABOVE AND ALONG ALL WATER LINES.
6. SEE TEST STATION DETAIL FOR TRACER WIRE TERMINATION.

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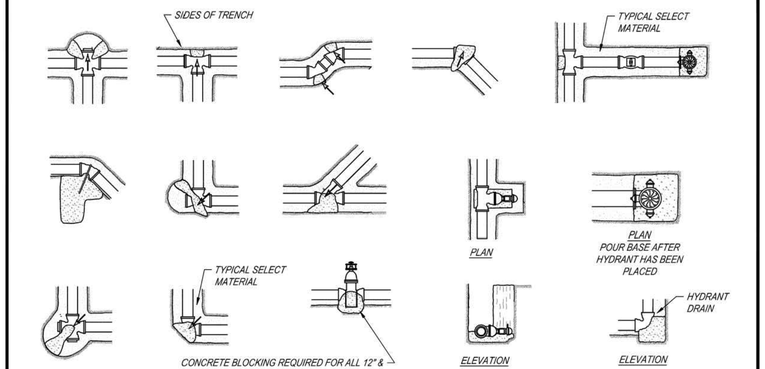
PIPE TRENCH DETAIL

February 15, 2024

SHEET NO. MAIN-TRN



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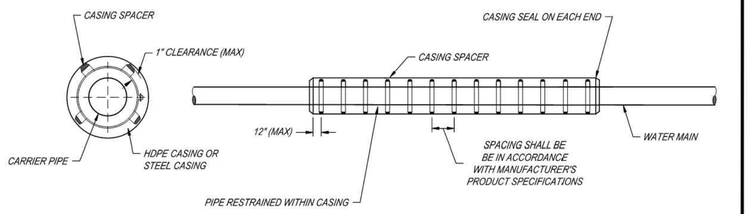
THRUST BLOCKING

February 15, 2024

SHEET NO. TB-STD



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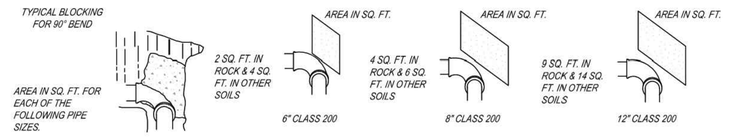
CASING DETAIL

February 15, 2024

SHEET NO. MAIN-CSG



SQ. FT. OF BLOCKING REQUIRED FOR OTHER THAN ROCK EXCAVATION

PIPE SIZE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22.5° BENDS
6"	3	4	2	1
8"	4	6	4	2
12"	10	14	8	4
16"	18	25	14	7

BLOCKING AREA FOR 200 PSI TESTS AND 175 PSI WORKING PRESSURE

SQ. FT. OF BLOCKING REQUIRED FOR OTHER THAN ROCK EXCAVATION

PIPE SIZE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22.5° BENDS
6"	2	2	1	1
8"	3	4	2	1
12"	6	9	5	2
16"	11	15	8	4

ON BASIS OF 200 PSI WATER PRESSURE USED FOR TESTS. THE BLOCKING REQUIRED FOR TWO TYPES OF SOILS ARE NOTED BELOW. IN ONE CASE, A SOIL PRESSURE OF 5000 PSI IS USED FOR ROCK EXCAVATION AND FOR SOILS OTHER THAN ROCK A 3000 PSI BEARING SOIL PRESSURE IS USED. THE DISTRIBUTION ON SYSTEM IS DESIGNED TO OPERATE WITH A MAXIMUM WATER PRESSURE OF 175 PSI ALL CALCULATIONS APPLY TO ALL TYPES OF PIPE APPROVED FOR USE BY TWC AND MEETING TWC SPECIFICATIONS AND STANDARDS.

TRANSIT 2500 PSI CONCRETE MIX SHALL BE USED HOWEVER FOR SMALL VOLUME REQUIREMENTS CONCRETE MIXED AT JOB SITE WILL BE ACCEPTABLE ONLY IF A CONCRETE MIXER IS USED, ALL AGGREGATE SHALL BE CLEAN AND THE FIELD MIX SHALL BE IN THE RATIO OF 1:3:4 AND CONTAIN NOT LESS THAN 4 SACKS OF CEMENT PER CUBIC YARD.

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THRUST BLOCKING

February 15, 2024

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THE ROCK UNIT 1

WATER DETAILS II

SHEET 31 OF 31

NO	DATE	ISSUES AND REVISIONS
1		

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